Adopted Levels, Gammas

History

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

Q(β^-)=−3795 *9*; S(n)=9023 *13*; S(p)=2508 *3*; Q(α)=4078.0 *22* 2021Wa16
Q(ε)=3639 *4*, S(2n)=16889 *9*, S(2p)=8522 *4* (2021Wa16).
^{149}Tb produced and identified by 1950Ra56, 1953Ra02, 1957Su23 and 1960To10, followed by several later studies of its decay.
Additional information 1.
Theoretical studies: consult the NSR database at www.nndc.bnl.gov/nsr/ for 17 references for structure and 15 for radioactive decay listed under 'document records' which can be accessed through web retrieval of the ENSDF database at www.nndc.bnl.gov/ensdf/.

^{149}Tb Levels

Configurations are from 1991La17 in (^{7}Li,2nγ) and (α,6nγ), 1994Me12 in (^{31}P,4nγ) and 1998Kh09 in (^{27}Al,6nγ).

Cross Reference (XREF) Flags

A	^{149}Dy ε decay (4.2 min)	E	^{122}Sn(^{31}P,4nγ)	I	^{148}Gd(^{3}He,d)
B	^{149}Dy ε decay (0.490 s)	F	^{128}Te(^{27}Al,6nγ):SD	J	^{151}Eu(α,6nγ)
C	^{153}Ho α decay (2.01 min)	G	^{142}Nd(^{10}B,3nγ)		
D	^{153}Ho α decay (9.3 min)	H	^{144}Sm(^{7}Li,2nγ)		

E(level)†	Jπ‡	$T_{1/2}$	XREF	Comments
0.0	1/2$^+$	4.12 h *3*	A D I	%ε+%β^+=83.3 *17*; %α=16.7 *17* μ=+1.36 *2* (1990Al36,2019StZV) Evaluated rms charge radius=4.94 fm *15* (2013An02). Evaluated difference in charge radius: δ<r^2>(^{159}Tb,^{149}Tb)=−1.175 fm^2 *9* (2013An02). Jπ: L(^{3}He,d)=0 from 0$^+$; $s_{1/2}$ proton state. $T_{1/2}$: weighted average of 4.15 h *5* (1968St09), 4.10 h *5* (1967Go32,1967Ch28), 4.17 h *7* (1965Br10), 4.06 h *8* (1965Gr28), 4.10 h *5* (1960To10), and 4.1 h *2* (1953Ra02). Others: 4.1 h (1978AfZZ), 4.3 h *2* (1957Su23). μ: from laser-resonance ionization spectroscopy (1990Al36). Other: <0.9 from nuclear orientation (1983Pr04). %α: from 1978Ja14. Others: 16 *4* (1960To10), 20 *6* (1967Ko09), 13 *4* (1968Wi21), 22.6 *23* (1968Ch30), 20 *2* (1972Vy08), 1967Go32, 1965Gr28, 1958Wi43. Δ<r^2>(^{149}Tb−^{159}Tb)=1.116 fm^2 *9* (1990Al36). α-decay energy=3973 *4* (1996Pa01), 3972 *5* (1982Bo04), 3963 *10* (1981HoZM,1979Ho10), 3965 *10* (1978AfZZ), 3967 *3* (1968Go13,1967Go32), 3950 *20* (1960To10).
35.75# *8*	11/2$^-$	4.17 min *5*	ABC E GHIJ	%ε+%β^+=99.978 *4*; %α=0.022 *4* Jπ: L(^{3}He,d)=5 from 0$^+$. Shell-model calculations and systematics strongly support this as an $h_{11/2}$ proton state. $T_{1/2}$: weighted average of 4.16 min *4* (1973Bi06), 4.0 min *1* (1973Bo13), 4.5 min *2* (1971Ar31), 4.3 min *1* (1969Ch32), 4.3 min *2* (1964Ma19,1962Ma14). %α: weighted average of 0.020 *4* (1973Bi06) and 0.025 *5* (1964Ma19). Other: <0.03 (1967Go32).
100.75 *6*	3/2$^+$	0.45 ns *5*	A I	Jπ: L(^{3}He,d)=2 from 0$^+$; 100.7γ M1 to 1/2$^+$. $T_{1/2}$: from ceγ(t) in ^{149}Dy ε decay (4.2 m) (1978Ma19).
206.92 *7*	5/2$^+$	≤0.2 ns	A I	Jπ: L(^{3}He,d)=2 from 0$^+$; 106.2γ M1 to 3/2$^+$; 253.6γ M1 from 7/2$^+$; $d_{5/2}$ proton state. $T_{1/2}$: from ceγ(t) in ^{149}Dy ε decay (4.2 m) (1978Ma19).
460.48 *7*	7/2$^+$		A I	Jπ: 359.6γ E2,ΔJ=2 to 3/2$^+$; L(^{3}He,d)=(4) from 0$^+$; $g_{7/2}$ proton state.

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Adopted Levels, Gammas (continued)

^{149}Tb Levels (continued)

E(level)†	Jπ‡	XREF	Comments
689.32 *7*	7/2⁻	A I	Jπ: 653.6γ E2, ΔJ=2 to 11/2⁻; 1376.0γ M1 from 7/2⁻.
741.64 *7*	5/2⁺	A I	Jπ: 741.7γ E2 to 1/2⁺, 640.8γ M1+E2 to 3/2⁺.
754.92 *9*	5/2⁺	A	Jπ: 754.8γ E2 to 1/2⁺.
822.35# *16*	15/2⁻	B E GH J	Jπ: 786.7γ ΔJ=2, E2 to 11/2⁻; no transitions to J≤7/2; band assignment.
825.12 *8*	9/2⁻	A	Jπ: 789.4γ M1 to 11/2⁻, 135.7γ M1 to 7/2⁻.
837.16 *8*	5/2⁺	A	Jπ: 736.4γ M1 to 3/2⁺, 376.6γ M1 to 7/2⁺.
840.73# *11*	13/2⁻	A GH	Jπ: 805.0γ M1+E2 to 11/2⁻; 288.3γ from 15/2⁺ cannot have Mult=M2 since it would required an isomeric $T_{1/2}$ for 1129 level, which is unlikely.
844.15 *8*	7/2⁺	A	Jπ: 637.3γ M1+E2 to 5/2⁺; 137.9γ M1 from 9/2⁺.
869.72 *10*	5/2⁺	A i	Jπ: 769.0γ M1 to 3/2⁺; 1195.6γ E1 from 7/2⁻.
872.45 *9*	(11/2)⁻	A i	Jπ: 836.7γ M1+E2 to 11/2⁻; 31.7γ to 13/2⁻ mostly likely have Mult=M1; 1201.8γ from 7/2⁻ has Mult=M1 or E2 based on ce data; 11/2⁻ from Shell-model calculations by 2019MeZX in ^{149}Dy ε decay (4.2 m).
952.89 *7*	3/2⁻	A I	Jπ: 952.9γ E1 to 1/2⁺; 924.0γ M1 from 5/2⁻.
970.42 *9*	7/2⁺	A	Jπ: 869.7γ E2 to 3/2⁺, 509.9γ M1 to 7/2⁺; 871.2γ E1 from 9/2⁻.
982.04 *8*	(9/2)⁺	A	Jπ: 775.1γ E2 to 5/2⁺, 521.6γ M1 to 7/2⁺; 491.6γ from (11/2)⁻.
1049.24 *13*	(5/2⁺)	A I	Jπ: 1049.2γ to 1/2⁺; possible ε feeding from 7/2⁻ parent in ^{149}Dy.
1088.55 *10*	5/2⁻	A	Jπ: 987.8γ E1 to 3/2⁺; 753.2γ E1 or E2 from 9/2⁻.
1120.09 *11*	(7/2)⁺	A	Jπ: 913.2γ (E2(+M1)) to 5/2⁺; 721.5γ E1 from 9/2⁻; 945.4γ E1 from 7/2⁻.
1129.13& *16*	15/2⁺	E GH J	Jπ: 306.8γ ΔJ=0, E1 to 15/2⁻.
1133.61 *14*	(9/2,11/2)⁺	A	Jπ: 1097.8γ E1 to 11/2⁻; 708.0γ from 9/2⁻.
1183.86 *9*	9/2⁻	A	Jπ: 1148.2γ M1 to 11/2⁻, 494.6γ M1 to 7/2⁻.
1189.07 *10*	(7/2)⁻	A	Jπ: 728.6γ E1 to 7/2⁺, 1153.3γ (E2) to 11/2⁻, 982.2γ to 5/2⁺.
1205.36 *11*	(9/2)⁺	A	Jπ: 745.0γ M1+E2 to 7/2⁺, 1169.5γ to 11/2⁻.
1205.95 *14*	(7/2,9/2)⁻	A	Jπ: 380.8γ M1 to 9/2⁻; ε feeding from 7/2⁻ parent in ^{149}Dy.
1250.68 *10*	5/2⁻	A	Jπ: 1150.0γ E1 to 3/2⁺, 561.4γ M1 to 7/2⁻.
1272.72 *10*	(9/2)⁺	A	Jπ: 812.2γ M1 to 7/2⁺, 1237.1γ (E1) to 11/2⁻.
1381.92 *8*	7/2⁻	A	Jπ: 1174.9γ E1 to 5/2⁺, 692.7γ M1+E2 to 7/2⁻; pure M3 for 1346.3γ to 11/2⁻ is ruled out by ce data from ^{149}Dy ε decay.
1381.96# *18*	19/2⁻	B E GH J	Jπ: 559.6γ E2, ΔJ=2 to 15/2⁻; band assignment.
1420.55 *11*	(9/2)⁻	A	Jπ: 576.4γ and 960.0γ E1 to 7/2⁺, 548.1γ M1 to (11/2)⁻.
1426.13 *9*	9/2⁻	A	Jπ: 1390.3γ M1 to 11/2⁻; allowed ε feeding from 7/2⁻.
1454.68# *27*	(17/2⁻)	H	Jπ: 325.7γ to 15/2⁺ and 613.7γ to 13/2⁻.
1461.20 *10*	(5/2,7/2)⁻	A	Jπ: 1254.3γ E1 to 5/2⁺, 771.8γ to 7/2⁻, 1000.8γ to 7/2⁺.
1473.75 *9*	(11/2)⁻	A	Jπ: 1438.0γ M1 to 11/2⁻, 648.7γ M1 to 9/2⁻; 11/2⁻ from shell-model predictions by 2019MeZX in ^{149}Dy ε decay (4.2 m).
1487.58 *15*	(7/2,9/2)⁺	A	Jπ: 505.5γ M1 to (9/2)⁺, 517.1γ (M1) to 7/2⁺.
1492.74 *12*	(7/2,9/2,11/2)⁺	A	Jπ: 348.9γ E1 from 9/2⁻.
1508.52 *10*	(7/2)⁻	A	Jπ: 1301.6γ E1 to 5/2⁺, 683.3γ (M1) to 9/2⁻.
1568.89# *28*	(15/2⁻)	H	Jπ: 439.3γ to 15/2⁺, 746.9γ to 15/2⁻, and 728.4γ to 13/2⁻; member of a quasiparticle structure.
1591.06& *25*	(17/2⁺)	GH	Jπ: 461.9γ to 15/2⁺ and 768.7γ 15/2⁻; member of a quasiparticle structure.
1631.88 *19*	(3/2,5/2)⁻	A	Jπ: 245.1γ M1 from 5/2⁻; 1531.0γ to 3/2⁺.
1672.72# *20*	23/2⁻	B E GH J	Jπ: 290.8γ E2, ΔJ=2 to 19/2⁻; band assignment.
1697.52 *14*	9/2⁻	A	Jπ: 1661.7γ M1+E2 to 11/2⁻; allowed ε feeding from 7/2⁻ parent in ^{149}Dy.
1728.36 *8*	5/2⁻	A	Jπ: 1627.6γ E1 to 3/2⁺, 346.3γ M1 to 7/2⁻.
1735.43 *11*	(7/2)⁻	A	Jπ: 1274.9γ E1 to 7/2⁺, 1699.6γ to 11/2⁻, 1528.6γ to 5/2⁺.
1776.61 *10*	7/2⁻	A	Jπ: 1316.1γ E1 to 7/2⁺, 1087.3γ M1 to 7/2⁻, 1569.8γ E1 to 5/2⁺; 1740.9γ to 11/2⁻ cannot have Mult=M3 based on ce data, which rules out 5/2⁻.
1804.07 *30*	(5/2⁺,7/2⁺,9/2⁺)	A	Jπ: 1343.6γ (M1,E2) to 7/2⁺, 1597γ to 5/2⁺; ε feeding from 7/2⁻ parent in ^{149}Dy.
1813.20# *20*	21/2⁻	E GH	Jπ: 140.6γ E2(+M1), ΔJ=1 to 23/2⁻, 431.2γ D, ΔJ=1 to 19/2⁻.
1841.62 *8*	9/2⁻	A	Jπ: 1805.8γ M1+E2 to 11/2⁻, 997.5γ E1 to 7/2⁺.

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Adopted Levels, Gammas (continued)

^{149}Tb Levels (continued)

E(level)†	Jπ‡	$T_{1/2}$	XREF	Comments
1852.03 *14*	$(7/2)^-$		A	Jπ: 1645.1γ E1 to $5/2^+$, 1162.6γ M1 to $7/2^-$, 1816.4γ to $11/2^-$.
1867.81& *18*	$19/2^+$		E GH J	Jπ: 738.8γ E2, ΔJ=2 to $15/2^+$; 485.5γ to $19/2^-$.
1876.89 *7*	$5/2^-$		A	Jπ: 1776.2γ E1 to $3/2^+$, 1416.4γ E1 to $7/2^+$, 1187.5γ M1 to $7/2^-$.
1879.13& *34*	$(17/2^+)$		H	Jπ: 750.0γ to $15/2^+$; member of a quasiparticle structure.
1883.08 *8*	$(9/2)^-$		A	Jπ: 1422.6γ E1 to $7/2^+$, 1057.9γ M1 to $9/2^-$, 1010.6γ M1 to $(11/2)^-$.
1928.15 *16*	$(7/2^-,9/2^-)$		A	Jπ: 1239.0γ (M1) to $(9/2^-)$, 1084γ to $7/2^+$.
1953.13 *9*	$9/2^-$		A	Jπ: 1263.8γ M1 to $7/2^-$, 1917.4γ E2(+M1) to $11/2^-$, 1080.6γ M1 to $(11/2)^-$.
1986.44 *19*	$(3/2^-,5/2,7/2^-)$		A	Jπ: 1033.2γ to $3/2^-$, 1297.2γ to $7/2^-$.
2014.72 *14*	$(9/2)^-$		A	Jπ: 1142.2γ M1 to $(11/2)^-$, 1189.6γ (M1+E2) to $9/2^-$; possible allowed ε feeding from $7/2^-$ parent in ^{149}Dy.
2026.31 *10*	$(7/2)^-$		A	Jπ: 1565.8γ E1 to $7/2^+$, 600.2γ (M1) to $9/2^-$, 937.8γ (M1) to $5/2^-$.
2065.36 *7*	$7/2^-$		A	Jπ: 2029.6γ E2 to $11/2^-$, 1858.4γ E1 to $5/2^+$.
2074.21 *10*	$7/2^-$		A	Jπ: 2038.5γ E2 to $11/2^-$, 1867.3γ E1 to $5/2^+$.
2117.14 *20*	$(5/2^-,7/2^-)$		A	Jπ: 1910.2γ (E1) to $5/2^+$; ε feeding from $7/2^-$ parent in ^{149}Dy.
2157.97 *14*	$(7/2)^-$		A	Jπ: 731.6γ M1 to $9/2^-$, 1288.5γ to $5/2^+$.
2161.07 *13*	$(9/2)^-$		A	Jπ: 1471.7γ M1 to $7/2^-$, 1288.5γ (M1) to $(11/2)^-$, 1320.4γ to $13/2^-$.
2260.33 *19*	$(7/2^-,9/2)$		A	Jπ: 2224.3γ to $11/2^-$, 1278.5γ to $(9/2)^+$; ε feeding from $7/2^-$ parent in ^{149}Dy.
2302.89@ *24*	$(27/2)^-$		B E GH J	Jπ: 630.3γ E2, ΔJ=2 to $23/2^-$.
2350.00& *21*	$23/2^+$		E GH J	Jπ: 482.2γ E2, ΔJ=2 to $19/2^+$; 536.7γ D, ΔJ=1 to $21/2^-$.
2352.29 *19*	$(7/2^-,9/2)$		A	Jπ: 2316.4γ to $11/2^-$, 1891.8γ to $7/2^+$; ε feeding from $7/2^-$ parent in ^{149}Dy.
2368.7& *4*	$(21/2^+)$		H	Jπ: 986.8γ to $19/2^-$ and 500.8γ to $19/2^+$; member of a quasiparticle structure.
2452.52 *25*	$(9/2^-)$		A	Jπ: probable ε feeding from $7/2^-$ parent in ^{149}Dy; 2416.7γ to $11/2^-$; $9/2^-$ from shell-model predictions by 2019MeZX in ^{149}Dy ε decay.
2486.59 *25*	$(5/2,7/2,9/2^+)$		A	Jπ: probable ε feeding from $7/2^-$ parent in ^{149}Dy; 2279.6γ to $5/2^+$.
2492.25& *31*	$(21/2^+)$		H	Jπ: 624.4γ to $19/2^+$, 1110.3γ $19/2^-$; member of a quasiparticle structure.
2516.33 *24*	$(7/2^-)$		A	Jπ: 1428.0γ to $5/2^-$, 2309.3γ to $5/2^+$, 2480.6γ to $11/2^-$.
2518.52& *23*	$(27/2)^+$	2.4 ns *2*	E GH J	μ=4.9 *12* (1990Ad02,2020StZV) Jπ: 168.5γ E2, ΔJ=2 to $23/2^+$; 215.6γ E1, ΔJ=0 to $(27/2)^-$. $T_{1/2}$: from (^{10}B,3nγ). μ: from g-factor=0.33 *8* by the integral PAD method using a $T_{1/2}$=2.6 ns *2* (1990Ad02), and corrected with the adopted $T_{1/2}$=2.4 ns *2*. 1989Ra17 compilation quotes +6.5 *27* from the 1987 annual report of Institute of Nuclear Studies (Tokyo), probably an earlier result from 1990Ad02. Other possible configuration=$\pi h_{11/2}\otimes\nu f_{7/2}\otimes\nu i_{13/2}$ (1994Me12).
2547.46 *27*	$(5/2,7/2^+)$		A	Jπ: 2446.5γ to $3/2^+$, 2087.3γ to $7/2^+$; probable ε feeding from $7/2^-$ parent in ^{149}Dy.
2566.08 *29*	$(7/2^-,9/2)$		A	Jπ: 2530.5γ to $11/2^-$, 2105.4γ to $7/2^+$; probable ε feeding from $7/2^-$ parent in ^{149}Dy.
2573.43 *29*	$(7/2^-,9/2)$		A	Jπ: 2537.6γ to $11/2^-$, 2113.0γ to $7/2^+$; probable ε feeding from $7/2^-$ parent in ^{149}Dy.
2588.60 *13*	$(5/2,7/2)$		A	Jπ: from shell-model predictions by 2019MeZX in ^{149}Dy ε decay (4.2 m).
2661.42 *29*	$(9/2^-)$		A	Jπ: probable ε feeding from $7/2^-$ parent in ^{149}Dy; 2625.6γ to $11/2^-$; $9/2^-$ from shell-model predictions by 2019MeZX in ^{149}Dy ε decay (4.2 m).
2664.19@ *31*	$(25/2)^-$		B GH	Jπ: 361.3γ M1, ΔJ=1 to $(27/2)^-$; member of a quasiparticle structure.
2666.95& *26*	$(25/2^+)$		H	Jπ: 148.3γ to $(27/2)^+$, 316.7γ to $23/2^+$, 994.3γ to $23/2^-$.
2762.78@ *30*	$(25/2^-)$		H	Jπ: 412.5γ to $23/2^+$, 1090.0γ (D), ΔJ=(1) to $23/2^-$ and 460.3γ to

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Adopted Levels, Gammas (continued)

^{149}Tb Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$	XREF	Comments
				$(27/2)^-$.
2812.85[&] *25*	$(29/2)^+$		E GH J	Jπ: 294.3γ M1+E2, ΔJ=1 to $(27/2)^+$, 510.1γ E1, ΔJ=1 $(27/2)^-$. Other possible configuration=$\pi h_{11/2}\otimes\nu f_{7/2}\otimes\nu i_{13/2}$ (1994Me12).
3142.02 *26*	$(31/2)^+$		E GH J	Jπ: 329.2γ M1+E2, ΔJ=1 to $(29/2)^+$, 623.4γ E2, ΔJ=2 to $(27/2)^+$. Configuration=$\pi h_{11/2}\otimes\nu f_{7/2}\otimes\nu i_{13/2}$ (1991La17,1994Me12).
3527.22 *30*	$(33/2)^+$		E GH J	Jπ: 385.2γ M1, ΔJ=1 to $(31/2)^+$; 715γ to $(29/2)^+$. Configuration=$\pi h_{11/2}\otimes\nu f_{7/2}\otimes\nu h_{9/2}\otimes(3^-$ in ^{146}Gd) (1991La17). Other possible configuration=$\pi h_{11/2}\otimes\nu h_{9/2}\otimes\nu i_{13/2}$ (1994Me12).
3603.38 *29*	$(31/2^-)$		E H J	Jπ: 1300.5γ (Q), ΔJ=(2) to $(27/2)^-$; 461.3γ to $(31/2)^+$. Possible configuration=$\pi h_{11/2}\otimes\nu f^2_{7/2}\otimes(3^-$ in ^{146}Gd) $\otimes(3^-$ in ^{146}Gd)) (1991La17). This configuration involves coupling of two octupole phonons.
3990.6 *4*			H	Jπ: 387.2γ to $(31/2^-)$ suggests (31/2,33/2,35/2).
4061.4 *4*			E H	Jπ: 534.5γ to $(33/2)^+$ suggests (33/2,35/2,37/2).
4107.3[a] *4*	$(31/2^+)$		E	Jπ: 356.2γ (Q), ΔJ=(2) from $(35/2)^+$.
4208.46[a] *28*	$(33/2)^+$		E GH J	Jπ: 1395.5γ (E2), ΔJ=(2) to $(29/2)^+$; 681.8γ M1 to $(33/2)^+$.
4463.46[a] *29*	$(35/2)^+$		E GH J	Jπ: 254.9γ M1+E2, ΔJ=1 to $(33/2)^+$; 1321.6γ (E2), ΔJ=2 γ to $(31/2)^+$.
4674.00[a] *29*	$(37/2)^+$		E GH J	Jπ: 1146.7γ E2, ΔJ=2 $(33/2)^+$; 210.6γ E2(+M1) to $(35/2)^+$.
4923.39[a] *33*	$(39/2)^+$		E GH J	Jπ: 460.0γ E2, ΔJ=2 to $(35/2)^+$; 249.4γ M1+E2, ΔJ=1 to $(37/2^+)$. Other possible configuration= $\pi h^2_{11/2}\otimes\pi d^{-1}_{5/2}\otimes\nu f_{7/2}\otimes\nu h_{9/2}$ (1994Me12).
5148.2[a] *4*	$(41/2)^+$		E GH J	Jπ: 224.9γ M1+E2, ΔJ=1 to $(39/2)^+$; 474.2γ Q, ΔJ=2 to $(37/2)^+$. Other possible configuration= $\pi h^2_{11/2}\otimes\pi d^{-1}_{5/2}\otimes\nu f_{7/2}\otimes\nu h_{9/2}$ (1994Me12).
5258.1 *4*	$(39/2^-)$		E	Jπ: 583.8γ D, ΔJ=1 to $(37/2)^+$; 454.3γ Q, ΔJ=2 from $(43/2)^-$. Configuration=$\pi h^3_{11/2}\otimes\pi d^{-2}_{5/2}\otimes\nu f^2_{7/2}$ (1994Me12).
5618.9[b] *5*	$(41/2)^-$		E	Jπ: 695.6γ E1, ΔJ=1 to $(39/2)^+$.
5712.4[b] *4*	$(43/2)^-$		E	Jπ: 564.1γ E1, ΔJ=1 to $(41/2)^+$; 93.6γ M1, ΔJ=1 to $(41/2)^-$.
5735.1 *4*	$(45/2)^+$		E	Jπ: 586.9γ E2, ΔJ=2 to $(41/2)^+$.
5966.2 *5*	$(43/2^+)$		E	Jπ: 818.1γ D, ΔJ=1 to $(41/2)^+$; 146.2γ (E1), ΔJ=(1) from $(45/2)^-$. Configuration=$\pi h^2_{11/2}\otimes\pi g^{-1}_{7/2}\otimes\nu f_{7/2}\otimes\nu h_{9/2}$ (1994Me12).
6025.3[c] *6*	$(43/2)^-$		E	Jπ: 877.3γ D, ΔJ=1 $(41/2)^+$; 195.9γ M1+E2, ΔJ=(1) from $(45/2)^-$.
6112.3[b] *5*	$(45/2)^-$		E	Jπ: 399.6γ M1, ΔJ=1 to $(43/2)^-$; 377.0γ E1, ΔJ=(0) to $(45/2)^+$.
6221.0[c] *5*	$(45/2)^-$		E	Jπ: 486.0γ E1, ΔJ=(0) to $(45/2)^+$.
6400.7[c] *6*	$(47/2)^-$		E	Jπ: 180.0γ and 288.0γ M1+E2, ΔJ=1 to $(45/2)^-$.
6788.6 *6*	$(47/2)^+$		E	Jπ: 567.6γ and 676.3γ E1, ΔJ=1 to $(45/2)^-$. Configuration=$\pi h^3_{11/2}\otimes\pi d^{-2}_{5/2}\otimes\nu f_{7/2}\otimes\nu i_{13/2}$ (1994Me12).
6874.4 *6*	$(47/2)^+$		E	Jπ: 238.6γ M1, ΔJ=(1) from $(49/2)^+$; 762.2γ to $(45/2)^-$.
7112.9 *6*	$(49/2)^+$		E	Jπ: 712.1γ E1, ΔJ=1 to $(47/2)^-$. Configuration=$\pi h^3_{11/2}\otimes\pi d^{-2}_{5/2}\otimes\nu h_{9/2}\otimes\nu i_{13/2}$ (1994Me12).
7194.3 *7*	(49/2)		E	Jπ: 793.5γ D, ΔJ=1 to $(47/2)^-$.
7741.1 *8*	(51/2)		E	Jπ: 546.7γ M1+E2, ΔJ=1 to (49/2).
7976.5[d] *7*	$(51/2^+)$		E	Jπ: 1188.2γ (Q), ΔJ=(2) to $(47/2)^+$.
8048.5 *9*	$(51/2)^+$		E	Jπ: 873γ M1(+E2), ΔJ=1 from $(53/2)^+$; 935γ to $(49/2)^+$.
8247.5[d] *7*	$(53/2)^+$		E	Jπ: 1134.5γ E2, ΔJ=2 to $(49/2)^+$.
8281.2 *9*	(53/2)		E	Jπ: 540.1γ D, ΔJ=(1) γ to (51/2).
8733.7[d] *9*	$(55/2^+)$		E	Jπ: 757.2γ E2, ΔJ=2 to $(51/2^+)$.
8922.1 *7*	$(53/2)^+$		E	Jπ: 849.7γ E2, ΔJ=2 from $(57/2)^+$; 945.8γ D to $(51/2^+)$.
9197.2 *10*	$(59/2^+)$		E	Jπ: 464.5γ E2, ΔJ=2 to $(55/2^+)$.
9227.5? *9*			E	Jπ: 946γ to (53/2) suggests (53/2,55/2,57/2).
9482.6? *8*			E	Jπ: 289.0γ from $(57/2)^+$ suggests (53/2,55/2,57/2).
9771.6 *7*	$(57/2)^+$		E	Jπ: 1524.1γ E2, ΔJ=2 to $(53/2)^+$. Configuration=$\pi h^3_{11/2}\otimes\pi d^{-2}_{5/2}\otimes\nu h_{9/2}\otimes\nu i_{13/2}$ (1994Me12).
9955.7 *9*	$(61/2)^+$	4.0 ns *2*	E	Jπ: 184.1γ E2, ΔJ=2 to $(57/2)^+$. Configuration=$\pi h^3_{11/2}\otimes\pi d^{-2}_{5/2}\otimes\nu f^2_{7/2}\otimes\nu h_{9/2}\otimes\nu i_{13/2}\otimes\nu d^{-2}_{3/2}$ (1994Me12).

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Adopted Levels, Gammas (continued)

^{149}Tb Levels (continued)

E(level)[†]	Jπ[‡]	XREF	Comments
			$T_{1/2}$: from ce(K)(t) in (^{31}P,4nγ) (1991Me04,1994Me12).
10184.2? *14*		E	Jπ: 987γ to (59/2$^+$) suggests (59/2,61/2,63/2).
11000.7 *10*	(65/2)$^+$	E	Jπ: 1044.9γ ΔJ=2, E2 to (61/2)$^+$. Configuration=$\pi h^2_{11/2}\otimes\pi d^{-1}_{5/2}\otimes\nu f_{7/2}\otimes\nu h_{9/2}\otimes\ \nu i^2_{13/2}\otimes\nu d^{-2}_{3/2}$ (1994Me12).
11177.2? *17*		E	
11204.7[e] *11*	(67/2)$^-$	E	Jπ: 204.0γ ΔJ=1, E1 to (65/2)$^+$.
12152.4[e] *12*	(71/2$^-$)	E	Jπ: 947.7γ ΔJ=2 to (67/2)$^-$.
13118.2[e] *13*	(75/2$^-$)	E	Jπ: 965.8γ ΔJ=(2) to (71/2$^-$).
x[f]	J1	F	Additional information 2.
740.10+x[f] *20*	J1+2	F	
1534.80+x[f] *28*	J1+4	F	
2381.9+x[f] *4*	J1+6	F	
3281.3+x[f] *5*	J1+8	F	
4234.8+x[f] *5*	J1+10	F	
5242.0+x[f] *5*	J1+12	F	
6302.7+x[f] *6*	J1+14	F	
7416.9+x[f] *7*	J1+16	F	
8586.1+x[f] *7*	J1+18	F	
9810.7+x[f] *8*	J1+20	F	
11089.5+x[f] *8*	J1+22	F	
12424.0+x[f] *9*	J1+24	F	
13815.1+x[f] *9*	J1+26	F	
15259.3+x[f] *10*	J1+28	F	
y[g]	J2	F	Additional information 3.
646.20+y[g] *30*	J2+2	F	
1343.6+y[g] *4*	J2+4	F	
2091.8+y[g] *4*	J2+6	F	
2890.8+y[g] *5*	J2+8	F	
3741.3+y[g] *6*	J2+10	F	
4643.3+y[g] *6*	J2+12	F	
5597.4+y[g] *7*	J2+14	F	
6603.7+y[g] *7*	J2+16	F	
7662.5+y[g] *7*	J2+18	F	
8774.2+y[g] *8*	J2+20	F	
9938.7+y[g] *8*	J2+22	F	
11156.6+y[g] *8*	J2+24	F	
12428.0+y[g] *9*	J2+26	F	
13753.0+y[g] *9*	J2+28	F	
15131.7+y[g] *9*	J2+30	F	
16565.2+y[g] *10*	J2+32	F	
18052.9+y[g] *10*	J2+34	F	
19594.8+y[g] *11*	J2+36	F	
z[h]	J3	F	Additional information 4.
786.00+z[h] *30*	J3+2	F	
1623.4+z[h] *4*	J3+4	F	
2514.0+z[h] *5*	J3+6	F	
3455.0+z[h] *5*	J3+8	F	
4447.7+z[h] *6*	J3+10	F	

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Adopted Levels, Gammas (continued)

^{149}Tb Levels (continued)

E(level)†	Jπ‡	XREF	Comments
5491.6+z[h] 6	J3+12	F	
6587.4+z[h] 7	J3+14	F	
7735.8+z[h] 7	J3+16	F	
8935.8+z[h] 8	J3+18	F	
10187.8+z[h] 8	J3+20	F	
11490.8+z[h] 8	J3+22	F	
12847.6+z[h] 9	J3+24	F	
u[i]	J4	F	Additional information 5.
824.0+u[i] 5	J4+2	F	
1701.4+u[i] 7	J4+4	F	
2633.3+u[i] 8	J4+6	F	
3619.0+u[i] 8	J4+8	F	
4656.6+u[i] 8	J4+10	F	
5744.9+u[i] 9	J4+12	F	
6884.9+u[i] 9	J4+14	F	
8077.9+u[i] 9	J4+16	F	
9322.9+u[i] 10	J4+18	F	
10622.9+u[i] 10	J4+20	F	
11977.0+u[i] 11	J4+22	F	
13382.4+u[i] 12	J4+24	F	
14832.9+u[i] 12	J4+26	F	
v[j]	J5	F	Additional information 6.
803.7+v[j] 4	J5+2	F	
1657.1+v[j] 5	J5+4	F	
2564.9+v[j] 6	J5+6	F	
3523.2+v[j] 6	J5+8	F	
4532.9+v[j] 7	J5+10	F	
5593.6+v[j] 7	J5+12	F	
6706.3+v[j] 8	J5+14	F	
7873.1+v[j] 8	J5+16	F	
9092.8+v[j] 9	J5+18	F	
10364.6+v[j] 10	J5+20	F	
11692.3+v[j] 11	J5+22	F	
13075.5+v[j] 12	J5+24	F	

† From a least-squares fit to γ-ray energies where available.

‡ For high-spin (J>13/2) states, membership in a quasiparticle multiplet structure (as identified by band or sequence labels) is also used as an argument for J^{π} assignment.

Seq.(K): $\pi h_{11/2}\otimes\nu f^2_{7/2}$ multiplet. Assignment from 1991La17.

@ Seq.(L): $\pi h_{11/2}\otimes\nu h_{9/2}\otimes\nu f_{7/2}$ multiplet. Assignment from 1991La17.

& Seq.(M): $\pi h_{11/2}\otimes\nu f^2_{7/2}\otimes(3^-$ in ^{146}Gd) multiplet. Assignment from 1991La17.

[a] Band(A): $\pi h^2_{11/2}\otimes\pi d^{-1}_{5/2}\otimes\nu f^2_{7/2}$ multiplet. Band assignment from 1991La17 and 1994Me12.

[b] Band(B): $\pi h^2_{11/2}\otimes\pi d^{-1}_{5/2}\otimes\nu f_{7/2}\otimes\nu i_{13/2}$. Band assignment from 1994Me12.

[c] Band(C): $\pi h^2_{11/2}\otimes\pi g^{-1}_{7/2}\otimes\nu f_{7/2}\otimes\nu i_{13/2}$. Band assignment from 1994Me12.

[d] Band(D): $\pi h^3_{11/2}\otimes\pi d^{-2}_{5/2}\otimes\nu f_{7/2}\otimes\nu i_{13/2}$. Band assignment from 1994Me12.

[e] Band(E): Multi-quasiparticle band. Configuration=$\pi h^3_{11/2}\otimes\pi d^{-2}_{5/2}\otimes\nu f_{7/2}\otimes\ \nu h_{9/2}\otimes\nu i^{+2}_{13/2}\otimes\nu d^{-2}_{3/2}$ (1994Me12).

[f] Band(F): SD-1 band. Q(intrinsic)=15.3 2 (1998Kh09). Intruder configuration=$\pi 6^3\otimes\nu 7^1\otimes(\nu 1/2[651],\alpha=+1/2)^{-1}$ (1998Kh09).

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Adopted Levels, Gammas (continued)

^{149}Tb Levels (continued)

[g] Band(G): SD-2 band. Q(intrinsic)=15.8 *+4−3* (1998Kh09). Intruder configuration=$\pi 6^3 \otimes \nu 7^1 \otimes \nu$(1/2[651],$\alpha$=−1/2 or ν5/2[642],α=−1/2)$^{-1}$ (1998Kh09).

[h] Band(H): SD-3 band. Q(intrinsic)=16.4 *+3−4* (1998Kh09). Intruder configuration=$\pi 6^4 \otimes \pi$1/2[301]$^{-1} \otimes \nu 7^1 \otimes \nu$1/2[651]$^{-1}$ (1998Kh09).

[i] Band(I): SD-4 band. Q(intrinsic)=16.0 *+6−5* (1998Kh09). Intruder configuration=$\pi 6^4 \otimes \pi 6_3^{-1} \otimes \nu 7^1 \otimes \nu$1/2[642]$^{-1}$ (1998Kh09).

[j] Band(J): SD-5 band. Band from 1998Kh09.

Adopted Levels, Gammas (continued)

γ(^{149}Tb)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[#]	Comments
100.75	3/2$^+$	100.7 *1*	100	0.0	1/2$^+$	M1		2.153 *31*	B(M1)(W.u.)=0.0152 *+19−15*
206.92	5/2$^+$	106.2 *1*	100	100.75	3/2$^+$	M1		1.849 *26*	B(M1)(W.u.)>0.032
460.48	7/2$^+$	253.6 *1*	100 *3*	206.92	5/2$^+$	M1+E2	0.5 *+3−4*	0.152 *11*	
		359.6 *2*	9.6 *12*	100.75	3/2$^+$	E2		0.0362 *5*	
689.32	7/2$^-$	653.6 *1*	100	35.75	11/2$^-$	E2		0.00745 *10*	
741.64	5/2$^+$	534.7 *1*	42 *8*	206.92	5/2$^+$	M1(+E2)	0.4 *4*	0.0216 *28*	
		640.8 *1*	30.4 *8*	100.75	3/2$^+$	M1+E2	1.1 *+4−3*	0.0109 *11*	
		741.7 *1*	100 *8*	0.0	1/2$^+$	E2		0.00555 *8*	
754.92	5/2$^+$	654.1 *2*	100 *15*	100.75	3/2$^+$	(M1)		0.01393 *20*	
		754.8 *2*	68 *4*	0.0	1/2$^+$	E2		0.00533 *7*	
822.35	15/2$^-$	786.7 *2*	100	35.75	11/2$^-$	E2		0.00486 *7*	E_γ: weighted average of 786.8 *2* from (^{10}B,3nγ) and 786.6 *2* from (^{7}Li,2nγ).
825.12	9/2$^-$	135.7 *1*	1.28 *9*	689.32	7/2$^-$	M1		0.921 *13*	
		789.4 *1*	100 *4*	35.75	11/2$^-$	M1		0.00875 *12*	
837.16	5/2$^+$	376.6 *2*	3.4 *6*	460.48	7/2$^+$	M1		0.0570 *8*	
		736.4 *1*	100 *3*	100.75	3/2$^+$	M1		0.01038 *15*	
		837.1 *3*	12.5 *25*	0.0	1/2$^+$				
840.73	13/2$^-$	805.0 *1*	100	35.75	11/2$^-$	M1+E2	0.8 *+4−3*	0.0069 *8*	E_γ: other: 804.8 *2* from (^{7}Li,2nγ).
844.15	7/2$^+$	637.3 *1*	100	206.92	5/2$^+$	M1+E2	≈0.8	≈0.0122	
869.72	5/2$^+$	662.8 *1*	83 *3*	206.92	5/2$^+$	M1+E2	0.65 *25*	0.0116 *10*	
		769.0 *3*	100 *6*	100.75	3/2$^+$	M1		0.00933 *13*	
		870.0 *4*	27 *6*	0.0	1/2$^+$				
872.45	(11/2)$^-$	31.7 *3*	1.5 *6*	840.73	13/2$^-$				
		836.7 *3*	100.0 *15*	35.75	11/2$^-$	M1+E2	≈1.1	≈0.0058	
952.89	3/2$^-$	852.2 *3*	16 *5*	100.75	3/2$^+$	E1		1.62×10^{-3} *2*	
		952.9 *1*	100.0 *21*	0.0	1/2$^+$	E1		1.30×10^{-3} *2*	
970.42	7/2$^+$	509.9 *2*	22 *6*	460.48	7/2$^+$	M1		0.0261 *4*	
		763.5 *1*	15.3 *6*	206.92	5/2$^+$	M1		0.00950 *13*	
		869.7 *2*	100.0 *22*	100.75	3/2$^+$	E2		0.00389 *5*	
982.04	(9/2)$^+$	137.9 *1*	4.7 *4*	844.15	7/2$^+$	M1		0.880 *12*	
		521.6 *1*	8.9 *8*	460.48	7/2$^+$	M1		0.02462 *34*	
		775.1 *2*	100 *11*	206.92	5/2$^+$	E2		0.00502 *7*	
1049.24	(5/2$^+$)	842.3 *3*	69 *15*	206.92	5/2$^+$				
		1049.2 *2*	100 *15*	0.0	1/2$^+$				
1088.55	5/2$^-$	399.4 *2*	9.0 *11*	689.32	7/2$^-$				
		987.8 *2*	100 *11*	100.75	3/2$^+$	E1		1.22×10^{-3} *2*	
1120.09	(7/2)$^+$	913.2 *3*	100	206.92	5/2$^+$	(E2(+M1))	>1.2	0.0040 *5*	
1129.13	15/2$^+$	288.3 *2*	13.5 *13*	840.73	13/2$^-$	[E1]		0.01830 *26*	E_γ: weighted average of 288.0 *5* from (^{10}B,3nγ) and 288.4 *2* from (^{7}Li,2nγ). I_γ: from (^{7}Li,2nγ). Other: 10.7 from (^{10}B,3nγ).
		306.8 *1*	100 *3*	822.35	15/2$^-$	E1		0.01566 *22*	E_γ: from (^{7}Li,2nγ). Others: 306.7 *2* from (^{10}B,3nγ); 308.8 *1* from (α,6nγ) is discrepant.

From ENSDF

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

Adopted Levels, Gammas (continued)

γ(^{149}Tb) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[#]	Comments
									Mult.: ΔJ=0 from γ(θ,pol) in (^{10}B,3nγ) and (α,6nγ).
									I_γ: from (^{7}Li,2nγ). Other: 100 from (^{10}B,3nγ).
1133.61	(9/2,11/2)$^+$	1097.8 *2*	100	35.75	11/2$^-$	E1		1.00×10^{-3} *1*	
1183.86	9/2$^-$	358.6 *3*	14 *3*	825.12	9/2$^-$				
		494.6 *1*	100 *3*	689.32	7/2$^-$	M1		0.0282 *4*	
		1148.2 *3*	13.1 *19*	35.75	11/2$^-$	M1		0.00354 *5*	
1189.07	(7/2)$^-$	499.9 *3*	15 *3*	689.32	7/2$^-$				
		728.6 *1*	85 *4*	460.48	7/2$^+$	E1		2.20×10^{-3} *3*	
		982.2 *2*	31 *5*	206.92	5/2$^+$				
		1153.3 *2*	100 *8*	35.75	11/2$^-$	(E2)		2.16×10^{-3} *3*	
1205.36	(9/2)$^+$	223.3 *2*	35 *7*	982.04	(9/2)$^+$	(M1)		0.2305 *33*	
		361.2 *3*	12 *5*	844.15	7/2$^+$				
		745.0 *2*	46 *5*	460.48	7/2$^+$	M1+E2	1.3 *+41−7*	0.0072 *17*	
		998.6 *3*	33 *5*	206.92	5/2$^+$				
		1169.5 *3*	100 *16*	35.75	11/2$^-$				
1205.95	(7/2,9/2)$^-$	380.8 *2*	42.9 *22*	825.12	9/2$^-$	M1		0.0554 *8*	
		1170.1 *3*	100 *18*	35.75	11/2$^-$	(M1,E2)		0.0027 *6*	
1250.68	5/2$^-$	297.7 *3*	63 *12*	952.89	3/2$^-$				
		561.4 *1*	83 *6*	689.32	7/2$^-$	M1		0.02043 *29*	
		1043.7 *2*	100 *17*	206.92	5/2$^+$	(E1)		1.10×10^{-3} *2*	
		1150.0 *3*	32 *4*	100.75	3/2$^+$	E1		0.000930 *13*	α=0.000930 *13*
1272.72	(9/2)$^+$	812.2 *1*	78 *7*	460.48	7/2$^+$	M1		0.00816 *11*	
		1237.1 *2*	100 *19*	35.75	11/2$^-$	(E1)		0.000849 *12*	α=0.000849 *12*
1381.92	7/2$^-$	131.2 *2*	6.0 *10*	1250.68	5/2$^-$	M1		1.013 *15*	
		293.4 *2*	9.1 *16*	1088.55	5/2$^-$	(M1)		0.1103 *16*	
		556.7 *2*	32 *5*	825.12	9/2$^-$	(M1)		0.02087 *29*	
		692.7 *1*	94.5 *16*	689.32	7/2$^-$	M1+E2	≈0.7	≈0.0102	
		921.0 *5*	<11.5	460.48	7/2$^+$				
		1174.9 *1*	100 *8*	206.92	5/2$^+$	E1		0.000902 *13*	α=0.000902 *13*
		1346.3 *3*	7.9 *20*	35.75	11/2$^-$	(E2)		1.62×10^{-3} *2*	Mult.: (M1,E2) from ce data in ^{149}Dy ε decay (4.2 m), with pure M3 unlikely; E2 from level scheme.
1381.96	19/2$^-$	559.6 *1*	100	822.35	15/2$^-$	E2		0.01089 *15*	E_γ: weighted average of 559.7 *2* from (^{10}B,3nγ) and 559.6 *1* from (^{7}Li,2nγ).
1420.55	(9/2)$^-$	548.1 *1*	100 *4*	872.45	(11/2)$^-$	M1		0.02171 *30*	
		576.4 *2*	55 *4*	844.15	7/2$^+$	E1		0.00360 *5*	
		960.0 *3*	26 *9*	460.48	7/2$^+$	E1		1.29×10^{-3} *2*	
		1384.7[&] *3*	83[&] *15*	35.75	11/2$^-$	(M1)		2.32×10^{-3} *3*	
1426.13	9/2$^-$	553.9 *3*	3.5 *15*	872.45	(11/2)$^-$				
		601.2 *3*	7.5 *20*	825.12	9/2$^-$	(M1)		0.01720 *24*	
		736.8 *2*	24 *3*	689.32	7/2$^-$				
		1390.3 *1*	100.0 *15*	35.75	11/2$^-$	M1		2.30×10^{-3} *3*	

From ENSDF

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

Adopted Levels, Gammas (continued)

γ(^{149}Tb) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[#]	Comments
1454.68	(17/2$^-$)	325.7 *3*	75 *50*	1129.13	15/2$^+$				
		613.7 *4*	100 *50*	840.73	13/2$^-$				
1461.20	(5/2,7/2)$^-$	372.6 *2*	10 *3*	1088.55	5/2$^-$				
		508.5 *2*	35 *8*	952.89	3/2$^-$				
		706.4 *3*	15 *3*	754.92	5/2$^+$				
		771.8 *3*	33 *8*	689.32	7/2$^-$				
		1000.8 *4*	4.7 *25*	460.48	7/2$^+$				
		1254.3 *2*	100 *6*	206.92	5/2$^+$	E1		0.000838 *12*	α=0.000838 *12*
1473.75	(11/2)$^-$	267.7 *2*	26 *4*	1205.95	(7/2,9/2)$^-$	M1,E2		0.115 *26*	
		491.6 *2*	18 *9*	982.04	(9/2)$^+$				
		601.2 *3*	50 *12*	872.45	(11/2)$^-$	(M1)		0.01720 *24*	
		633.2 *3*	27 *9*	840.73	13/2$^-$				
		648.7 *2*	47 *9*	825.12	9/2$^-$	M1		0.01422 *20*	
		784.0 *5*	10 *4*	689.32	7/2$^-$				
		1438.0 *2*	100 *9*	35.75	11/2$^-$	M1		2.15×10^{-3} *3*	
1487.58	(7/2,9/2)$^+$	505.5 *3*	100 *15*	982.04	(9/2)$^+$	M1		0.0267 *4*	
		517.1 *3*	65 *29*	970.42	7/2$^+$	(M1)		0.02517 *35*	
1492.74	(7/2,9/2,11/2)$^+$	219.9 *3*	46 *15*	1272.72	(9/2)$^+$				
		359.3 *3*	90 *40*	1133.61	(9/2,11/2)$^+$	(M1)		0.0645 *9*	
		511.1 *5*	100 *30*	982.04	(9/2)$^+$				
1508.52	(7/2)$^-$	526.6 *3*	9.2 *19*	982.04	(9/2)$^+$				
		537.8 *2*	11.3 *25*	970.42	7/2$^+$				
		683.3 *3*	21 *5*	825.12	9/2$^-$	(M1)		0.01249 *18*	
		819.3 *3*	20 *5*	689.32	7/2$^-$	(M1)		0.00799 *11*	
		1301.6 *1*	100 *4*	206.92	5/2$^+$	E1		0.000811 *11*	α=0.000811 *11*
		1472.7 *4*	3.1 *15*	35.75	11/2$^-$				
1568.89	(15/2$^-$)	439.3 *4*	8 *8*	1129.13	15/2$^+$				
		728.4 *4*	21 *8*	840.73	13/2$^-$				
		746.9 *5*	100 *21*	822.35	15/2$^-$				
1591.06	(17/2$^+$)	461.9 *3*	100 *10*	1129.13	15/2$^+$				
		768.7 *4*	52 *14*	822.35	15/2$^-$				
1631.88	(3/2,5/2)$^-$	877.1 *4*	58 *20*	754.92	5/2$^+$				
		1425.1 *4*	100 *33*	206.92	5/2$^+$				
		1531.0 *4*	85 *17*	100.75	3/2$^+$				
1672.72	23/2$^-$	290.8 *1*	100	1381.96	19/2$^-$	E2		0.0686 *10*	E_γ: weighted average of 290.7 *2* from (^{10}B,3nγ) and 290.8 *1* from (^{7}Li,2nγ).
1697.52	9/2$^-$	223.6 *2*	14 *4*	1473.75	(11/2)$^-$	(M1)		0.2297 *33*	
		825.4 *5*	2.3 *12*	872.45	(11/2)$^-$				
		857.0 *3*	9 *4*	840.73	13/2$^-$				
		872.4 *3*	40 *7*	825.12	9/2$^-$				
		1008.3 *3*	25 *5*	689.32	7/2$^-$				
		1661.7 *3*	100 *4*	35.75	11/2$^-$	M1+E2	0.8 *4*	0.00147 *11*	
1728.36	5/2$^-$	346.3 *2*	3.9 *8*	1381.92	7/2$^-$	M1		0.0710 *10*	

From ENSDF

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

Adopted Levels, Gammas (continued)

γ(^{149}Tb) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[#]	Comments
1728.36	5/2$^-$	477.8 *2*	6.2 *8*	1250.68	5/2$^-$	M1		0.0308 *4*	
		544.6 *3*	1.7 *4*	1183.86	9/2$^-$				
		973.4 *2*	10.0 *15*	754.92	5/2$^+$	(E1)		1.25×10^{-3} *2*	
		986.8 *2*	16.7 *15*	741.64	5/2$^+$	E1		1.22×10^{-3} *2*	
		1039.1 *2*	22.8 *18*	689.32	7/2$^-$	(E2)		0.00267 *4*	
		1521.4 *1*	100 *8*	206.92	5/2$^+$	E1		0.000784 *11*	α=0.000784 *11*
		1627.6 *1*	53.1 *8*	100.75	3/2$^+$	E1		0.000802 *11*	α=0.000802 *11*
1735.43	(7/2)$^-$	863.5 *4*	2.5 *10*	872.45	(11/2)$^-$				
		910.3 *4*	4.0 *15*	825.12	9/2$^-$				
		1046.2 *3*	4.3 *6*	689.32	7/2$^-$				
		1274.9 *1*	100.0 *15*	460.48	7/2$^+$	E1		0.000825 *12*	α=0.000825 *12*
		1528.6 *4*	1.6 *5*	206.92	5/2$^+$				
		1699.6 *4*	3.5 *10*	35.75	11/2$^-$				
1776.61	7/2$^-$	823.6 *4*	14 *6*	952.89	3/2$^-$				
		1034.9 *3*	13 *3*	741.64	5/2$^+$				
		1087.3 *2*	58 *3*	689.32	7/2$^-$	M1		0.00403 *6*	
		1316.1 *1*	100 *4*	460.48	7/2$^+$	E1		0.000805 *11*	α=0.000805 *11*
		1569.8 *2*	38 *3*	206.92	5/2$^+$	E1		0.000790 *11*	α=0.000790 *11*
		1740.9 *3*	12.1 *21*	35.75	11/2$^-$				
1804.07	(5/2$^+$,7/2$^+$,9/2$^+$)	1343.6 *3*	100 *25*	460.48	7/2$^+$	(M1,E2)		0.0021 *4*	
		1597 *1*	72 *29*	206.92	5/2$^+$				
1813.20	21/2$^-$	140.6 *2*	56 *6*	1672.72	23/2$^-$	E2(+M1)	>1	0.783 *20*	E_γ: weighted average of 140.3 *5* from (^{10}B,3nγ) and 140.6 *2* from (^{7}Li,2nγ). I_γ: from (^{7}Li,2nγ). Other: 38 *13* from (^{31}P,4nγ).
		431.2 *1*	100 *6*	1381.96	19/2$^-$	D			E_γ: weighted average of 431.2 *5* from (^{10}B,3nγ) and 431.2 *1* from (^{7}Li,2nγ). I_γ: from (^{7}Li,2nγ). Other: 100 *25* from (^{31}P,4nγ). Mult.,δ: δ(Q/D)=+0.05 *2* from γ(θ) in (^{10}B,3nγ); ΔJ=1 from DCO in (^{7}Li,2nγ).
1841.62	9/2$^-$	348.9 *1*	3.28 *18*	1492.74	(7/2,9/2,11/2)$^+$	E1		0.01141 *16*	
		353.9 *3*	1.3 *4*	1487.58	(7/2,9/2)$^+$	(E1)		0.01102 *16*	
		367.8 *1*	8.3 *3*	1473.75	(11/2)$^-$	M1		0.0606 *9*	
		421.0 *3*	1.2 *3*	1420.55	(9/2)$^-$				
		568.9 *1*	3.7 *3*	1272.72	(9/2)$^+$	E1		0.00370 *5*	
		635.6 *3*	4.0 *5*	1205.95	(7/2,9/2)$^-$				
		636.3 *3*	4.8 *8*	1205.36	(9/2)$^+$				
		657.8 *2*	1.16 *21*	1183.86	9/2$^-$				
		708.0 *3*	1.12 *18*	1133.61	(9/2,11/2)$^+$				
		721.5 *1*	3.34 *21*	1120.09	(7/2)$^+$	E1		2.25×10^{-3} *3*	

From ENSDF

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

Adopted Levels, Gammas (continued)

γ(^{149}Tb) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult.‡	δ‡	α#	Comments
1841.62	9/2$^-$	753.2 *3*	3.6 *4*	1088.55	5/2$^-$	(E2)		0.00536 *8*	Mult.: E1 or E2 from ce data in ^{149}Dy ε decay (4.2 m); E2 from level scheme.
		859.7 *2*	13.5 *16*	982.04	(9/2)$^+$	(E1)		1.59×10^{-3} *2*	
		871.2 *2*	27 *3*	970.42	7/2$^+$	E1		1.55×10^{-3} *2*	
		969.4 *3*	0.8 *3*	872.45	(11/2)$^-$				
		997.5 *1*	15.1 *11*	844.15	7/2$^+$	E1		1.20×10^{-3} *2*	
		1001.2 *4*	0.46 *16*	840.73	13/2$^-$				
		1016.5 *4*	1.4 *4*	825.12	9/2$^-$				
		1152.3 *2*	4.8 *4*	689.32	7/2$^-$	(M1)		0.00351 *5*	
		1381.3 *3*	1.8 *4*	460.48	7/2$^+$				
		1805.8 *1*	100 *5*	35.75	11/2$^-$	M1+E2	1.1 *+8−5*	0.00127 *10*	
1852.03	(7/2)$^-$	1110.4 *4*	19 *6*	741.64	5/2$^+$				
		1162.6 *2*	32 *8*	689.32	7/2$^-$	M1		0.00344 *5*	
		1391.9 *4*	22 *9*	460.48	7/2$^+$				
		1645.1 *2*	100 *6*	206.92	5/2$^+$	E1		0.000806 *11*	α=0.000806 *11*
		1816.4 *4*	22 *9*	35.75	11/2$^-$				
1867.81	19/2$^+$	276.7 *3*	4 *2*	1591.06	(17/2$^+$)				
		485.5 *5*	10 *3*	1381.96	19/2$^-$				
		738.7 *1*	100 *4*	1129.13	15/2$^+$	E2		0.00560 *8*	E_γ: other: 738.7 *2* from (^{10}B,3nγ).
1876.89	5/2$^-$	148.4 *3*	1.53 *10*	1728.36	5/2$^-$				
		245.1 *3*	1.0 *3*	1631.88	(3/2,5/2)$^-$	M1		0.1789 *26*	
		415.5 *3*	3.13 *18*	1461.20	(5/2,7/2)$^-$	M1		0.0441 *6*	
		495.0 *3*	0.43 *26*	1381.92	7/2$^-$				
		693.0 *3*	0.30 *10*	1183.86	9/2$^-$				
		788.3 *3*	1.2 *4*	1088.55	5/2$^-$				
		827.6 *2*	1.16 *16*	1049.24	(5/2$^+$)				
		906.7 *2*	1.7 *4*	970.42	7/2$^+$	(E1)		1.43×10^{-3} *2*	
		924.0 *1*	3.48 *16*	952.89	3/2$^-$	M1		0.00596 *8*	
		1039.8 *2*	14.0 *10*	837.16	5/2$^+$	[E1]		1.11×10^{-3} *2*	
		1121.9 *1*	7.02 *18*	754.92	5/2$^+$	E1		0.000967 *14*	α=0.000967 *14*
		1135.2 *1*	13.7 *8*	741.64	5/2$^+$	E1		0.000949 *13*	α=0.000949 *13*
		1187.5 *2*	3.28 *20*	689.32	7/2$^-$	M1		0.00328 *5*	
		1416.4 *2*	2.29 *18*	460.48	7/2$^+$	E1		0.000782 *11*	α=0.000782 *11*
		1670.0 *1*	5.4 *3*	206.92	5/2$^+$	E1		0.000813 *11*	α=0.000813 *11*
		1776.2 *1*	100 *4*	100.75	3/2$^+$	E1		0.000845 *12*	α=0.000845 *12*
1879.13	(17/2$^+$)	750.0 *3*	100	1129.13	15/2$^+$				
1883.08	(9/2)$^-$	409.4 *1*	6.0 *10*	1473.75	(11/2)$^-$				
		422.0 *4*	2.0 *10*	1461.20	(5/2,7/2)$^-$				
		457.0 *1*	6.9 *8*	1426.13	9/2$^-$	M1		0.0345 *5*	
		501.1 *2*	9.0 *10*	1381.92	7/2$^-$	M1		0.0273 *4*	
		699.3 *2*	5.5 *6*	1183.86	9/2$^-$				
		794.5 *3*	9.1 *22*	1088.55	5/2$^-$				
		901.0 *1*	13.6 *8*	982.04	(9/2)$^+$	(E1)		1.45×10^{-3} *2*	

From ENSDF

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

Adopted Levels, Gammas (continued)

γ(^{149}Tb) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[#]	Comments
1883.08	(9/2)$^-$	912.8 *3*	37 *7*	970.42	7/2$^+$				
		1010.6 *1*	100 *9*	872.45	(11/2)$^-$	M1		0.00481 *7*	
		1042.1 *4*	1.5 *5*	840.73	13/2$^-$				
		1057.9 *1*	82.2 *13*	825.12	9/2$^-$	M1		0.00431 *6*	
		1193.7 *2*	10.2 *8*	689.32	7/2$^-$	M1		0.00324 *5*	
		1422.6 *1*	82.2 *13*	460.48	7/2$^+$	E1		0.000782 *11*	α=0.000782 *11*
		1847.3 *2*	8.3 *9*	35.75	11/2$^-$				
1928.15	(7/2$^-$,9/2$^-$)	501.8 *3*	33 *12*	1426.13	9/2$^-$				
		1084 *1*	<12	844.15	7/2$^+$				
		1103.2 *3*	100 *12*	825.12	9/2$^-$				
		1239.0 *4*	29 *12*	689.32	7/2$^-$	(M1)		0.00297 *4*	
		1467.6 *3*	82 *18*	460.48	7/2$^+$	(E1)		0.000780 *11*	α=0.000780 *11*
		1892.4 *4*	22 *4*	35.75	11/2$^-$				
1953.13	9/2$^-$	479.5 *4*	2.1 *7*	1473.75	(11/2)$^-$				
		769.3 *2*	6.1 *18*	1183.86	9/2$^-$	(M1)		0.00932 *13*	
		819.6 *3*	4.9 *18*	1133.61	(9/2,11/2)$^+$				
		1080.6 *1*	59.5 *12*	872.45	(11/2)$^-$	M1		0.00409 *6*	
		1109.2 *3*	9.9 *11*	844.15	7/2$^+$				
		1128.0 *3*	5.2 *10*	825.12	9/2$^-$				
		1263.8 *1*	51.8 *18*	689.32	7/2$^-$	M1		0.00284 *4*	
		1492.7 *3*	3.5 *12*	460.48	7/2$^+$				
		1917.4 *1*	100.0 *12*	35.75	11/2$^-$	E2(+M1)	>1.3	0.00112 *6*	
1986.44	(3/2$^-$,5/2,7/2$^-$)	1033.2 *4*	27 *14*	952.89	3/2$^-$				
		1231.5 *3*	100 *24*	754.92	5/2$^+$				
		1297.2 *4*	54 *22*	689.32	7/2$^-$				
		1779.8 *4*	82 *35*	206.92	5/2$^+$				
2014.72	(9/2)$^-$	553.6 *3*	43 *19*	1461.20	(5/2,7/2)$^-$				
		588.6 *4*	37 *19*	1426.13	9/2$^-$				
		1032.6 *3*	43 *12*	982.04	(9/2)$^+$				
		1142.2 *3*	100 *11*	872.45	(11/2)$^-$	M1		0.00359 *5*	
		1173.9 *4*	86 *25*	840.73	13/2$^-$				
		1189.6 *3*	93 *14*	825.12	9/2$^-$	(M1+E2)		0.0026 *6*	
		1325.0 *4*	43 *12*	689.32	7/2$^-$				
		1979.5 *4*	28 *7*	35.75	11/2$^-$				
2026.31	(7/2)$^-$	517.4 *3*	37 *17*	1508.52	(7/2)$^-$	(M1)		0.02513 *35*	
		565.3 *2*	37 *10*	1461.20	(5/2,7/2)$^-$				
		600.2 *2*	45 *17*	1426.13	9/2$^-$	(M1)		0.01727 *24*	
		937.8 *2*	36 *9*	1088.55	5/2$^-$	(M1)		0.00575 *8*	
		1044.3 *3*	25 *12*	982.04	(9/2)$^+$				
		1056 *1*	10 *5*	970.42	7/2$^+$				
		1188.9 *3*	100 *10*	837.16	5/2$^+$	(E1)		0.000888 *12*	α=0.000888 *12*
		1201.3 *3*	<33	825.12	9/2$^-$	(M1)		0.00319 *4*	
		1284.7 *3*	25 *8*	741.64	5/2$^+$				

From ENSDF

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

Adopted Levels, Gammas (continued)

γ(^{149}Tb) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[#]	Comments
2026.31	(7/2)$^-$	1565.8 *2*	61 *8*	460.48	7/2$^+$	E1	0.000790 *11*	α=0.000790 *11*
		1819.3 *3*	82 *17*	206.92	5/2$^+$			
2065.36	7/2$^-$	188.5 *1*	7.1 *7*	1876.89	5/2$^-$	M1	0.367 *5*	
		337.1 *2*	4.3 *12*	1728.36	5/2$^-$			
		556.8 *2*	8.1 *16*	1508.52	(7/2)$^-$	(M1)	0.02086 *29*	
		577.8 *2*	6.3 *8*	1487.58	(7/2,9/2)$^+$	(E1)	0.00358 *5*	
		683.7 *3*	5.0 *16*	1381.92	7/2$^-$	(M1)	0.01248 *18*	
		859.6 *4*	3.1 *12*	1205.95	(7/2,9/2)$^-$			
		860.1 *2*	29 *5*	1205.36	(9/2)$^+$	(E1)	1.59×10^{-3} *2*	
		876.2 *3*	8.1 *16*	1189.07	(7/2)$^-$			
		881.4 *2*	13.6 *12*	1183.86	9/2$^-$	M1	0.00669 *9*	
		945.4 *2*	9.0 *8*	1120.09	(7/2)$^+$	E1	1.32×10^{-3} *2*	
		1083.4 *2*	27.9 *8*	982.04	(9/2)$^+$	(E1)	1.03×10^{-3} *1*	
		1095.0 *2*	12.3 *6*	970.42	7/2$^+$	E1	1.01×10^{-3} *1*	
		1195.6 *2*	26.4 *8*	869.72	5/2$^+$	E1	0.000882 *12*	α=0.000882 *12*
		1221.2 *1*	21.4 *8*	844.15	7/2$^+$	E1	0.000861 *12*	α=0.000861 *12*
		1228.2 *1*	18.3 *8*	837.16	5/2$^+$	E1	0.000855 *12*	α=0.000855 *12*
		1240.1 *3*	5.0 *12*	825.12	9/2$^-$	M1	0.00296 *4*	
		1323.7 *1*	41.5 *23*	741.64	5/2$^+$	E1	0.000802 *11*	α=0.000802 *11*
		1376.0 *1*	25.1 *8*	689.32	7/2$^-$	M1	2.35×10^{-3} *3*	
		1604.8 *3*	2.0 *8*	460.48	7/2$^+$			
		1858.4 *1*	31.0 *8*	206.92	5/2$^+$	E1	0.000875 *12*	α=0.000875 *12*
		2029.6 *1*	100 *8*	35.75	11/2$^-$	E2	1.04×10^{-3} *1*	
2074.21	7/2$^-$	197.2 *3*	5 *3*	1876.89	5/2$^-$			
		648.0 *4*	5.1 *15*	1426.13	9/2$^-$			
		986.0 *4*	12 *5*	1088.55	5/2$^-$			
		1092.3 *5*	7 *4*	982.04	(9/2)$^+$			
		1201.8 *3*	<12	872.45	(11/2)$^-$	(E2)	2.00×10^{-3} *3*	
		1204.5 *2*	20 *3*	869.72	5/2$^+$	(E1)	0.000874 *12*	α=0.000874 *12*
		1236.9 *3*	32 *8*	837.16	5/2$^+$	(E1)	0.000849 *12*	α=0.000849 *12*
		1248.9 *3*	5.1 *18*	825.12	9/2$^-$			
		1384.7[&a] *3*	28[&] *7*	689.32	7/2$^-$	(M1)	2.32×10^{-3} *3*	
		1613.8 *2*	23.5 *24*	460.48	7/2$^+$	E1	0.000799 *11*	α=0.000799 *11*
		1867.3 *3*	100 *3*	206.92	5/2$^+$	E1	0.000878 *12*	α=0.000878 *12*
		2038.5 *2*	37.1 *18*	35.75	11/2$^-$	E2	1.03×10^{-3} *1*	
2117.14	(5/2$^-$,7/2$^-$)	1427.9 *5*	18 *9*	689.32	7/2$^-$			
		1910.2 *2*	100 *12*	206.92	5/2$^+$	(E1)	0.000895 *13*	α=0.000895 *13*
2157.97	(7/2)$^-$	697.0 *5*	25 *15*	1461.20	(5/2,7/2)$^-$			
		731.6 *2*	100 *8*	1426.13	9/2$^-$	M1	0.01055 *15*	
		974.5 *4*	41 *15*	1183.86	9/2$^-$	(E2)	0.00306 *4*	
		1288.5[@] *3*	<81	869.72	5/2$^+$			
		1332.9 *4*	25 *10*	825.12	9/2$^-$			
		1468.7 *3*	66 *15*	689.32	7/2$^-$	(M1+E2)	0.00173 *33*	

From ENSDF

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

Adopted Levels, Gammas (continued)

γ(^{149}Tb) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[#]	Comments
2157.97	(7/2)$^-$	1697.4 *3*	29 *7*	460.48	7/2$^+$			
2161.07	(9/2)$^-$	972.2 *2*	65 *12*	1189.07	(7/2)$^-$	(E2)	0.00307 *4*	
		1027.1 *3*	24 *9*	1133.61	(9/2,11/2)$^+$			
		1288.5[@] *3*	<47	872.45	(11/2)$^-$	(M1)	0.00272 *4*	
		1320.4 *4*	27 *5*	840.73	13/2$^-$			
		1471.7 *2*	100 *9*	689.32	7/2$^-$	M1	2.05×10^{-3} *3*	
		1700.7 *4*	18 *6*	460.48	7/2$^+$			
		2125.3 *3*	50 *9*	35.75	11/2$^-$	D,E2		
2260.33	(7/2$^-$,9/2)	1278.5 *3*	100 *31*	982.04	(9/2)$^+$			
		1387.9 *3*	62 *31*	872.45	(11/2)$^-$			
		2224.3 *3*	100 *23*	35.75	11/2$^-$			
2302.89	(27/2)$^-$	630.3 *2*	100	1672.72	23/2$^-$	E2	0.00813 *11*	E_γ: weighted average of 630.4 *2* from (^{10}B,3nγ) and 630.2 *2* from (^{7}Li,2nγ).
2350.00	23/2$^+$	482.2 *2*	100 *6*	1867.81	19/2$^+$	E2	0.01600 *22*	E_γ: weighted average of 482.2 *2* from (^{10}B,3nγ) and 482.3 *2* from (^{7}Li,2nγ). I_γ: from (^{7}Li,2nγ) and (^{31}P,4nγ).
		536.7 *3*	23 *3*	1813.20	21/2$^-$	D		E_γ,I_γ: from (^{7}Li,2nγ). Other: Iγ=25 *6* from (^{31}P,4nγ).
		677.2 *2*	12 *4*	1672.72	23/2$^-$			
2352.29	(7/2$^-$,9/2)	1527.3 *3*	100 *23*	825.12	9/2$^-$			
		1891.8 *3*	98 *14*	460.48	7/2$^+$			
		2316.4 *3*	98 *21*	35.75	11/2$^-$			
2368.7	(21/2$^+$)	500.8 *5*	22 *11*	1867.81	19/2$^+$			
		986.8 *5*	100 *33*	1381.96	19/2$^-$			
2452.52	(9/2$^-$)	1627.5 *4*	47 *28*	825.12	9/2$^-$			
		2416.7 *3*	100 *20*	35.75	11/2$^-$			
2486.59	(5/2,7/2,9/2$^+$)	2026.2 *4*	100 *40*	460.48	7/2$^+$			
		2279.6 *3*	68 *20*	206.92	5/2$^+$			
2492.25	(21/2$^+$)	624.4 *5*	100 *38*	1867.81	19/2$^+$			
		1110.3 *3*	100 *38*	1381.96	19/2$^-$			
2516.33	(7/2$^-$)	1428.0 *5*	29 *16*	1088.55	5/2$^-$			
		2309.3 *3*	100 *10*	206.92	5/2$^+$			
		2480.6 *5*	24 *7*	35.75	11/2$^-$			
2518.52	(27/2)$^+$	168.5 *2*	29 *4*	2350.00	23/2$^+$	E2	0.409 *6*	B(E2)(W.u.)=7.1 *10* E_γ: weighted average of 168.4 *5* from (^{10}B,3nγ) and 168.5 *2* from (^{7}Li,2nγ). I_γ: unweighted average of 22.4 *21* from (^{31}P,4nγ), 34.3 *18* from (^{7}Li,2nγ), and 30.9 *15* from (α,6nγ).
		215.6 *1*	100 *3*	2302.89	(27/2)$^-$	E1	0.0386 *5*	B(E1)(W.u.)=6.6×10^{-6} *+7−6* E_γ: weighted average of 215.3 *2* from (^{10}B,3nγ) and 215.6 *1* from (^{7}Li,2nγ). I_γ: from (^{7}Li,2nγ). Others: 100 *6* from (^{31}P,4nγ) and 100 *5* from (α,6nγ). Mult.: ΔJ=0 from γ(θ) in (^{10}B,3nγ) and (α,6nγ).

From ENSDF

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

Adopted Levels, Gammas (continued)

γ(^{149}Tb) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[#]	Comments
2518.52	(27/2)$^+$	845.6[a] *3*	6.6 *12*	1672.72	23/2$^-$	[M2]		0.01937 *27*	B(M2)(W.u.)=0.046 *+10−9*
2547.46	(5/2,7/2$^+$)	2087.3 *5*	40 *20*	460.48	7/2$^+$				
		2340.5 *5*	100 *40*	206.92	5/2$^+$				
		2446.5 *4*	90 *20*	100.75	3/2$^+$				
2566.08	(7/2$^-$,9/2)	2105.4 *4*	100 *35*	460.48	7/2$^+$				
		2530.5 *4*	41 *17*	35.75	11/2$^-$				
2573.43	(7/2$^-$,9/2)	2113.0 *4*	100 *35*	460.48	7/2$^+$				
		2537.6 *4*	41 *17*	35.75	11/2$^-$				
2588.60	(5/2,7/2)	2128.1 *1*	100	460.48	7/2$^+$				
2661.42	(9/2$^-$)	1789.0 *4*	100 *22*	872.45	(11/2)$^-$				
		2625.6 *4*	47 *16*	35.75	11/2$^-$				
2664.19	(25/2)$^-$	361.3 *2*	100	2302.89	(27/2)$^-$	M1		0.0635 *9*	E_γ: weighted average of 361.0 *5* from (^{10}B,3nγ) and 361.4 *2* from (^{7}Li,2nγ). Mult.: some E2 admixture is possible from DCO in (^{7}Li,2nγ) and γ(θ,pol) (ΔJ=1) in (^{10}B,3nγ).
2666.95	(25/2$^+$)	148.3 *4*	33 *13*	2518.52	(27/2)$^+$				
		316.7 *5*	21 *13*	2350.00	23/2$^+$				
		994.3 *2*	100 *17*	1672.72	23/2$^-$				
2762.78	(25/2$^-$)	412.5 *5*	33 *22*	2350.00	23/2$^+$				
		460.3 *5*	67 *22*	2302.89	(27/2)$^-$				
		1090.0 *3*	100 *33*	1672.72	23/2$^-$	(D)			
2812.85	(29/2)$^+$	294.3 *1*	100 *2*	2518.52	(27/2)$^+$	M1+E2	0.9 *2*	0.090 *5*	E_γ: weighted average of 294.3 *2* from (^{10}B,3nγ) and 294.3 *1* from (^{7}Li,2nγ). I_γ: from (^{7}Li,2nγ). Others: 100 *4* from (^{31}P,4nγ) and 100 *5* from (α,6nγ).
		510.1 *2*	46 *5*	2302.89	(27/2)$^-$	E1		0.00471 *7*	E_γ: weighted average of 510.2 *2* from (^{10}B,3nγ) and 509.9 *3* from (^{7}Li,2nγ). I_γ: unweighted average of 40 *3* from (^{31}P,4nγ), 37 *6* from (^{7}Li,2nγ), and 54 *3* from (α,6nγ).
3142.02	(31/2)$^+$	329.2 *1*	100 *2*	2812.85	(29/2)$^+$	M1+E2	1.4 *5*	0.059 *7*	E_γ: weighted average of 329.4 *2* from (^{10}B,3nγ) and 329.2 *1* from (^{7}Li,2nγ). I_γ: from (^{7}Li,2nγ). Others: 100 *5* from (^{31}P,4nγ) and (α,6nγ).
		623.4 *3*	8 *3*	2518.52	(27/2)$^+$	E2		0.00834 *12*	I_γ: unweighted average of 15.8 *18* from (^{31}P,4nγ), 8.6 *29* from (^{7}Li,2nγ), and 5.1 *10* from (α,6nγ).
3527.22	(33/2)$^+$	385.2 *2*	100 *4*	3142.02	(31/2)$^+$	M1		0.0537 *8*	I_γ: others: Iγ=100 *5* from (^{31}P,4nγ) and (α,6nγ). I_γ: weighted average of 9.8 *25* from (^{31}P,4nγ) and 8.5 *17* from (α,6nγ).
		715 *1*	8.9 *17*	2812.85	(29/2)$^+$				
3603.38	(31/2$^-$)	461.3 *4*	19 *8*	3142.02	(31/2)$^+$				
		1300.5 *2*	100 *11*	2302.89	(27/2)$^-$	(Q)			
3990.6		387.2 *3*	100	3603.38	(31/2$^-$)				
4061.4		534.2 *3*	100	3527.22	(33/2)$^+$				
4107.3	(31/2$^+$)	966	100	3142.02	(31/2)$^+$				

From ENSDF

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

Adopted Levels, Gammas (continued)

γ(^{149}Tb) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult. ‡	δ ‡	α #	Comments
4208.46	(33/2)$^+$	681.8	25 *6*	3527.22	(33/2)$^+$	M1		0.01256 *18*	
		1066.2 *3*	21 *5*	3142.02	(31/2)$^+$	D+Q			I_γ: weighted average of 19 *6* from (^{31}P,4nγ) and 22 *5* from (α,6nγ).
		1395.5 *2*	100 *6*	2812.85	(29/2)$^+$	(E2)		1.53×10^{-3} *2*	E_γ: weighted average of 1395.8 *5* from (^{10}B,3nγ) and 1395.5 *2* from (^{7}Li,2nγ). I_γ: from (^{31}P,4nγ). Others: 100 *20* from (^{7}Li,2nγ) and 100 *10* from (α,6nγ).
4463.46	(35/2)$^+$	254.9 *2*	100 *10*	4208.46	(33/2)$^+$	M1+E2		0.132 *29*	E_γ: weighted average of 254.7 *5* from (^{10}B,3nγ) and 254.9 *2* from (^{7}Li,2nγ). I_γ: from (α,6nγ). Others: 100 *11* from (^{31}P,4nγ) and 100 *27* from (^{7}Li,2nγ).
		356.2 *3*	21 *5*	4107.3	(31/2$^+$)	Q			
		1321.6 *2*	89 *5*	3142.02	(31/2)$^+$	(E2)		1.67×10^{-3} *2*	E_γ: weighted average of 1321.6 *5* from (^{10}B,3nγ) and 1321.6 *2* from (^{7}Li,2nγ). I_γ: weighted average of 90 *5* from (^{31}P,4nγ), 82 *27* from (^{7}Li,2nγ), and 90 *10* from (α,6nγ).
4674.00	(37/2)$^+$	210.6 *2*	60 *5*	4463.46	(35/2)$^+$	E2(+M1)	>1.2	0.209 *16*	E_γ: weighted average of 210.5 *5* from (^{10}B,3nγ) and 210.6 *2* from (^{7}Li,2nγ). I_γ: weighted average of 58 *5* from (^{31}P,4nγ), 57 *22* from (^{7}Li,2nγ), and 63 *7* from (α,6nγ).
		465.5 *2*	22 *3*	4208.46	(33/2)$^+$	E2		0.01758 *25*	I_γ: weighted average of 22 *3* from (^{31}P,4nγ) and 25 *5* from (α,6nγ).
		1146.7 *2*	100 *3*	3527.22	(33/2)$^+$	E2		2.19×10^{-3} *3*	E_γ: weighted average of 1146.7 *5* from (^{10}B,3nγ) and 1146.7 *2* from (^{7}Li,2nγ). I_γ: from (^{31}P,4nγ). Others: 100 *14* from (^{7}Li,2nγ) and 100 *5* from (α,6nγ).
4923.39	(39/2)$^+$	249.4 *2*	100 *4*	4674.00	(37/2)$^+$	M1+E2	1.6 *+10−5*	0.128 *10*	E_γ: weighted average of 249.1 *5* from (^{10}B,3nγ) and 249.4 *2* from (^{7}Li,2nγ). I_γ: from (^{31}P,4nγ). Others: 100 *38* from (^{7}Li,2nγ) and 100 *5* from (α,6nγ). δ: from ce data and γγ(θ)(DCO) in (^{31}P,4nγ). Other: +0.09 *4* from γ(θ) in (^{10}B,3nγ).
		460.0 *3*	26 *2*	4463.46	(35/2)$^+$	E2		0.01815 *26*	I_γ: weighted average of 27 *2* from (^{31}P,4nγ) and 22 *5* from (α,6nγ).
5148.2	(41/2)$^+$	224.9 *3*	100 *6*	4923.39	(39/2)$^+$	M1+E2	1.1 *3*	0.187 *11*	E_γ: weighted average of 224.7 *5* from (^{10}B,3nγ) and 224.9 *3* from (^{7}Li,2nγ). I_γ: from (^{31}P,4nγ).
		474.2	34 *3*	4674.00	(37/2)$^+$	Q			
5258.1	(39/2$^-$)	583.8	100 *17*	4674.00	(37/2)$^+$	D			
		1197	67 *17*	4061.4					
5618.9	(41/2)$^-$	695.6	100	4923.39	(39/2)$^+$	E1		2.42×10^{-3} *3*	
5712.4	(43/2)$^-$	93.6	9 *2*	5618.9	(41/2)$^-$	M1		2.66 *4*	

From ENSDF

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

Adopted Levels, Gammas (continued)

γ(^{149}Tb) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[#]	Comments
5712.4	(43/2)$^-$	454.3 *2*	39 *5*	5258.1	(39/2$^-$)	Q			
		564.1	100 *9*	5148.2	(41/2)$^+$	E1		0.00377 *5*	
5735.1	(45/2)$^+$	586.9 *1*	100	5148.2	(41/2)$^+$	E2		0.00967 *14*	
5966.2	(43/2$^+$)	254	100 *14*	5712.4	(43/2)$^-$	D			
		818.1	36 *9*	5148.2	(41/2)$^+$	D			
6025.3	(43/2)$^-$	877.3	100	5148.2	(41/2)$^+$	D			
6112.3	(45/2)$^-$	146.2	14 *3*	5966.2	(43/2$^+$)	(E1)		0.1082 *15*	
		377.0	75 *13*	5735.1	(45/2)$^+$	E1		0.00947 *13*	Mult.: E1 from ce data and ΔJ=(0) from DCO.
		399.6	100 *6*	5712.4	(43/2)$^-$	M1		0.0488 *7*	
6221.0	(45/2)$^-$	195.9	26 *4*	6025.3	(43/2)$^-$	M1+E2	0.9 *+11−6*	0.292 *31*	
		486.0	100 *7*	5735.1	(45/2)$^+$	E1		0.00525 *7*	Mult.: E1 from ce data and ΔJ=(0) from DCO.
6400.7	(47/2)$^-$	180.0	62 *8*	6221.0	(45/2)$^-$	M1+E2	1.3 *+18−6*	0.360 *28*	
		288.0	100 *15*	6112.3	(45/2)$^-$	M1+E2	1.1 *+10−5*	0.091 *13*	
6788.6	(47/2)$^+$	567.6	45 *5*	6221.0	(45/2)$^-$	E1		0.00372 *5*	
		676.3	100 *5*	6112.3	(45/2)$^-$	E1		0.00257 *4*	
6874.4	(47/2)$^+$	762.2	100	6112.3	(45/2)$^-$				
7112.9	(49/2)$^+$	238.6	24 *5*	6874.4	(47/2)$^+$	M1		0.1925 *27*	
		324.1	100 *7*	6788.6	(47/2)$^+$	M1		0.0846 *12*	
		712.1	38 *5*	6400.7	(47/2)$^-$	E1		2.31×10^{-3} *3*	
7194.3	(49/2)	793.5	100	6400.7	(47/2)$^-$	D			
7741.1	(51/2)	546.7	100	7194.3	(49/2)	M1+E2	1.4 *1*	0.0150 *4*	
7976.5	(51/2$^+$)	1188.2	100	6788.6	(47/2)$^+$	(Q)			
8048.5	(51/2)$^+$	935	100	7112.9	(49/2)$^+$				
8247.5	(53/2)$^+$	1134.5	100	7112.9	(49/2)$^+$	E2		2.24×10^{-3} *3*	
8281.2	(53/2)	540.1	100	7741.1	(51/2)	D			
8733.7	(55/2$^+$)	757.2	100	7976.5	(51/2$^+$)	E2		0.00529 *7*	
8922.1	(53/2)$^+$	873	93 *14*	8048.5	(51/2)$^+$	M1(+E2)		0.0054 *15*	
		945.8	100 *14*	7976.5	(51/2$^+$)	D			
9197.2	(59/2$^+$)	463.5	100	8733.7	(55/2$^+$)	E2		0.01778 *25*	
9227.5?		946[a]	100	8281.2	(53/2)				
9482.6?		255.0[a]	100	9227.5?					
9771.6	(57/2)$^+$	289.0[a]	10 *3*	9482.6?					
		849.7	100 *6*	8922.1	(53/2)$^+$	E2		0.00410 *6*	
		1524.1	84 *6*	8247.5	(53/2)$^+$	E2		1.34×10^{-3} *2*	
9955.7	(61/2)$^+$	184.1	100	9771.6	(57/2)$^+$	E2		0.303 *4*	B(E2)(W.u.)=10.9 *6*
10184.2?		987[a]		9197.2	(59/2$^+$)				
11000.7	(65/2)$^+$	1044.9	100	9955.7	(61/2)$^+$	E2		0.00264 *4*	
11177.2?		993[a]		10184.2?					
11204.7	(67/2)$^-$	204.0	100	11000.7	(65/2)$^+$	E1		0.0446 *6*	
12152.4	(71/2$^-$)	947.7	100	11204.7	(67/2)$^-$	Q			
13118.2	(75/2$^-$)	965.8	100	12152.4	(71/2$^-$)	Q			
740.10+x	J1+2	740.1 *2*	100	x	J1				
1534.80+x	J1+4	794.7 *2*	100	740.10+x	J1+2				

From ENSDF

Adopted Levels, Gammas (continued)

γ(^{149}Tb) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π
2381.9+x	J1+6	847.1 *3*	100	1534.80+x	J1+4	4447.7+z	J3+10	992.7 *3*	100	3455.0+z	J3+8
3281.3+x	J1+8	899.4 *2*	100	2381.9+x	J1+6	5491.6+z	J3+12	1043.9 *2*	100	4447.7+z	J3+10
4234.8+x	J1+10	953.5 *2*	100	3281.3+x	J1+8	6587.4+z	J3+14	1095.8 *2*	100	5491.6+z	J3+12
5242.0+x	J1+12	1007.2 *2*	100	4234.8+x	J1+10	7735.8+z	J3+16	1148.4 *2*	100	6587.4+z	J3+14
6302.7+x	J1+14	1060.7 *3*	100	5242.0+x	J1+12	8935.8+z	J3+18	1200.0 *3*	100	7735.8+z	J3+16
7416.9+x	J1+16	1114.2 *2*	100	6302.7+x	J1+14	10187.8+z	J3+20	1252.0 *2*	100	8935.8+z	J3+18
8586.1+x	J1+18	1169.2 *3*	100	7416.9+x	J1+16	11490.8+z	J3+22	1303.0 *3*	100	10187.8+z	J3+20
9810.7+x	J1+20	1224.6 *2*	100	8586.1+x	J1+18	12847.6+z	J3+24	1356.7 *4*	100	11490.8+z	J3+22
11089.5+x	J1+22	1278.8 *3*	100	9810.7+x	J1+20	824.0+u	J4+2	824.0[a]	100	u	J4
12424.0+x	J1+24	1334.4 *3*	100	11089.5+x	J1+22	1701.4+u	J4+4	877.4 *4*	100	824.0+u	J4+2
13815.1+x	J1+26	1391.1 *3*	100	12424.0+x	J1+24	2633.3+u	J4+6	931.9 *4*	100	1701.4+u	J4+4
15259.3+x	J1+28	1444.2 *4*	100	13815.1+x	J1+26	3619.0+u	J4+8	985.7 *3*	100	2633.3+u	J4+6
646.20+y	J2+2	646.2 *3*	100	y	J2	4656.6+u	J4+10	1037.6 *2*	100	3619.0+u	J4+8
1343.6+y	J2+4	697.4 *2*	100	646.20+y	J2+2	5744.9+u	J4+12	1088.3 *3*	100	4656.6+u	J4+10
2091.8+y	J2+6	748.2 *2*	100	1343.6+y	J2+4	6884.9+u	J4+14	1140.0 *2*	100	5744.9+u	J4+12
2890.8+y	J2+8	799.0 *2*	100	2091.8+y	J2+6	8077.9+u	J4+16	1193.0 *2*	100	6884.9+u	J4+14
3741.3+y	J2+10	850.5 *3*	100	2890.8+y	J2+8	9322.9+u	J4+18	1245.0 *3*	100	8077.9+u	J4+16
4643.3+y	J2+12	902.0 *2*	100	3741.3+y	J2+10	10622.9+u	J4+20	1300.0 *3*	100	9322.9+u	J4+18
5597.4+y	J2+14	954.1 *3*	100	4643.3+y	J2+12	11977.0+u	J4+22	1354.0 *3*	100	10622.9+u	J4+20
6603.7+y	J2+16	1006.3 *2*	100	5597.4+y	J2+14	13382.4+u	J4+24	1405.4 *4*	100	11977.0+u	J4+22
7662.5+y	J2+18	1058.8 *2*	100	6603.7+y	J2+16	14832.9+u	J4+26	1450.5 *4*	100	13382.4+u	J4+24
8774.2+y	J2+20	1111.7 *2*	100	7662.5+y	J2+18	803.7+v	J5+2	803.7 *4*		v	J5
9938.7+y	J2+22	1164.5 *3*	100	8774.2+y	J2+20	1657.1+v	J5+4	853.4 *3*		803.7+v	J5+2
11156.6+y	J2+24	1217.9 *2*	100	9938.7+y	J2+22	2564.9+v	J5+6	907.8 *3*		1657.1+v	J5+4
12428.0+y	J2+26	1271.4 *2*	100	11156.6+y	J2+24	3523.2+v	J5+8	958.3 *2*		2564.9+v	J5+6
13753.0+y	J2+28	1324.9 *2*	100	12428.0+y	J2+26	4532.9+v	J5+10	1009.7 *2*		3523.2+v	J5+8
15131.7+y	J2+30	1378.7 *2*	100	13753.0+y	J2+28	5593.6+v	J5+12	1060.7 *2*		4532.9+v	J5+10
16565.2+y	J2+32	1433.5 *3*	100	15131.7+y	J2+30	6706.3+v	J5+14	1112.7 *3*		5593.6+v	J5+12
18052.9+y	J2+34	1487.7 *3*	100	16565.2+y	J2+32	7873.1+v	J5+16	1166.8 *3*		6706.3+v	J5+14
19594.8+y	J2+36	1541.9 *4*	100	18052.9+y	J2+34	9092.8+v	J5+18	1219.7 *4*		7873.1+v	J5+16
786.00+z	J3+2	786.0 *3*	100	z	J3	10364.6+v	J5+20	1271.8 *4*		9092.8+v	J5+18
1623.4+z	J3+4	837.4 *3*	100	786.00+z	J3+2	11692.3+v	J5+22	1327.6 *5*		10364.6+v	J5+20
2514.0+z	J3+6	890.6 *2*	100	1623.4+z	J3+4	13075.5+v	J5+24	1383.2 *5*		11692.3+v	J5+22
3455.0+z	J3+8	941.0 *2*	100	2514.0+z	J3+6						

† From ^{149}Dy ε decay (4.2 m) (2019MeZX) for transitions from low-spin levels (J≤13/2) and from (^{7}Li,2nγ) (with ΔEγ) or (^{31}P,4nγ) (without ΔEγ) for transitions from high-spin levels, unless otherwise noted. Transitions from SD-band levels are from (^{27}Al,6nγ).

‡ From ce data in ^{149}Dy ε decay (4.2 m) for transitions from low-spin levels (J≤13/2); from ce data and γγ(θ)(DCO) in (^{31}P,4nγ) (and/or γ(θ,pol) in (^{10}B,3nγ) and (α,6nγ), and γγ(θ)(DCO) in (^{7}Li,2nγ), where available) for transitions from high-spin levels, unless otherwise noted. For Mult=M1+E2 only available from ^{149}Dy ε decay (4.2 m), δ is deduced by the evaluators from α(K)exp and/or α(L)exp using the BrIccMixing code.

Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies,

From ENSDF

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$\gamma(^{149}Tb)$ (continued)

assigned multipolarities, and mixing ratios, unless otherwise specified.

[@] Multiply placed.

[&] Multiply placed with intensity suitably divided.

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

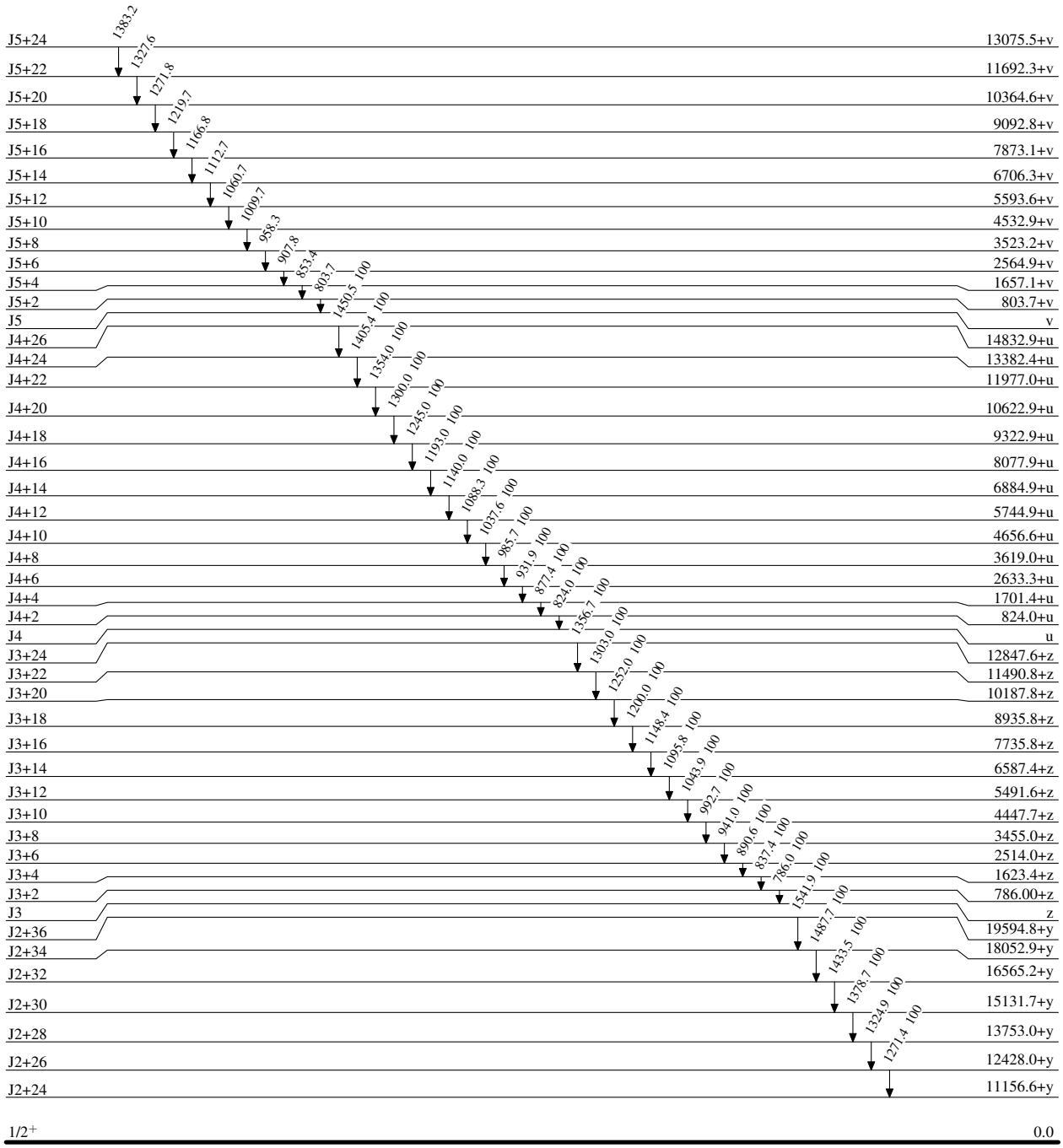
Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

- - - - - - ► γ Decay (Uncertain)



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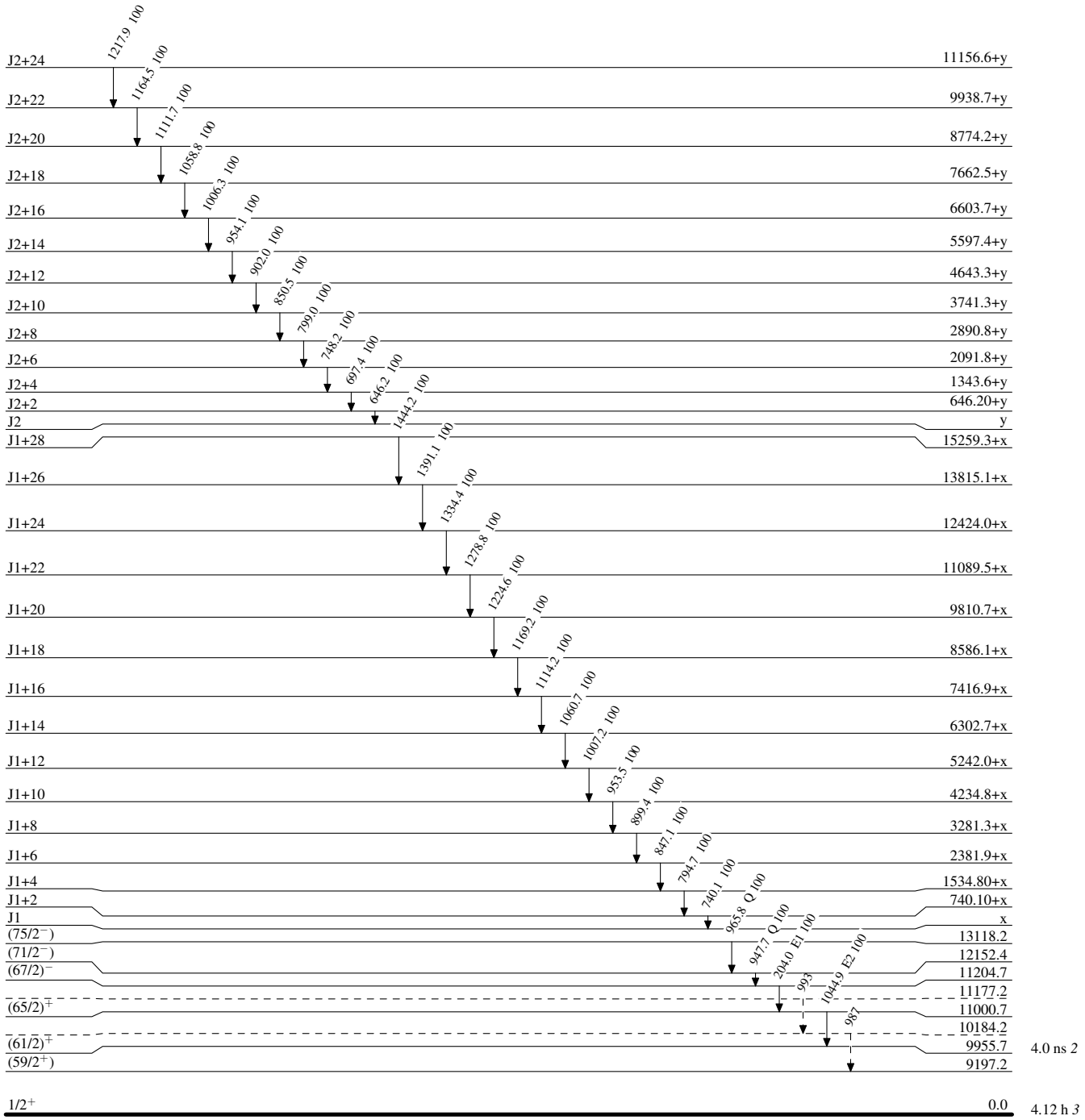
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



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

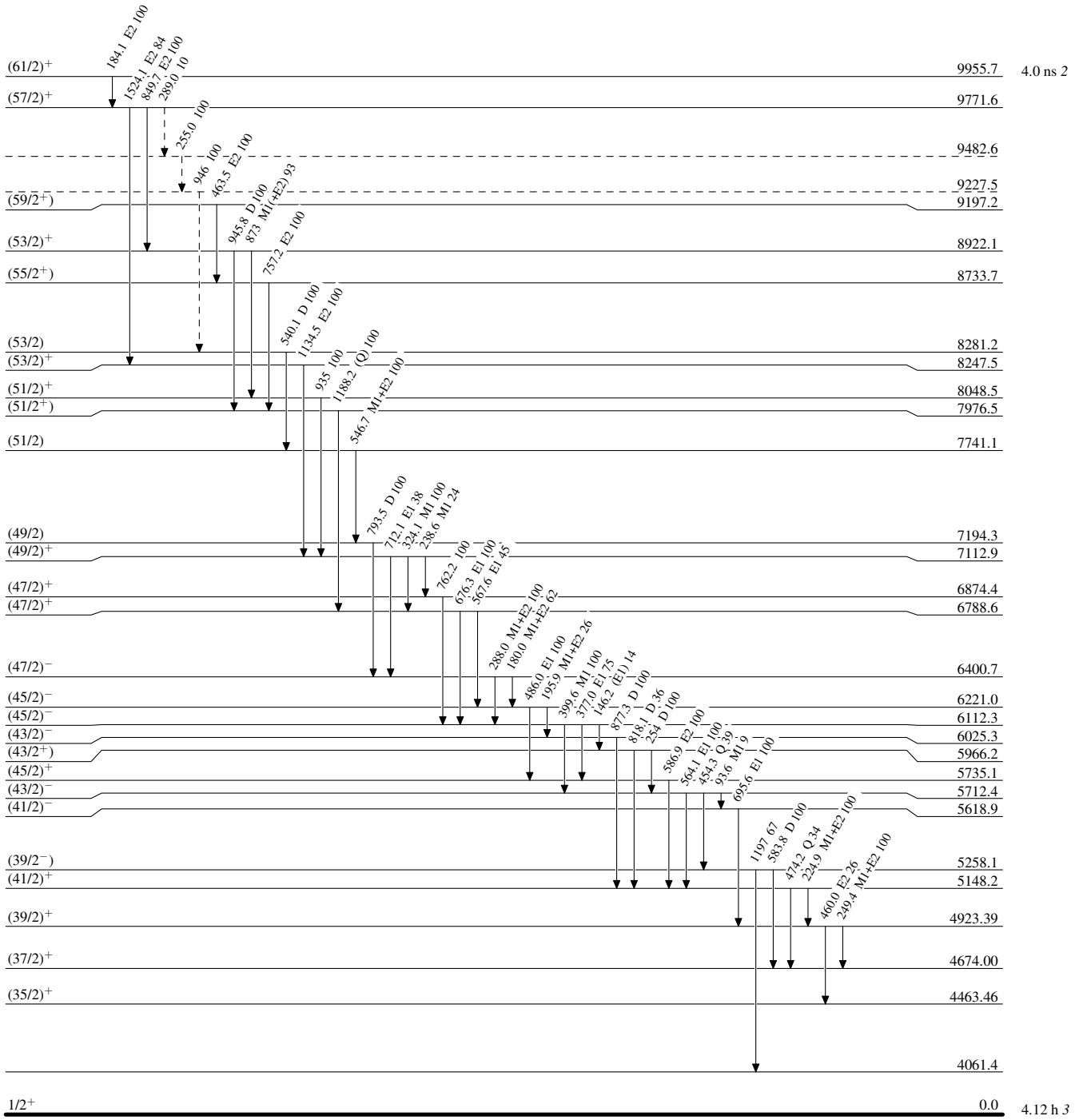
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

- - - - - - ► γ Decay (Uncertain)

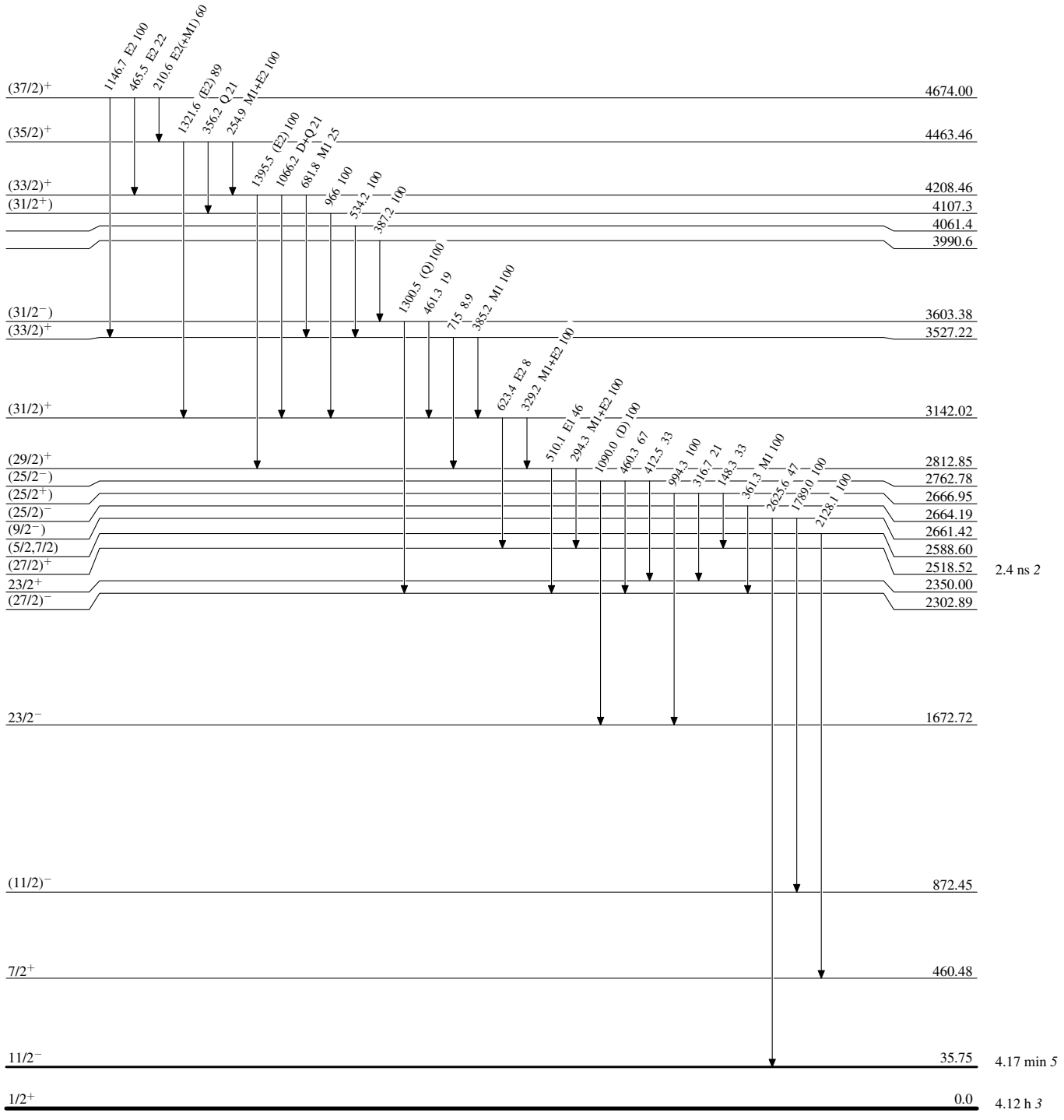


$^{149}_{65}Tb_{84}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



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

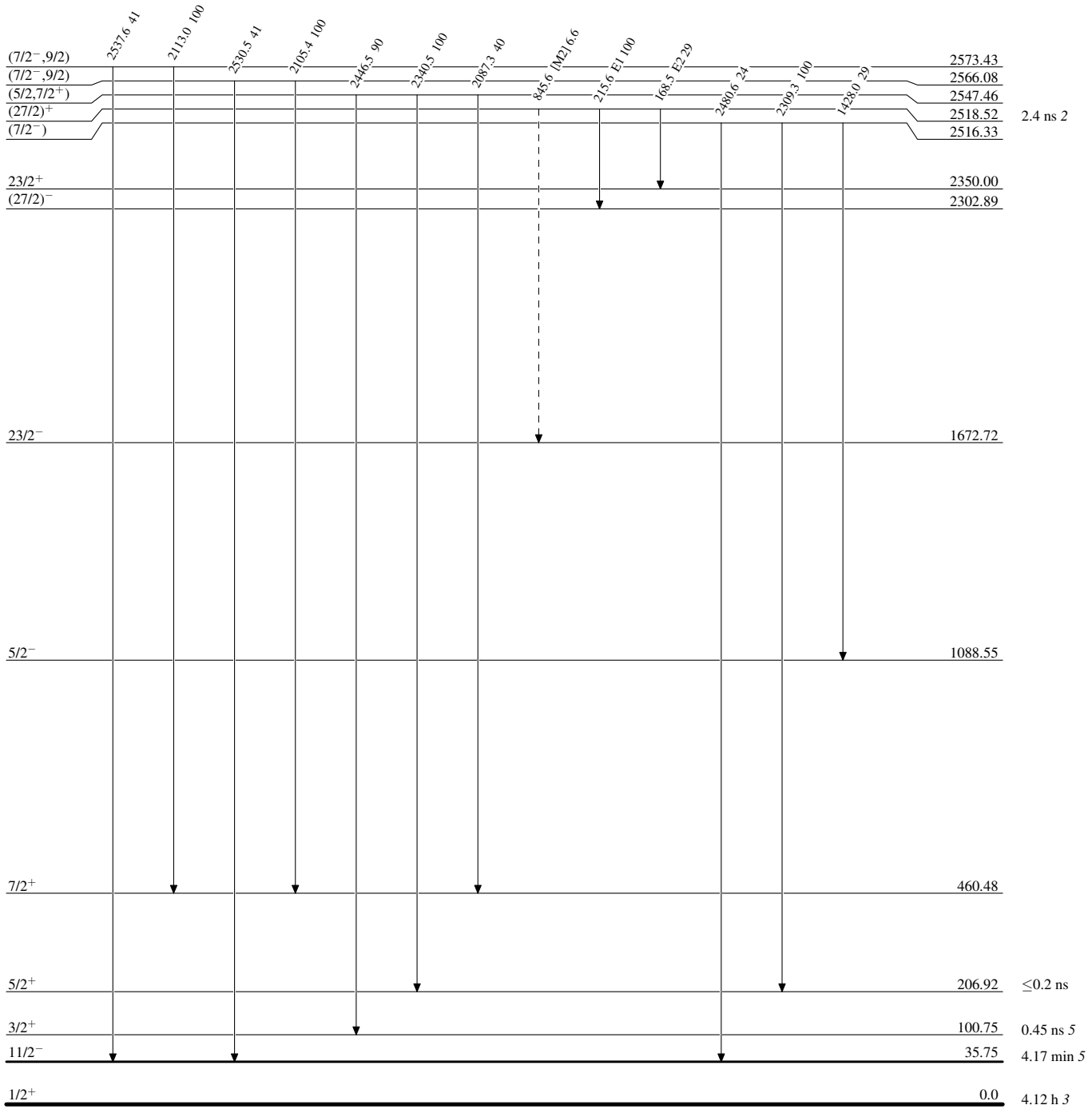
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)

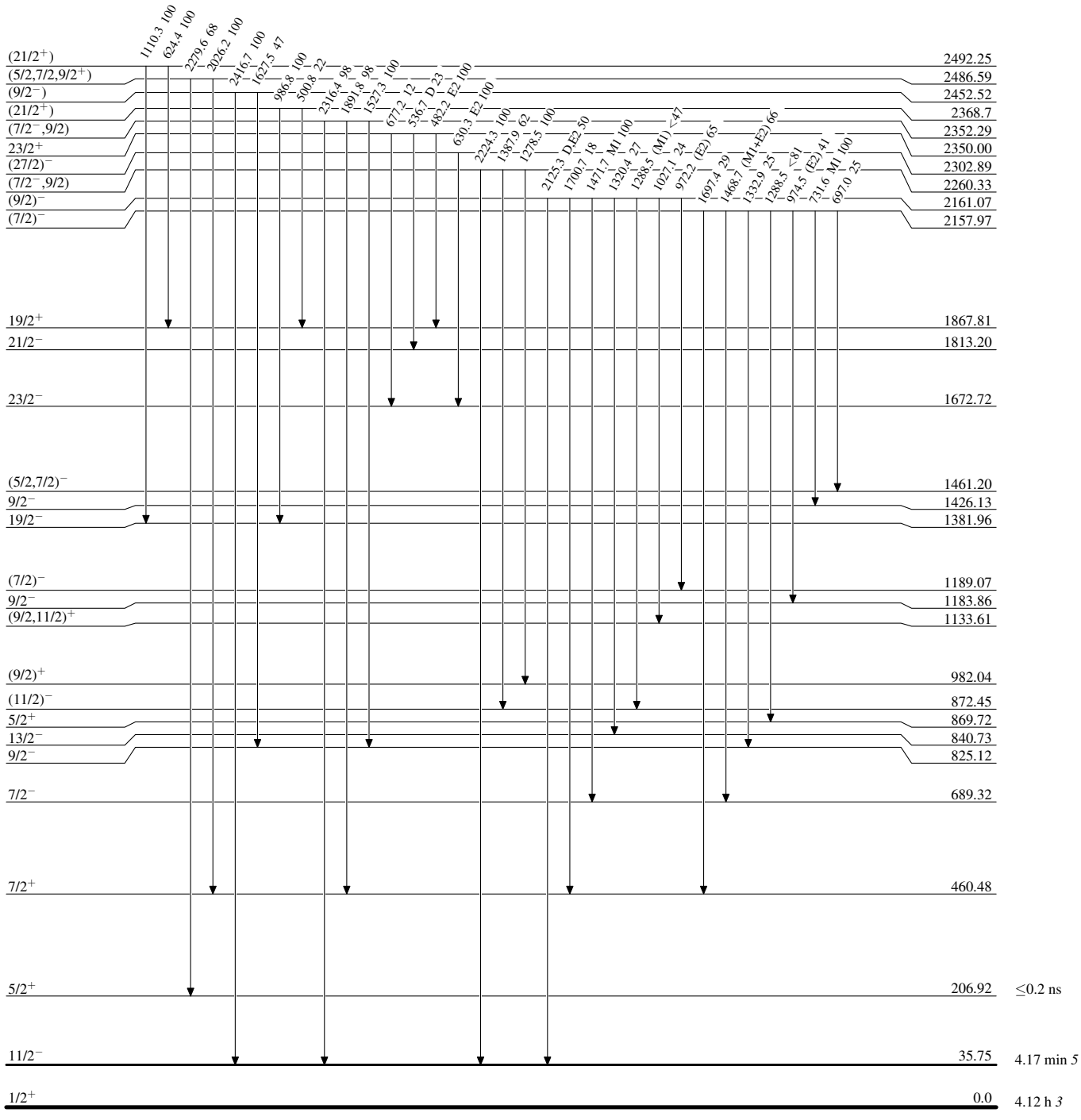


$^{149}_{65}Tb_{84}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



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

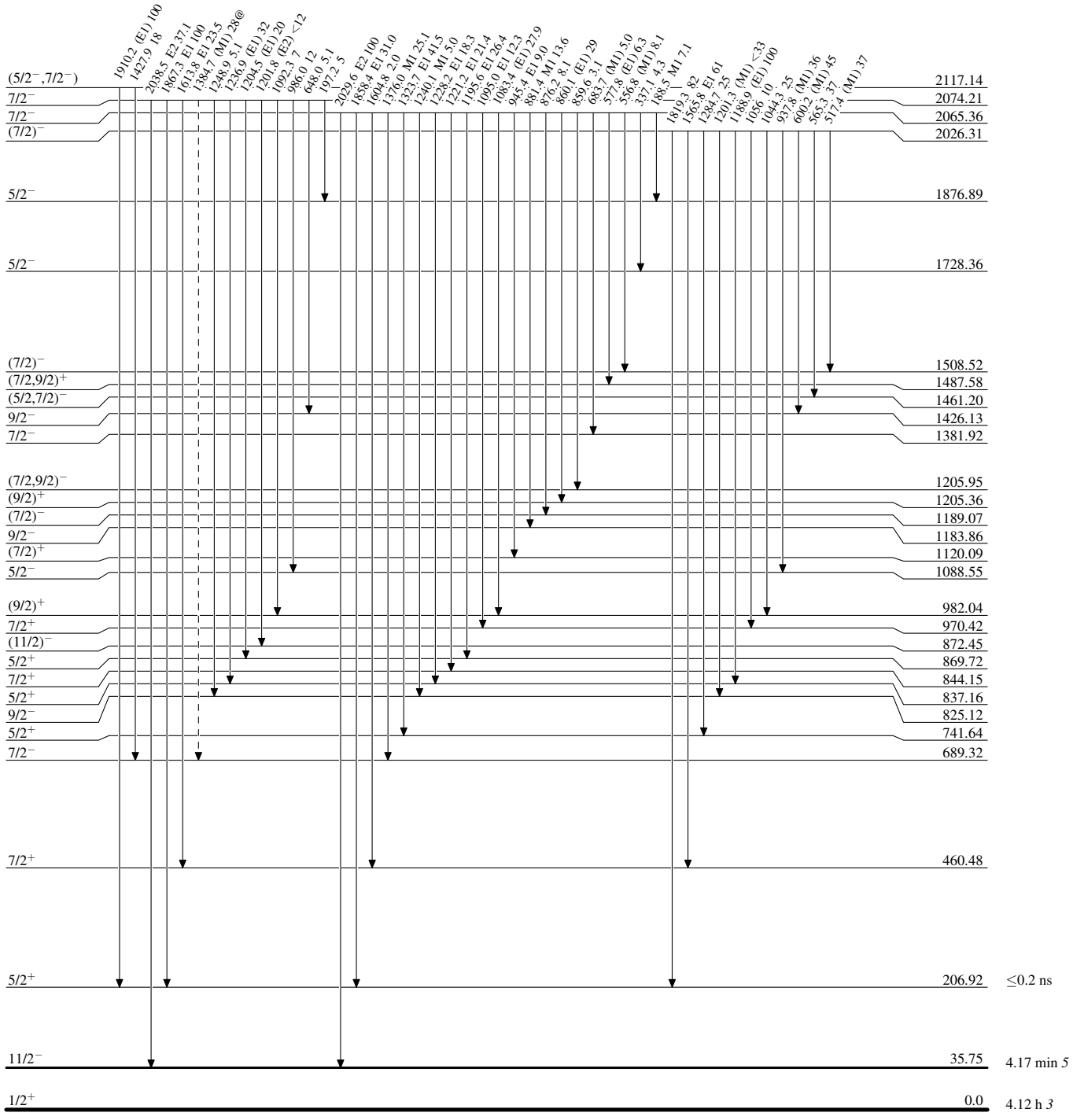
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided

γ Decay (Uncertain)

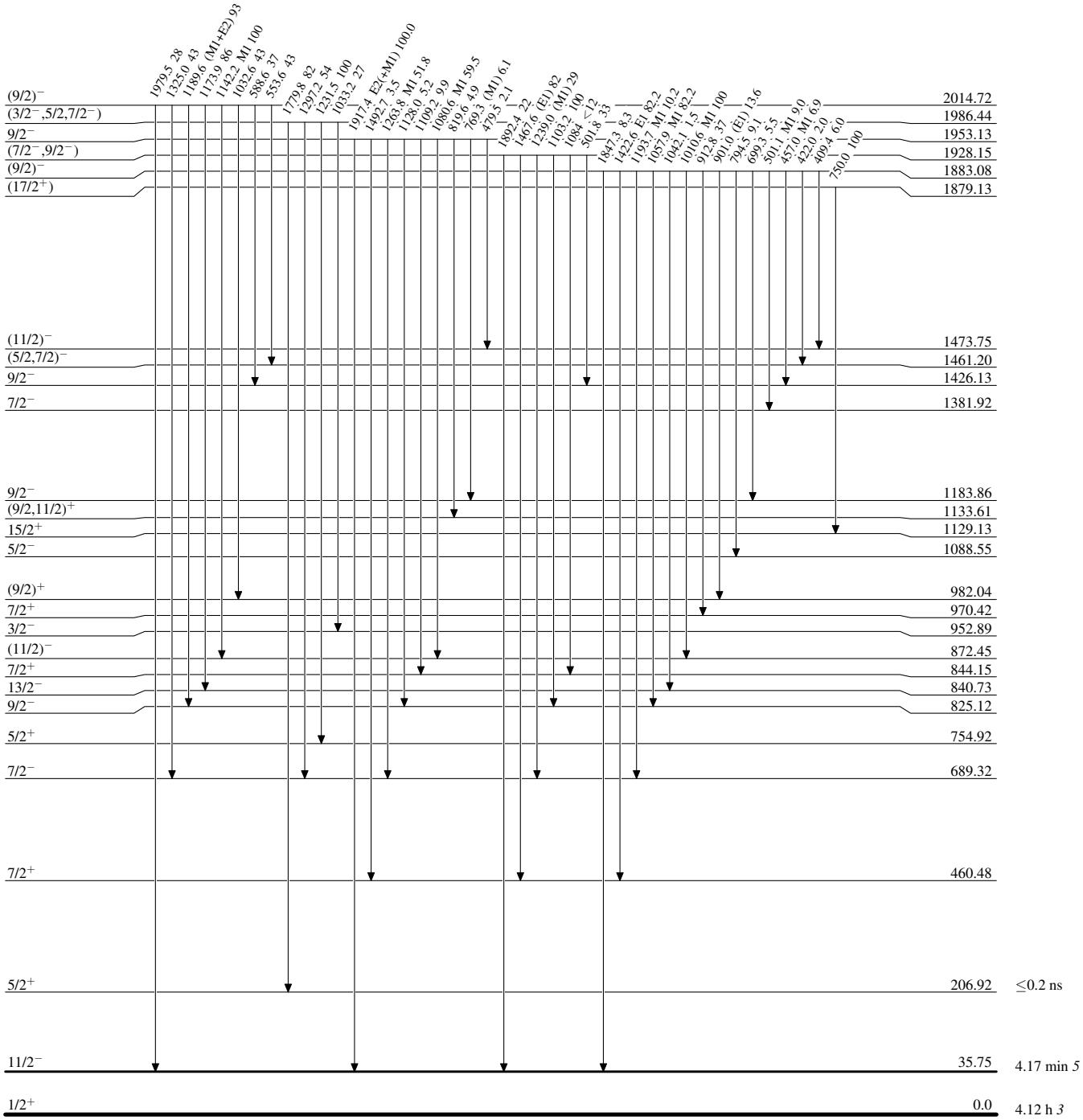


$^{149}_{65}Tb_{84}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided

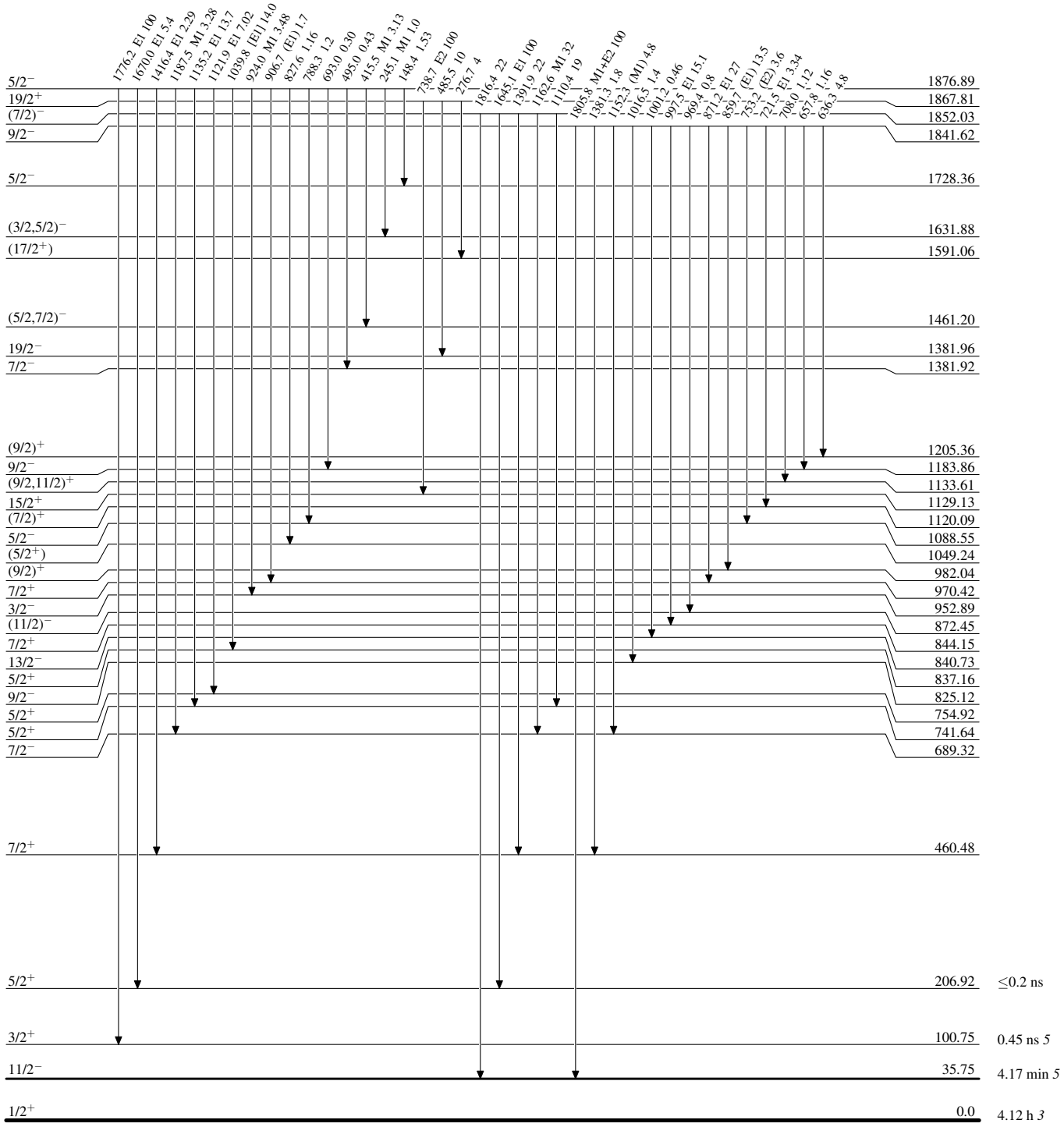


$^{149}_{65}Tb_{84}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided

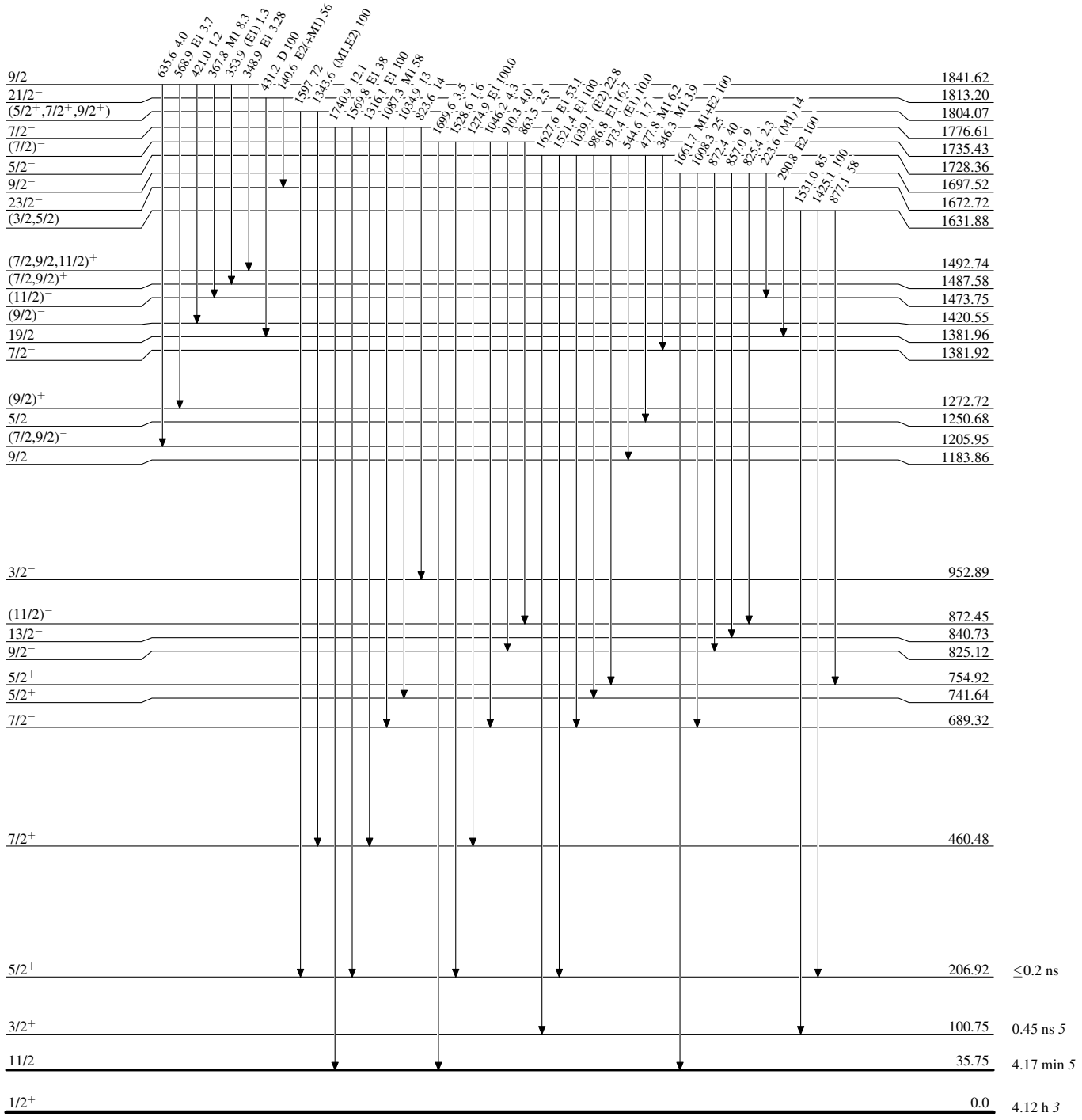


$^{149}_{65}Tb_{84}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided



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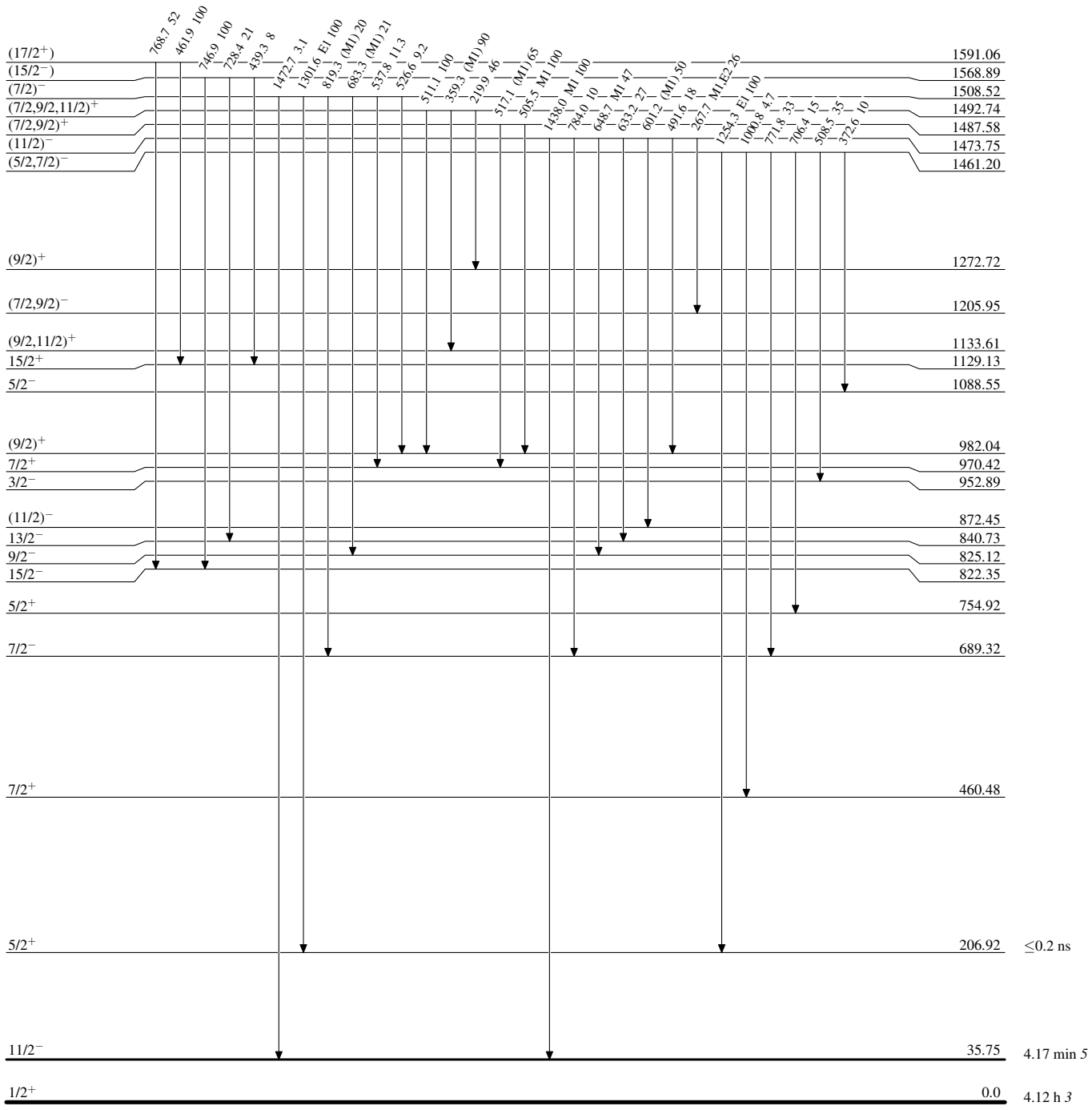
Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided



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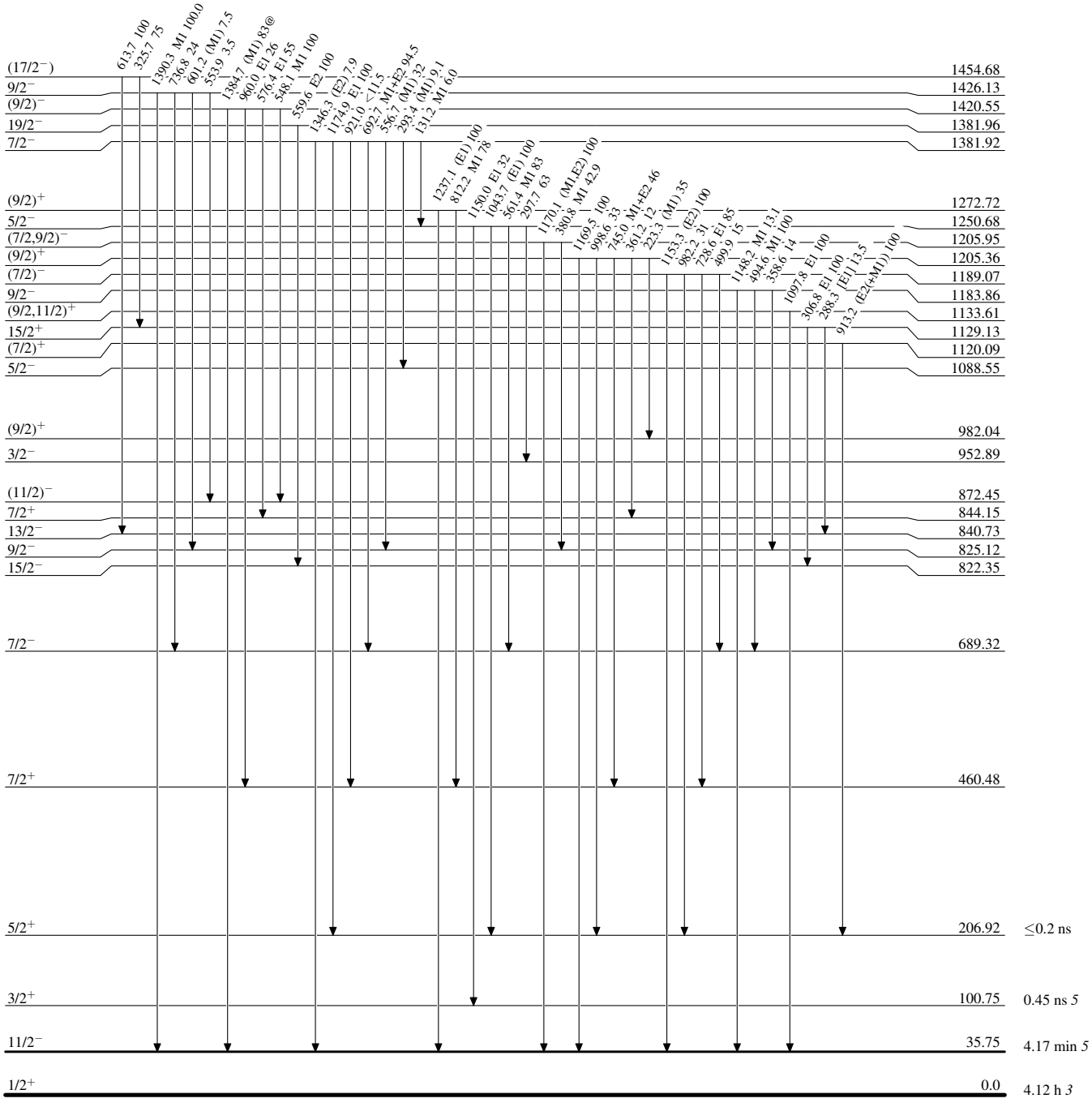
Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided

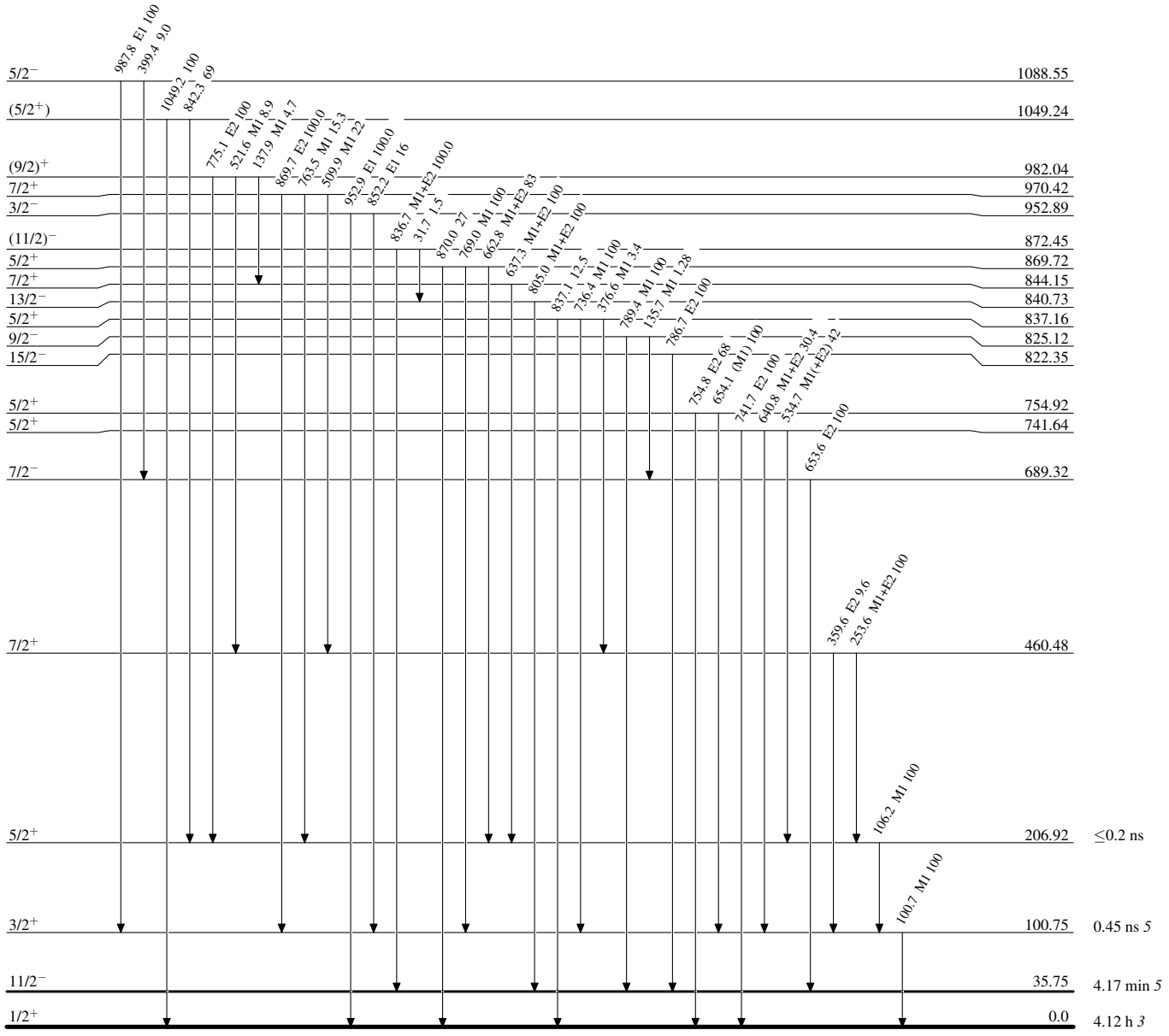


$^{149}_{65}Tb_{84}$

Adopted Levels, Gammas

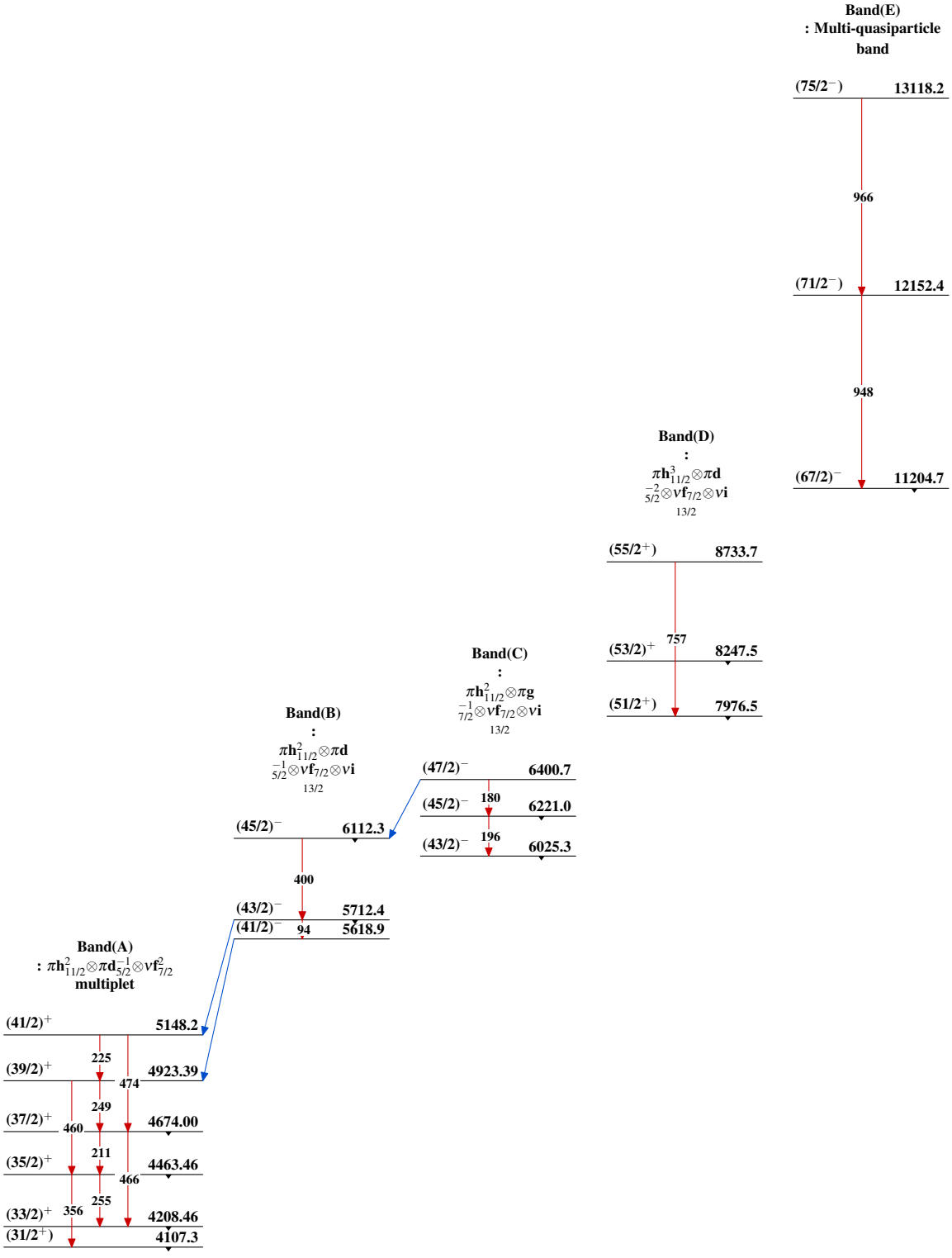
Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided



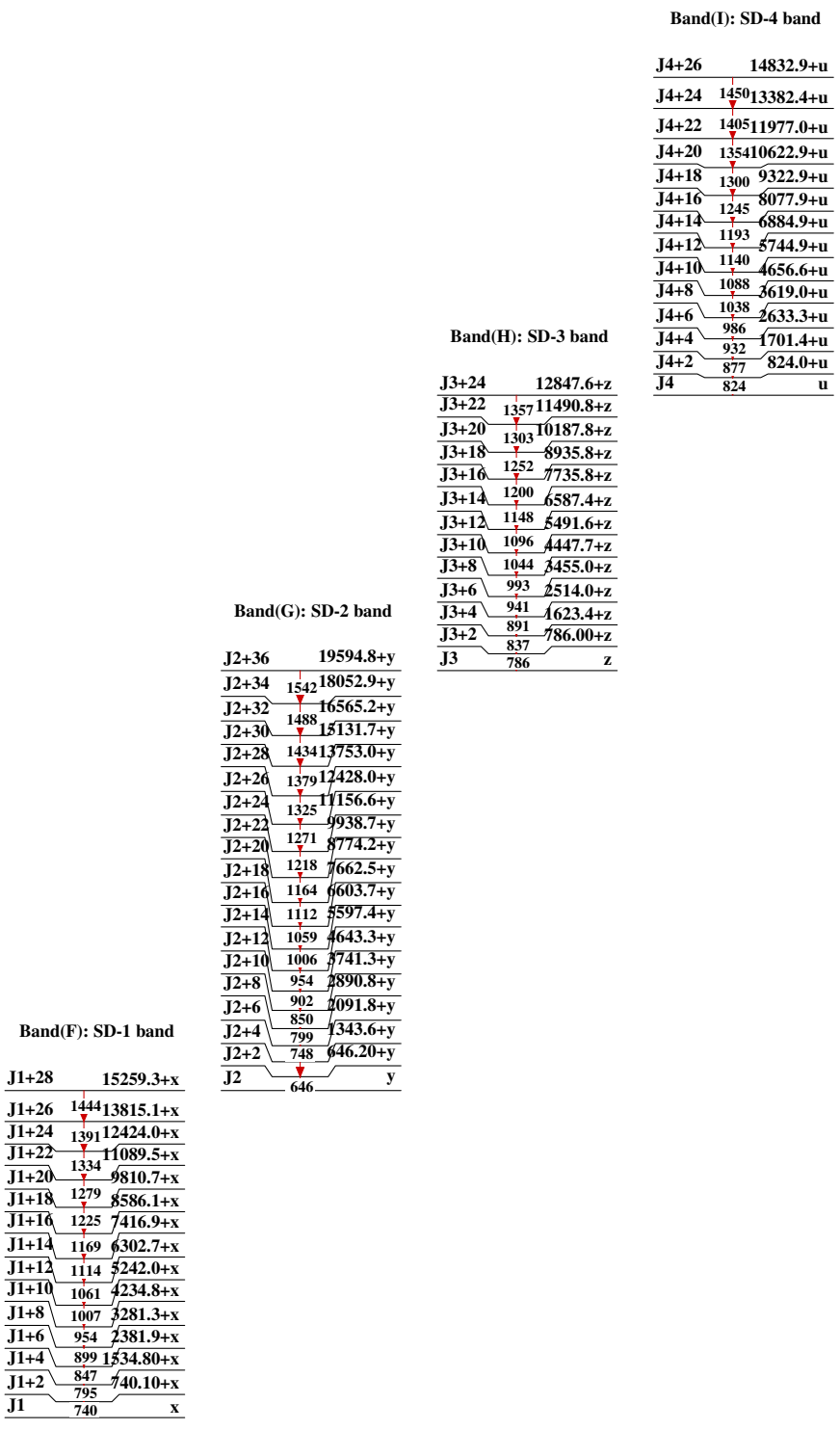
$^{149}_{65}Tb_{84}$

Adopted Levels, Gammas



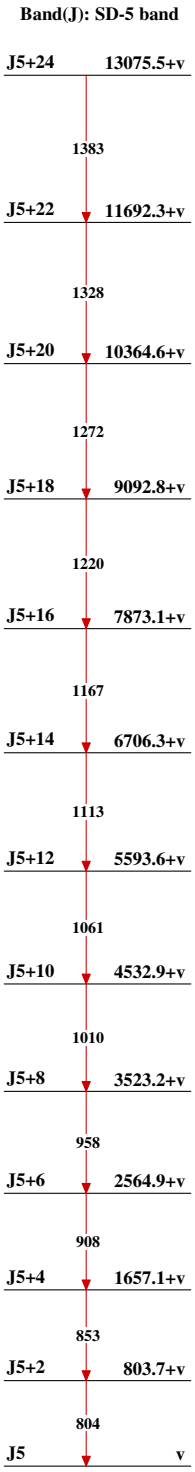
$^{149}_{65}Tb_{84}$

Adopted Levels, Gammas (continued)



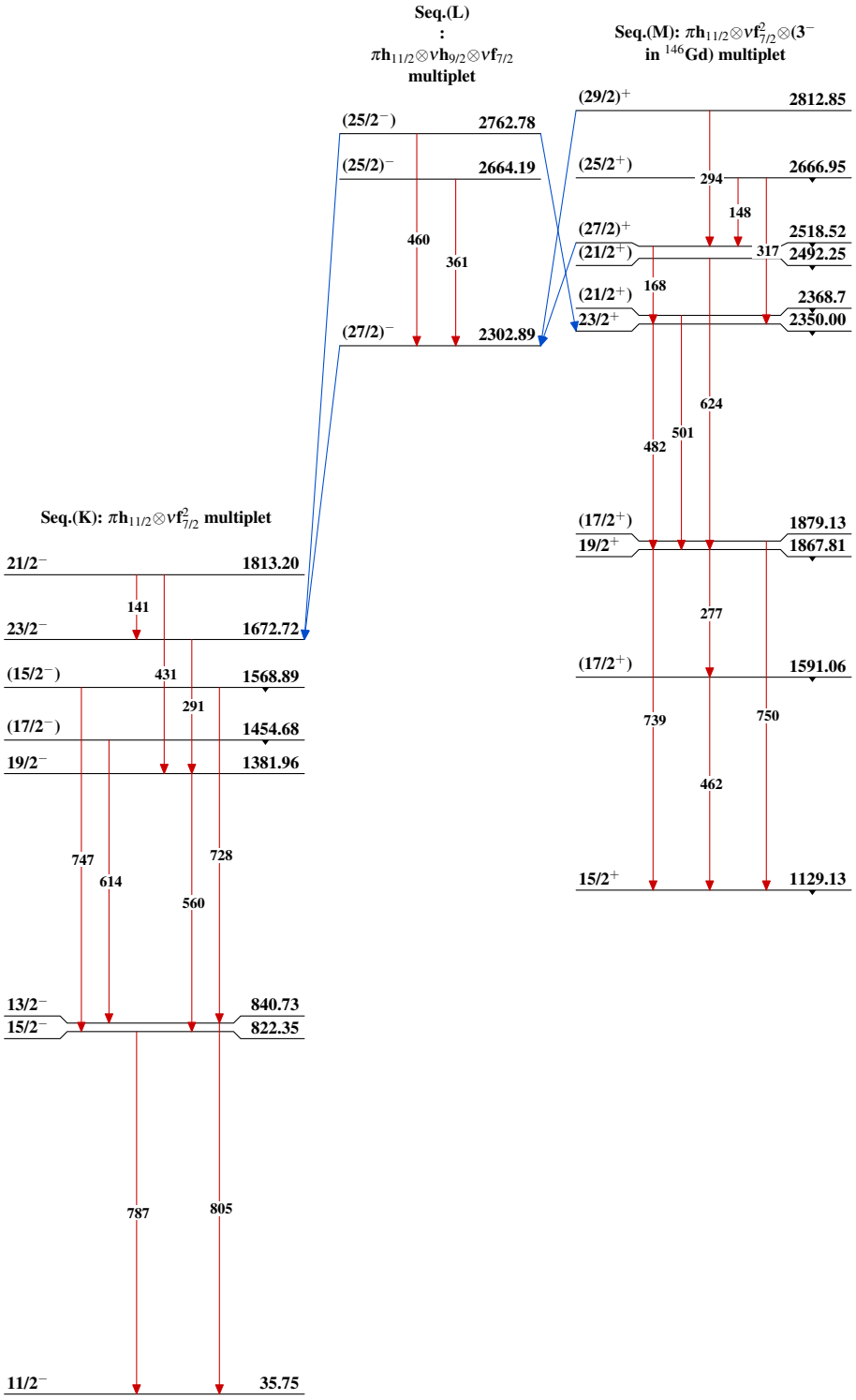
$^{149}_{65}Tb_{84}$

Adopted Levels, Gammas (continued)



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

Adopted Levels, Gammas (continued)



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