^{149}Tb ε decay (4.12 h) 1978Ja14,1972Vy08,1992Tl02

History

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

Parent: ^{149}Tb: E=0.0; $J^\pi=1/2^+$; $T_{1/2}$=4.12 h *3*; Q(ε)=3639 *4*; %ε+%β^+ decay=83.3 *17*

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

^{149}Tb-Q(ε): From 2021Wa16.

1978Ja14: ^{149}Tb sources were produced via ^{141}Pr(^{12}C,4n) with 78 MeV ^{12}C beam from the LBNL 80-inch cyclotron for singles measurements and via spallation of tantalum with 800 MeV proton from the Clinton P. Anderson Meson Physics Facility (LAMPF) for more detailed singles and coincidence measurements. Measured Eγ, Iγ, γγ-coin with Ge(Li) detectors. Deduced levels, J^π, log *ft*, conversion coefficients, γ-ray multipolarities. Systematics of neighboring isotopes.

1972Vy08 (also 1972Vy09): measured γ, ce. 1972Vy09 report γγ data.

1992Tl02: γγ(θ) (7 Ge(Li) detector system).

Others:

γγ(θ): 1974Bu26 (Ge(Li)-NaI system).

γγ(θ,H): 1977VaZJ, 1977GrZF.

γ(θ,t): 1985Fi06 (for 352γ).

$\beta^+\gamma$ coin: 1968Wi21.

γ(θ,t): 1983Pr04.

ce data: 1987BaZB (also 1987BaYQ), 1968Wi21, 1967Ko09, 1964Da20.

γ data: 1975SpZU, 1973St22, 1968Wi21, 1964Da20 (also 1962St20, 1961St15), 1961Bo19, 1960St33, 1960Ab08, 1960To10, 1959To27.

γγ: 1975SpZU, 1968Wi21.

γγ(t): 1969Ba64.

γ ce(t): 1971VaZV.

ce ce(t): 1969Ba64.

Q value measurement: 2001IzZY.

$T_{1/2}$(^{149}Tb): 1975SpZU, 1973St22, 1968St09, 1967Go32 (also 1967Ch28,1965Gr28), 1965Br10, 1960To10, 1957Su23, 1953Ra02.

Production of ^{149}Tb: 1992Ca11, 1968St09, 1950Ra56.

Total decay energy deposit of 3026 keV *28* calculated by RADLIST code is in agreement with expected value of 3030 keV *62*, indicating the completeness of the decay scheme.

^{149}Gd Levels

E(level)†	J^π‡	$T_{1/2}$‡	Comments
0.0	7/2⁻	9.28 d *10*	
164.987 *15*	5/2⁻	1.7# ns *1*	$T_{1/2}$: other: 1.35 ns *30* (1969Ba64).
352.234 *25*	3/2⁻	0.43# ns *5*	J^π: 5/2 ruled out from combined results of γγ(θ) and ce data.
796.2 *5*	9/2⁻		
817.100 *18*	3/2⁻		J^π: 5/2 ruled out by combining results from γγ(θ) and ce data.
1026.840 *23*	3/2⁺		J^π: from consistency of results from γγ(θ) and ce data.
1085.5 *5*	(5/2⁻,7/2,9/2⁻)		
1124.89 *3*	1/2⁺,3/2⁺,5/2⁺		
1144.08 *5*	(5/2)⁺		
1167.11 *6*	(3/2⁺)		
1205.66 *17*	(1/2)⁻		J^π: consistency of γγ(θ) and ce data favors 1/2, but 3/2 is not completely ruled out.
1348.73 *9*	(1/2⁻,3/2,5/2⁻)		
1402.91 *7*	(5/2⁻)		
1487.60 *7*	(1/2,3/2)⁻		
1544.13 *5*	(3/2⁻,5/2⁻)		
1557.38 *6*	(1/2⁻,3/2)		
1597.29 *11*	(1/2,3/2,5/2⁻)		
1614.05 *6*	3/2⁺		

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^{149}Tb ε decay (4.12 h) 1978Ja14,1972Vy08,1992Tl02 (continued)

^{149}Gd Levels (continued)

E(level)†	J$^{\pi}$‡	E(level)†	J$^{\pi}$‡	E(level)†	J$^{\pi}$‡
1655.19 *6*	(3/2)$^+$	2768.0 *4*	(1/2$^+$,3/2,5/2$^-$)	3206.43 *23*	(3/2)
1750.59 *9*	(3/2$^-$,5/2$^-$)	2808.6 *5*	(1/2,3/2,5/2$^-$)	3231.2 *3*	(1/2$^-$,3/2)
1772.83 *5*	(3/2$^+$,1/2$^+$)	2824.98 *8*	(1/2,3/2)$^-$	3258.4 *6*	(1/2,3/2)
1844.31 *7*	(1/2$^-$,3/2,5/2$^-$)	2830.6 *10*	(1/2,3/2,5/2$^-$)	3272.9 *6*	(1/2,3/2)
1992.49 *4*	3/2$^-$	2861.8 *5*	(1/2$^-$,3/2)	3294.9 *10*	(1/2,3/2)
2088.47 *9*	(1/2$^-$,3/2,5/2$^-$)	2913.08 *10*	(1/2,3/2)	3313.62 *16*	(3/2$^-$)
2126.6 *7*	(1/2$^-$,3/2,5/2$^-$)	2918.2 *7*	(1/2$^-$,3/2,5/2$^-$)	3319.0 *4*	(1/2$^-$,3/2)
2158.36 *4*	(3/2)$^+$	2922.7 *3*	(1/2,3/2)	3340.6 *6*	(1/2$^+$,3/2)
2199.90 *9*	(1/2$^-$,3/2,5/2$^-$)	2961.5 *7*	(1/2$^-$,3/2,5/2$^-$)	3365.23 *19*	(3/2)
2261.54 *9*	(3/2,1/2$^-$)	2977.72 *19*	(1/2$^-$,3/2)	3384.7 *10*	(1/2,3/2)
2300.72 *6*	(1/2$^-$,3/2)	2999.64 *7*	(3/2)	3403.4 *5*	(1/2$^-$,3/2)
2314.1 *7*	(1/2$^-$,3/2,5/2$^-$)	3003.4 *5*	(1/2$^-$,3/2)	3418.8 *5*	(1/2$^-$,3/2)
2482.74 *19*	(1/2$^+$,3/2,5/2$^-$)	3021.06 *18*	(3/2)	3431.4 *4*	(1/2$^-$,3/2)
2503.71 *20*	(1/2$^-$,3/2,5/2$^-$)	3057.0 *4*	(1/2$^-$,3/2)	3442.8 *6*	(1/2,3/2)
2570.1 *3*	(1/2,3/2,5/2$^-$)	3070.8 *7*	(1/2$^-$,3/2)	3466.8 *6*	(1/2$^-$,3/2)
2590.05 *10*	(1/2$^-$,3/2)	3079.8 *3*	(1/2,3/2)	3473.2 *3*	(1/2$^-$,3/2)
2599.31 *9*	(1/2$^-$,3/2)	3099.76 *10*	(1/2$^-$,3/2)	3486.2 *5*	(1/2,3/2)
2613.2 *5*	(1/2$^-$,3/2)	3124.06 *10*	(1/2,3/2)	3500.0 *7*	(1/2$^-$,3/2)
2683.42 *9*	(1/2$^+$,3/2)	3149.4 *6*	(1/2,3/2)	3516.2 *4*	(1/2,3/2)
2703.3 *4*	(1/2$^-$,3/2,5/2$^-$)	3175.59 *15*	(1/2$^-$,3/2)	3535.1 *4*	(3/2$^+$)
2757.20 *9*	(1/2,3/2)	3201.4 *4*	(3/2,1/2$^-$)	3543.9 *4*	(1/2$^-$,3/2)

† From a least-squares fit to γ-ray energies.
‡ From the Adopted Levels.
# From ceγ(t) (1971VaZV).

ε,β^+ radiations

E(decay)	E(level)	Iε‡	Log *ft*	I(ε+β^+)†‡	Comments
(95 *4*)	3543.9	0.015 *6*	6.4 *2*	0.015 *6*	εK=0.582 *24*; εL=0.314 *17*; εM+=0.104 *7*
(104 *4*)	3535.1	0.055 *11*	6.0 *1*	0.055 *11*	εK=0.622 *17*; εL=0.284 *13*; εM+=0.093 *5*
(123 *4*)	3516.2	0.0224 *5*	6.59 *5*	0.0224 *5*	εK=0.679 *10*; εL=0.243 *7*; εM+=0.078 *3*
(139 *4*)	3500.0	0.017 *5*	6.9 *2*	0.017 *5*	εK=0.709 *7*; εL=0.221 *5*; εM+=0.0702 *18*
(153 *4*)	3486.2	0.027 *7*	6.8 *1*	0.027 *7*	εK=0.727 *5*; εL=0.208 *4*; εM+=0.0653 *13*
(166 *4*)	3473.2	0.097 *20*	6.3 *1*	0.097 *20*	εK=0.740 *4*; εL=0.198 *3*; εM+=0.0618 *10*
(172 *4*)	3466.8	0.026 *8*	6.9 *2*	0.026 *8*	εK=0.746 *4*; εL=0.194 *3*; εM+=0.0604 *9*
(196 *4*)	3442.8	0.033 *9*	7.0 *1*	0.033 *9*	εK=0.7621 *24*; εL=0.1818 *18*; εM+=0.0561 *7*
(208 *4*)	3431.4	0.041 *10*	6.9 *1*	0.041 *10*	εK=0.7681 *21*; εL=0.1774 *15*; εM+=0.0545 *6*
(220 *4*)	3418.8	0.058 *13*	6.9 *1*	0.058 *13*	εK=0.7738 *18*; εL=0.1732 *13*; εM+=0.0530 *5*
(236 *4*)	3403.4	0.110 *18*	6.7 *1*	0.110 *18*	εK=0.7797 *15*; εL=0.1688 *11*; εM+=0.0515 *4*
(254 *4*)	3384.7	0.033 *8*	7.3 *1*	0.033 *8*	εK=0.7857 *13*; εL=0.1644 *9*; εM+=0.0499 *4*
(274 *4*)	3365.23	0.277 *24*	6.41 *5*	0.277 *24*	εK=0.7908 *10*; εL=0.1606 *8*; εM+=0.0486 *3*
(298 *4*)	3340.6	0.048 *11*	7.3 *1*	0.048 *11*	εK=0.7961 *8*; εL=0.1567 *6*; εM+=0.04719 *21*
(320 *4*)	3319.0	0.080 *20*	7.1 *1*	0.080 *20*	εK=0.8000 *7*; εL=0.1538 *5*; εM+=0.04618 *18*
(325 *4*)	3313.62	1.18 *6*	5.95 *3*	1.18 *6*	εK=0.8009 *7*; εL=0.1532 *5*; εM+=0.04596 *17*
(344 *4*)	3294.9	0.028 *8*	7.6 *1*	0.028 *8*	εK=0.8036 *6*; εL=0.1511 *5*; εM+=0.04524 *15*
(366 *4*)	3272.9	0.048 *13*	7.5 *1*	0.048 *13*	εK=0.8065 *5*; εL=0.1490 *4*; εM+=0.04451 *13*
(381 *4*)	3258.4	0.047 *11*	7.5 *1*	0.047 *11*	εK=0.8081 *5*; εL=0.1478 *4*; εM+=0.04409 *12*
(408 *4*)	3231.2	0.078 *19*	7.4 *1*	0.078 *19*	εK=0.8108 *4*; εL=0.1458 *3*; εM+=0.04338 *10*
(433 *4*)	3206.43	0.25 *4*	6.91 *7*	0.25 *4*	εK=0.8130 *4*; εL=0.14418 *25*; εM+=0.04283 *9*
(438 *4*)	3201.4	0.19 *4*	7.0 *1*	0.19 *4*	εK=0.8134 *4*; εL=0.14388 *24*; εM+=0.04272 *9*
(463 *4*)	3175.59	0.35 *4*	6.83 *6*	0.35 *4*	εK=0.8153 *3*; εL=0.14247 *21*; εM+=0.04223 *8*

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^{149}Tb ε decay (4.12 h) 1978Ja14,1972Vy08,1992Tl02 (continued)

ε,$β^+$ radiations (continued)

E(decay)	E(level)	I$β^+$ ‡	Iε‡	Log *ft*	I(ε+$β^+$)†‡	Comments
(490 *4*)	3149.4		0.064 *13*	7.6 *1*	0.064 *13*	εK=0.8170 *3*; εL=0.14120 *19*; εM+=0.04179 *7*
(515 *4*)	3124.06		0.181 *21*	7.21 *6*	0.181 *21*	εK=0.8185 *3*; εL=0.14011 *17*; εM+=0.04142 *6*
(539 *4*)	3099.76		0.51 *4*	6.81 *4*	0.51 *4*	εK=0.8197 *2*; εL=0.13918 *15*; εM+=0.04109 *6*
(559 *4*)	3079.8		0.063 *18*	7.8 *1*	0.063 *18*	εK=0.8207 *2*; εL=0.1385 *2*; εM+=0.04085 *5*
(568 *4*)	3070.8		0.043 *10*	7.9 *1*	0.043 *10*	εK=0.8211 *2*; εL=0.1382 *2*; εM+=0.04075 *5*
(582 *4*)	3057.0		0.031 *10*	8.1 *2*	0.031 *10*	εK=0.8217 *2*; εL=0.1377 *2*; εM+=0.04060 *5*
(618 *4*)	3021.06		0.34 *4*	7.11 *6*	0.34 *4*	εK=0.8231 *2*; εL=0.1367 *1*; εM+=0.04024 *4*
(636 *4*)	3003.4		0.17 *4*	7.4 *1*	0.17 *4*	εK=0.8237 *2*; εL=0.1362 *1*; εM+=0.04008 *4*
(639 *4*)	2999.64		1.25 *6*	6.58 *3*	1.25 *6*	εK=0.8238 *2*; εL=0.1361 *1*; εM+=0.04004 *4*
(661 *4*)	2977.72		0.20 *3*	7.40 *7*	0.20 *3*	εK=0.8245 *2*; εL=0.1356 *1*; εM+=0.03986 *4*
(678 *4*)	2961.5		0.047 *12*	8.1 *1*	0.047 *12*	εK=0.8250 *2*; εL=0.13525 *9*; εM+=0.03973 *4*
(716 *4*)	2922.7		0.116 *19*	7.7 *1*	0.116 *19*	εK=0.8261 *1*; εL=0.13444 *8*; εM+=0.03945 *3*
(721 *4*)	2918.2		0.057 *20*	8.0 *2*	0.057 *20*	εK=0.8262 *1*; εL=0.13435 *8*; εM+=0.03942 *3*
(726 *4*)	2913.08		0.46 *4*	7.13 *4*	0.46 *4*	εK=0.8264 *1*; εL=0.13425 *8*; εM+=0.03939 *3*
(777 *4*)	2861.8		0.13 *3*	7.7 *1*	0.13 *3*	εK=0.82758 *9*; εL=0.13335 *7*; εM+=0.03908 *3*
(808 *4*)	2830.6		0.024 *8*	8.5 *2*	0.024 *8*	εK=0.82824 *9*; εL=0.13286 *7*; εM+=0.03891 *3*
(814 *4*)	2824.98		1.18 *5*	6.83 *2*	1.18 *5*	εK=0.8283; εL=0.13277 *6*; εM+=0.03888 *2*
(830 *4*)	2808.6		0.106 *22*	7.9 *1*	0.106 *22*	εK=0.8287; εL=0.13253 *6*; εM+=0.03880 *2*
(871 *4*)	2768.0		0.045 *12*	8.3 *1*	0.045 *12*	εK=0.8294; εL=0.13198 *6*; εM+=0.03861 *2*
(882 *4*)	2757.20		0.48 *4*	7.29 *4*	0.48 *4*	εK=0.8296; εL=0.13185 *5*; εM+=0.03856 *2*
(936 *4*)	2703.3		0.088 *21*	8.1 *1*	0.088 *21*	εK=0.8304; εL=0.13121 *5*; εM+=0.03834 *2*
(956 *4*)	2683.42		0.47 *4*	7.37 *4*	0.47 *4*	εK=0.8307; εL=0.13100 *5*; εM+=0.03827 *2*
(1026 *4*)	2613.2		0.43 *4*	7.47 *5*	0.43 *4*	εK=0.8317; εL=0.13031 *4*; εM+=0.03803 *2*
(1040 *4*)	2599.31		0.49 *4*	7.43 *4*	0.49 *4*	εK=0.8318; εL=0.13019 *4*; εM+=0.03799 *2*
(1049 *4*)	2590.05		0.35 *5*	7.58 *7*	0.35 *5*	εK=0.8319; εL=0.13010 *4*; εM+=0.03796 *2*
(1069 *4*)	2570.1		0.106 *20*	8.1 *1*	0.106 *20*	εK=0.8322; εL=0.12994 *4*; εM+=0.03790 *2*
(1135 *4*)	2503.71		0.098 *21*	8.2 *1*	0.098 *21*	εK=0.8329; εL=0.12942 *3*; εM+=0.03772 *1*
(1156 *4*)	2482.74		0.22 *4*	7.9 *1*	0.22 *4*	εK=0.8331; εL=0.12926 *3*; εM+=0.03767 *1*
(1325 *4*)	2314.1		0.063 *13*	8.5 *1*	0.063 *13*	εK=0.8341; εL=0.12819 *3*; εM+=0.037305 *9*
(1338 *4*)	2300.72		1.16 *6*	7.28 *3*	1.16 *6*	εK=0.8342; εL=0.12811 *3*; εM+=0.037278 *8*
(1377 *4*)	2261.54		0.66 *5*	7.55 *4*	0.66 *5*	εK=0.8342; εL=0.12787 *3*; εM+=0.037200 *8*
(1439 *4*)	2199.90	0.00082 *9*	0.59 *6*	7.64 *5*	0.59 *6*	av Eβ=201.4 *18*; εK=0.8340; εL=0.12750 *3*; εM+=0.037076 *9*
(1481 *4*)	2158.36	0.0089 *5*	4.31 *15*	6.80 *2*	4.32 *15*	av Eβ=219.8 *18*; εK=0.8337; εL=0.12724 *3*; εM+=0.036990 *9*
(1512 *4*)	2126.6	0.00035 *8*	0.13 *3*	8.3 *1*	0.13 *3*	av Eβ=233.7 *18*; εK=0.8334; εL=0.12702 *3*; εM+=0.036921 *9*
(1551 *4*)	2088.47	0.00083 *11*	0.23 *3*	8.12 *6*	0.23 *3*	av Eβ=250.7 *18*; εK=0.8328; εL=0.12676 *3*; εM+=0.03684 *1*
(1647 *4*)	1992.49	0.059 *3*	8.4 *3*	6.61 *2*	8.5 *3*	av Eβ=292.9 *18*; εK=0.8305 *2*; εL=0.12600 *4*; εM+=0.03660 *1*
(1795 *4*)	1844.31	0.0080 *6*	0.52 *4*	7.89 *4*	0.53 *4*	av Eβ=357.9 *18*; εK=0.8242 *3*; εL=0.12450 *5*; εM+=0.03614 *2*
(1866 *4*)	1772.83	0.0305 *16*	1.44 *7*	7.49 *3*	1.47 *7*	av Eβ=389.2 *18*; εK=0.8198 *3*; εL=0.12360 *6*; εM+=0.03587 *2*
(1888 *4*)	1750.59	0.011 *1*	0.47 *4*	7.98 *4*	0.48 *4*	av Eβ=399.0 *18*; εK=0.8182 *3*; εL=0.12329 *6*; εM+=0.03578 *2*
(1984 *4*)	1655.19	0.0440 *24*	1.31 *7*	7.58 *3*	1.35 *7*	av Eβ=440.9 *18*; εK=0.8102 *4*; εL=0.12183 *7*; εM+=0.03534 *2*
(2025 *4*)	1614.05	0.027 *3*	0.69 *7*	7.88 *5*	0.72 *7*	av Eβ=458.9 *18*; εK=0.8062 *5*; εL=0.12111 *8*; εM+=0.03513 *3*
(2042 *4*)	1597.29	0.011 *2*	0.26 *4*	8.31 *7*	0.27 *4*	av Eβ=466.3 *18*; εK=0.8045 *5*; εL=0.12081 *8*; εM+=0.03504 *3*
(2082 *4*)	1557.38	0.052 *3*	1.10 *7*	7.70 *3*	1.15 *7*	av Eβ=483.9 *18*; εK=0.8000 *5*; εL=0.12005 *8*; εM+=0.03481 *3*
(2095 *4*)	1544.13	0.014 *3*	0.29 *6*	8.3 *1*	0.30 *6*	av Eβ=489.7 *18*; εK=0.7985 *5*; εL=0.11979 *8*; εM+=0.03473 *3*

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^{149}Tb ε decay (4.12 h) 1978Ja14,1972Vy08,1992Tl02 (continued)

ϵ,β^+ radiations (continued)

E(decay)	E(level)	Iβ^+ ‡	Iε‡	Log *ft*	I($\varepsilon+\beta^+$)†‡	Comments
(2151 *4*)	1487.60	0.049 *4*	0.83 *7*	7.85 *4*	0.88 *7*	av Eβ=514.6 *18*; εK=0.7915 *6*; εL=0.11861 *9*; εM+=0.03439 *3*
(2236# *4*)	1402.91					I(ε+β⁺)=−0.17 *8* from γ-intensity balance is non-physical.
(2290 *4*)	1348.73	0.0159 *19*	0.183 *21*	8.56 *6*	0.199 *23*	av Eβ=575.9 *18*; εK=0.7713 *7*; εL=0.1153 *1*; εM+=0.03342 *3*
(2433 *4*)	1205.66	3.95 *11*	31.9 *8*	6.38 *2*	35.8 *9*	av Eβ=639.3 *18*; εK=0.7462 *8*; εL=0.11130 *12*; εM+=0.03225 *4*
(2472# *4*)	1167.11					I(ε+β⁺)=−0.12 *8* from γ-intensity balance is non-physical.
(2495# *4*)	1144.08	0.032 *10*	0.23 *7*	8.5 *2*	0.26 *8*	av Eβ=666.6 *18*; εK=0.7341 *8*; εL=0.10941 *13*; εM+=0.03169 *4* I(ε+β⁺): almost no ε+β⁺ feeding is expected from 1/2⁺ parent to (5/2)⁺; apparent feeding of 0.26% *8* is probably due to missing γ transitions feeding this level.
(2514# *4*)	1124.89	<0.021	<0.14	>8.8	<0.16	av Eβ=675.2 *18*; εK=0.7302 *9*; εL=0.10880 *13*; εM+=0.03152 *4*
(2554# *4*)	1085.5	0.01 *1*	0.08 *3*	9.0 *2*	0.09 *4*	av Eβ=692.7 *19*; εK=0.7220 *9*; εL=0.10752 *14*; εM+=0.03114 *4*
(2612 *4*)	1026.840	0.74 *3*	4.02 *15*	7.34 *2*	4.76 *18*	av Eβ=718.9 *18*; εK=0.7094 *9*; εL=0.10555 *14*; εM+=0.03057 *4*
(2822 *4*)	817.100	1.0 *1*	3.8 *3*	7.43 *4*	4.8 *4*	av Eβ=812.7 *18*; εK=0.6601 *10*; εL=0.09798 *15*; εM+=0.02837 *5*
(3287 *4*)	352.234	0.68 *11*	1.22 *20*	8.1 *1*	1.90 *31*	av Eβ=1022.4 *19*; εK=0.5397 *11*; εL=0.07977 *16*; εM+=0.02308 *5*
(3474 *4*)	164.987	0.35 *12*	1.4 *5*	9.7^{1u} *2*	1.8 *6*	av Eβ=1108.5 *18*; εK=0.6717 *8*; εL=0.10175 *12*; εM+=0.02955 *4*

† From γ+ce intensity balance at each level.
‡ Absolute intensity per 100 decays.
\# Existence of this branch is questionable.

γ(^{149}Gd)

Iγ normalization: from ΣI(γ+ce)(g.s.)=100, assuming no g.s. feeding, as expected from 1/2$^+$ parent to 7/2$^-$ g.s.

E_γ[†]	I_γ[†b]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[&]	δ[a]	α[c]	Comments
98.1 *2*	17 *2*	1124.89	1/2$^+$,3/2$^+$,5/2$^+$	1026.840	3/2$^+$	M1		2.127 *32*	%Iγ=0.152 *18* α(K)exp=3.3 *17* α(K)=1.796 *27*; α(L)=0.259 *4*; α(M)=0.0564 *9* α(N)=0.01298 *20*; α(O)=0.002012 *31*; α(P)=0.0001340 *20*
117.2	2 *1*	1144.08	(5/2)$^+$	1026.840	3/2$^+$	[M1+E2]		1.35 *7*	%Iγ=0.018 *9* α(K)=0.92 *16*; α(L)=0.33 *18*; α(M)=0.08 *4* α(N)=0.017 *9*; α(O)=0.0024 *12*; α(P)=5.9×10^{-5} *21*
164.98 *2*	2985 *35*	164.987	5/2$^-$	0.0	7/2$^-$	M1+E2	−0.93 *2*	0.459 *6*	%Iγ=26.7 *6* α(K)exp=0.36 *2*; K/L=3.9 *2*; K/M=11.1 *5*; L/M=2.7 *1* (1972Vy08) K/L=4.43 (1968Wi21); L1/L2=1.77 *4*; L1/L3=2.11 *6* (1987BaZB) L1:L2:L3=135 *15*:70 *10*:54 *7* (1972Vy08,1971GoZS) α(K)=0.350 *5*; α(L)=0.0853 *13*; α(M)=0.01934 *31* α(N)=0.00438 *7*; α(O)=0.000624 *10*; α(P)=2.35×10^{-5} *4* δ: from precise L-subshell ratios measured by 1987BaZB. Other: 0.93 *4* using all the ce data, except seemingly discrepant K/M and L/M ratios from 1972Vy08. Sign is from $\gamma\gamma(\theta)$ (1992Tl02,1974Bu26). Other: 0.82 *2* (1972Vy08) from their measured K/L ratio.
187.22 *2*	487 *6*	352.234	3/2$^-$	164.987	5/2$^-$	M1+E2	+0.85 *+19−16*	0.316 *8*	%Iγ=4.36 *11* α(K)=0.248 *11*; α(L)=0.0528 *28*; α(M)=0.0119 *7* α(N)=0.00269 *15*; α(O)=0.000390 *17*; α(P)=1.70×10^{-5} *11* α(K)exp=0.27 *1*; K/L=5.4 *3*; L/M=3.1 *4* (1972Vy08) K/L=3.1 *4* (1968Wi21); K/L1=9.6 (1971GoZS); K/L=2.9 (1971GoZS) δ: from ce and $\gamma\gamma(\theta)$ data, with the sign from $\gamma\gamma(\theta)$ in 1992Tl02. (187γ)(165γ)(θ): A_2=−0.485 *22*, A_4=+0.06 *5* 1992Tl02). (187γ)(165γ)(θ): A_2=−0.22 *3*, A_4=−0.05 *6* (1974Bu26). (187γ)(165γ)(θ): A_2=−0.396 *16*, A_4=0.00 *4* (quoted by 1992Tl02 from a Ph.D. thesis by I. Kholbaev from JINR, Dubna (1977)).

$^{149}_{64}Gd_{85}$-5

γ(^{149}Gd) (continued)

E_γ[†]	I_γ[†b]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[&]	δ[a]	α[c]	Comments
219.7	1.2 *6*	1992.49	3/2$^-$	1772.83	(3/2$^+$,1/2$^+$)	[E1]		0.0355 *5*	%Iγ=0.011 *6* α(K)=0.0301 *4*; α(L)=0.00424 *6*; α(M)=0.000915 *13* α(N)=0.0002086 *29*; α(O)=3.14×10^{-5} *4*; α(P)=1.858×10^{-6} *26*
252.3 *1*	10 *2*	1655.19	(3/2)$^+$	1402.91	(5/2$^-$)	[E1]		0.02475 *35*	%Iγ=0.089 *18* α(K)=0.02101 *29*; α(L)=0.00294 *4*; α(M)=0.000634 *9* α(N)=0.0001447 *20*; α(O)=2.190×10^{-5} *31*; α(P)=1.317×10^{-6} *18*
289.3 *3*	8 *2*	1085.5	(5/2$^-$,7/2,9/2$^-$)	796.2	9/2$^-$	D		0.061 *44*	%Iγ=0.072 *18*
307.79 *7*	30 *2*	1124.89	1/2$^+$,3/2$^+$,5/2$^+$	817.100	3/2$^-$	[E1]		0.01494 *21*	%Iγ=0.268 *19* α(K)=0.01270 *18*; α(L)=0.001757 *25*; α(M)=0.000379 *5* α(N)=8.66×10^{-5} *12*; α(O)=1.317×10^{-5} *18*; α(P)=8.10×10^{-7} *11*
317.4	7 *2*	1402.91	(5/2$^-$)	1085.5	(5/2$^-$,7/2,9/2$^-$)				%Iγ=0.063 *18*
321.9	2 *1*	1348.73	(1/2$^-$,3/2,5/2$^-$)	1026.840	3/2$^+$	[D,E2]		0.046 *33*	%Iγ=0.018 *9*
347.7	15[‡] *2*	1750.59	(3/2$^-$,5/2$^-$)	1402.91	(5/2$^-$)	[D,E2]		0.038 *27*	%Iγ=0.134 *18*
352.24 *2*	3333 *10*	352.234	3/2$^-$	0.0	7/2$^-$	E2		0.0371 *5*	%Iγ=29.8 *7* α(K)exp=0.0292; K/L=4.3 *2*; L/M=3.4 *5* (1972Vy08) α(N)=0.000320 *4*; α(O)=4.60×10^{-5} *6*; α(P)=1.868×10^{-6} *26* α(K)=0.0291 *4*; α(L)=0.00627 *9*; α(M)=0.001410 *20*
378.5 *1*	14 *2*	1992.49	3/2$^-$	1614.05	3/2$^+$	[E1]		0.00900 *13*	%Iγ=0.125 *18* α(K)=0.00767 *11*; α(L)=0.001049 *15*; α(M)=0.0002262 *32* α(N)=5.17×10^{-5} *7*; α(O)=7.90×10^{-6} *11*; α(P)=4.96×10^{-7} *7*
388.57 *2*	2080 *15*	1205.66	(1/2)$^-$	817.100	3/2$^-$	M1+E2	−0.21 *9*	0.0475 *11*	%Iγ=18.6 *5* α(N)=0.000284 *5*; α(O)=4.41×10^{-5} *8*; α(P)=2.95×10^{-6} *8* α(K)exp=0.044 *4*; K/L=6.8 *4*; L/M=3.2 *8* (1972Vy08) α(K)=0.0403 *9*; α(L)=0.00570 *9*; α(M)=0.001236 *20* δ: average of δ=−0.31 *9* from (389γ)(817γ)(θ) and −0.12 *4* for (389γ)(652γ)(θ) (1992Tl02). For J=3/2, δ=+0.21 *11* and +0.49 *8* (1992Tl02). Other: δ(E2/M1)<0.6 from ce data. (389γ)(165γ)(θ): A_2=−0.026 *25*, A_4=+0.04 *5*

γ(^{149}Gd) (continued)

E_γ[†]	I_γ[†b]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[&]	δ[a]	α[c]	Comments
									(1992Tl02). (389γ)(165γ)(θ): A_2=−0.12 3, A_4=−0.09 7 (1974Bu26). (389γ)(352γ)(θ): A_2=+0.01 3, A_4=+0.03 6 (1992Tl02). (389γ)(465γ)(θ): A_2=−0.09 4, A_4=−0.03 7 (1992Tl02). (389γ)(652γ)(θ): A_2=−0.10 3, A_4=+0.00 4 (1992Tl02). (389γ)(652γ)(θ): A_2=−0.19 3, A_4=−0.04 7 (1974Bu26). (389γ)(817γ)(θ): A_2=+0.010 23, A_4=−0.01 5 (1992Tl02). (389γ)(817γ)(θ): A_2=−0.10 5, A_4=+0.05 9 (1974Bu26).
390.3	13 3	1557.38	(1/2⁻,3/2)	1167.11	(3/2⁺)	[D,E2]		0.028 20	%Iγ=0.12 3
413.3 1	14 1	1557.38	(1/2⁻,3/2)	1144.08	(5/2)⁺	[D,E2]		0.024 17	%Iγ=0.125 10
432.5 2	8 2	1557.38	(1/2⁻,3/2)	1124.89	1/2⁺,3/2⁺,5/2⁺	[D,E2]		0.022 15	%Iγ=0.072 18
446.7 6	3 2	1614.05	3/2⁺	1167.11	(3/2⁺)				%Iγ=0.027 18
448.5	5[#] 1	1992.49	3/2⁻	1544.13	(3/2⁻,5/2⁻)				%Iγ=0.045 9
449.6	7[#] 2	1655.19	(3/2)⁺	1205.66	(1/2)⁻				%Iγ=0.063 18
464.85 2	640 9	817.100	3/2⁻	352.234	3/2⁻	M1(+E2)	−0.10 14	0.0303 7	%Iγ=5.73 15 α(K)=0.0258 7; α(L)=0.00359 7; α(M)=0.000778 15 α(K)exp=0.026 2; K/L=7.0 4; L/M=3.9 15 (1972Vy08) α(N)=0.0001790 34; α(O)=2.78×10⁻⁵ 6; α(P)=1.89×10⁻⁶ 5 δ: from (465γ)(352γ)(θ) (1992Tl02). Others: (465γ)(187γ)(θ) (1992Tl02) gives δ=+0.03 13; ce data give δ(E2/M1)<0.5. (465γ)(165γ)(θ): A_2=+0.14 12, A_4=−0.08 21 (1992Tl02). (465γ)(187γ)(θ): A_2=−0.22 10, A_4=+0.00 18 (1992Tl02). (465γ)(352γ)(θ): A_2=+0.08 3, A_4=+0.05 5 (1992Tl02).
469.9	1.0 6	1614.05	3/2⁺	1144.08	(5/2)⁺				%Iγ=0.009 6
472.4 1	26 4	1597.29	(1/2,3/2,5/2⁻)	1124.89	1/2⁺,3/2⁺,5/2⁺	[D,E2]		0.017 12	%Iγ=0.23 4
488.1 2	10 2	1655.19	(3/2)⁺	1167.11	(3/2⁺)				%Iγ=0.089 18
544.3	3 1	2158.36	(3/2)⁺	1614.05	3/2⁺				%Iγ=0.027 9
[x]570.5	1.8								%Iγ=0.0161 4

$^{149}_{64}$Gd$_{85}$-7

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

Eγ[†]	Iγ[†b]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[&]	δ[a]	α[c]	Comments
									Eγ: this γ ray was attributed to the decay of a 1557.4 level (1978Ja14); however, there is no level reported near 986.9 implied by this placement.
587.2	6 *2*	1614.05	3/2$^+$	1026.840	3/2$^+$				%Iγ=0.054 *18*
606.7	2 *1*	1402.91	(5/2$^-$)	796.2	9/2$^-$				%Iγ=0.018 *9*
614.2 *1*	19 *2*	2158.36	(3/2)$^+$	1544.13	(3/2$^-$,5/2$^-$)				%Iγ=0.170 *19*
620.7	8 *2*	2613.2	(1/2$^-$,3/2)	1992.49	3/2$^-$				%Iγ=0.072 *18*
625.7 *3*	2 *2*	1750.59	(3/2$^-$,5/2$^-$)	1124.89	1/2$^+$,3/2$^+$,5/2$^+$				%Iγ=0.018 *18*
628.4 *2*	9 *2*	1655.19	(3/2)$^+$	1026.840	3/2$^+$				%Iγ=0.081 *18*
648.0 *1*	69 *6*	1772.83	(3/2$^+$,1/2$^+$)	1124.89	1/2$^+$,3/2$^+$,5/2$^+$				%Iγ=0.62 *6*
652.12 *2*	1840 *25*	817.100	3/2$^-$	164.987	5/2$^-$	M1+E2	−0.57 *5*	0.01154 *25*	%Iγ=16.5 *4* α(K)exp=0.0085 *10*; K/L=7.8 *11*; L/M=2.9 *11* (1972Vy08) α(K)=0.00978 *21*; α(L)=0.001381 *26*; α(M)=0.000300 *6* α(N)=6.89×10^{-5} *13*; α(O)=1.066×10^{-5} *21*; α(P)=7.06×10^{-7} *16* δ: from (652γ)(165γ)(θ): A_2=+0.27 *3*, A_4=+0.01 *5* (1992Tl02). Other: δ(E2/M1)=0.9 *+7−4* from ce data. (652γ)(165γ)(θ): A_2=+0.20 *2*, A_4=−0.02 *4* (1974Bu26).
670.4	7[#] *2*	1487.60	(1/2,3/2)$^-$	817.100	3/2$^-$				%Iγ=0.063 *18*
670.8	9[#] *2*	2158.36	(3/2)$^+$	1487.60	(1/2,3/2)$^-$				%Iγ=0.081 *18*
674.61 *6*	77 *2*	1026.840	3/2$^+$	352.234	3/2$^-$	E1		2.47×10^{-3} *4*	%Iγ=0.689 *23* α(K)exp<0.0038 α(K)=0.002110 *30*; α(L)=0.000280 *4*; α(M)=6.03×10^{-5} *8* α(N)=1.383×10^{-5} *19*; α(O)=2.133×10^{-6} *30*; α(P)=1.405×10^{-7} *20* Mult.: α(K)exp gives δ(M2/E1)<0.25.
677.2 *1*	20 *2*	1844.31	(1/2$^-$,3/2,5/2$^-$)	1167.11	(3/2$^+$)				%Iγ=0.179 *19*
685.6	2.2 *8*	2088.47	(1/2$^-$,3/2,5/2$^-$)	1402.91	(5/2$^-$)				%Iγ=0.020 *8*
686.66 *8*	22 *2*	2300.72	(1/2$^-$,3/2)	1614.05	3/2$^+$				%Iγ=0.197 *19*
723.7	8[#] *2*	2126.6	(1/2$^-$,3/2,5/2$^-$)	1402.91	(5/2$^-$)				%Iγ=0.072 *18*
723.8	12[#] *2*	1750.59	(3/2$^-$,5/2$^-$)	1026.840	3/2$^+$				%Iγ=0.107 *18*
740.2 *1*	45 *2*	1557.38	(1/2$^-$,3/2)	817.100	3/2$^-$				%Iγ=0.403 *20*
746.0 *1*	34 *2*	1772.83	(3/2$^+$,1/2$^+$)	1026.840	3/2$^+$				%Iγ=0.304 *19*
772.65 *3*	182 *4*	1124.89	1/2$^+$,3/2$^+$,5/2$^+$	352.234	3/2$^-$	E1		1.87×10^{-3} *3*	%Iγ=1.63 *5* α(K)exp<0.0016 α(K)=0.001602 *22*; α(L)=0.0002115 *30*;

$^{149}_{64}$Gd$_{85}$-8

γ(^{149}Gd) (continued)

E_γ[†]	I_γ[†b]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[&]	δ[a]	α[c]	Comments
									α(M)=4.55×10^{-5} *6* α(N)=1.043×10^{-5} *15*; α(O)=1.611×10^{-6} *23*; α(P)=1.070×10^{-7} *15*
774.0	1.8 *9*	2261.54	(3/2,1/2$^-$)	1487.60	(1/2,3/2)$^-$				%Iγ=0.016 *8*
780.2	2.4 *6*	1597.29	(1/2,3/2,5/2$^-$)	817.100	3/2$^-$				%Iγ=0.021 *6*
786.8 *1*	15 *1*	1992.49	3/2$^-$	1205.66	(1/2)$^-$				%Iγ=0.134 *10*
791.8	7 *3*	1144.08	(5/2)$^+$	352.234	3/2$^-$				%Iγ=0.06 *3*
796.2	11 *3*	796.2	9/2$^-$	0.0	7/2$^-$	(M1+E2)	+0.18 *2*	0.00783 *11*	%Iγ=0.10 *3* α(K)=0.00666 *10*; α(L)=0.000912 *13*; α(M)=0.0001971 *28* α(N)=4.54×10^{-5} *6*; α(O)=7.07×10^{-6} *10*; α(P)=4.83×10^{-7} *7* Mult.,δ: from the Adopted Gammas.
796.9	2[#] *1*	1614.05	3/2$^+$	817.100	3/2$^-$				%Iγ=0.018 *9*
797.0	2[#] *1*	2199.90	(1/2$^-$,3/2,5/2$^-$)	1402.91	(5/2$^-$)				%Iγ=0.018 *9*
817.1 *2*	1313[@] *20*	817.100	3/2$^-$	0.0	7/2$^-$	E2		0.00425 *6*	%Iγ=11.8 *3* α(K)exp=0.0035 *5* α(N)=2.70×10^{-5} *4*; α(O)=4.10×10^{-6} *6*; α(P)=2.458×10^{-7} *34* α(K)=0.00356 *5*; α(L)=0.000540 *8*; α(M)=0.0001179 *17* Mult.: α(K)exp gives δ(E2/M1)>4.
817.5	7[#] *2*	1844.31	(1/2$^-$,3/2,5/2$^-$)	1026.840	3/2$^+$				%Iγ=0.063 *18*
825.4	7 *2*	1992.49	3/2$^-$	1167.11	(3/2$^+$)				%Iγ=0.063 *18*
838.1 *2*	8 *1*	1655.19	(3/2)$^+$	817.100	3/2$^-$				%Iγ=0.072 *9*
853.43 *1*	1750 *25*	1205.66	(1/2)$^-$	352.234	3/2$^-$	E2+M1	−8 *+6−23*	0.0039 *5*	%Iγ=15.7 *4* α(K)exp=0.0031 *2* α(K)=0.0033 *5*; α(L)=0.00049 *5*; α(M)=0.000107 *12* α(N)=2.45×10^{-5} *27*; α(O)=3.7×10^{-6} *4*; α(P)=2.27×10^{-7} *35* δ: for J=1/2, from (853γ)(187γ)(θ) (1992Tl02). J=3/2 gives δ=−2.0 *8*. Small values of δ given by γγ(θ) are ruled out by α(K)exp value, as α(K)exp gives E2. (853γ)(165γ)(θ): A_2=+0.31 *8*, A_4=+0.34 *16* (1992Tl02). (853γ)(187γ)(θ): A_2=−0.43 *5*, A_4=+0.00 *10* (1992Tl02). (853γ)(352γ)(θ): A_2=+0.101 *21*, A_4=−0.02 *4* (1992Tl02). (853γ)(352γ)(θ): A_2=+0.07 *3*, A_4=−0.05 *6* (1974Bu26).

$^{149}_{64}$Gd$_{85}$-9

γ(^{149}Gd) (continued)

E_γ[†]	I_γ[†b]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[&]	δ[a]	α[c]	Comments
858.6	8 *2*	2261.54	(3/2,1/2$^-$)	1402.91	(5/2$^-$)				%Iγ=0.072 *18*
861.86 *2*	849 *12*	1026.840	3/2$^+$	164.987	5/2$^-$	E1(+M2)	−0.05 *6*	0.00155 *15*	%Iγ=7.60 *19* α(K)exp=0.0009 *2* α(K)=0.00132 *12*; α(L)=0.000175 *19*; α(M)=3.8×10^{-5} *4* α(N)=8.6×10^{-6} *9*; α(O)=1.33×10^{-6} *15*; α(P)=8.9×10^{-8} *10* δ: from (862γ)(165γ)(θ): A_2=−0.13 *4*, A_4=+0.18 *11* (1992Tl02). (862γ)(165γ)(θ): A_2=−0.11 *3*, A_4=−0.03 *7* (1974Bu26).
867.6	4.5 *9*	1992.49	3/2$^-$	1124.89	1/2$^+$,3/2$^+$,5/2$^+$				%Iγ=0.040 *8*
920.5	3 *1*	1085.5	(5/2$^-$,7/2,9/2$^-$)	164.987	5/2$^-$				%Iγ=0.027 *9*
944.4 *2*	5 *2*	2088.47	(1/2$^-$,3/2,5/2$^-$)	1144.08	(5/2)$^+$				%Iγ=0.045 *18*
952.7 *1*	18 *2*	2158.36	(3/2)$^+$	1205.66	(1/2)$^-$				%Iγ=0.161 *19*
955.71 *5*	53 *3*	1772.83	(3/2$^+$,1/2$^+$)	817.100	3/2$^-$	(E1)		1.24×10^{-3} *2*	%Iγ=0.47 *3* α(K)exp=0.0018 *7* α(K)=0.001060 *15*; α(L)=0.0001387 *19*; α(M)=2.98×10^{-5} *4* α(N)=6.84×10^{-6} *10*; α(O)=1.059×10^{-6} *15*; α(P)=7.12×10^{-8} *10* Mult.: α(K)exp favors E1 over E2.
963.6	4 *2*	2088.47	(1/2$^-$,3/2,5/2$^-$)	1124.89	1/2$^+$,3/2$^+$,5/2$^+$				%Iγ=0.036 *18*
965.63 *5*	60 *3*	1992.49	3/2$^-$	1026.840	3/2$^+$				%Iγ=0.54 *3* α(K)exp=0.0024 *8* Mult.: α(K)exp gives E2(+M1), δ<1.5 but ΔJ^π requires E1.
979.09 *6*	56 *3*	1144.08	(5/2)$^+$	164.987	5/2$^-$	E1		1.18×10^{-3} *2*	%Iγ=0.50 *3* α(K)exp<0.0017 α(K)=0.001013 *14*; α(L)=0.0001324 *19*; α(M)=2.84×10^{-5} *4* α(N)=6.53×10^{-6} *9*; α(O)=1.011×10^{-6} *14*; α(P)=6.81×10^{-8} *10*
994.3	4 *1*	2199.90	(1/2$^-$,3/2,5/2$^-$)	1205.66	(1/2)$^-$				%Iγ=0.036 *9*
996.5 *1*	14 *1*	1348.73	(1/2$^-$,3/2,5/2$^-$)	352.234	3/2$^-$				%Iγ=0.125 *10*
1001.7[d]	≤3[#]	2126.6	(1/2$^-$,3/2,5/2$^-$)	1124.89	1/2$^+$,3/2$^+$,5/2$^+$				%Iγ≤0.027
1002.1	32[#] *2*	1167.11	(3/2$^+$)	164.987	5/2$^-$				%Iγ=0.286 *19*
1027.2 *2*	2 *1*	1844.31	(1/2$^-$,3/2,5/2$^-$)	817.100	3/2$^-$				%Iγ=0.018 *9*
1032.8	10[#] *3*	2199.90	(1/2$^-$,3/2,5/2$^-$)	1167.11	(3/2$^+$)				%Iγ=0.09 *3*
1033.4	28[#] *5*	2158.36	(3/2)$^+$	1124.89	1/2$^+$,3/2$^+$,5/2$^+$	(M1)		0.00423 *6*	%Iγ=0.25 *5* α(K)exp=0.0058 *12* α(N)=2.426×10^{-5} *34*; α(O)=3.78×10^{-6} *5*;

γ(^{149}Gd) (continued)

E_γ [†]	I_γ [†b]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [&]	δ [a]	α [c]	Comments
									α(P)=2.60×10^{-7} *4* α(K)=0.00361 *5*; α(L)=0.000488 *7*; α(M)=0.0001054 *15* Mult.: α(K)exp gives M1 or M2+E3. The conversion electron line is is unresolved from that of another γ, but probably dominated by this transition.
1040.65 *4*	165 *5*	1205.66	(1/2)$^-$	164.987	5/2$^-$	(E2)		2.53×10^{-3} *4*	%Iγ=1.48 *6* α(K)exp=0.0026 *3* α(K)=0.002141 *30*; α(L)=0.000308 *4*; α(M)=6.68×10^{-5} *9* α(N)=1.532×10^{-5} *21*; α(O)=2.349×10^{-6} *33*; α(P)=1.483×10^{-7} *21* Mult.: α(K)exp gives E2+M1 with δ(E2/M1)=1.5 *+14−5*, but ΔJ^π requires E2.
1045.9	4 *2*	2590.05	(1/2$^-$,3/2)	1544.13	(3/2$^-$,5/2$^-$)				%Iγ=0.036 *18*
1055.1	3 [#] *1*	2599.31	(1/2$^-$,3/2)	1544.13	(3/2$^-$,5/2$^-$)				%Iγ=0.027 *9*
1055.8	14 [#] *4*	2199.90	(1/2$^-$,3/2,5/2$^-$)	1144.08	(5/2)$^+$				%Iγ=0.13 *4*
1061.6 *1*	7 *1*	2088.47	(1/2$^-$,3/2,5/2$^-$)	1026.840	3/2$^+$				%Iγ=0.063 *9*
1069.6	3 *1*	2683.42	(1/2$^+$,3/2)	1614.05	3/2$^+$				%Iγ=0.027 *9*
1075.0 *1*	8 *1*	2199.90	(1/2$^-$,3/2,5/2$^-$)	1124.89	1/2$^+$,3/2$^+$,5/2$^+$				%Iγ=0.072 *9*
1085.5	6 *3*	1085.5	(5/2$^-$,7/2,9/2$^-$)	0.0	7/2$^-$				%Iγ=0.05 *3*
1094.3 *3*	3 *1*	2261.54	(3/2,1/2$^-$)	1167.11	(3/2$^+$)				%Iγ=0.027 *9*
1102.5	3 *1*	2590.05	(1/2$^-$,3/2)	1487.60	(1/2,3/2)$^-$				%Iγ=0.027 *9*
1111.7	1.6 *8*	2599.31	(1/2$^-$,3/2)	1487.60	(1/2,3/2)$^-$				%Iγ=0.014 *8*
1117.5	12 *2*	2261.54	(3/2,1/2$^-$)	1144.08	(5/2)$^+$				%Iγ=0.107 *18*
1131.65 *7*	89 *3*	2158.36	(3/2)$^+$	1026.840	3/2$^+$	(M1)		0.00341 *5*	%Iγ=0.80 *4* α(K)exp=0.0049 α(K)=0.00291 *4*; α(L)=0.000392 *5*; α(M)=8.47×10^{-5} *12* α(N)=1.950×10^{-5} *27*; α(O)=3.04×10^{-6} *4*; α(P)=2.095×10^{-7} *29*; α(IPF)=1.042×10^{-6} *15* Mult.: α(K)exp gives M1 or M2+E3.
1135.3 *1*	134 *4*	1487.60	(1/2,3/2)$^-$	352.234	3/2$^-$	M1(+E2)	<0.7	0.00317 *21*	%Iγ=1.20 *5* α(K)exp=0.0039 *13* α(K)=0.00271 *18*; α(L)=0.000367 *23*; α(M)=7.9×10^{-5} *5* α(N)=1.82×10^{-5} *11*; α(O)=2.84×10^{-6} *18*; α(P)=1.94×10^{-7} *14*; α(IPF)=1.154×10^{-6} *26*
1136.6	3 *2*	2261.54	(3/2,1/2$^-$)	1124.89	1/2$^+$,3/2$^+$,5/2$^+$				%Iγ=0.027 *18*
1139.5	4 *1*	2683.42	(1/2$^+$,3/2)	1544.13	(3/2$^-$,5/2$^-$)				%Iγ=0.036 *9*

γ(^{149}Gd) (continued)

E_γ[†]	I_γ[†b]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[&]	α[c]	Comments
1144.09 *9*	33 *3*	1144.08	(5/2)$^+$	0.0	7/2$^-$	D,E2	0.0021 *12*	%Iγ=0.30 *3* α(K)exp<0.0029 Mult.: α(K)exp gives M1,E2 or E1.
1167.10 *7*	55 *3*	1167.11	(3/2$^+$)	0.0	7/2$^-$	(M2)	0.00762 *11*	%Iγ=0.49 *3* α(K)exp=0.0069 *23* α(K)=0.00645 *9*; α(L)=0.000922 *13*; α(M)=0.0002006 *28* α(N)=4.62$\times10^{-5}$ *6*; α(O)=7.19$\times10^{-6}$ *10*; α(P)=4.86$\times10^{-7}$ *7*; α(IPF)=5.77$\times10^{-7}$ *8* Mult.: α(K)exp gives δ(E3/M2)<0.7.
1175.4	370[#] *15*	1992.49	3/2$^-$	817.100	3/2$^-$	M1	0.00312 *4*	%Iγ=3.31 *15* α(K)exp=0.0030 *3* α(N)=1.780$\times10^{-5}$ *25*; α(O)=2.78$\times10^{-6}$ *4*; α(P)=1.914$\times10^{-7}$ *27*; α(IPF)=3.60$\times10^{-6}$ *5* α(K)=0.00266 *4*; α(L)=0.000358 *5*; α(M)=7.73$\times10^{-5}$ *11* Mult.: from α(K)exp; ce(K) contains some contribution from another transition (2300 level to 1124 level).
1175.8	21[#] *4*	2300.72	(1/2$^-$,3/2)	1124.89	1/2$^+$,3/2$^+$,5/2$^+$			%Iγ=0.19 *4*
1183.7 *2*	8 *2*	1348.73	(1/2$^-$,3/2,5/2$^-$)	164.987	5/2$^-$			%Iγ=0.072 *18*
1187.1	5 *3*	2590.05	(1/2$^-$,3/2)	1402.91	(5/2$^-$)			%Iγ=0.04 *3*
1191.89 *8*	42 *3*	1544.13	(3/2$^-$,5/2$^-$)	352.234	3/2$^-$			%Iγ=0.38 *3*
1205.20 *8*	43 *4*	1557.38	(1/2$^-$,3/2)	352.234	3/2$^-$			%Iγ=0.38 *4*
1205.6[d]	≤2	1205.66	(1/2)$^-$	0.0	7/2$^-$			%Iγ≤0.018
1234.7 *2*	7.5 *13*	2261.54	(3/2,1/2$^-$)	1026.840	3/2$^+$			%Iγ=0.067 *12*
1245.1	3 *1*	1597.29	(1/2,3/2,5/2$^-$)	352.234	3/2$^-$			%Iγ=0.027 *9*
1261.7 *2*	13 *2*	1614.05	3/2$^+$	352.234	3/2$^-$			%Iγ=0.116 *18*
1269.7	1.6 *9*	2757.20	(1/2,3/2)	1487.60	(1/2,3/2)$^-$			%Iγ=0.014 *8*
1273.9	1.6 *8*	2300.72	(1/2$^-$,3/2)	1026.840	3/2$^+$			%Iγ=0.014 *8*
1277.0	4 *2*	2482.74	(1/2$^+$,3/2,5/2$^-$)	1205.66	(1/2)$^-$			%Iγ=0.036 *18*
1280.8 *1*	10 *1*	2824.98	(1/2,3/2)$^-$	1544.13	(3/2$^-$,5/2$^-$)			%Iγ=0.089 *10*
1302.92 *8*	91 *3*	1655.19	(3/2)$^+$	352.234	3/2$^-$	E1	0.000777 *11*	%Iγ=0.81 *4* α(K)exp<0.00107 α=0.000777 *11*; α(K)=0.000604 *8*; α(L)=7.81$\times10^{-5}$ *11*; α(M)=1.675$\times10^{-5}$ *23* α(N)=3.85$\times10^{-6}$ *5*; α(O)=5.98$\times10^{-7}$ *8*; α(P)=4.07$\times10^{-8}$ *6*; α(IPF)=7.37$\times10^{-5}$ *10*
1320.9	1.3 *6*	2808.6	(1/2,3/2,5/2$^-$)	1487.60	(1/2,3/2)$^-$			%Iγ=0.012 *6*
1322.7 *1*	10 *1*	1487.60	(1/2,3/2)$^-$	164.987	5/2$^-$			%Iγ=0.089 *10*
1337.5	2.2 *8*	2824.98	(1/2,3/2)$^-$	1487.60	(1/2,3/2)$^-$			%Iγ=0.020 *8*
1338.6	5 *2*	2482.74	(1/2$^+$,3/2,5/2$^-$)	1144.08	(5/2)$^+$			%Iγ=0.045 *18*
1341.19 *6*	260 *10*	2158.36	(3/2)$^+$	817.100	3/2$^-$	E1	0.000765 *11*	%Iγ=2.33 *10* α(K)exp=0.00074 *30* α=0.000765 *11*; α(K)=0.000575 *8*; α(L)=7.42$\times10^{-5}$ *10*;

$^{149}_{64}$Gd$_{85}$-12

γ(^{149}Gd) (continued)

Eγ†	Iγ†b	Ei(level)	Jπi	Ef	Jπf	Mult.&	αc	Comments
								α(M)=1.591×10⁻⁵ 22 α(N)=3.65×10⁻⁶ 5; α(O)=5.68×10⁻⁷ 8; α(P)=3.88×10⁻⁸ 5; α(IPF)=9.57×10⁻⁵ 13
1344.5	2 1	2999.64	(3/2)	1655.19	(3/2)+			%Iγ=0.018 9
1357.8	1.3 8	2482.74	(1/2+,3/2,5/2−)	1124.89	1/2+,3/2+,5/2+			%Iγ=0.012 8
1363.8	2.8 7	2570.1	(1/2,3/2,5/2−)	1205.66	(1/2)−			%Iγ=0.025 7
1366.0	2 1	3021.06	(3/2)	1655.19	(3/2)+			%Iγ=0.018 9
1368.9	5 1	2913.08	(1/2,3/2)	1544.13	(3/2−,5/2−)			%Iγ=0.045 9
1379.1 1	42 2	1544.13	(3/2−,5/2−)	164.987	5/2−			%Iγ=0.376 20
1384.4	2 1	2590.05	(1/2−,3/2)	1205.66	(1/2)−			%Iγ=0.018 9
1392.3 3	6 2	1557.38	(1/2−,3/2)	164.987	5/2−			%Iγ=0.054 18
1398.3 3	6 2	1750.59	(3/2−,5/2−)	352.234	3/2−			%Iγ=0.054 18
1402.4	1.0 5	2570.1	(1/2,3/2,5/2−)	1167.11	(3/2+)			%Iγ=0.009 5
1402.4	0.9 5	2999.64	(3/2)	1597.29	(1/2,3/2,5/2−)			%Iγ=0.008 5
1402.91 9	49 3	1402.91	(5/2−)	0.0	7/2−			%Iγ=0.44 3
1420.6 1	10 1	1772.83	(3/2+,1/2+)	352.234	3/2−			%Iγ=0.089 10
1422.1	5 2	2824.98	(1/2,3/2)−	1402.91	(5/2−)			%Iγ=0.045 18
1425.6 3	7 2	2913.08	(1/2,3/2)	1487.60	(1/2,3/2)−			%Iγ=0.063 18
1444.4	9 2	2261.54	(3/2,1/2−)	817.100	3/2−			%Iγ=0.081 18
1449.10 8	106 4	1614.05	3/2+	164.987	5/2−	E1	0.000753 11	%Iγ=0.95 4 α(K)exp<0.0009 α=0.000753 11; α(K)=0.000503 7; α(L)=6.48×10⁻⁵ 9; α(M)=1.389×10⁻⁵ 19 α(N)=3.19×10⁻⁶ 4; α(O)=4.96×10⁻⁷ 7; α(P)=3.40×10⁻⁸ 5; α(IPF)=0.0001680 24
1465.1	1.2 7	2590.05	(1/2−,3/2)	1124.89	1/2+,3/2+,5/2+			%Iγ=0.011 7
1474.3	2 1	2599.31	(1/2−,3/2)	1124.89	1/2+,3/2+,5/2+			%Iγ=0.018 9
1477.7 2	8 2	2683.42	(1/2+,3/2)	1205.66	(1/2)−			%Iγ=0.072 18
1483.6 1	27 3	2300.72	(1/2−,3/2)	817.100	3/2−			%Iγ=0.24 3
1488.3	7 2	2613.2	(1/2−,3/2)	1124.89	1/2+,3/2+,5/2+			%Iγ=0.063 18
1490.3 2	20 3	1655.19	(3/2)+	164.987	5/2−			%Iγ=0.18 3
1492.2 3	12 2	1844.31	(1/2−,3/2,5/2−)	352.234	3/2−			%Iγ=0.107 18
1497.0	4 1	2314.1	(1/2−,3/2,5/2−)	817.100	3/2−			%Iγ=0.036 9
1497.6	1.8 7	2703.3	(1/2−,3/2,5/2−)	1205.66	(1/2)−			%Iγ=0.016 7
1512.1 2	9 2	2999.64	(3/2)	1487.60	(1/2,3/2)−			%Iγ=0.081 18
1515.3	4 2	2918.2	(1/2−,3/2,5/2−)	1402.91	(5/2−)			%Iγ=0.036 18
1536.2	3 1	2703.3	(1/2−,3/2,5/2−)	1167.11	(3/2+)			%Iγ=0.027 9
1539.6 4	6 2	2683.42	(1/2+,3/2)	1144.08	(5/2)+			%Iγ=0.054 18
1543.4 3	8 2	2570.1	(1/2,3/2,5/2−)	1026.840	3/2+			%Iγ=0.072 18
1544.1 2	9 2	1544.13	(3/2−,5/2−)	0.0	7/2−			%Iγ=0.081 18
1558.5 1	11 2	2683.42	(1/2+,3/2)	1124.89	1/2+,3/2+,5/2+			%Iγ=0.098 18
1563.2	1.4 8	2590.05	(1/2−,3/2)	1026.840	3/2+			%Iγ=0.013 8
1572.4	1.5 8	2599.31	(1/2−,3/2)	1026.840	3/2+			%Iγ=0.013 8

γ(^{149}Gd) (continued)

Eγ[†]	Iγ[†b]	Ei(level)	J^π_i	Ef	J^π_f	Mult.[&]	δ[a]	α[c]	Comments
1574.8	6 2	2977.72	(1/2⁻,3/2)	1402.91	(5/2⁻)				%Iγ=0.054 18
1585.6 1	19 1	1750.59	(3/2⁻,5/2⁻)	164.987	5/2⁻				%Iγ=0.170 10
1586.4	4 1	2613.2	(1/2⁻,3/2)	1026.840	3/2⁺				%Iγ=0.036 9
1592.4	5 2	3206.43	(3/2)	1614.05	3/2⁺				%Iγ=0.045 18
1623.8	2.0 9	2768.0	(1/2⁺,3/2,5/2⁻)	1144.08	(5/2)⁺				%Iγ=0.018 8
1632.3	3 1	2757.20	(1/2,3/2)	1124.89	1/2⁺,3/2⁺,5/2⁺				%Iγ=0.027 9
1640.26 6	360 10	1992.49	3/2⁻	352.234	3/2⁻	E2(+M1)	>1	0.00127 11	%Iγ=3.22 11 α(K)exp=0.00095 10 α(K)=0.00097 9; α(L)=0.000130 11; α(M)=2.81×10^{-5} 24 α(N)=6.5×10^{-6} 6; α(O)=1.00×10^{-6} 9; α(P)=6.8×10^{-8} 7; α(IPF)=0.000130 5
1641.3	1.6 8	2808.6	(1/2,3/2,5/2⁻)	1167.11	(3/2⁺)				%Iγ=0.014 8
1651.0	0.8 5	2999.64	(3/2)	1348.73	(1/2⁻,3/2,5/2⁻)				%Iγ=0.007 5
1656.2	2[#] 1	2861.8	(1/2⁻,3/2)	1205.66	(1/2)⁻				%Iγ=0.018 9
1656.8	21[#] 2	2683.42	(1/2⁺,3/2)	1026.840	3/2⁺				%Iγ=0.188 19
1657.3	2.4[#] 9	3201.4	(3/2,1/2⁻)	1544.13	(3/2⁻,5/2⁻)				%Iγ=0.021 8
1662.3	2 1	3206.43	(3/2)	1544.13	(3/2⁻,5/2⁻)				%Iγ=0.018 9
1679.3 1	18 2	1844.31	(1/2⁻,3/2,5/2⁻)	164.987	5/2⁻				%Iγ=0.161 19
1694.7	3 2	2861.8	(1/2⁻,3/2)	1167.11	(3/2⁺)				%Iγ=0.027 18
1699.5	3 1	3313.62	(3/2⁻)	1614.05	3/2⁺				%Iγ=0.027 9
1707.5 3	3 1	2913.08	(1/2,3/2)	1205.66	(1/2)⁻				%Iγ=0.027 9
1718.9	1.0 6	3206.43	(3/2)	1487.60	(1/2,3/2)⁻				%Iγ=0.009 6
1730.4	2.5	2757.20	(1/2,3/2)	1026.840	3/2⁺				%Iγ=0.0224 5
1736.3 2	6.5 9	2088.47	(1/2⁻,3/2,5/2⁻)	352.234	3/2⁻				%Iγ=0.058 9
1751.0[d] 4	4 2	1750.59	(3/2⁻,5/2⁻)	0.0	7/2⁻				%Iγ=0.036 18
1755.6	2.3 2	2922.7	(1/2,3/2)	1167.11	(3/2⁺)				%Iγ=0.0206 19
1755.8	2.3 9	2961.5	(1/2⁻,3/2,5/2⁻)	1205.66	(1/2)⁻				%Iγ=0.021 8
1769.4	2 1	3313.62	(3/2⁻)	1544.13	(3/2⁻,5/2⁻)				%Iγ=0.018 9
1772.7	2[#] 1	3175.59	(1/2⁻,3/2)	1402.91	(5/2⁻)				%Iγ=0.018 9
1772.8[d]	2[@] 2	1772.83	(3/2⁺,1/2⁺)	0.0	7/2⁻				%Iγ=0.018 18
1772.9	6[#] 2	2590.05	(1/2⁻,3/2)	817.100	3/2⁻				%Iγ=0.054 18
1774.4	6 2	2126.6	(1/2⁻,3/2,5/2⁻)	352.234	3/2⁻				%Iγ=0.054 18
1782.2 1	25 2	2599.31	(1/2⁻,3/2)	817.100	3/2⁻				%Iγ=0.224 19
1788.1	3 1	2913.08	(1/2,3/2)	1124.89	1/2⁺,3/2⁺,5/2⁺				%Iγ=0.027 9
1794.1	1.7 8	2999.64	(3/2)	1205.66	(1/2)⁻				%Iγ=0.015 8
1797.8	2 1	3003.4	(1/2⁻,3/2)	1205.66	(1/2)⁻				%Iγ=0.018 9
1798.2	16[#] 2	2824.98	(1/2,3/2)⁻	1026.840	3/2⁺				%Iγ=0.143 19
1798.5	3[#] 2	3201.4	(3/2,1/2⁻)	1402.91	(5/2⁻)				%Iγ=0.027 18
1803.5	1.7 9	3206.43	(3/2)	1402.91	(5/2⁻)				%Iγ=0.015 8
1806.0 1	50 3	2158.36	(3/2)⁺	352.234	3/2⁻				%Iγ=0.45 3

From ENSDF

$^{149}_{64}$Gd$_{85}$-14

γ(^{149}Gd) (continued)

E_γ[†]	I_γ[†b]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[&]	δ[a]	α[c]	Comments
1810.6 2	7 1	2977.72	(1/2⁻,3/2)	1167.11	(3/2⁺)				%Iγ=0.063 9
1826.0	9[#] 2	3313.62	(3/2⁻)	1487.60	(1/2,3/2)⁻				%Iγ=0.081 18
1826.9	1.0[#] 4	3175.59	(1/2⁻,3/2)	1348.73	(1/2⁻,3/2,5/2⁻)				%Iγ=0.009 4
1827.5	124[@] 6	1992.49	3/2⁻	164.987	5/2⁻	M1(+E2)	<1	0.00128 8	%Iγ=1.11 6 α(K)exp=0.0012 3 α(K)=0.00090 6; α(L)=0.000120 8; α(M)=2.58×10^{-5} 17 α(N)=5.9×10^{-6} 4; α(O)=9.3×10^{-7} 6; α(P)=6.4×10^{-8} 5; α(IPF)=0.000229 8 Mult.,δ: α(K)exp agrees with mult=E3 also.
1835.0	2.5 8	2861.8	(1/2⁻,3/2)	1026.840	3/2⁺				%Iγ=0.022 8
1847.7	9 1	2199.90	(1/2⁻,3/2,5/2⁻)	352.234	3/2⁻				%Iγ=0.081 10
1852.8	2 1	2977.72	(1/2⁻,3/2)	1124.89	1/2⁺,3/2⁺,5/2⁺				%Iγ=0.018 9
1855.6	3 2	2999.64	(3/2)	1144.08	(5/2)⁺				%Iγ=0.027 18
1859.3	3 1	3403.4	(1/2⁻,3/2)	1544.13	(3/2⁻,5/2⁻)				%Iγ=0.027 9
1874.6 1	30 2	2999.64	(3/2)	1124.89	1/2⁺,3/2⁺,5/2⁺				%Iγ=0.268 19
1877.1	3 2	3021.06	(3/2)	1144.08	(5/2)⁺				%Iγ=0.027 18
1877.7	2 1	3365.23	(3/2)	1487.60	(1/2,3/2)⁻				%Iγ=0.018 9
1878.5	8 2	3003.4	(1/2⁻,3/2)	1124.89	1/2⁺,3/2⁺,5/2⁺				%Iγ=0.072 18
1895.9	0.7 4	2922.7	(1/2,3/2)	1026.840	3/2⁺				%Iγ=0.006 4
1896.3	2.6 9	3021.06	(3/2)	1124.89	1/2⁺,3/2⁺,5/2⁺				%Iγ=0.023 8
1909.3 1	25 2	2261.54	(3/2,1/2⁻)	352.234	3/2⁻				%Iγ=0.224 19
1912.7 3	7 2	3079.8	(1/2,3/2)	1167.11	(3/2⁺)				%Iγ=0.063 18
1915.8	3 1	3403.4	(1/2⁻,3/2)	1487.60	(1/2,3/2)⁻				%Iγ=0.027 9
1916.1	4 2	3319.0	(1/2⁻,3/2)	1402.91	(5/2⁻)				%Iγ=0.036 18
1918.4	1.2 6	3124.06	(1/2,3/2)	1205.66	(1/2)⁻				%Iγ=0.011 6
1923.4	1.1 6	2088.47	(1/2⁻,3/2,5/2⁻)	164.987	5/2⁻				%Iγ=0.010 6
1931.0	1.2 6	3418.8	(1/2⁻,3/2)	1487.60	(1/2,3/2)⁻				%Iγ=0.011 6
1940.1 1	35 3	2757.20	(1/2,3/2)	817.100	3/2⁻				%Iγ=0.31 3
1943.7	0.6 4	3149.4	(1/2,3/2)	1205.66	(1/2)⁻				%Iγ=0.005 4
1948.5 1	46 2	2300.72	(1/2⁻,3/2)	352.234	3/2⁻				%Iγ=0.412 20
1950.9	1.6 8	2977.72	(1/2⁻,3/2)	1026.840	3/2⁺				%Iγ=0.014 8
1970.0	4 1	3175.59	(1/2⁻,3/2)	1205.66	(1/2)⁻				%Iγ=0.036 9
1972.9 2	18 2	2999.64	(3/2)	1026.840	3/2⁺				%Iγ=0.161 19
1976.6	3 2	3003.4	(1/2⁻,3/2)	1026.840	3/2⁺				%Iγ=0.027 18
1991.8	4[#] 2	2808.6	(1/2,3/2,5/2⁻)	817.100	3/2⁻				%Iγ=0.036 18
1992.5[d]	2[@] 2	1992.49	3/2⁻	0.0	7/2⁻				%Iγ=0.018 18
1993.3	6[#] 2	2158.36	(3/2)⁺	164.987	5/2⁻				%Iγ=0.054 18
1994.4	3 1	3021.06	(3/2)	1026.840	3/2⁺				%Iγ=0.027 9
2000.8	2 1	3206.43	(3/2)	1205.66	(1/2)⁻				%Iγ=0.018 9
2007.9 1	88 3	2824.98	(1/2,3/2)⁻	817.100	3/2⁻	E2(+M1)	>2	1.03×10^{-3} 3	%Iγ=0.79 4

$^{149}_{64}Gd_{85}$-15

γ(^{149}Gd) (continued)

E_γ [†]	I_γ [†b]	E_i(level)	J^π_i	E_f	J^π_f	Comments
						α(K)exp=0.00055 *10* α(K)=0.000625 *19*; α(L)=8.29×10^{-5} *25*; α(M)=1.78×10^{-5} *5* α(N)=4.10×10^{-6} *13*; α(O)=6.38×10^{-7} *20*; α(P)=4.35×10^{-8} *15*; α(IPF)=0.000295 *6*
2008.5	3 *2*	3175.59	(1/2$^-$,3/2)	1167.11	(3/2$^+$)	%Iγ=0.027 *18*
2024.4	1.6 *9*	3149.4	(1/2,3/2)	1124.89	1/2$^+$,3/2$^+$,5/2$^+$	%Iγ=0.014 *8*
2034.3	5[#] *3*	3201.4	(3/2,1/2$^-$)	1167.11	(3/2$^+$)	%Iγ=0.04 *3*
2034.8	19[#] *3*	2199.90	(1/2$^-$,3/2,5/2$^-$)	164.987	5/2$^-$	%Iγ=0.17 *3*
2044.7	1.7 *8*	2861.8	(1/2$^-$,3/2)	817.100	3/2$^-$	%Iγ=0.015 *8*
2050.7 *4*	5 *2*	3175.59	(1/2$^-$,3/2)	1124.89	1/2$^+$,3/2$^+$,5/2$^+$	%Iγ=0.045 *18*
2062.3	1.1 *7*	3206.43	(3/2)	1144.08	(5/2)$^+$	%Iγ=0.010 *7*
2073.0	3 *1*	3099.76	(1/2$^-$,3/2)	1026.840	3/2$^+$	%Iγ=0.027 *9*
2076.4	4 *1*	3201.4	(3/2,1/2$^-$)	1124.89	1/2$^+$,3/2$^+$,5/2$^+$	%Iγ=0.036 *9*
2096.5	4[#] *1*	2261.54	(3/2,1/2$^-$)	164.987	5/2$^-$	%Iγ=0.036 *9*
2097.1	4[#] *1*	3124.06	(1/2,3/2)	1026.840	3/2$^+$	%Iγ=0.036 *9*
2105.6 *3*	10 *2*	2922.7	(1/2,3/2)	817.100	3/2$^-$	%Iγ=0.089 *18*
2108.2 *3*	9 *2*	3313.62	(3/2$^-$)	1205.66	(1/2)$^-$	%Iγ=0.081 *18*
2130.5 *2*	14 *2*	2482.74	(1/2$^+$,3/2,5/2$^-$)	352.234	3/2$^-$	%Iγ=0.125 *18*
2135.0	1.4 *7*	3340.6	(1/2$^+$,3/2)	1205.66	(1/2)$^-$	%Iγ=0.013 *7*
2135.7 *2*	12 *2*	2300.72	(1/2$^-$,3/2)	164.987	5/2$^-$	%Iγ=0.107 *18*
2148.8	4 *1*	3175.59	(1/2$^-$,3/2)	1026.840	3/2$^+$	%Iγ=0.036 *9*
2149.1	3 *1*	2314.1	(1/2$^-$,3/2,5/2$^-$)	164.987	5/2$^-$	%Iγ=0.027 *9*
2151.5	2 *1*	2503.71	(1/2$^-$,3/2,5/2$^-$)	352.234	3/2$^-$	%Iγ=0.018 *9*
2160.6	2.3 *9*	2977.72	(1/2$^-$,3/2)	817.100	3/2$^-$	%Iγ=0.021 *8*
2179.6	5 *1*	3206.43	(3/2)	1026.840	3/2$^+$	%Iγ=0.045 *9*
2182.6 *1*	48 *3*	2999.64	(3/2)	817.100	3/2$^-$	%Iγ=0.43 *3*
2186.3	3 *2*	3003.4	(1/2$^-$,3/2)	817.100	3/2$^-$	%Iγ=0.027 *18*
2188.6	3 *1*	3313.62	(3/2$^-$)	1124.89	1/2$^+$,3/2$^+$,5/2$^+$	%Iγ=0.027 *9*
2196.5	2.1 *7*	3340.6	(1/2$^+$,3/2)	1144.08	(5/2)$^+$	%Iγ=0.019 *7*
2204.1	3 *1*	3021.06	(3/2)	817.100	3/2$^-$	%Iγ=0.027 *9*
2212.9	2.2 *7*	3418.8	(1/2$^-$,3/2)	1205.66	(1/2)$^-$	%Iγ=0.020 *7*
2221.1	1.0 *6*	3365.23	(3/2)	1144.08	(5/2)$^+$	%Iγ=0.009 *6*
2231.5	2.4 *6*	3258.4	(1/2,3/2)	1026.840	3/2$^+$	%Iγ=0.021 *6*
2237.8 *1*	17 *2*	2590.05	(1/2$^-$,3/2)	352.234	3/2$^-$	%Iγ=0.152 *19*
2246.1	1.4 *7*	3272.9	(1/2,3/2)	1026.840	3/2$^+$	%Iγ=0.013 *7*
2247.0 *2*	17 *2*	2599.31	(1/2$^-$,3/2)	352.234	3/2$^-$	%Iγ=0.152 *19*
2253.7	2.9 *8*	3070.8	(1/2$^-$,3/2)	817.100	3/2$^-$	%Iγ=0.026 *8*
2261.0	16[#] *2*	2613.2	(1/2$^-$,3/2)	352.234	3/2$^-$	%Iγ=0.143 *19*
2261.5[d]	3[@] *3*	2261.54	(3/2,1/2$^-$)	0.0	7/2$^-$	%Iγ=0.03 *3*
2282.6 *1*	43 *3*	3099.76	(1/2$^-$,3/2)	817.100	3/2$^-$	%Iγ=0.38 *3*
2317.9	1.9 *7*	3442.8	(1/2,3/2)	1124.89	1/2$^+$,3/2$^+$,5/2$^+$	%Iγ=0.017 *7*
2319.0	1.1 *5*	3486.2	(1/2,3/2)	1167.11	(3/2$^+$)	%Iγ=0.010 *5*
2338.7 *2*	9 *2*	2503.71	(1/2$^-$,3/2,5/2$^-$)	164.987	5/2$^-$	%Iγ=0.081 *18*
2358.5	0.8 *5*	3175.59	(1/2$^-$,3/2)	817.100	3/2$^-$	%Iγ=0.007 *5*

$^{149}_{64}Gd_{85}$-16

γ(^{149}Gd) (continued)

E_γ †	I_γ †b	E_i(level)	J_i^π	E_f	J_f^π	Comments
2384.3	1.6 6	3201.4	(3/2,1/2⁻)	817.100	3/2⁻	%Iγ=0.014 6
2389.3 3	5 1	3206.43	(3/2)	817.100	3/2⁻	%Iγ=0.045 9
2404.9 2	11 2	2757.20	(1/2,3/2)	352.234	3/2⁻	%Iγ=0.098 18
2414.0	0.8 5	3231.2	(1/2⁻,3/2)	817.100	3/2⁻	%Iγ=0.007 5
2415.8 4	3 1	2768.0	(1/2⁺,3/2,5/2⁻)	352.234	3/2⁻	%Iγ=0.027 9
2434.5 4	5 1	2599.31	(1/2⁻,3/2)	164.987	5/2⁻	%Iγ=0.045 9
2440.0	0.7 4	3466.8	(1/2⁻,3/2)	1026.840	3/2⁺	%Iγ=0.006 4
2441.3	1.5 7	3258.4	(1/2,3/2)	817.100	3/2⁻	%Iγ=0.013 7
2446.4	0.7 4	3473.2	(1/2⁻,3/2)	1026.840	3/2⁺	%Iγ=0.006 4
2448.2	13# 2	2613.2	(1/2⁻,3/2)	164.987	5/2⁻	%Iγ=0.116 18
2455.8	3# 1	3272.9	(1/2,3/2)	817.100	3/2⁻	%Iγ=0.027 9
2456.2	5# 1	2808.6	(1/2,3/2,5/2⁻)	352.234	3/2⁻	%Iγ=0.045 9
2472.7 2	11 2	2824.98	(1/2,3/2)⁻	352.234	3/2⁻	%Iγ=0.098 18
2478.3	2.7 8	2830.6	(1/2,3/2,5/2⁻)	352.234	3/2⁻	%Iγ=0.024 8
2496.4 2	11 2	3313.62	(3/2⁻)	817.100	3/2⁻	%Iγ=0.098 18
2508.3	0.7 4	3535.1	(3/2⁺)	1026.840	3/2⁺	%Iγ=0.006 4
2523.5	1.9 7	3340.6	(1/2⁺,3/2)	817.100	3/2⁻	%Iγ=0.017 7
2538.3 4	5 2	2703.3	(1/2⁻,3/2,5/2⁻)	164.987	5/2⁻	%Iγ=0.045 18
2548.1	3 1	3365.23	(3/2)	817.100	3/2⁻	%Iγ=0.027 9
2560.8 1	33 2	2913.08	(1/2,3/2)	352.234	3/2⁻	%Iγ=0.295 19
2586.3	3 1	3403.4	(1/2⁻,3/2)	817.100	3/2⁻	%Iγ=0.027 9
2625.7	1.0 5	3442.8	(1/2,3/2)	817.100	3/2⁻	%Iγ=0.009 5
2647.6	23 1	2999.64	(3/2)	352.234	3/2⁻	%Iγ=0.206 10
2649.7	1.0 5	3466.8	(1/2⁻,3/2)	817.100	3/2⁻	%Iγ=0.009 5
2656.1	1.1 6	3473.2	(1/2⁻,3/2)	817.100	3/2⁻	%Iγ=0.010 6
2669.1	15 2	3021.06	(3/2)	352.234	3/2⁻	%Iγ=0.134 18
2696.8	5 2	2861.8	(1/2⁻,3/2)	164.987	5/2⁻	%Iγ=0.045 18
2718.0	0.7 4	3535.1	(3/2⁺)	817.100	3/2⁻	%Iγ=0.006 4
2753.2	2.4 8	2918.2	(1/2⁻,3/2,5/2⁻)	164.987	5/2⁻	%Iγ=0.021 8
2771.8 1	15 2	3124.06	(1/2,3/2)	352.234	3/2⁻	%Iγ=0.134 18
2796.5	3# 1	2961.5	(1/2⁻,3/2,5/2⁻)	164.987	5/2⁻	%Iγ=0.027 9
2797.1	5# 1	3149.4	(1/2,3/2)	352.234	3/2⁻	%Iγ=0.045 9
2812.7	4 1	2977.72	(1/2⁻,3/2)	164.987	5/2⁻	%Iγ=0.036 9
2823.3 2	9 2	3175.59	(1/2⁻,3/2)	352.234	3/2⁻	%Iγ=0.081 18
2834.7	3 1	2999.64	(3/2)	164.987	5/2⁻	%Iγ=0.027 9
2838.4	3 2	3003.4	(1/2⁻,3/2)	164.987	5/2⁻	%Iγ=0.027 18
2849.2	1.8 7	3201.4	(3/2,1/2⁻)	352.234	3/2⁻	%Iγ=0.016 7
2854.2	3 1	3206.43	(3/2)	352.234	3/2⁻	%Iγ=0.027 9
2856.0 2	9 2	3021.06	(3/2)	164.987	5/2⁻	%Iγ=0.081 18
2878.9 3	7 2	3231.2	(1/2⁻,3/2)	352.234	3/2⁻	%Iγ=0.063 18
2892.0 4	3.5 11	3057.0	(1/2⁻,3/2)	164.987	5/2⁻	%Iγ=0.031 10
2905.8	1.9 7	3070.8	(1/2⁻,3/2)	164.987	5/2⁻	%Iγ=0.017 7

γ(^{149}Gd) (continued)

E_γ[†]	I_γ[†b]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[&]	α[c]	Comments
2906.1	1.4 *7*	3258.4	(1/2,3/2)	352.234	3/2⁻			%Iγ=0.013 *7*
2920.7	1.0 *6*	3272.9	(1/2,3/2)	352.234	3/2⁻			%Iγ=0.009 *6*
2935.1 *3*	11 *2*	3099.76	(1/2⁻,3/2)	164.987	5/2⁻			%Iγ=0.098 *18*
2942.6	3.1 *8*	3294.9	(1/2,3/2)	352.234	3/2⁻			%Iγ=0.028 *8*
2959.0[d]	≤3[@]	3124.06	(1/2,3/2)	164.987	5/2⁻			%Iγ=0.013 *14*
2961.3	93 *4*	3313.62	(3/2⁻)	352.234	3/2⁻	(M1,E2)	0.00116 *7*	%Iγ=0.83 *4* α(K)exp=0.00042 *10* α(K)=0.000318 *14*; α(L)=4.15×10⁻⁵ *21*; α(M)=8.9×10⁻⁶ *4* α(N)=2.05×10⁻⁶ *10*; α(O)=3.20×10⁻⁷ *17*; α(P)=2.23×10⁻⁸ *12*; α(IPF)=0.00079 *6* Mult.: α(K)exp gives M1, E2 or E3.
2961.4[d]	<3[@]	2961.5	(1/2⁻,3/2,5/2⁻)	0.0	7/2⁻			%Iγ<0.027
2966.8	2.2 *7*	3319.0	(1/2⁻,3/2)	352.234	3/2⁻			%Iγ=0.020 *7*
3010.6 *3*	10 *2*	3175.59	(1/2⁻,3/2)	164.987	5/2⁻			%Iγ=0.089 *18*
3032.4	3.7 *8*	3384.7	(1/2,3/2)	352.234	3/2⁻			%Iγ=0.033 *8*
3036.4 *5*	3 *1*	3201.4	(3/2,1/2⁻)	164.987	5/2⁻			%Iγ=0.027 *9*
3041.4	2 *1*	3206.43	(3/2)	164.987	5/2⁻			%Iγ=0.018 *9*
3051.2	1.8 *7*	3403.4	(1/2⁻,3/2)	352.234	3/2⁻			%Iγ=0.016 *7*
3066.1	0.9 *5*	3231.2	(1/2⁻,3/2)	164.987	5/2⁻			%Iγ=0.008 *5*
3066.3	1.6 *7*	3418.8	(1/2⁻,3/2)	352.234	3/2⁻			%Iγ=0.014 *7*
3078.9	3 *1*	3431.4	(1/2⁻,3/2)	352.234	3/2⁻			%Iγ=0.027 *9*
3090.6	0.8 *4*	3442.8	(1/2,3/2)	352.234	3/2⁻			%Iγ=0.007 *4*
3133.9 *5*	1.9 *5*	3486.2	(1/2,3/2)	352.234	3/2⁻			%Iγ=0.017 *5*
3147.8	0.9 *4*	3500.0	(1/2⁻,3/2)	352.234	3/2⁻			%Iγ=0.008 *4*
3148.5	1.6 *6*	3313.62	(3/2⁻)	164.987	5/2⁻			%Iγ=0.014 *6*
3154.0 *5*	2.7 *7*	3319.0	(1/2⁻,3/2)	164.987	5/2⁻			%Iγ=0.024 *7*
3163.9 *4*	2.5	3516.2	(1/2,3/2)	352.234	3/2⁻			%Iγ=0.0224 *5*
3182.8 *4*	4 *1*	3535.1	(3/2⁺)	352.234	3/2⁻			%Iγ=0.036 *9*
3200.2 *2*	25 *2*	3365.23	(3/2)	164.987	5/2⁻			%Iγ=0.224 *19*
3201.2[d]	<2[@]	3201.4	(3/2,1/2⁻)	0.0	7/2⁻			%Iγ<0.018
3238.4	1.5 *5*	3403.4	(1/2⁻,3/2)	164.987	5/2⁻			%Iγ=0.013 *5*
3254.5	1.5 *7*	3418.8	(1/2⁻,3/2)	164.987	5/2⁻			%Iγ=0.013 *7*
3266.4 *4*	1.6 *4*	3431.4	(1/2⁻,3/2)	164.987	5/2⁻			%Iγ=0.014 *4*
3301.8	1.2 *6*	3466.8	(1/2⁻,3/2)	164.987	5/2⁻			%Iγ=0.011 *6*
3308.2 *3*	9 *2*	3473.2	(1/2⁻,3/2)	164.987	5/2⁻			%Iγ=0.081 *18*
3335.0	1.0 *3*	3500.0	(1/2⁻,3/2)	164.987	5/2⁻			%Iγ=0.009 *3*
3370.1	0.8 *4*	3535.1	(3/2⁺)	164.987	5/2⁻			%Iγ=0.007 *4*
3378.9 *4*	1.7 *6*	3543.9	(1/2⁻,3/2)	164.987	5/2⁻			%Iγ=0.015 *6*

[†] From 1978Ja14. When no energy uncertainty is given, γ rays were seen only in the γγ coin. The energies given in these cases are the level differences rounded

γ(^{149}Gd) (continued)

to the nearest 0.1 keV. Their intensities are deduced from $\gamma\gamma$-coin.

‡ The intensity has been obtained after correcting for the decay of the ^{149}Gd daughter.

γ ray is member of a multiplet. Intensity was obtained from coincidence data.

@ The intensity was obtained by subtracting all other components from the total multiplet intensity.

& From α(K)exp data, deduced by 1978Ja14 using I(ce(K)) values from 1972Vy08 and Iγ values from 1978Ja14, normalized to α(K)=0.0292 for 352γ taken as E2, unless otherwise noted. Assignments in the Adopted Gammas are the same.

[a] From $\gamma\gamma(\theta)$ data (1992Tl02,1974Bu26) with data reanalyzed by the evaluators, unless otherwise noted. The values are the same in the Adopted Levels, Gammas dataset.

[b] For absolute intensity per 100 decays, multiply by 0.00895 *19*.

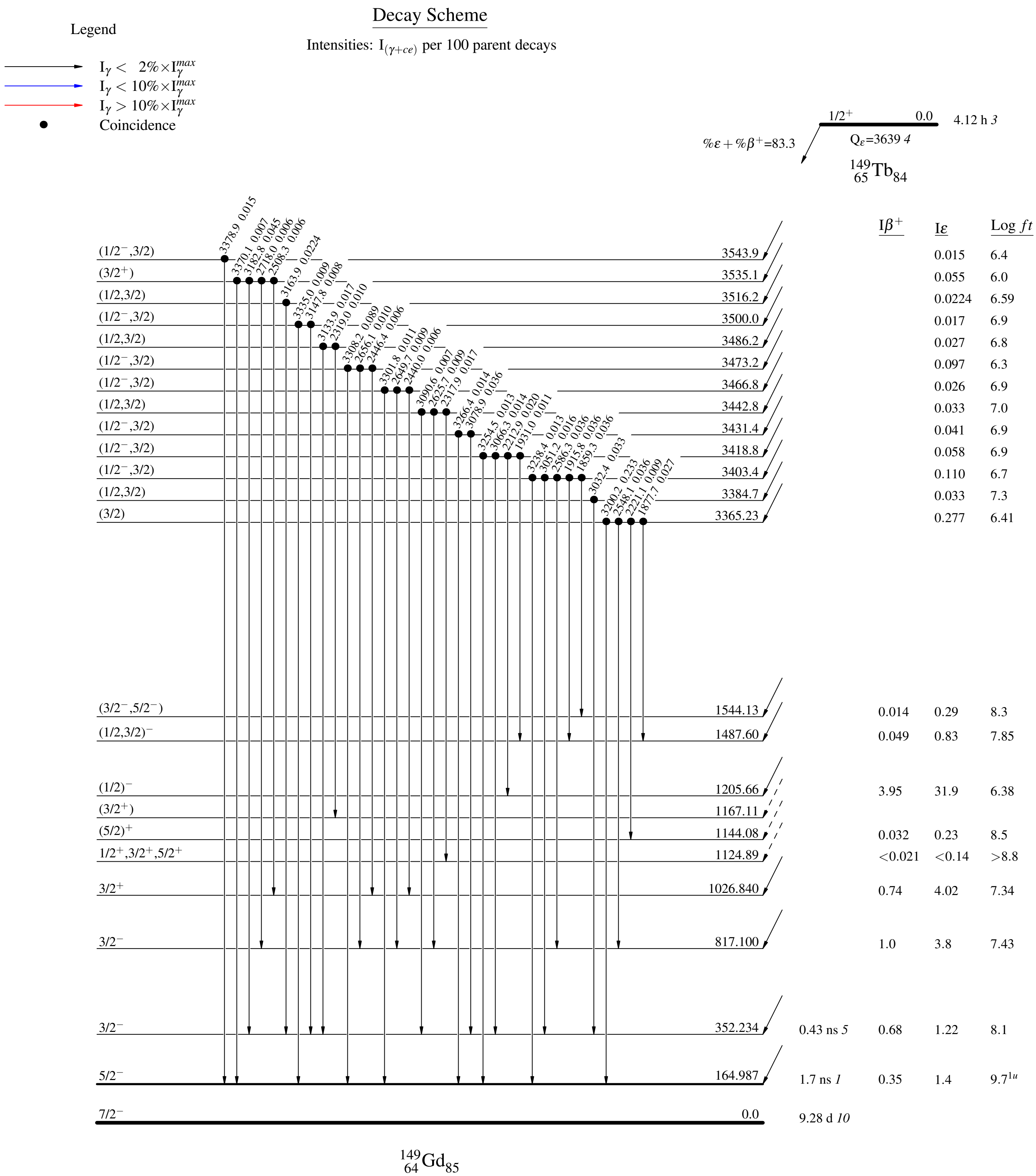
[c] Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

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

[x] γ ray not placed in level scheme.

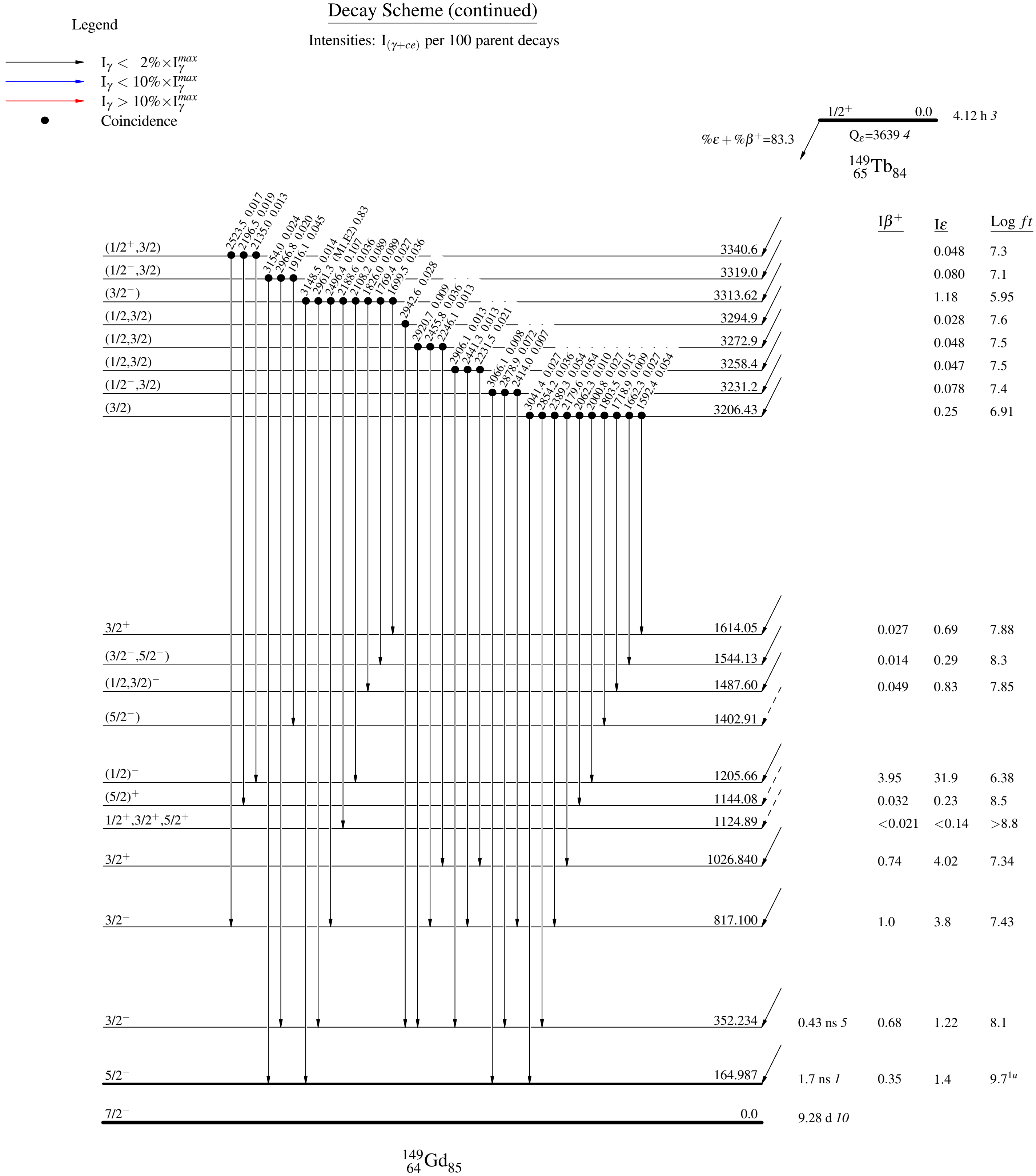
$^{149}_{64}Gd_{85}$-19

^{149}Tb ε decay (4.12 h) 1978Ja14,1972Vy08,1992Tl02

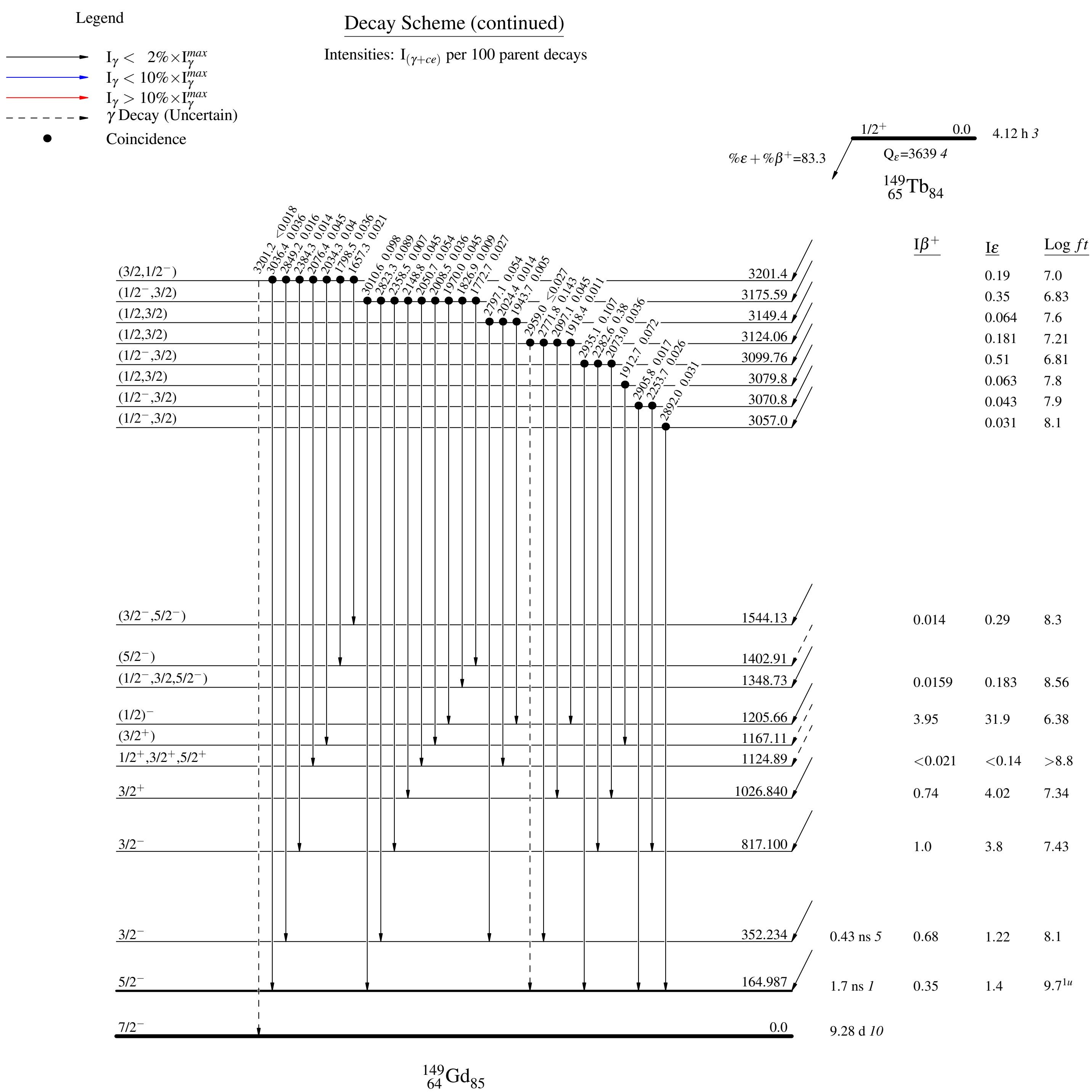


^{149}Tb ε decay (4.12 h) 1978Ja14,1972Vy08,1992Tl02

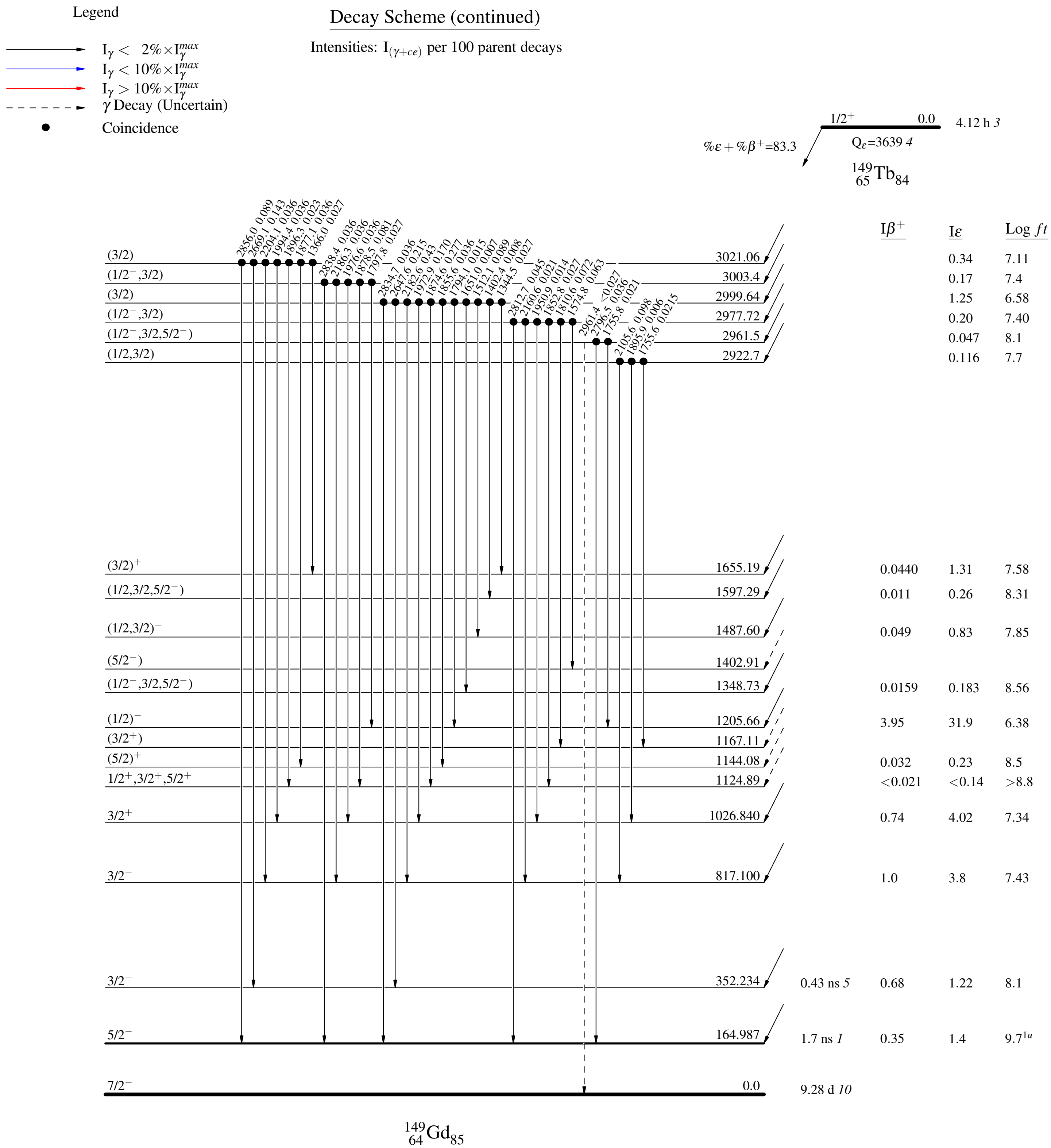
Decay Scheme (continued)



^{149}Tb ε decay (4.12 h) 1978Ja14,1972Vy08,1992Tl02



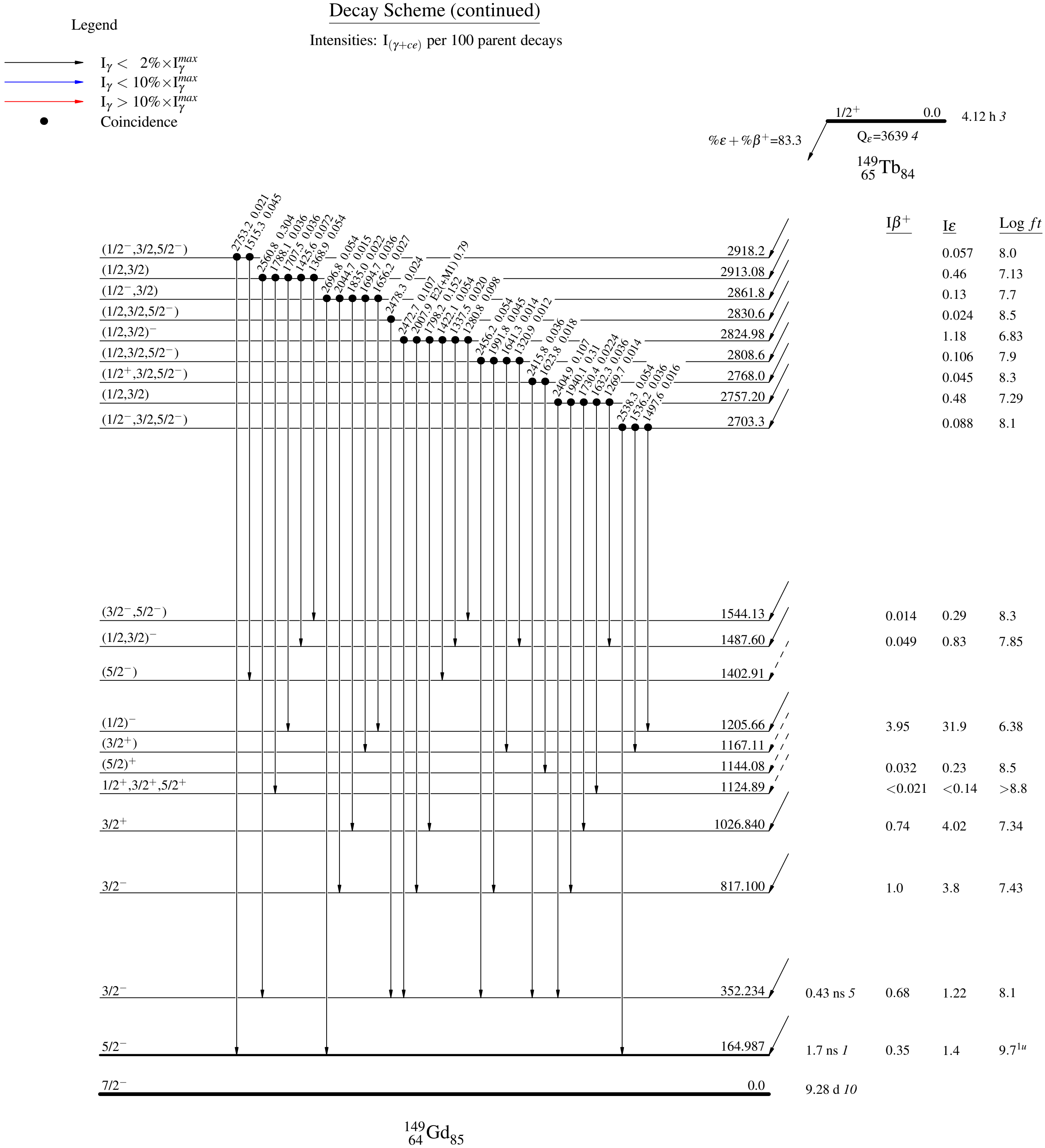
^{149}Tb ε decay (4.12 h) 1978Ja14,1972Vy08,1992Tl02



^{149}Tb ε decay (4.12 h) 1978Ja14,1972Vy08,1992Tl02

Decay Scheme (continued)

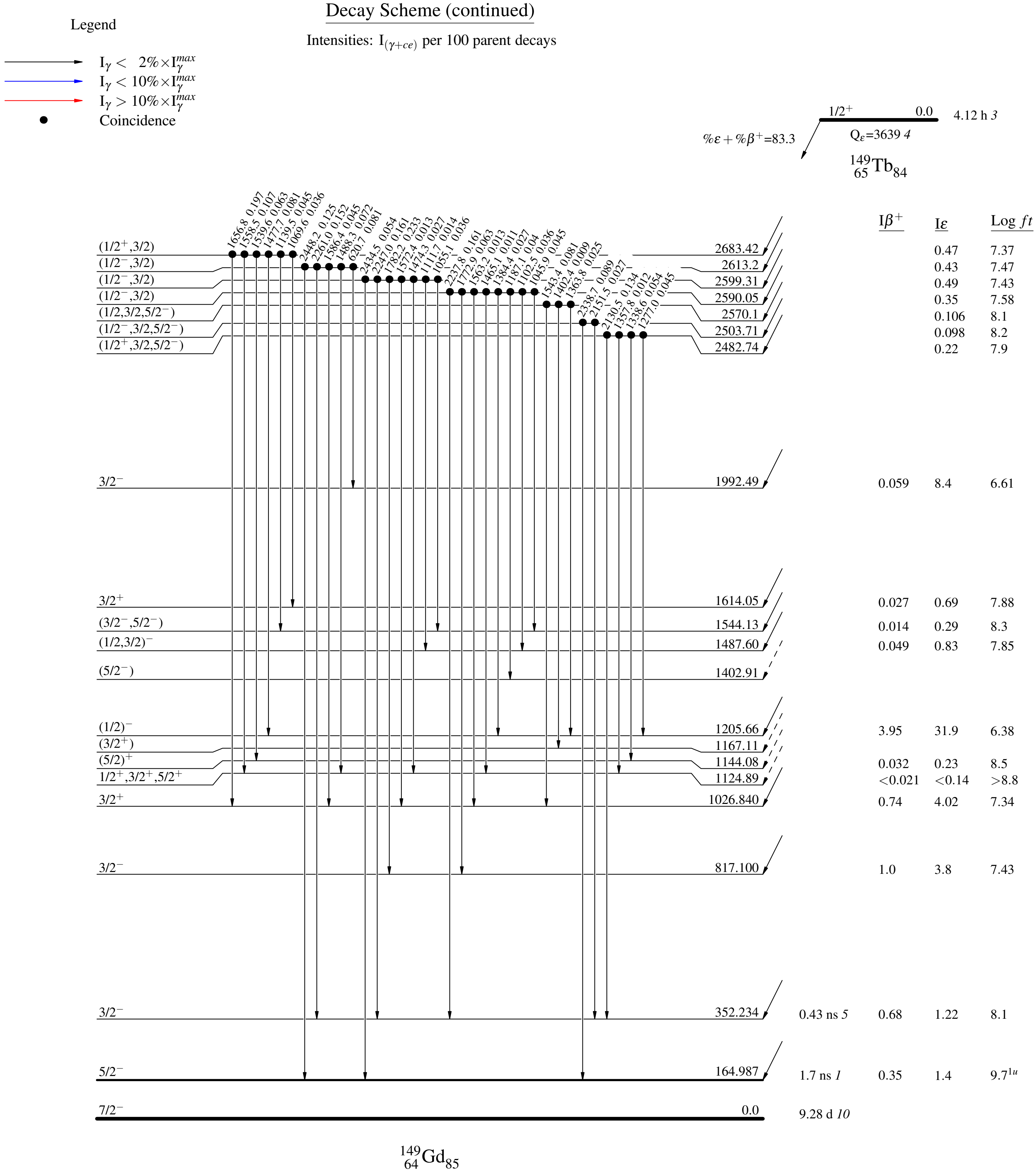
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays



^{149}Tb ε decay (4.12 h) 1978Ja14,1972Vy08,1992Tl02

Decay Scheme (continued)

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

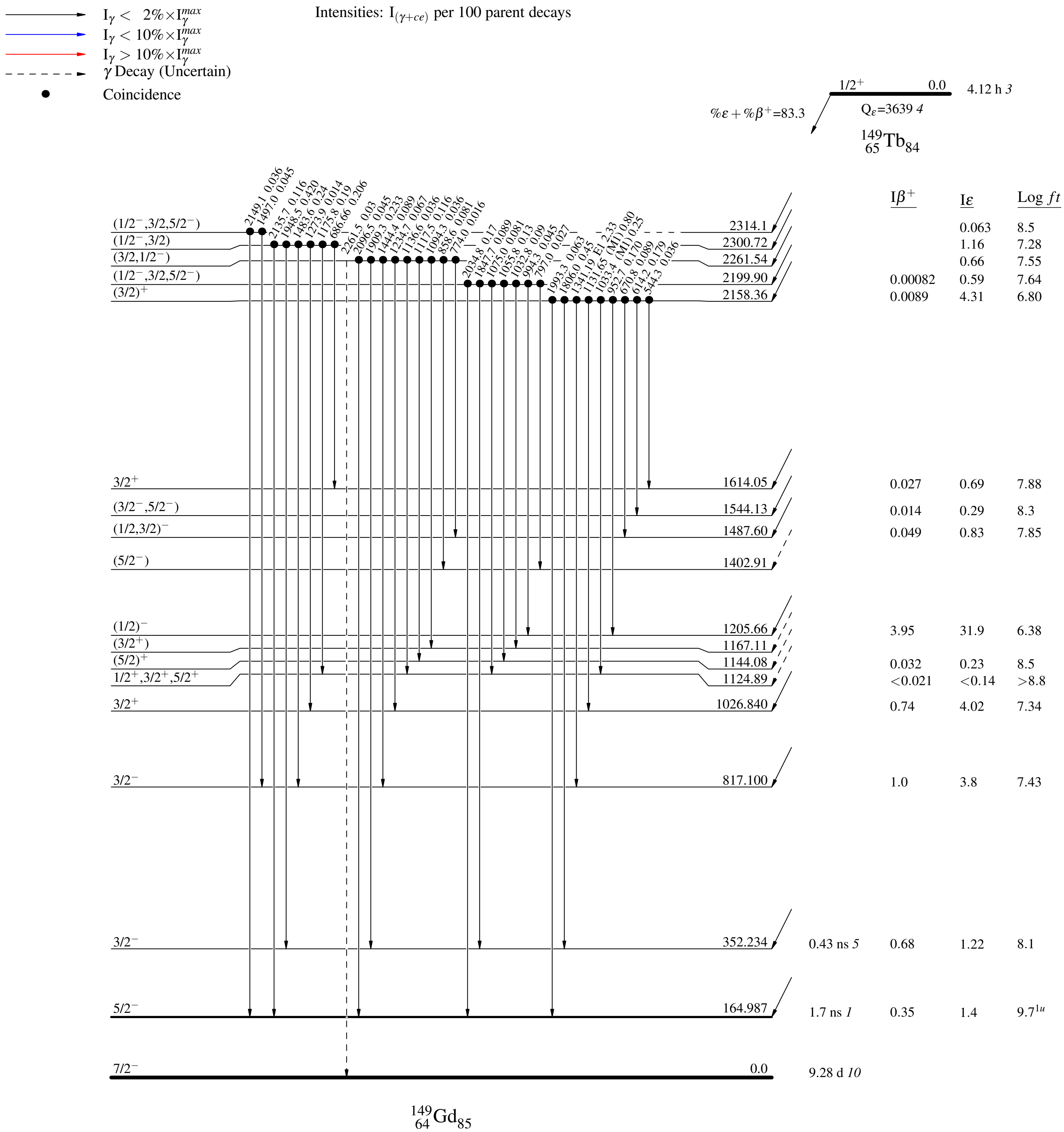


^{149}Tb ε decay (4.12 h) 1978Ja14,1972Vy08,1992Tl02

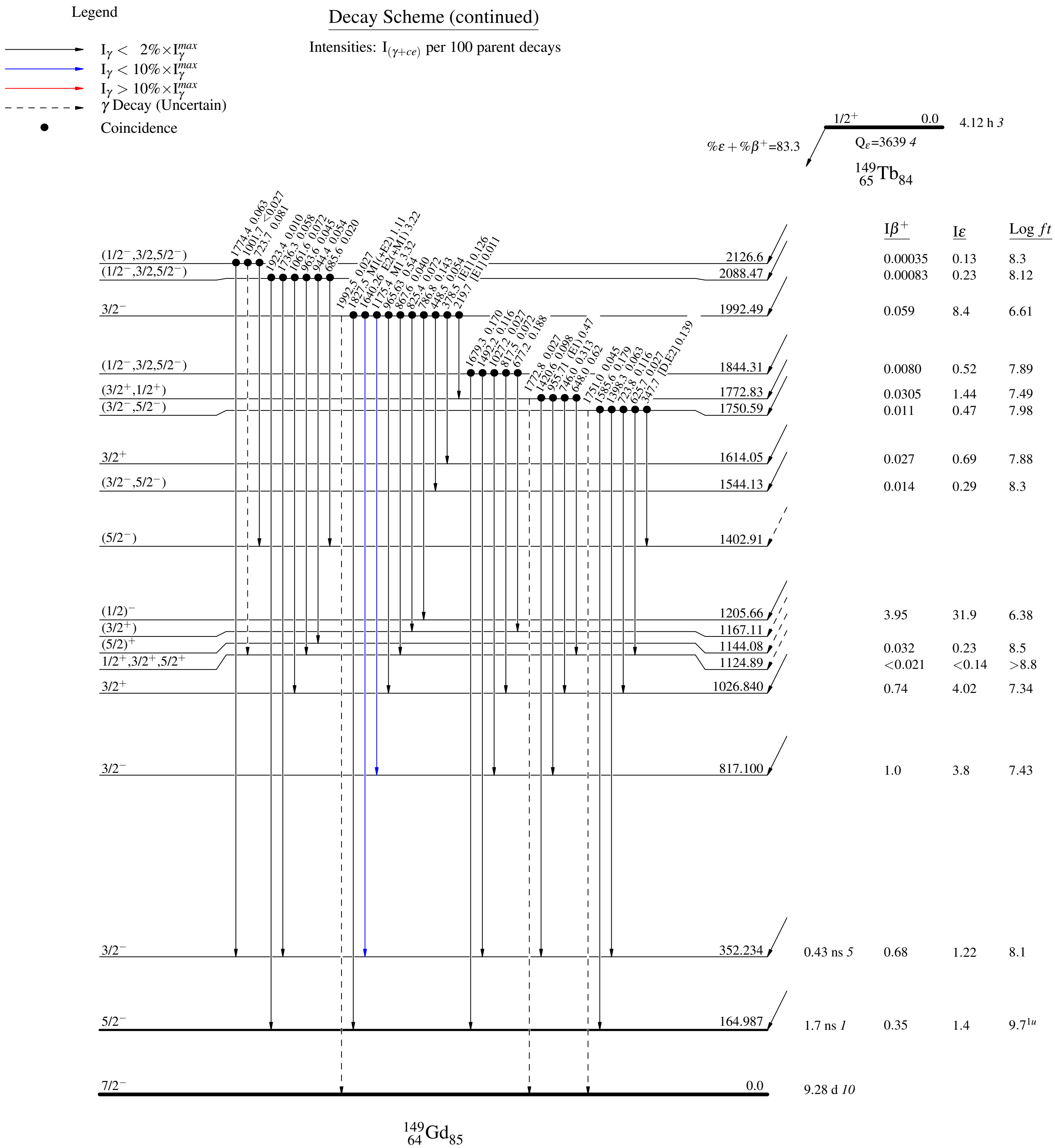
Legend

Decay Scheme (continued)

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



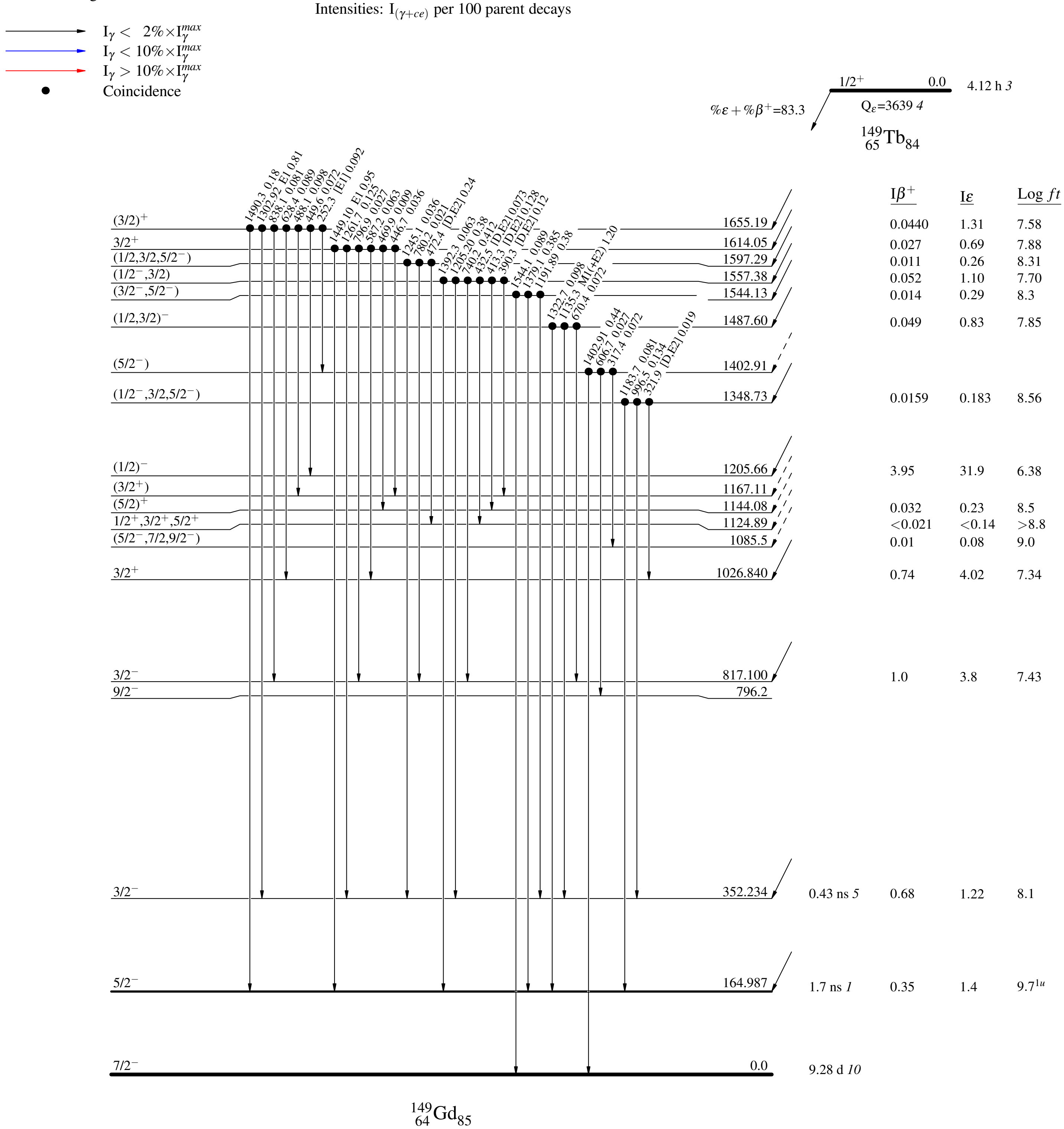
^{149}Tb ε decay (4.12 h) 1978Ja14,1972Vy08,1992Tl02



^{149}Tb ε decay (4.12 h) 1978Ja14,1972Vy08,1992Tl02

Decay Scheme (continued)

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



^{149}Tb ε decay (4.12 h) 1978Ja14,1972Vy08,1992Tl02