^{151}Tb ε decay (17.609 h) 1986BuZX

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	NDS 110, 1 (2009)	20-Nov-2008

Parent: ^{151}Tb: E=0.0; $J^\pi=1/2^{(+)}$; $T_{1/2}$=17.609 h *14*; Q(ε)=2565 *4*; %ε+%$β^+$ decay=99.9905 *15*

Additional information 1.

γ, γγ measurements with germanium detectors. Unless noted otherwise, the transition placements are from γγ data.

Other main references: 1982Ba51, 1975Ha18, 1971Go27.

γ-ray data: 1986BuZX, 1982Ba51, 1975Ha18, 1971Go27. Others: 1984Gr15, 1984Sc18, 1975SpZU, 1973St22, 1972Fl09, 1970Ch09, 1967Vi05, 1963Mi04, 1962St26, 1960To10, 1958Ba46, 1958To33, 1957Mi67.

γγ data: 1986BuZX, 1984Sc18, 1982Ba51, 1975Ha18, 1971Go27, 1970GrZZ.

γγ(θ) data: 1979Va14, 1972Va27. Both are from the same laboratory.

γγ(t) data: 1969BoZR.

γ(θ,T) data: 1985Fi06, 1983Pr04.

γγ(θ,H) data: 1977VaZJ, 1976Ba26, 1975AfZZ, 1972Af04. Others: 1976Ba59, 1977GrZF.

γ(ce) data: 1978Al15, 1967Vi05.

γ(ce)(t) data: 1972Af03, 1971VaZV, 1970Mo14, 1969Ba64.

ce data: 1987BaZB, 1982Ba51, 1975Ha18, 1975Ku12, 1971Go27, 1967Vi05, 1967Ko15, 1962Ha24, 1961St15, 1960Fr06, 1958An38, 1957Mi67.

ce-ce data: 1971Go27.

(ce)(ce)(t) data: 1971VaZV, 1970Mo14, 1969Ba64.

$β^+$ data and ce $β^+$ data: 1977Cr05.

Production and $T_{1/2}$ of ^{151}Tb: 1984Gr15, 1971Go27, 1970Ch09, 1963Mi11, 1960To10. Others: 1973St22, 1972Fl09, 1967Ko15, 1962St26, 1961St15, 1960To05, 1960Fr06, 1958An38, 1958Ba46, 1958To33, 1957Mi67, 1953Ra02.

Q(ε) measurement: 1984Sc18, 1977Cr05, 1971Go27.

^{151}Gd Levels

The following levels suggested by 1982Ba51 and/or 1975Ha18 have been discarded for lack of confirmation by γγ data of 1986BuZX; the transitions connected with these levels have been placed from other levels: 1124, 1232, 1265, 1676, 1687, 1740, 1745, 1798, 1937, 1975 and 2195.

E(level)†	J^π‡	$T_{1/2}$	Comments
0.0	$7/2^-$		
108.093 *7*	$5/2^-$	2.80 ns *11*	μ=−1.24 *17* (1976Ba26,1976Ba59,1978LeZA) J^π: γγ(θ) support 5/2, not 7/2 or 9/2. $T_{1/2}$: weighted average of 3.00 ns *10* (ceγ(t),1972Af03), 2.60 ns *13* (ceγ(t),1970Mo14), 2.72 ns *25* (cece(t),1969Ba64) and 2.66 ns *15* (γγ(t),1969BoZR). μ: Others: −1.08 *13* (1977VaZJ,1977GrZF), −1.35 *22* (1972Af04). Method: (287γ)(108γ)(θ,H). A_2=−0.240 *15*, A_4=−0.008 *16* (1972Af04).
395.449 *7*	$3/2^-$	0.29 ns *3*	$T_{1/2}$: average of 0.31 ns *4* (ceγ(t),1972Af03), 0.24 ns *4* (ceγ(t),1970Mo14) and 0.32 ns *4* (cece(t), 1969Ba64). J^π: (287γ)(108γ)(θ) supports 3/2, not 5/2. μ=−1.35 *41*, −1.72 *43* or −2.24 *62* (1978LeZA,1975AfZZ). Method: (444γ)(287γ)(θ,H). A_2=−0.161 *17*, A_4=+0.013 *25* (1975AfZZ). Others: 1977VaZJ, 1977GrZF.
426.687 *7*	$5/2^-$		
575.620 *8*	$1/2^-$	0.23 ns *3*	$T_{1/2}$: average of 0.23 ns *3* (ceγ(t),1972Af03) and 0.23 ns *4* (ceγ(t),1970Mo14). J^π: γγ(θ) support 1/2, not 3/2 or 5/2.
587.443 *7*	$3/2^-$	0.30 ns *2*	$T_{1/2}$: ceγ(t) (1972Af03).
620.600 *13*	$3/2^-$,$5/2^{(-)}$		
811.837 *8*	$3/2^-$		
839.319 *8*	$1/2^-$	0.28 ns *3*	$T_{1/2}$: weighted average of 0.26 ns *3* (ceγ(t),1972Af03) and 0.32 ns *5* (ceγ(t),1970Mo14). J^π: (252γ)(γ)(θ) give 1/2, not 3/2 or 5/2.

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^{151}Tb ε decay (17.609 h) 1986BuZX (continued)

^{151}Gd Levels (continued)

E(level)[†]	Jπ[‡]	Comments
905.58 *9*	(3/2⁻,5/2⁻)	
913.55 *2*	(3/2⁻)	
938.80 *7*	(3/2⁻,5/2⁻,7/2⁻)	
982.27 *4*	(3/2)⁺	
1052.20 *2*	1/2⁻,3/2⁻	
1087.60 *2*	3/2⁻	
1157.90 *2*	(3/2)⁺	
1192.19 *1*	1/2⁺	Jπ: γγ(θ) support 1/2, not 3/2.
1199.15 *5*	(1/2⁻,3/2,5/2⁻)	
1279.06 *3*	3/2⁻,5/2⁻	
1373.95 *2*	1/2⁻,3/2⁻,5/2⁻	
1405.14 *3*	3/2⁻,5/2⁻	
1456.62 *5*	1/2⁻,3/2⁻,5/2⁻	870.0γ, 1029.5γ, 1061.6γ, 1348.2γ from this level are poorly fitted with this level. It is possible that there are two closely spaced levels near 1456 keV.
1477.66 *9*	(1/2⁻,3/2,5/2⁻)	
1493.38 *5*	(1/2⁻,3/2⁻,5/2⁻)	
1505.42 *2*	1/2(⁻),3/2(⁻)	
1552.70 *14*	(3/2⁻,5/2⁻)	
1577.56 *4*	(1/2⁻,3/2⁻,5/2⁻)	
1701.40 *7*	1/2,3/2,5/2(⁻)	
1707.68 *3*	1/2(⁻),3/2(⁻)	
1745.76 *11*	1/2,3/2,5/2(⁻)	
1778.55 *2*	1/2⁻,3/2⁻	
1788.96 *5*	(1/2⁻,3/2⁻,5/2⁻)	
1836.92 *3*	(3/2)⁻	
1852.72 *12*	(1/2⁻,3/2⁻,5/2⁻)	
1890.80 *13*	(1/2⁻,3/2,5/2⁻)	
1941.11 *14*	(1/2⁻,3/2,5/2⁻)	
1970.91 *13*	1/2,3/2,5/2(⁻)	
1978.05 *8*	(3/2⁻)	
2012.15 *24*	(1/2⁻,3/2,5/2⁻)	
2034.36 *2*	1/2⁻,3/2⁻	
2043.89 *23*	(1/2,3/2,5/2⁻)	
2070.97 *4*	1/2⁻,3/2⁻	
2076.09 *7*	1/2(⁻),3/2	
2099.00 *16*	(1/2,3/2,5/2⁻)	
2106.9 *3*	(1/2,3/2,5/2⁻)	
2116.09 *5*	1/2(⁻),3/2(⁻)	
2128.72 *11*	1/2(⁻),3/2	
2132.53 *13*	1/2(⁻),3/2	
2154.9 *2*	(1/2,3/2,5/2⁻)	
2173.19 *8*	1/2(⁻),3/2	
2205.94 *11*	1/2(⁻),3/2	
2220.9 *3*	1/2,3/2	
2243.8 *3*	1/2(⁻),3/2	
2246.95 *9*	1/2(⁻),3/2	
2256.7 *2*	1/2,3/2	
2317.7 *3*	1/2(⁻),3/2	
2324.32 *14*	1/2(⁻),3/2	
2391.50 *5*	1/2,3/2	
2400.6 *2*	1/2(⁻),3/2	
2421.74 *12*	1/2,3/2	
2443.0 *3*	(1/2,3/2)	
2444.86 *8*	1/2,3/2	

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^{151}Tb ε decay (17.609 h) 1986BuZX (continued)

^{151}Gd Levels (continued)

† From least-squares fit to Eγ's. Normalized χ^2=2.6 is somewhat higher than the critical value of 1.2.
‡ See 'Adopted Levels' except when stated otherwise.

ε,β$^+$ radiations

E(decay)	E(level)	Iβ$^+$ †	Iε†	Log *ft*	I(ε+β$^+$)†	Comments
(120 *4*)	2444.86		0.105 *10*	6.53 *6*	0.105 *10*	εK= 0.675 *10*; εL= 0.246 *8*; εM+= 0.079 *3*
(122 *4*)	2443.0		0.0028 *3*	8.13 *7*	0.0028 *3*	εK= 0.679 *10*; εL= 0.243 *7*; εM+= 0.078 *3*
(143 *4*)	2421.74		0.048 *6*	7.09 *7*	0.048 *6*	εK= 0.716 *6*; εL= 0.216 *5*; εM+= 0.0682 *16*
(164 *4*)	2400.6		0.014 *2*	7.79 *7*	0.014 *2*	εK= 0.740 *4*; εL= 0.198 *3*; εM+= 0.0619 *10*
(174 *4*)	2391.50		0.33 *4*	6.48 *6*	0.33 *4*	εK= 0.748 *4*; εL= 0.1925 *24*; εM+= 0.0599 *9*
(241 *4*)	2324.32		0.028 *2*	7.90 *4*	0.028 *2*	εK= 0.7818 *14*; εL= 0.1673 *10*; εM+= 0.0509 *4*
(247 *4*)	2317.7		0.014 *2*	8.23 *7*	0.014 *2*	εK= 0.7839 *13*; εL= 0.1657 *10*; εM+= 0.0504 *4*
(308 *4*)	2256.7		0.025 *5*	8.21 *9*	0.025 *5*	εK= 0.7982; εL= 0.1552 *6*; εM+= 0.04666 *19*
(318 *4*)	2246.95		0.037 *5*	8.07 *6*	0.037 *5*	εK= 0.7999; εL= 0.1539 *5*; εM+= 0.04623 *18*
(321 *4*)	2243.8		0.027 *5*	8.21 *9*	0.027 *5*	εK= 0.8004; εL= 0.1535 *5*; εM+= 0.04609 *17*
(344 *4*)	2220.9		0.028 *4*	8.27 *7*	0.028 *4*	εK= 0.8038; εL= 0.1510 *5*; εM+= 0.04521 *15*
(359 *4*)	2205.94		0.125 *15*	7.66 *6*	0.125 *15*	εK= 0.8057; εL= 0.1496 *4*; εM+= 0.04470 *13*
(392 *4*)	2173.19		0.187 *12*	7.57 *3*	0.187 *12*	εK= 0.8094; εL= 0.1468 *3*; εM+= 0.04375 *11*
(410 *4*)	2154.9		0.011 *3*	8.84 *12*	0.011 *3*	εK= 0.8112; εL= 0.1455 *3*; εM+= 0.04330 *10*
(432 *4*)	2132.53		0.051 *5*	8.23 *5*	0.051 *5*	εK= 0.8131; εL= 0.14412 *25*; εM+= 0.04281 *9*
(436 *4*)	2128.72		0.057 *4*	8.19 *4*	0.057 *4*	εK= 0.8134; εL= 0.14390 *24*; εM+= 0.04273 *9*
(449 *4*)	2116.09		0.23 *2*	7.61 *4*	0.23 *2*	εK= 0.8143; εL= 0.14318 *23*; εM+= 0.04248 *8*
(458 *4*)	2106.9		0.0057 *9*	9.24 *7*	0.0057 *9*	εK= 0.8150; εL= 0.14269 *22*; εM+= 0.04231 *8*
(466 *4*)	2099.00		0.020 *2*	8.71 *5*	0.020 *2*	εK= 0.8155; εL= 0.14228 *21*; εM+= 0.04217 *7*
(489 *4*)	2076.09		0.209 *12*	7.73 *3*	0.209 *12*	εK= 0.8170; εL= 0.14119 *19*; εM+= 0.04179 *7*
(494 *4*)	2070.97		1.35 *7*	6.93 *3*	1.35 *7*	εK= 0.8173; εL= 0.14096 *18*; εM+= 0.04171 *7*
(521 *4*)	2043.89		0.057 *9*	8.36 *7*	0.057 *9*	εK= 0.8189; εL= 0.13983 *16*; εM+= 0.04132 *6*
(531 *4*)	2034.36		1.47 *5*	6.97 *2*	1.47 *5*	εK= 0.8193; εL= 0.13946 *16*; εM+= 0.04119 *6*
(553 *4*)	2012.15		0.025 *3*	8.77 *6*	0.025 *3*	εK= 0.8204; εL= 0.13866 *14*; εM+= 0.04091 *5*
(587 *4*)	1978.05		0.110 *7*	8.19 *3*	0.110 *7*	εK= 0.8219; εL= 0.1376; εM+= 0.04053 *5*
(594 *4*)	1970.91		0.062 *8*	8.45 *6*	0.062 *8*	εK= 0.8222; εL= 0.1373; εM+= 0.04046 *4*
(624 *4*)	1941.11		0.048 *5*	8.60 *5*	0.048 *5*	εK= 0.8233; εL= 0.1365; εM+= 0.04017
(674 *4*)	1890.80		0.116 *16*	8.29 *6*	0.116 *16*	εK= 0.8250; εL= 0.1353; εM+= 0.03975
(712 *4*)	1852.72		0.150 *16*	8.23 *5*	0.150 *16*	εK= 0.8260; εL= 0.1345; εM+= 0.03947
(728 *4*)	1836.92		0.50 *2*	7.73 *2*	0.50 *2*	εK= 0.8264; εL= 0.1342; εM+= 0.03937
(776 *4*)	1788.96		0.255 *12*	8.08 *2*	0.255 *12*	εK= 0.8276; εL= 0.1333; εM+= 0.03908
(786 *4*)	1778.55		1.94 *9*	7.21 *2*	1.94 *9*	εK= 0.8278; εL= 0.1332; εM+= 0.03902
(819 *4*)	1745.76		0.18 *2*	8.28 *5*	0.18 *2*	εK= 0.8285; εL= 0.1327; εM+= 0.03885
(857 *4*)	1707.68		1.42 *5*	7.42 *2*	1.42 *5*	εK= 0.8292; εL= 0.1321; εM+= 0.03866
(864 *4*)	1701.40		0.116 *8*	8.52 *3*	0.116 *8*	εK= 0.8293; εL= 0.1321; εM+= 0.03864
(987 *4*)	1577.56		0.55 *2*	7.97 *2*	0.55 *2*	εK= 0.8312; εL= 0.1307; εM+= 0.03815
(1012 *4*)	1552.70		0.020 *15*	9.4 *4*	0.020 *15*	εK= 0.8315; εL= 0.1304; εM+= 0.03807
(1060 *4*)	1505.42		1.23 *5*	7.68 *2*	1.23 *5*	εK= 0.8321; εL= 0.1300; εM+= 0.03793
(1072 *4*)	1493.38		0.77 *12*	7.89 *7*	0.77 *12*	εK= 0.8322; εL= 0.1299; εM+= 0.03789
(1087 *4*)	1477.66		0.020 *5*	9.49 *11*	0.020 *5*	εK= 0.8324; εL= 0.1298; εM+= 0.03785
(1108 *4*)	1456.62		0.71 *3*	7.96 *2*	0.71 *3*	εK= 0.8326; εL= 0.1296; εM+= 0.03779
(1160 *4*)	1405.14		0.164 *12*	8.64 *4*	0.164 *12*	εK= 0.8331; εL= 0.1292; εM+= 0.03766
(1191 *4*)	1373.95		0.76 *4*	7.99 *2*	0.76 *4*	εK= 0.8334; εL= 0.1290; εM+= 0.03759
(1286 *4*)	1279.06		0.94 *6*	7.97 *3*	0.94 *6*	εK= 0.8340; εL= 0.1284; εM+= 0.03738
(1366 *4*)	1199.15		0.031 *13*	9.5 *2*	0.031 *13*	εK= 0.8342; εL= 0.1279; εM+= 0.03722
(1373 *4*)	1192.19	0.0128 *8*	18.7 *6*	6.73 *2*	18.7 *6*	av Eβ= 172.2 *18*; εK= 0.8342; εL= 0.1279; εM+= 0.03721
(1407 *4*)	1157.90	0.0017 *2*	1.69 *18*	7.80 *5*	1.69 *18*	av Eβ= 187.6 *18*; εK= 0.8342; εL= 0.1277; εM+= 0.03714
(1477 *4*)	1087.60	0.0058 *4*	2.85 *14*	7.61 *2*	2.86 *14*	av Eβ= 218.8 *18*; εK= 0.8337; εL= 0.1273;

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^{151}Tb ε decay (17.609 h) 1986BuZX (continued)

ε,β+ radiations (continued)

E(decay)	E(level)	Iβ+ †	Iε†	Log *ft*	I(ε+β+)†	Comments
						εM+= 0.03699
(1513 *4*)	1052.20	0.0051 *3*	1.88 *8*	7.81 *2*	1.89 *8*	av Eβ= 234.5 *18*; εK= 0.8333; εL= 0.1270; εM+= 0.03692
(1583 *4*)	982.27		0.20 *7*	8.8 *2*	0.20 *7*	av Eβ= 265.3 *18*; εK= 0.8321; εL= 0.1265; εM+= 0.03676
(1651 *4*)	913.55	0.0011 *5*	0.16 *6*	9.0 *2*	0.16 *6*	av Eβ= 295.5 *18*; εK= 0.8303; εL= 0.1259; εM+= 0.03658
(1659‡ *4*)	905.58		<0.14	>9.0	<0.14	av Eβ= 299.0 *18*; εK= 0.8301; εL= 0.1259; εM+= 0.03656
(1726 *4*)	839.319	0.53 *2*	48.4 *18*	6.52 *2*	48.9 *18*	av Eβ= 328.1 *18*; εK= 0.8276; εL= 0.1252; εM+= 0.03637 Eβ=700 *5*, Iβ=0.67 *9* (1977Cr05). I(ε)/I(700β)=74 *18* (1977Cr05). For 839 level, Iβ/I(ε+β)=0.0104 *5* (1984Sc18) which gives Iβ=705 *12* and Q(ε)=2566 *12*.
(1753 *4*)	811.837	0.012 *4*	1.0 *3*	8.23 *13*	1.0 *3*	av Eβ= 340.1 *18*; εK= 0.8263; εL= 0.1250; εM+= 0.03628
(1978‡ *4*)	587.443	<0.07	<2.1	>8.0	<2.2	av Eβ= 438.6 *18*; εK= 0.8107; εL= 0.1219; εM+= 0.03537
(1989 *4*)	575.620	0.13 *3*	3.8 *4*	7.76 *8*	3.9 *4*	av Eβ= 443.8 *18*; εK= 0.8096; εL= 0.1217; εM+= 0.03531
(2138‡ *4*)	426.687	<0.02	<0.3	>10.2[1u]	<0.3	av Eβ= 526.3 *18*; εK= 0.8205; εL= 0.1285; εM+= 0.03752
(2170 *4*)	395.449	0.15 *7*	2.4 *12*	8.0 *2*	2.6 *12*	av Eβ= 523.1 *18*; εK= 0.7890; εL= 0.1182; εM+= 0.03426 Eβ=1150 *10*, Iβ=0.23 *5*, Iβ(total)/Ice(K)(287γ)=0.36 *2* (1977Cr05).
(2457‡ *4*)	108.093	<0.2	<5.8	>9.1[1u]	<6	av Eβ= 664.5 *18*; εK= 0.8044; εL= 0.1246; εM+= 0.03630

† For absolute intensity per 100 decays, multiply by 0.999905 *15*.
‡ Existence of this branch is questionable.

γ(^{151}Gd)

Iγ normalization: From the intensity balance in the decay scheme. The ε decay to the g.s. is assumed as zero.
The following transitions reported in some of the references have been discarded for lack of confirmation: 1971Go27: 103.8, 118.2, 217.0, 222.0, 255.4, 258.1, 267.0, 348, 378, 413.9, 440.2, 773.2, 901.9, 1069.0, 1133.8, 1360.0, 1593.0. 1967Ko15, 1967Vi05: 181.7, 206.6, 344.

γγ(θ) data (from 1979Va14. Other: 1972Va27)

γ - γ cascade	A_2	A_4
180 - 287	+0.22 2	+0.02 4
180 - 395	-0.08 5	-0.05 10
180-(287)-108	-0.209 14	-0.02 3
192 - 287	-0.06 3	-0.01 5
192 - 395	+0.04 4	-0.02 10
192-(287)-108	+0.08 4	+0.03 8
252 - 192	-0.15 3	0.00 6
252 - 479	+0.156 12	-0.01 3
252 - 587	-0.070 11	-0.00 2
287 - 108	-0.342 13	+0.02 2
380-(416)-287	+0.11 10	0.0 2
416 - 287	+0.05 6	
444 - 287	-0.168 14	-0.01 3
444 - 395	+0.10 7	+0.01 14
444-(287)-108	+0.16 2	-0.01 4
467 - 108	+0.24 10	-0.03 18
479 - 108	+0.040 11	+0.03 3
605 - 479	+0.17 3	+0.04 5
605 - 587	-0.067 16	0.00 4
617 - 180	+0.04 4	+0.02 9
617-(180)-287	+0.012 16	-0.02 3
617 - 467	0.00 4	0.00 13
692 - 287	+0.06 6	
692-(287)-108	-0.05 4	+0.02 10
704 - 108	+0.05 2	+0.01 4

Experimental conversion coefficients for transitions below 750 keV deduced from ce data of 1982Ba51, 1975Ha18, 1971Go27, 1967Ko15, 1967Vi05, 1962Ha24, 1961St15, 1960Fr06, 1958An38. The data for subshells are given in the following table and for transitions above 750 keV in the main γ table. α reference is quoted when ce data taken from one or two sources. The data for N and O shells are from 1967Ko15

Eγ	α(K)exp	α(L)exp	α(M)exp	reference	other shells
108.1	1.21 12		0.11 3		α(N)exp=0.03 1 α(O+...)exp=0.006 2
139.9	0.47 12			1971Go27	

148.9	1.1 2			1967Ko15	
160.8	0.37 8	0.06 3	0.015 8		
180.2	0.34 3	0.05 2	0.011 5		α(N)exp=0.004 2 α(O+...)exp=0.0003 2
191.9	0.30 3	0.048 8	0.010 5		
240.4	0.081 11			1982Ba51	
248.3	0.16 5			1971Go27	
251.9		0.022 5	0.0044 11		α(N)exp=0.0012 6 α(O+...)exp=0.00025 12
263.7	0.11 3				
287.4	0.094 9	0.014 1	0.004 1		α(N)exp=0.0006 2
318.6	0.066 16	0.017 8	0.004 2		
354.2	0.06 3			1982Ba51,1971Go27	
368.9	0.28 10			1971Go27	
380.3	0.0077 8				
385.1	0.050 10				
395.4	0.022 2	0.004 1			
401.9	0.05 4			1982Ba51	
405.7	0.06 3			1982Ba51	
416.4	0.035 4	0.006 2			
426.4	0.040 5	0.008 2			
443.9	0.029 1	0.0046 11	0.0012 6	also 1975Ku12	
451.7	0.018 10			1982Ba51	
467.5	0.021 7			1982Ba51,1971Go27	
476.5	0.024 3			1982Ba51	
479.3	0.014 2	0.0025 8	0.006 3		
499+500	0.020 2				
508.2	0.03 2			1982Ba51,1971Go27	
512+513	0.020 5				
534.7	0.006 2			1982Ba51	
562.5	0.019 4			1982Ba51	
572.5	0.008 4			1982Ba51	
579+580	0.005 2			1982Ba51	
587.5	0.010 2	0.0015 5	0.0006 3		
604.7	0.0031 6				
616.5	0.0032 6	0.0008 4			
620.6	0.0050 13			1982Ba51	
657+659	0.005 2			1982Ba51	
671.9	0.014 5			1982Ba51,1971Go27	
692.1	0.008 3				
703.7	0.0090 12	0.0019 9			
727.4	0.007 2			1982Ba51	
731.2	0.0048 6	0.007 3	0.0019 9		

Experimental conversion coefficients for subshells.
Main ce data used is from 1967Ko15. See above table for other ce data

Eγ	α(L1)exp	α(L2)exp	α(L3)exp	α(M1)exp	α(M2)exp	α(M3)exp
108.1	0.20 3	0.20 3	0.20 3	0.04 1	0.04 1	0.04 1

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148.9	0.33 11								
180.2	0.047 12	0.006 2	0.0015 5	0.013 4					
191.9	0.042 10	0.0038 10	0.0008 2						
251.9	0.017 4	0.0016 5	0.0004 2	0.004 2					
287.4	0.011 2	0.0009 3	0.0004 2	0.0032 8					
395.1	0.0024 8	0.0010 5	0.0006 3						
426.7	0.005 2								
443.9	0.0029 7								
479.3	0.0019 6								
703.7	0.0012 6								
731.2	0.0006 3								

E_γ[†]	I_γ[†e]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	δ[‡]	α[#]	Comments
108.088 *10*	86 *3*	108.093	$5/2^-$	0.0	$7/2^-$	M1+E2	−0.85 *1*	1.729	α(K)=1.185 *17*; α(L)=0.422 *7*; α(M)=0.0972 *16*; α(N+..)=0.0250 *4* α(N)=0.0219 *4*; α(O)=0.00301 *5*; α(P)=7.87×10^{-5} *12* Additional information 9. δ: from L1/L2=0.99 *2*, L1/L3=1.03 *2* (1987BaZB). Sign from $\gamma\gamma(\theta)$. δ=0.83 *3* from subshell data quoted in the above table from 1967Ko15.
139.95 *5*	0.17 *1*	1192.19	$1/2^+$	1052.20	$1/2^-$,$3/2^-$	[E1]		0.1179	α(K)=0.0995 *14*; α(L)=0.01448 *21*; α(M)=0.00313 *5*; α(N+..)=0.000823 *12* α(N)=0.000711 *10*; α(O)=0.0001056 *15*; α(P)=5.83×10^{-6} *9* Additional information 36. α(K)exp too large for expected mult=E1.
143.0[d] *5*	0.07 *2*	982.27	$(3/2)^+$	839.319	$1/2^-$	[E1]		0.1113 *19*	α(K)=0.0939 *16*; α(L)=0.01364 *24*; α(M)=0.00295 *5*; α(N+..)=0.000775 *14* α(N)=0.000670 *12*; α(O)=9.96×10^{-5} *17*; α(P)=5.52×10^{-6} *10*
148.918 *11*	1.26 *5*	575.620	$1/2^-$	426.687	$5/2^-$	[E2]		0.607	α(K)=0.376 *6*; α(L)=0.179 *3*; α(M)=0.0417 *6*; α(N+..)=0.01061 *15* α(N)=0.00933 *13*; α(O)=0.001253 *18*; α(P)=2.01×10^{-5} *3* E_γ: 1982Ba51 propose a doublet at 148.73 and 149.00, but data of 1986BuZX do not confirm this. α(exp)′s too large for mult=M1 or E2. Probably an impurity line in ce data.
160.762 *10*	1.70 *6*	587.443	$3/2^-$	426.687	$5/2^-$	M1(+E2)	<1	0.510 *17*	α(K)=0.41 *4*; α(L)=0.080 *17*; α(M)=0.018 *4*; α(N+..)=0.0047 *10* α(N)=0.0041 *9*; α(O)=0.00060 *11*; α(P)=2.9×10^{-5} *5* Additional information 16.
180.186 *10*	40.7 *14*	575.620	$1/2^-$	395.449	$3/2^-$	M1+E2	−0.08 *3*	0.381	α(K)=0.322 *5*; α(L)=0.0464 *7*; α(M)=0.01009 *15*; α(N+..)=0.00271 *4* α(N)=0.00232 *4*; α(O)=0.000360 *6*; α(P)=2.39×10^{-5} *4* Additional information 14. δ: from $\gamma\gamma(\theta)$. Consistent with δ deduced from (L1+L2)/L3.

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γ(^{151}Gd) (continued)

E_γ [†]	I_γ [†e]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [‡]	δ [‡]	α [#]	Comments
191.2[b] *5*	0.75 *15*	811.837	3/2⁻	620.600	3/2⁻,5/2⁻(⁻)	[M1,E2]		0.29 *4*	α(K)=0.23 *5*; α(L)=0.051 *12*; α(M)=0.011 *3*; α(N+..)=0.0030 *8* α(N)=0.0026 *7*; α(O)=0.00037 *8*; α(P)=1.5×10^{-5} *6*
191.96[@] *2*	12.8 *4*	587.443	3/2⁻	395.449	3/2⁻	M1+E2	−0.12 *5*	0.320	α(K)=0.270 *4*; α(L)=0.0391 *7*; α(M)=0.00850 *15*; α(N+..)=0.00228 *4* α(N)=0.00195 *4*; α(O)=0.000303 *5*; α(P)=2.00×10^{-5} *4* δ: from γγ(θ). Additional information 17.
193.94[a] *12*	0.64 *6*	620.600	3/2⁻,5/2⁻(⁻)	426.687	5/2⁻	[M1,E2]		0.28 *4*	α(K)=0.22 *5*; α(L)=0.048 *11*; α(M)=0.011 *3*; α(N+..)=0.0028 *7* α(N)=0.0025 *6*; α(O)=0.00036 *7*; α(P)=1.5×10^{-5} *5*
216.04[a] *3*	0.43 *2*	1373.95	1/2⁻,3/2⁻,5/2⁻	1157.90	(3/2)⁺	[E1]		0.0370	α(K)=0.0314 *5*; α(L)=0.00443 *7*; α(M)=0.000957 *14*; α(N+..)=0.000253 *4* α(N)=0.000218 *3*; α(O)=3.29×10^{-5} *5*; α(P)=1.94×10^{-6} *3*
218.65[a] *13*	0.09 *1*	839.319	1/2⁻	620.600	3/2⁻,5/2⁻(⁻)	[M1,E2]		0.19 *3*	α(K)=0.15 *4*; α(L)=0.032 *5*; α(M)=0.0071 *13*; α(N+..)=0.0019 *3* α(N)=0.0016 *3*; α(O)=0.00024 *3*; α(P)=1.0×10^{-5} *4*
225.12 *4*	0.30 *2*	620.600	3/2⁻,5/2⁻(⁻)	395.449	3/2⁻	[M1,E2]		0.18 *3*	α(K)=0.14 *4*; α(L)=0.029 *4*; α(M)=0.0064 *11*; α(N+..)=0.00169 *24* α(N)=0.00147 *22*; α(O)=0.000214 *21*; α(P)=1.0×10^{-5} *4*
236.14 *3*	0.43 *3*	811.837	3/2⁻	575.620	1/2⁻	[M1,E2]		0.16 *3*	α(K)=0.12 *3*; α(L)=0.024 *3*; α(M)=0.0055 *8*; α(N+..)=0.00144 *17* α(N)=0.00124 *16*; α(O)=0.000182 *13*; α(P)=8.E−6 *3*
240.36 *2*	0.87 *3*	1052.20	1/2⁻,3/2⁻	811.837	3/2⁻	E2(+M1)	>2	0.127 *6*	α(K)=0.095 *6*; α(L)=0.0248 *6*; α(M)=0.00566 *15*; α(N+..)=0.00146 *4* α(N)=0.00128 *4*; α(O)=0.000180 *4*; α(P)=5.9×10^{-6} *6* E_γ: 1982Ba51 and 1975Ha18 quote 239.56 and 241.5, respectively. Additional information 29.
248.30 *3*	0.92 *5*	1087.60	3/2⁻	839.319	1/2⁻	M1(+E2)	<1	0.146 *13*	α(K)=0.121 *14*; α(L)=0.0199 *9*; α(M)=0.00438 *25*; α(N+..)=0.00116 *6* α(N)=0.00100 *6*; α(O)=0.000151 *4*; α(P)=8.7×10^{-6} *13* Additional information 32.
251.863 *10*	93 *3*	839.319	1/2⁻	587.443	3/2⁻	M1(+E2)	−0.08 *12*	0.152 *3*	α(K)=0.1290 *25*; α(L)=0.0184 *3*; α(M)=0.00399 *7*; α(N+..)=0.001070 *16* α(N)=0.000918 *14*; α(O)=0.0001425 *21*; α(P)=9.54×10^{-6} *21*

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^{151}Tb ε decay (17.609 h) 1986BuZX (continued)

γ(^{151}Gd) (continued)

E_γ[†]	I_γ[†e]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	δ[‡]	α[#]	Comments
									δ: from γγ(θ). ce data for other transitions normalized to 251.86γ treated as M1. Additional information 25.
252.3[b] 5	1.2 3	1157.90	(3/2)$^+$	905.58	(3/2$^-$,5/2$^-$)				
252.4[b] 5	0.22 5	1745.76	1/2,3/2,5/2$^{(-)}$	1493.38	(1/2$^-$,3/2$^-$,5/2$^-$)	[D,E2]		0.09 6	
263.707 17	0.70 3	839.319	1/2$^-$	575.620	1/2$^-$	M1,E2		0.113 23	α(K)=0.091 24; α(L)=0.0170 9; α(M)=0.0038 3; α(N+..)=0.00099 6 α(N)=0.00086 6; α(O)=0.0001270 23; α(P)=6.3×10^{-6} 22 Additional information 26.
275.61[a] 6	0.14 2	1087.60	3/2$^-$	811.837	3/2$^-$	[M1,E2]		0.099 21	α(K)=0.080 22; α(L)=0.0147 4; α(M)=0.00327 16; α(N+..)=0.00086 3 α(N)=0.00075 3; α(O)=0.0001103 20; α(P)=5.6×10^{-6} 20
278.70[a] 4	0.34 2	1192.19	1/2$^+$	913.55	(3/2$^-$)	[E1]		0.0192	α(K)=0.01630 23; α(L)=0.00227 4; α(M)=0.000489 7; α(N+..)=0.0001297 19 α(N)=0.0001117 16; α(O)=1.694×10^{-5} 24; α(P)=1.031×10^{-6} 15
287.357 10	100 3	395.449	3/2$^-$	108.093	5/2$^-$	M1+E2	+0.21 2	0.1056	α(K)=0.0892 13; α(L)=0.01284 18; α(M)=0.00279 4; α(N+..)=0.000748 11 α(N)=0.000642 9; α(O)=9.94×10^{-5} 14; α(P)=6.56×10^{-6} 10 δ: from γγ(θ). Subshell data in the table above give δ=0.29 +12−18. L1/L2=14.2 7 (1987BaZB) is consistent with δ=0. Additional information 10.
318.60 3	1.34 5	426.687	5/2$^-$	108.093	5/2$^-$	M1(+E2)	<2	0.069 13	α(K)=0.057 13; α(L)=0.0094 4; α(M)=0.00207 5; α(N+..)=0.000549 20 α(N)=0.000473 14; α(O)=7.1×10^{-5} 5; α(P)=4.0×10^{-6} 11 Additional information 12.
318.6[b] 5	0.07 2	1157.90	(3/2)$^+$	839.319	1/2$^-$				
322.21[a] 22	0.17 1	1373.95	1/2$^-$,3/2$^-$,5/2$^-$	1052.20	1/2$^-$,3/2$^-$	[M1,E2]		0.064 16	α(K)=0.052 15; α(L)=0.0090 5; α(M)=0.00199 7; α(N+..)=0.000526 25 α(N)=0.000454 19; α(O)=6.8×10^{-5} 6; α(P)=3.7×10^{-6} 13
326.1[d] 5	0.15 3	913.55	(3/2$^-$)	587.443	3/2$^-$	[M1,E2]		0.062 15	α(K)=0.051 15; α(L)=0.0087 5; α(M)=0.00192 8; α(N+..)=0.00051 3 α(N)=0.000438 20; α(O)=6.5×10^{-5} 6; α(P)=3.5×10^{-6} 13

$^{151}_{64}Gd_{87}$-9

^{151}Tb ε decay (17.609 h) 1986BuZX (continued)

γ(^{151}Gd) (continued)

E_γ[†]	I_γ[†e]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	δ[‡]	α[#]	Comments
[x]354.21[&] 12	0.06 3					M1,E2		0.049 13	α(K)=0.040 12; α(L)=0.0067 6; α(M)=0.00149 11; α(N+..)=0.00039 4 α(N)=0.00034 3; α(O)=5.1×10^{-5} 6; α(P)=2.8×10^{-6} 10 Additional information 2.
361.61[a] 6	0.36 6	982.27	(3/2)$^+$	620.600	3/2$^-$,5/2$^{(-)}$				
365.5[d] 5	0.08 2	1279.06	3/2$^-$,5/2$^-$	913.55	(3/2$^-$)				
[x]368.9[&] 2	0.028 6								Probably an impurity line in ce. Additional information 3.
373.5[d] 5	0.05 1	1279.06	3/2$^-$,5/2$^-$	905.58	(3/2$^-$,5/2$^-$)				
380.356 10	17.0 6	1192.19	1/2$^+$	811.837	3/2$^-$	E1(+M2)	<0.1	0.0098 9	α(K)=0.0083 8; α(L)=0.00116 13; α(M)=0.00025 3; α(N+..)=6.7×10^{-5} 8 α(N)=5.7×10^{-5} 7; α(O)=8.8×10^{-6} 10; α(P)=5.5×10^{-7} 7 Additional information 37.
385.156 10	3.66 12	811.837	3/2$^-$	426.687	5/2$^-$	M1(+E2)	<1	0.044 6	α(K)=0.037 5; α(L)=0.0056 4; α(M)=0.00122 7; α(N+..)=0.000325 19 α(N)=0.000279 15; α(O)=4.3×10^{-5} 3; α(P)=2.7×10^{-6} 4 Additional information 22.
391.67[a] 8	0.61 8	1373.95	1/2$^-$,3/2$^-$,5/2$^-$	982.27	(3/2)$^+$	[D,E2]		0.03 2	
395.444 10	38 1	395.449	3/2$^-$	0.0	7/2$^-$	E2		0.0265	α(K)=0.0211 3; α(L)=0.00425 6; α(M)=0.000952 14; α(N+..)=0.000249 4 α(N)=0.000216 3; α(O)=3.14×10^{-5} 5; α(P)=1.378×10^{-6} 20 Mult.: from γγ(θ) and ce data. Additional information 11.
[x]401.9[&] 5	0.07 4					M1,E2		0.035 10	α(K)=0.029 9; α(L)=0.0046 7; α(M)=0.00102 12; α(N+..)=0.00027 4 α(N)=0.00023 3; α(O)=3.5×10^{-5} 6; α(P)=2.0×10^{-6} 8 Additional information 4.
405.67 9	0.11 1	1493.38	(1/2$^-$,3/2$^-$,5/2$^-$)	1087.60	3/2$^-$	(M1)		0.0433	α(K)=0.0367 6; α(L)=0.00513 8; α(M)=0.001112 16; α(N+..)=0.000299 5 α(N)=0.000256 4; α(O)=3.98×10^{-5} 6; α(P)=2.70×10^{-6} 4 E_γ,I_γ: 1982Ba51 quote Eγ=406.33 16 and Iγ=0.34 8. Additional information 44.
412.6[d] 5	0.06 2	839.319	1/2$^-$	426.687	5/2$^-$				
416.390 10	6.89 22	811.837	3/2$^-$	395.449	3/2$^-$	M1+E2	+0.39 14	0.0381 17	α(K)=0.0322 15; α(L)=0.00464 13;

$^{151}_{64}Gd_{87}$-10

^{151}Tb ε decay (17.609 h) 1986BuZX (continued)

γ(^{151}Gd) (continued)

E_γ [†]	I_γ [†e]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	δ[‡]	α[#]	Comments
									α(M)=0.001008 *25*; α(N+..)=0.000270 *7* α(N)=0.000232 *6*; α(O)=3.58×10^{-5} *11*; α(P)=2.35×10^{-6} *12* δ: from γγ(θ). Additional information 23.
419.6[a] *5*	0.15 *3*	1577.56	(1/2$^-$,3/2$^-$,5/2$^-$)	1157.90	(3/2)$^+$				
426.692 *10*	15.3 *5*	426.687	5/2$^-$	0.0	7/2$^-$	M1		0.0380	α(K)=0.0322 *5*; α(L)=0.00450 *7*; α(M)=0.000974 *14*; α(N+..)=0.000262 *4* α(N)=0.000224 *4*; α(O)=3.49×10^{-5} *5*; α(P)=2.36×10^{-6} *4* Additional information 13.
428.6[a] *5*	0.16 *3*	1707.68	1/2$^{(-)}$,3/2$^{(-)}$	1279.06	3/2$^-$,5/2$^-$				
439.60 *8*	0.13 *1*	1279.06	3/2$^-$,5/2$^-$	839.319	1/2$^-$				
443.879 *10*	38.3 *12*	839.319	1/2$^-$	395.449	3/2$^-$	M1+E2	−0.57 *4*	0.0306 *6*	α(K)=0.0258 *5*; α(L)=0.00378 *6*; α(M)=0.000824 *13*; α(N+..)=0.000220 *4* α(N)=0.000189 *3*; α(O)=2.91×10^{-5} *5*; α(P)=1.86×10^{-6} *4* Additional information 27. δ: from γγ(θ).
[x]451.73[&] *9*	0.08 *1*					M1,E2		0.026 *8*	α(K)=0.021 *7*; α(L)=0.0033 *6*; α(M)=0.00073 *12*; α(N+..)=0.00019 *4* α(N)=0.00017 *3*; α(O)=2.5×10^{-5} *5*; α(P)=1.5×10^{-6} *6* Additional information 5.
456.74[a] *14*	0.08 *1*	2034.36	1/2$^-$,3/2$^-$	1577.56	(1/2$^-$,3/2$^-$,5/2$^-$)				
460.40 *5*	0.22 *1*	1373.95	1/2$^-$,3/2$^-$,5/2$^-$	913.55	(3/2$^-$)				
467.0[b] *5*	0.33 *7*	1087.60	3/2$^-$	620.600	3/2$^-$,5/2$^{(-)}$				
467.506 *10*	3.12 *11*	575.620	1/2$^-$	108.093	5/2$^-$	(E2)		0.01669	α(K)=0.01349 *19*; α(L)=0.00249 *4*; α(M)=0.000555 *8*; α(N+..)=0.0001458 *21* α(N)=0.0001263 *18*; α(O)=1.86×10^{-5} *3*; α(P)=8.99×10^{-7} *13* Mult.: from ce and γγ(θ) data. Additional information 15.
468.4[b] *5*	0.07 *2*	1373.95	1/2$^-$,3/2$^-$,5/2$^-$	905.58	(3/2$^-$,5/2$^-$)				
476.55 *3*	4.79 *20*	1052.20	1/2$^-$,3/2$^-$	575.620	1/2$^-$	M1(+E2)	<1	0.025 *4*	α(K)=0.021 *3*; α(L)=0.0031 *3*; α(M)=0.00068 *6*; α(N+..)=0.000182 *15* α(N)=0.000156 *13*; α(O)=2.40×10^{-5} *22*; α(P)=1.55×10^{-6} *24* Additional information 30.
479.357 *10*	54.3 *17*	587.443	3/2$^-$	108.093	5/2$^-$	E2(+M1)	>1	0.019 *4*	α(K)=0.015 *3*; α(L)=0.0026 *3*; α(M)=0.00057 *6*; α(N+..)=0.000150 *15* α(N)=0.000129 *13*; α(O)=1.94×10^{-5} *22*;

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γ(^{151}Gd) (continued)

E_γ [†]	I_γ [†e]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [‡]	δ [‡]	α [#]	Comments
									α(P)=1.07×10^{-6} *23* Additional information 18.
499.5[b] *5*	0.49 *10*	1778.55	1/2$^-$,3/2$^-$	1279.06	3/2$^-$,5/2$^-$	(M1,E2)		0.020 *6*	α(K)=0.016 *5*; α(L)=0.0025 *5*; α(M)=0.00055 *10*; α(N+..)=0.00015 *3* α(N)=0.000126 *23*; α(O)=1.9×10^{-5} *4*; α(P)=1.2×10^{-6} *4* Additional information 47.
500.1[b] *5*	1.0 *2*	1087.60	3/2$^-$	587.443	3/2$^-$	(M1,E2)		0.020 *6*	α(K)=0.016 *5*; α(L)=0.0025 *5*; α(M)=0.00055 *10*; α(N+..)=0.00015 *3* α(N)=0.000126 *23*; α(O)=1.9×10^{-5} *4*; α(P)=1.2×10^{-6} *4* Additional information 33.
[x]508.2[&] *6*	0.12 *5*					M1,E2		0.019 *6*	α(K)=0.016 *5*; α(L)=0.0024 *5*; α(M)=0.00052 *10*; α(N+..)=0.00014 *3* α(N)=0.000120 *23*; α(O)=1.8×10^{-5} *4*; α(P)=1.1×10^{-6} *4* Additional information 6.
512.0[b] *5*	0.56 *11*	1087.60	3/2$^-$	575.620	1/2$^-$	(M1,E2)		0.018 *6*	α(K)=0.015 *5*; α(L)=0.0024 *5*; α(M)=0.00051 *10*; α(N+..)=0.00014 *3* α(N)=0.000118 *23*; α(O)=1.8×10^{-5} *4*; α(P)=1.1×10^{-6} *4* Additional information 34.
512.5[b] *5*	1.9 *4*	620.600	3/2$^-$,5/2$^{(-)}$	108.093	5/2$^-$	(M1,E2)		0.018 *6*	α(K)=0.015 *5*; α(L)=0.0023 *5*; α(M)=0.00051 *10*; α(N+..)=0.00014 *3* α(N)=0.000117 *22*; α(O)=1.8×10^{-5} *4*; α(P)=1.1×10^{-6} *4* Additional information 20.
518.18[a] *5*	0.22 *1*	913.55	(3/2$^-$)	395.449	3/2$^-$				
534.67 *4*	0.28 *1*	1373.95	1/2$^-$,3/2$^-$,5/2$^-$	839.319	1/2$^-$	(E2)		0.01172	α(K)=0.00958 *14*; α(L)=0.001670 *24*; α(M)=0.000370 *6*; α(N+..)=9.74×10^{-5} *14* α(N)=8.42×10^{-5} *12*; α(O)=1.251×10^{-5} *18*; α(P)=6.46×10^{-7} *9* I_γ: 0.43 *2* quoted by 1982Ba51 disagrees. Additional information 42.
537.293 *13*	1.48 *5*	1157.90	(3/2)$^+$	620.600	3/2$^-$,5/2$^{(-)}$				
543.8[@a] *1*	0.08 *1*	1456.62	1/2$^-$,3/2$^-$,5/2$^-$	913.55	(3/2$^-$)				E_γ: level energy difference=543.07.
556.3[@a] *2*	0.16 *1*	982.27	(3/2)$^+$	426.687	5/2$^-$				E_γ: level energy difference=555.58.
556.7[d] *5*	0.07 *1*	2034.36	1/2$^-$,3/2$^-$	1477.66	(1/2$^-$,3/2,5/2$^-$)				
562.5[@] *1*	0.26 *1*	1373.95	1/2$^-$,3/2$^-$,5/2$^-$	811.837	3/2$^-$	M1(+E2)	<1	0.0167 *22*	α(K)=0.0141 *19*; α(L)=0.00202 *20*; α(M)=0.00044 *4*; α(N+..)=0.000117 *12*

^{151}Tb ε decay (17.609 h) 1986BuZX (continued)

γ(^{151}Gd) (continued)

E_γ [†]	I_γ [†e]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	δ[‡]	α[#]	Comments
									α(N)=0.000101 *10*; α(O)=1.55×10^{-5} *16*; α(P)=1.02×10^{-6} *15* E_γ: level energy difference=562.11. Eγ=563.19 *5* (1982Ba51) disagrees. Additional information 43.
[x]572.5[&] *6*	0.07 *3*					M1,E2		0.014 *4*	α(K)=0.012 *4*; α(L)=0.0017 *4*; α(M)=0.00038 *8*; α(N+..)=0.000101 *22* α(N)=8.7×10^{-5} *18*; α(O)=1.3×10^{-5} *3*; α(P)=8.E−7 *3* Additional information 7.
576.9 *6*	0.09 *1*	2034.36	1/2$^-$,3/2$^-$	1456.62	1/2$^-$,3/2$^-$,5/2$^-$				
578.6[b] *5*	0.07 *2*	1199.15	(1/2$^-$,3/2,5/2$^-$)	620.600	3/2$^-$,5/2$^{(-)}$	(M1,E2)		0.014 *4*	α(K)=0.011 *4*; α(L)=0.0017 *4*; α(M)=0.00037 *8*; α(N+..)=9.8×10^{-5} *21* α(N)=8.5×10^{-5} *18*; α(O)=1.3×10^{-5} *3*; α(P)=8.E−7 *3* Additional information 40. Mult.: α(K)exp for the 578γ complex consistent M1,E2.
579.8[b] *5*	0.15 *3*	1493.38	(1/2$^-$,3/2$^-$,5/2$^-$)	913.55	(3/2$^-$)	(M1,E2)		0.013 *4*	α(K)=0.011 *4*; α(L)=0.0017 *4*; α(M)=0.00037 *8*; α(N+..)=9.8×10^{-5} *21* α(N)=8.4×10^{-5} *18*; α(O)=1.3×10^{-5} *3*; α(P)=8.E−7 *3* Additional information 45.
582.35[a] *9*	0.26 *1*	1157.90	(3/2)$^+$	575.620	1/2$^-$				
586.8[b] *5*	0.94 *19*	982.27	(3/2)$^+$	395.449	3/2$^-$				
587.46 *2*	55.3 *18*	587.443	3/2$^-$	0.0	7/2$^-$	E2		0.00923	α(K)=0.00760 *11*; α(L)=0.001276 *18*; α(M)=0.000282 *4*; α(N+..)=7.44×10^{-5} *11* α(N)=6.43×10^{-5} *9*; α(O)=9.60×10^{-6} *14*; α(P)=5.16×10^{-7} *8* Additional information 19. Mult.,δ: α(K)exp gives E2(+M1) with δ>1.
591.8[a] *5*	0.07 *2*	1505.42	1/2$^{(-)}$,3/2$^{(-)}$	913.55	(3/2$^-$)				
593.3[d] *5*	0.09 *2*	1405.14	3/2$^-$,5/2$^-$	811.837	3/2$^-$				
604.761 *16*	11.6 *4*	1192.19	1/2$^+$	587.443	3/2$^-$	E1(+M2)	<0.2	0.0039 *9*	α(K)=0.0033 *7*; α(L)=0.00046 *11*; α(M)=0.000100 *24*; α(N+..)=2.7×10^{-5} *7* α(N)=2.3×10^{-5} *6*; α(O)=3.5×10^{-6} *9*; α(P)=2.3×10^{-7} *6* Additional information 38.
616.561 *15*	36.8 *12*	1192.19	1/2$^+$	575.620	1/2$^-$	E1		0.00298	α(K)=0.00255 *4*; α(L)=0.000340 *5*; α(M)=7.32×10^{-5} *11*; α(N+..)=1.95×10^{-5} *3* α(N)=1.678×10^{-5} *24*; α(O)=2.58×10^{-6} *4*; α(P)=1.691×10^{-7} *24* δ(M2/E1)<0.2. Additional information 39.
620.1[a] *5*	0.11 *2*	1707.68	1/2$^{(-)}$,3/2$^{(-)}$	1087.60	3/2$^-$				

$^{151}_{64}Gd_{87}$-13

^{151}Tb ε decay (17.609 h) 1986BuZX (continued)

γ(^{151}Gd) (continued)

E_γ[†]	I_γ[†e]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	δ[‡]	α[#]	Comments
620.594 *16*	2.01 *10*	620.600	3/2⁻,5/2⁽⁻⁾	0.0	7/2⁻	(E2)		0.00807	α(K)=0.00666 *10*; α(L)=0.001097 *16*; α(M)=0.000242 *4*; α(N+..)=6.39×10⁻⁵ *9* α(N)=5.52×10⁻⁵ *8*; α(O)=8.27×10⁻⁶ *12*; α(P)=4.54×10⁻⁷ *7* Additional information 21.
629.23 *3*	0.35 *1*	2034.36	1/2⁻,3/2⁻	1405.14	3/2⁻,5/2⁻				
637.90[a] *13*	0.08 *1*	1836.92	(3/2)⁻	1199.15	(1/2⁻,3/2,5/2⁻)				
644.78 *10*	0.15 *1*	1456.62	1/2⁻,3/2⁻,5/2⁻	811.837	3/2⁻				
656.78 *4*	1.53 *7*	1052.20	1/2⁻,3/2⁻	395.449	3/2⁻	(M1,E2)		0.010 *3*	α(K)=0.008 *3*; α(L)=0.0012 *3*; α(M)=0.00026 *6*; α(N+..)=7.1×10⁻⁵ *16* α(N)=6.1×10⁻⁵ *14*; α(O)=9.3×10⁻⁶ *23*; α(P)=5.9×10⁻⁷ *20* Additional information 31. Mult.: α(K)exp consistent with M1,E2.
658.58[a] *13*	0.44 *3*	1279.06	3/2⁻,5/2⁻	620.600	3/2⁻,5/2⁽⁻⁾	(M1,E2)		0.010 *3*	α(K)=0.0083 *25*; α(L)=0.0012 *3*; α(M)=0.00026 *6*; α(N+..)=7.0×10⁻⁵ *16* α(N)=6.0×10⁻⁵ *14*; α(O)=9.3×10⁻⁶ *23*; α(P)=5.9×10⁻⁷ *20* Additional information 41.
660.3[b] *5*	0.11 *3*	2034.36	1/2⁻,3/2⁻	1373.95	1/2⁻,3/2⁻,5/2⁻				
660.94 *3*	1.57 *6*	1087.60	3/2⁻	426.687	5/2⁻	[M1,E2]		0.010 *3*	α(K)=0.0082 *25*; α(L)=0.0012 *3*; α(M)=0.00026 *6*; α(N+..)=7.0×10⁻⁵ *16* α(N)=6.0×10⁻⁵ *14*; α(O)=9.2×10⁻⁶ *22*; α(P)=5.8×10⁻⁷ *20*
664.0[a] *5*	0.09 *2*	1577.56	(1/2⁻,3/2⁻,5/2⁻)	913.55	(3/2⁻)				
666.1[a] *5*	0.04 *2*	1505.42	1/2⁽⁻⁾,3/2⁽⁻⁾	839.319	1/2⁻				
671.96 *9*	0.15 *2*	1577.56	(1/2⁻,3/2⁻,5/2⁻)	905.58	(3/2⁻,5/2⁻)	M1(+E2)	<1	0.0107 *14*	α(K)=0.0091 *12*; α(L)=0.00128 *14*; α(M)=0.00028 *3*; α(N+..)=7.4×10⁻⁵ *8* α(N)=6.4×10⁻⁵ *7*; α(O)=9.9×10⁻⁶ *11*; α(P)=6.5×10⁻⁷ *10* Additional information 46.
679.1[d] *5*	0.10 *2*	1836.92	(3/2)⁻	1157.90	(3/2)⁺				
691.0[b] *5*	0.26 *5*	1778.55	1/2⁻,3/2⁻	1087.60	3/2⁻				
691.6[b] *5*	0.56 *11*	1279.06	3/2⁻,5/2⁻	587.443	3/2⁻				
692.06 *4*	4.9 *3*	1087.60	3/2⁻	395.449	3/2⁻	M1+E2		0.0087 *25*	α(K)=0.0073 *22*; α(L)=0.00106 *25*; α(M)=0.00023 *6*; α(N+..)=6.2×10⁻⁵ *15* α(N)=5.3×10⁻⁵ *12*; α(O)=8.2×10⁻⁶ *20*; α(P)=5.2×10⁻⁷ *17* δ: +0.37 *8* or +9.9 *42* from γγ(θ); mult from α(K)exp. Additional information 35.

$^{151}_{64}Gd_{87}$-14

^{151}Tb ε decay (17.609 h) 1986BuZX (continued)

γ(^{151}Gd) (continued)

E_γ [†]	I_γ [†e]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	δ[‡]	α[#]	Comments
703.4[b] *5*	0.07 *2*	1279.06	3/2⁻,5/2⁻	575.620	1/2⁻				
703.75 *10*	13.4 *4*	811.837	3/2⁻	108.093	5/2⁻	M1+E2	−0.25 *2*	0.01046 *16*	α(K)=0.00889 *13*; α(L)=0.001226 *18*; α(M)=0.000265 *4*; α(N+..)=7.12×10^{-5} *11* α(N)=6.11×10^{-5} *9*; α(O)=9.50×10^{-6} *14*; α(P)=6.45×10^{-7} *10* δ: from γγ(θ). Additional information 24.
713.25[a] *15*	0.05 *5*	1552.70	(3/2⁻,5/2⁻)	839.319	1/2⁻				
725.30 *9*	0.11 *1*	1707.68	1/2$^{(-)}$,3/2$^{(-)}$	982.27	(3/2)$^+$				
x727.43[&f] *13*	0.89 *7*					M1,E2		0.0077 *22*	α(K)=0.0065 *19*; α(L)=0.00094 *22*; α(M)=0.00020 *5*; α(N+..)=5.4×10^{-5} *13* α(N)=4.7×10^{-5} *11*; α(O)=7.2×10^{-6} *18*; α(P)=4.6×10^{-7} *15* Additional information 8. Probably an impurity line in ce.
731.2[b] *5*	2.2 *5*	1157.90	(3/2)$^+$	426.687	5/2⁻				
731.227 *11*	27.2 *9*	839.319	1/2⁻	108.093	5/2⁻	E2		0.00547	α(K)=0.00456 *7*; α(L)=0.000712 *10*; α(M)=0.0001559 *22*; α(N+..)=4.14×10^{-5} *6* α(N)=3.57×10^{-5} *5*; α(O)=5.39×10^{-6} *8*; α(P)=3.13×10^{-7} *5* Additional information 28. Mult.,δ: α(K)exp gives E2(+M1) with δ>2.
749.24 *9*	0.060 *4*	1836.92	(3/2)⁻	1087.60	3/2⁻				
755.78[a] *16*	0.020 *7*	2034.36	1/2⁻,3/2⁻	1279.06	3/2⁻,5/2⁻				
762.45 *3*	1.15 *4*	1157.90	(3/2)$^+$	395.449	3/2⁻	E1(+M2)	<0.1	0.00203 *12*	α(K)=0.00174 *10*; α(L)=0.000231 *15*; α(M)=5.0×10^{-5} *4*; α(N+..)=1.33×10^{-5} *9* α(N)=1.14×10^{-5} *8*; α(O)=1.76×10^{-6} *12*; α(P)=1.17×10^{-7} *8* α(K)exp=0.0015 *4* (1982Ba51,1971Go27).
765.7 *5*	0.10 *1*	1577.56	(1/2⁻,3/2⁻,5/2⁻)	811.837	3/2⁻				
772.52 *6*	0.16 *1*	1199.15	(1/2⁻,3/2,5/2⁻)	426.687	5/2⁻				
784.3[b] *2*	0.14 *1*	1405.14	3/2⁻,5/2⁻	620.600	3/2⁻,5/2$^{(-)}$	(M1,E2)		0.0064 *18*	α(K)=0.0055 *16*; α(L)=0.00078 *18*; α(M)=0.00017 *4*; α(N+..)=4.5×10^{-5} *11* α(N)=3.9×10^{-5} *9*; α(O)=6.0×10^{-6} *15*; α(P)=3.9×10^{-7} *12* α(K)exp=0.005 *2* (1982Ba51).
786.5 *5*	0.08 *1*	1373.95	1/2⁻,3/2⁻,5/2⁻	587.443	3/2⁻				
791.7[a] *5*	0.07 *1*	2070.97	1/2⁻,3/2⁻	1279.06	3/2⁻,5/2⁻				
794.28 *9*	0.30 *1*	1707.68	1/2$^{(-)}$,3/2$^{(-)}$	913.55	(3/2⁻)	(M1,E2)		0.0063 *18*	α(K)=0.0053 *15*; α(L)=0.00075 *18*; α(M)=0.00016 *4*; α(N+..)=4.4×10^{-5} *11* α(N)=3.8×10^{-5} *9*; α(O)=5.8×10^{-6} *14*;

$^{151}_{64}Gd_{87}$-15

^{151}Tb ε decay (17.609 h) 1986BuZX (continued)

γ(^{151}Gd) (continued)

E_γ [†]	I_γ [†e]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	δ[‡]	α[#]	Comments
									α(P)=3.8×10^{-7} *12* α(K)exp=0.007 *3* (1982Ba51). Other: 1967Vi05.
795.8[b] *5*	0.07 *2*	1701.40	1/2,3/2,5/2$^{(-)}$	905.58	(3/2$^-$,5/2$^-$)				
796.8[b] *5*	0.19 *4*	1192.19	1/2$^+$	395.449	3/2$^-$				
798.23[a] *6*	0.38 *2*	1373.95	1/2$^-$,3/2$^-$,5/2$^-$	575.620	1/2$^-$				
803.7[b] *5*	0.07 *2*	1199.15	(1/2$^-$,3/2,5/2$^-$)	395.449	3/2$^-$				
805.47 *2*	2.78 *10*	913.55	(3/2$^-$)	108.093	5/2$^-$	(M1)		0.00771	α(K)=0.00657 *10*; α(L)=0.000897 *13*; α(M)=0.000194 *3*; α(N+..)=5.20×10^{-5} *8* α(N)=4.46×10^{-5} *7*; α(O)=6.95×10^{-6} *10*; α(P)=4.76×10^{-7} *7* α(K)exp=0.009 *2* (1982Ba51,1975Ha18,1971Go27,1967Vi05, 1962Ha24).
807.0[b] *5*	0.10 *2*	1745.76	1/2,3/2,5/2$^{(-)}$	938.80	(3/2$^-$,5/2$^-$,7/2$^-$)				
811.81 *4*	0.70 *3*	811.837	3/2$^-$	0.0	7/2$^-$	E2		0.00432	α(K)=0.00362 *5*; α(L)=0.000549 *8*; α(M)=0.0001198 *17*; α(N+..)=3.18×10^{-5} *5* α(N)=2.74×10^{-5} *4*; α(O)=4.17×10^{-6} *6*; α(P)=2.49×10^{-7} *4* α(K)exp=0.0033 *5* (1982Ba51). Mult.,δ: α(K)exp gives E2(+M1) with δ>3.
817.96[a] *24*	0.040 *5*	1405.14	3/2$^-$,5/2$^-$	587.443	3/2$^-$				
[x]824.18[a] *13*	0.060 *4*								
830.65[a] *10*	0.13 *1*	938.80	(3/2$^-$,5/2$^-$,7/2$^-$)	108.093	5/2$^-$				
835.2[d] *5*	0.06 *2*	2034.36	1/2$^-$,3/2$^-$	1199.15	(1/2$^-$,3/2,5/2$^-$)				
837.0[d] *5*	0.03 *1*	2116.09	1/2$^{(-)}$,3/2$^{(-)}$	1279.06	3/2$^-$,5/2$^-$				
[x]839.21[f] *7*	0.25 *1*								1986BuZX place this with 839 level, but in view of ΔJ=3 and $T_{1/2}$ of 839 level the suggested placement is not possible. The evaluator considers 839.21 line as a summing of several intense transitions from the 839 level.
839.8[b] *5*	0.12 *2*	1778.55	1/2$^-$,3/2$^-$	938.80	(3/2$^-$,5/2$^-$,7/2$^-$)	(M1,E2)		0.0055 *15*	α(K)=0.0046 *13*; α(L)=0.00066 *16*; α(M)=0.00014 *4*; α(N+..)=3.8×10^{-5} *9* α(N)=3.3×10^{-5} *8*; α(O)=5.1×10^{-6} *13*; α(P)=3.3×10^{-7} *10* α(K)exp=0.004 *2* (1982Ba51).
842.15 *5*	0.28 *1*	2034.36	1/2$^-$,3/2$^-$	1192.19	1/2$^+$				
852.36 *6*	0.20 *1*	1279.06	3/2$^-$,5/2$^-$	426.687	5/2$^-$	M1(+E2)	<1	0.0060 *8*	α(K)=0.0051 *7*; α(L)=0.00071 *8*; α(M)=0.000153 *16*; α(N+..)=4.1×10^{-5} *5* α(N)=3.5×10^{-5} *4*; α(O)=5.5×10^{-6} *6*; α(P)=3.7×10^{-7} *5* α(K)exp=0.007 *3* (1982Ba51).

$^{151}_{64}Gd_{87}$-16

γ(^{151}Gd) (continued)

E_γ[†]	I_γ[†e]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	δ[‡]	α[#]	Comments
864.98 *3*	0.56 *2*	1778.55	1/2⁻,3/2⁻	913.55	(3/2⁻)	M1(+E2)	<1	0.0058 *7*	α(K)=0.0049 *6*; α(L)=0.00068 *8*; α(M)=0.000148 *16*; α(N+..)=4.0×10⁻⁵ *5* α(N)=3.4×10⁻⁵ *4*; α(O)=5.3×10⁻⁶ *6*; α(P)=3.5×10⁻⁷ *5* α(K)exp=0.0052 *5* (1982Ba51).
868.16[a] *26*	0.08 *1*	1707.68	1/2(⁻),3/2(⁻)	839.319	1/2⁻				
870.0[@] *2*	0.11 *2*	1456.62	1/2⁻,3/2⁻,5/2⁻	587.443	3/2⁻	(M1,E2)		0.0050 *14*	α(K)=0.0043 *12*; α(L)=0.00060 *14*; α(M)=0.00013 *3*; α(N+..)=3.5×10⁻⁵ *8* α(N)=3.0×10⁻⁵ *7*; α(O)=4.6×10⁻⁶ *12*; α(P)=3.0×10⁻⁷ *9* E_γ: level energy difference=869.18. α(K)exp(870γ complex)=0.004 *2* (1982Ba51).
871.76[a] *21*	0.06 *2*	2070.97	1/2⁻,3/2⁻	1199.15	(1/2⁻,3/2,5/2⁻)				
874.11 *11*	0.10 *1*	982.27	(3/2)⁺	108.093	5/2⁻				
876.68[a] *24*	0.05 *1*	2034.36	1/2⁻,3/2⁻	1157.90	(3/2)⁺				
878.89 *21*	0.17 *2*	2070.97	1/2⁻,3/2⁻	1192.19	1/2⁺				
880.79 *15*	0.30 *2*	1456.62	1/2⁻,3/2⁻,5/2⁻	575.620	1/2⁻				
883.6[b] *5*	0.38 *8*	1279.06	3/2⁻,5/2⁻	395.449	3/2⁻	(M1,E2)		0.0049 *13*	α(K)=0.0041 *12*; α(L)=0.00058 *14*; α(M)=0.00013 *3*; α(N+..)=3.4×10⁻⁵ *8* α(N)=2.9×10⁻⁵ *7*; α(O)=4.5×10⁻⁶ *11*; α(P)=2.9×10⁻⁷ *9* α(K)exp(884γ complex)=0.0030 *6* (1982Ba51). Other: 1971Go27.
884.0[b] *5*	0.07 *2*	2076.09	1/2(⁻),3/2	1192.19	1/2⁺				
884.8[b] *5*	0.45 *9*	1505.42	1/2(⁻),3/2(⁻)	620.600	3/2⁻,5/2(⁻)	(M1,E2)		0.0049 *13*	α(K)=0.0041 *12*; α(L)=0.00058 *14*; α(M)=0.00013 *3*; α(N+..)=3.4×10⁻⁵ *8* α(N)=2.9×10⁻⁵ *7*; α(O)=4.5×10⁻⁶ *11*; α(P)=2.9×10⁻⁷ *9* See 883.6γ for ce data.
886.1[b] *5*	0.010 *5*	2391.50	1/2,3/2	1505.42	1/2(⁻),3/2(⁻)				
889.9 *2*	0.070 *6*	1701.40	1/2,3/2,5/2(⁻)	811.837	3/2⁻				
894.0[b] *5*	0.010 *5*	2173.19	1/2(⁻),3/2	1279.06	3/2⁻,5/2⁻				
894.7[@] *2*	0.08 *1*	1707.68	1/2(⁻),3/2(⁻)	811.837	3/2⁻	(M1,E2)		0.0047 *13*	α(K)=0.0040 *11*; α(L)=0.00056 *13*; α(M)=0.00012 *3*; α(N+..)=3.3×10⁻⁵ *8* α(N)=2.8×10⁻⁵ *7*; α(O)=4.3×10⁻⁶ *11*; α(P)=2.9×10⁻⁷ *9* E_γ: level energy difference=895.84. α(K)exp=0.006 *3* (1982Ba51).
897.83 *18*	0.11 *1*	1836.92	(3/2)⁻	938.80	(3/2⁻,5/2⁻,7/2⁻)				
905.6[b] *5*	1.8 *4*	905.58	(3/2⁻,5/2⁻)	0.0	7/2⁻	(M1,E2)		0.0046 *12*	α(K)=0.0039 *11*; α(L)=0.00055 *13*; α(M)=0.00012 *3*;

γ(^{151}Gd) (continued)

E_γ [†]	I_γ [†e]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [‡]	α [#]	Comments
								α(N+..)=3.2×10^{-5} *8* α(N)=2.7×10^{-5} *7*; α(O)=4.2×10^{-6} *10*; α(P)=2.8×10^{-7} *8* α(K)exp(906γ complex)=0.0030 *6* (1982Ba51,1975Ha18,1971Go27, 1962Ha24).
905.9[b] *5*	1.9 *4*	1493.38	(1/2$^-$,3/2$^-$,5/2$^-$)	587.443	3/2$^-$	(M1,E2)	0.0046 *12*	α(K)=0.0039 *11*; α(L)=0.00055 *13*; α(M)=0.00012 *3*; α(N+..)=3.2×10^{-5} *8* α(N)=2.7×10^{-5} *7*; α(O)=4.2×10^{-6} *10*; α(P)=2.8×10^{-7} *8* See 905.6γ for ce data.
913.1[b] *5*	0.08 *2*	2070.97	1/2$^-$,3/2$^-$	1157.90	(3/2)$^+$			
913.6[b] *5*	0.5 *1*	913.55	(3/2$^-$)	0.0	7/2$^-$	(E2)	0.00333	α(K)=0.00281 *4*; α(L)=0.000414 *6*; α(M)=9.01×10^{-5} *13*; α(N+..)=2.40×10^{-5} *4* α(N)=2.07×10^{-5} *3*; α(O)=3.15×10^{-6} *5*; α(P)=1.94×10^{-7} *3* α(K)exp(913γ complex)=0.0034 *10* (1982Ba51,1971Go27). Mult.,δ: α(K)exp gives M1,E2 with no limit on δ value.
913.8[b] *5*	0.010 *5*	2391.50	1/2,3/2	1477.66	(1/2$^-$,3/2,5/2$^-$)			
914.0[b] *5*	0.04 *1*	1852.72	(1/2$^-$,3/2$^-$,5/2$^-$)	938.80	(3/2$^-$,5/2$^-$,7/2$^-$)			
917.8[b] *5*	0.12 *3*	1493.38	(1/2$^-$,3/2$^-$,5/2$^-$)	575.620	1/2$^-$	(M1,E2)	0.0045 *12*	α(K)=0.0038 *10*; α(L)=0.00053 *13*; α(M)=0.00011 *3*; α(N+..)=3.1×10^{-5} *7* α(N)=2.6×10^{-5} *6*; α(O)=4.1×10^{-6} *10*; α(P)=2.7×10^{-7} *8* α(K)exp(918γ complex)=0.004 *2* (1971Go27).
918.0[b] *5*	0.12 *2*	1505.42	1/2$^{(-)}$,3/2$^{(-)}$	587.443	3/2$^-$	(M1,E2)	0.0045 *12*	α(K)=0.0038 *10*; α(L)=0.00053 *12*; α(M)=0.00011 *3*; α(N+..)=3.1×10^{-5} *7* α(N)=2.6×10^{-5} *6*; α(O)=4.1×10^{-6} *10*; α(P)=2.7×10^{-7} *8* See 917.8γ for ce data.
923.37[a] *13*	0.07 *1*	1836.92	(3/2)$^-$	913.55	(3/2$^-$)			
929.83[a] *11*	0.11 *1*	1505.42	1/2$^{(-)}$,3/2$^{(-)}$	575.620	1/2$^-$			
938.7[b] *5*	0.33 *7*	938.80	(3/2$^-$,5/2$^-$,7/2$^-$)	0.0	7/2$^-$	(M1,E2)	0.0042 *11*	α(K)=0.0036 *10*; α(L)=0.00050 *12*; α(M)=0.000109 *25*; α(N+..)=2.9×10^{-5} *7* α(N)=2.5×10^{-5} *6*; α(O)=3.9×10^{-6} *9*; α(P)=2.6×10^{-7} *8* α(K)exp(939γ complex)=0.0048 *12* (1982Ba51,1971Go27).
939.1[b] *5*	0.16 *3*	1852.72	(1/2$^-$,3/2$^-$,5/2$^-$)	913.55	(3/2$^-$)	(M1,E2)	0.0042 *11*	α(K)=0.0036 *10*; α(L)=0.00050 *12*; α(M)=0.000109 *25*; α(N+..)=2.9×10^{-5} *7* α(N)=2.5×10^{-5} *6*; α(O)=3.9×10^{-6} *9*; α(P)=2.6×10^{-7} *8* See 938.7γ for ce data.
939.2[b] *5*	0.11 *2*	1778.55	1/2$^-$,3/2$^-$	839.319	1/2$^-$	(M1,E2)	0.0042 *11*	α(K)=0.0036 *10*; α(L)=0.00050 *12*; α(M)=0.000109 *25*; α(N+..)=2.9×10^{-5} *7* α(N)=2.5×10^{-5} *6*; α(O)=3.9×10^{-6} *9*; α(P)=2.6×10^{-7} *8* See 938.7γ for ce data.
946.8[b] *5*	0.16 *3*	2034.36	1/2$^-$,3/2$^-$	1087.60	3/2$^-$	(M1,E2)	0.0042 *11*	α(K)=0.0035 *10*; α(L)=0.00049 *12*; α(M)=0.000107 *24*;

$^{151}_{64}Gd_{87}$-18

γ(^{151}Gd) (continued)

E_γ †	I_γ †e	E_i(level)	J_i^π	E_f	J_f^π	Mult.‡	α#	Comments
								α(N+..)=2.9×10^{-5} *7* α(N)=2.5×10^{-5} *6*; α(O)=3.8×10^{-6} *9*; α(P)=2.5×10^{-7} *7* See 947.3γ for ce data.
947.3[b] *5*	0.22 *5*	1373.95	1/2$^-$,3/2$^-$,5/2$^-$	426.687	5/2$^-$	(M1,E2)	0.0041 *11*	α(K)=0.0035 *10*; α(L)=0.00049 *12*; α(M)=0.000106 *24*; α(N+..)=2.9×10^{-5} *7* α(N)=2.4×10^{-5} *6*; α(O)=3.8×10^{-6} *9*; α(P)=2.5×10^{-7} *7* Mult.: α(K)exp(947γ complex)=0.004 *1* (1982Ba51,1971Go27) consistent with M1,E2.
949.7[a] *3*	0.050 *6*	1788.96	(1/2$^-$,3/2$^-$,5/2$^-$)	839.319	1/2$^-$			
x953.3[a] *2*	0.080 *6*							
956.93 *12*	0.14 *1*	1577.56	(1/2$^-$,3/2$^-$,5/2$^-$)	620.600	3/2$^-$,5/2$^{(-)}$	M1,E2	0.0041 *11*	α(K)=0.0034 *9*; α(L)=0.00048 *11*; α(M)=0.000104 *23*; α(N+..)=2.8×10^{-5} *7* α(N)=2.4×10^{-5} *6*; α(O)=3.7×10^{-6} *9*; α(P)=2.4×10^{-7} *7* α(K)exp=0.004 *1* (1982Ba51,1971Go27).
966.25[@] *11*	0.12 *1*	1778.55	1/2$^-$,3/2$^-$	811.837	3/2$^-$	M1,E2	0.0040 *10*	α(K)=0.0034 *9*; α(L)=0.00047 *11*; α(M)=0.000102 *23*; α(N+..)=2.7×10^{-5} *7* α(N)=2.3×10^{-5} *6*; α(O)=3.6×10^{-6} *9*; α(P)=2.4×10^{-7} *7* E_γ: level energy difference=966.71. α(K)exp=0.004 *1* (1982Ba51).
x967.4[&] *6*	0.06 *6*							
974.14 *9*	0.24 *1*	2173.19	1/2$^{(-)}$,3/2	1199.15	(1/2$^-$,3/2,5/2$^-$)			
977.1[a] *5*	0.13 *3*	1788.96	(1/2$^-$,3/2$^-$,5/2$^-$)	811.837	3/2$^-$			
979.48 *4*	1.44 *5*	1087.60	3/2$^-$	108.093	5/2$^-$	M1,E2	0.0038 *10*	α(K)=0.0033 *9*; α(L)=0.00045 *11*; α(M)=9.8×10^{-5} *22*; α(N+..)=2.6×10^{-5} *6* α(N)=2.3×10^{-5} *5*; α(O)=3.5×10^{-6} *8*; α(P)=2.3×10^{-7} *7* α(K)exp=0.0030 *7* (1982Ba51,1971Go27,1962Ha24).
982.1[b] *5*	0.23 *5*	2034.36	1/2$^-$,3/2$^-$	1052.20	1/2$^-$,3/2$^-$	(M1,E2)	0.0038 *10*	α(K)=0.0032 *9*; α(L)=0.00045 *11*; α(M)=9.8×10^{-5} *22*; α(N+..)=2.6×10^{-5} *6* α(N)=2.2×10^{-5} *5*; α(O)=3.5×10^{-6} *8*; α(P)=2.3×10^{-7} *7* α(K)exp(982γ complex)=0.004 *1* (1982Ba51,1971Go27).
983.4[b] *5*	0.31 *6*	2070.97	1/2$^-$,3/2$^-$	1087.60	3/2$^-$	(M1,E2)	0.0038 *10*	α(K)=0.0032 *9*; α(L)=0.00045 *10*; α(M)=9.7×10^{-5} *22*; α(N+..)=2.6×10^{-5} *6* α(N)=2.2×10^{-5} *5*; α(O)=3.5×10^{-6} *8*; α(P)=2.3×10^{-7} *7* See 982.1γ for ce data.
986.3[a] *4*	0.06 *2*	2391.50	1/2,3/2	1405.14	3/2$^-$,5/2$^-$			
990.13 *18*	0.12 *1*	1577.56	(1/2$^-$,3/2$^-$,5/2$^-$)	587.443	3/2$^-$			
997.29[a] *23*	0.040 *4*	1836.92	(3/2)$^-$	839.319	1/2$^-$			
1001.87 *11*	0.11 *1*	1577.56	(1/2$^-$,3/2$^-$,5/2$^-$)	575.620	1/2$^-$			

$^{151}_{64}Gd_{87}$-19

^{151}Tb ε decay (17.609 h) 1986BuZX (continued)

γ(^{151}Gd) (continued)

E_γ [†]	I_γ [†e]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	δ[‡]	α[#]	Comments
1009.69 *3*	0.58 *2*	1405.14	3/2⁻,5/2⁻	395.449	3/2⁻	M1(+E2)	<2	0.0038 *7*	α(K)=0.0032 *7*; α(L)=0.00044 *8*; α(M)=9.5×10⁻⁵ *16*; α(N+..)=2.6×10⁻⁵ *5* α(N)=2.2×10⁻⁵ *4*; α(O)=3.4×10⁻⁶ *6*; α(P)=2.3×10⁻⁷ *5* α(K)exp=0.004 *1* (1982Ba51). Other: 1971Go27.
1018.99[a] *17*	0.080 *7*	2070.97	1/2⁻,3/2⁻	1052.20	1/2⁻,3/2⁻				
1025.12 *4*	0.71 *2*	1836.92	(3/2)⁻	811.837	3/2⁻	M1,E2		0.0035 *9*	α(K)=0.0029 *8*; α(L)=0.00041 *9*; α(M)=8.8×10⁻⁵ *20*; α(N+..)=2.4×10⁻⁵ *6* α(N)=2.0×10⁻⁵ *5*; α(O)=3.1×10⁻⁶ *8*; α(P)=2.1×10⁻⁷ *6* α(K)exp=0.0036 *12* (1982Ba51,1962Ha24).
1029.55[@] *5*	0.37 *1*	1456.62	1/2⁻,3/2⁻,5/2⁻	426.687	5/2⁻				E_γ: level energy difference=1029.93.
1040.5[a] *8*	0.030 *6*	1978.05	(3/2⁻)	938.80	(3/2⁻,5/2⁻,7/2⁻)				
1044.2[a] *4*	0.030 *5*	2243.8	1/2(⁻),3/2	1199.15	(1/2⁻,3/2,5/2⁻)				
1049.83 *4*	0.40 *2*	1157.90	(3/2)⁺	108.093	5/2⁻				E_γ: 1982Ba51 give 1050.61 *9*. Mult.: α(K)exp=0.0024 *8* (1982Ba51,1971Go27) disagrees with expected E1.
1051.5[b] *5*	0.04 *1*	1890.80	(1/2⁻,3/2,5/2⁻)	839.319	1/2⁻				
1052.0[b] *5*	0.20 *4*	2034.36	1/2⁻,3/2⁻	982.27	(3/2)⁺				
1057.3[d] *5*	0.09 *2*	1970.91	1/2,3/2,5/2(⁻)	913.55	(3/2⁻)				
1061.59[@] *5*	0.86 *4*	1456.62	1/2⁻,3/2⁻,5/2⁻	395.449	3/2⁻	M1,E2		0.0032 *8*	α(K)=0.0027 *7*; α(L)=0.00038 *9*; α(M)=8.1×10⁻⁵ *18*; α(N+..)=2.2×10⁻⁵ *5* α(N)=1.9×10⁻⁵ *4*; α(O)=2.9×10⁻⁶ *7*; α(P)=1.9×10⁻⁷ *5* E_γ: level energy difference=1061.17. α(K)exp=0.0028 *7* (1982Ba51,1971Go27).
1078.80 *7*	0.26 *1*	1505.42	1/2(⁻),3/2(⁻)	426.687	5/2⁻				
1080.96[a] *19*	0.09 *1*	1701.40	1/2,3/2,5/2(⁻)	620.600	3/2⁻,5/2(⁻)				
1084.7[@] *2*	0.060 *5*	2173.19	1/2(⁻),3/2	1087.60	3/2⁻				E_γ: level energy difference=1085.59.
1087.1[b] *5*	0.03 *1*	1707.68	1/2(⁻),3/2(⁻)	620.600	3/2⁻,5/2(⁻)				
1087.6[b] *5*	0.07 *2*	1087.60	3/2⁻	0.0	7/2⁻				
1091.04 *9*	0.28 *1*	1199.15	(1/2⁻,3/2,5/2⁻)	108.093	5/2⁻				
1095.6[d] *5*	0.04 *1*	2034.36	1/2⁻,3/2⁻	938.80	(3/2⁻,5/2⁻,7/2⁻)				
1097.92 *7*	0.39 *1*	1493.38	(1/2⁻,3/2⁻,5/2⁻)	395.449	3/2⁻				
1109.96 *2*	3.08 *10*	1505.42	1/2(⁻),3/2(⁻)	395.449	3/2⁻				
1112.4[d] *5*	0.010 *5*	2391.50	1/2,3/2	1279.06	3/2⁻,5/2⁻				
1114.1[a] *2*	0.10 *1*	1701.40	1/2,3/2,5/2(⁻)	587.443	3/2⁻				
1120.2[b] *5*	0.20 *4*	1707.68	1/2(⁻),3/2(⁻)	587.443	3/2⁻				
1120.8[b] *5*	0.09 *2*	2034.36	1/2⁻,3/2⁻	913.55	(3/2⁻)				

$^{151}_{64}Gd_{87}$-20

^{151}Tb ε decay (17.609 h) 1986BuZX (continued)

γ(^{151}Gd) (continued)

E_γ [†]	I_γ [†e]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [‡]	α [#]	Comments
1125.28 *14*	0.14 *1*	1745.76	1/2,3/2,5/2$^{(-)}$	620.600	3/2$^-$,5/2$^{(-)}$	(M1)	0.00345	α(K)=0.00294 *5*; α(L)=0.000398 *6*; α(M)=8.58×10^{-5} *12*; α(N+..)=2.39×10^{-5} *4* α(N)=1.98×10^{-5} *3*; α(O)=3.08×10^{-6} *5*; α(P)=2.12×10^{-7} *3*; α(IPF)=8.41×10^{-7} *13* α(K)exp=0.010 *5* (1971Go27).
1128.8[d] *5*	0.04 *1*	2034.36	1/2$^-$,3/2$^-$	905.58	(3/2$^-$,5/2$^-$)			
1129.3[d] *5*	0.05 *1*	1941.11	(1/2$^-$,3/2,5/2$^-$)	811.837	3/2$^-$			
1132.0[b] *5*	0.27 *3*	1707.68	1/2$^{(-)}$,3/2$^{(-)}$	575.620	1/2$^-$			
1132.2[b] *5*	0.05 *1*	2070.97	1/2$^-$,3/2$^-$	938.80	(3/2$^-$,5/2$^-$,7/2$^-$)			
1137.28[a] *11*	0.060 *5*	2076.09	1/2$^{(-)}$,3/2	938.80	(3/2$^-$,5/2$^-$,7/2$^-$)			
1150.79 *10*	0.13 *1*	1577.56	(1/2$^-$,3/2$^-$,5/2$^-$)	426.687	5/2$^-$			
1157.4[b] *5*	0.58 *12*	2070.97	1/2$^-$,3/2$^-$	913.55	(3/2$^-$)	(M1,E2)	0.0026 *6*	α(K)=0.0022 *6*; α(L)=0.00031 *7*; α(M)=6.7×10^{-5} *14*; α(N+..)=2.0×10^{-5} *4* α(N)=1.5×10^{-5} *4*; α(O)=2.4×10^{-6} *5*; α(P)=1.6×10^{-7} *4*; α(IPF)=2.15×10^{-6} *12* α(K)exp(1157γ complex)=0.003 *1* (1982Ba51).
1158.0[b] *5*	0.12 *3*	1778.55	1/2$^-$,3/2$^-$	620.600	3/2$^-$,5/2$^{(-)}$			See 1157.4γ for ce data.
1158.3[b] *5*	0.03 *1*	1745.76	1/2,3/2,5/2$^{(-)}$	587.443	3/2$^-$			
1163.0[@] *1*	0.13 *1*	2076.09	1/2$^{(-)}$,3/2	913.55	(3/2$^-$)			E_γ: level energy difference=1162.54.
1165.4[d] *5*	0.06 *2*	2070.97	1/2$^-$,3/2$^-$	905.58	(3/2$^-$,5/2$^-$)			
1170.7 *5*	0.13 *2*	2076.09	1/2$^{(-)}$,3/2	905.58	(3/2$^-$,5/2$^-$)			
1170.98 *3*	2.09 *7*	1279.06	3/2$^-$,5/2$^-$	108.093	5/2$^-$	M1	0.00314	α(K)=0.00268 *4*; α(L)=0.000362 *5*; α(M)=7.80×10^{-5} *11*; α(N+..)=2.42×10^{-5} *4* α(N)=1.80×10^{-5} *3*; α(O)=2.80×10^{-6} *4*; α(P)=1.93×10^{-7} *3*; α(IPF)=3.23×10^{-6} *5* α(K)exp=0.0037 *10* (1982Ba51,1971Go27,1962Ha24).
1177.4[d] *5*	0.02 *1*	2116.09	1/2$^{(-)}$,3/2$^{(-)}$	938.80	(3/2$^-$,5/2$^-$,7/2$^-$)			
1182.13 *4*	1.02 *3*	1577.56	(1/2$^-$,3/2$^-$,5/2$^-$)	395.449	3/2$^-$			
1191.13 *5*	0.54 *2*	1778.55	1/2$^-$,3/2$^-$	587.443	3/2$^-$	(M1,E2)	0.0025 *6*	α(K)=0.0021 *5*; α(L)=0.00029 *6*; α(M)=6.2×10^{-5} *13*; α(N+..)=2.2×10^{-5} *4* α(N)=1.4×10^{-5} *3*; α(O)=2.2×10^{-6} *5*; α(P)=1.5×10^{-7} *4*; α(IPF)=4.9×10^{-6} *3* α(K)exp=0.0035 *7* (1982Ba51,1971Go27).
1195.00 *5*	0.56 *2*	2034.36	1/2$^-$,3/2$^-$	839.319	1/2$^-$			
1199.3[d] *5*	0.03 *1*	2391.50	1/2,3/2	1192.19	1/2$^+$			
1202.96 *5*	0.26 *1*	1778.55	1/2$^-$,3/2$^-$	575.620	1/2$^-$	(M1,E2)	0.0024 *6*	α(K)=0.0021 *5*; α(L)=0.00028 *6*; α(M)=6.1×10^{-5} *13*; α(N+..)=2.2×10^{-5} *4* α(N)=1.4×10^{-5} *3*; α(O)=2.2×10^{-6} *5*; α(P)=1.5×10^{-7} *4*;

$^{151}_{64}Gd_{87}$-21

γ(^{151}Gd) (continued)

E_γ [†]	I_γ [†e]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	α[#]	Comments
								α(IPF)=6.2×10^{-6} *4* I_γ: 0.13 *2* in 1982Ba51 disagrees. α(K)exp=0.0014 *7* (1982Ba51).
x1206.5[&] *6*	0.031 *16*							
1210.5[d] *5*	0.02 *1*	2116.09	1/2$^{(-)}$,3/2$^{(-)}$	905.58	(3/2$^-$,5/2$^-$)			
1213.37 *9*	0.16 *1*	1788.96	(1/2$^-$,3/2$^-$,5/2$^-$)	575.620	1/2$^-$			
1217.4[@] *2*	0.06 *1*	1836.92	(3/2)$^-$	620.600	3/2$^-$,5/2$^{(-)}$			E_γ: level energy difference=1216.32.
1222.53 *3*	2.09 *7*	2034.36	1/2$^-$,3/2$^-$	811.837	3/2$^-$	M1,E2	0.0023 *5*	α(K)=0.0020 *5*; α(L)=0.00027 *6*; α(M)=5.9×10^{-5} *12*; α(N+..)=2.4×10^{-5} *4* α(N)=1.3×10^{-5} *3*; α(O)=2.1×10^{-6} *5*; α(P)=1.4×10^{-7} *4*; α(IPF)=8.6×10^{-6} *5* α(K)exp=0.0015 *3* (1982Ba51).
1232.0[b] *5*	0.07 *2*	2043.89	(1/2,3/2,5/2$^-$)	811.837	3/2$^-$			
1232.1[b] *5*	0.21 *4*	1852.72	(1/2$^-$,3/2$^-$,5/2$^-$)	620.600	3/2$^-$,5/2$^{(-)}$			
1235.2[a] *8*	0.04 *1*	2173.19	1/2$^{(-)}$,3/2	938.80	(3/2$^-$,5/2$^-$,7/2$^-$)			
x1237.1[&] *4*	0.11 *3*							
1249.43 *8*	0.19 *1*	1836.92	(3/2)$^-$	587.443	3/2$^-$			
1259.1[b] *5*	0.19 *4*	2070.97	1/2$^-$,3/2$^-$	811.837	3/2$^-$	(M1,E2)	0.0022 *5*	α(K)=0.0019 *4*; α(L)=0.00025 *5*; α(M)=5.5×10^{-5} *11*; α(N+..)=2.9×10^{-5} *4* α(N)=1.26×10^{-5} *25*; α(O)=2.0×10^{-6} *4*; α(P)=1.3×10^{-7} *3*; α(IPF)=1.40×10^{-5} *8* α(K)exp(1259γ complex)=0.0023 *7* (1982Ba51).
1259.4[b] *5*	0.02 *1*	2173.19	1/2$^{(-)}$,3/2	913.55	(3/2$^-$)			
1260.7 *3*	0.08 *2*	1836.92	(3/2)$^-$	575.620	1/2$^-$			See 1259.1γ for ce data.
1264.01 *24*	0.080 *5*	2076.09	1/2$^{(-)}$,3/2	811.837	3/2$^-$			
1267.9[b] *5*	0.03 *1*	2173.19	1/2$^{(-)}$,3/2	905.58	(3/2$^-$,5/2$^-$)			
1269.1 *6*	0.03 *1*	1890.80	(1/2$^-$,3/2,5/2$^-$)	620.600	3/2$^-$,5/2$^{(-)}$			
1279.20[a] *13*	0.10 *1*	1279.06	3/2$^-$,5/2$^-$	0.0	7/2$^-$			
1281.00 *6*	0.45 *2*	1707.68	1/2$^{(-)}$,3/2$^{(-)}$	426.687	5/2$^-$	(M1,E2)	0.0021 *5*	α(K)=0.0018 *4*; α(L)=0.00024 *5*; α(M)=5.3×10^{-5} *11*; α(N+..)=3.2×10^{-5} *4* α(N)=1.21×10^{-5} *24*; α(O)=1.9×10^{-6} *4*; α(P)=1.3×10^{-7} *3*; α(IPF)=1.76×10^{-5} *10* α(K)exp=0.0016 *5* (1982Ba51,1971Go27).
1297.10 *9*	0.10 *1*	1405.14	3/2$^-$,5/2$^-$	108.093	5/2$^-$			
1303.3[@a] *3*	0.05 *1*	2116.09	1/2$^{(-)}$,3/2$^{(-)}$	811.837	3/2$^-$			
1305.81 *9*	0.08 *1*	1701.40	1/2,3/2,5/2$^{(-)}$	395.449	3/2$^-$			
1307.3[d] *5*	0.03 *1*	2220.9	1/2,3/2	913.55	(3/2$^-$)			
1312.18 *5*	2.30 *7*	1707.68	1/2$^{(-)}$,3/2$^{(-)}$	395.449	3/2$^-$	(M1,E2)	0.0020 *4*	α(K)=0.0017 *4*; α(L)=0.00023 *5*; α(M)=5.0×10^{-5} *10*;

^{151}Tb ε decay (17.609 h) 1986BuZX (continued)

γ(^{151}Gd) (continued)

E_γ[†]	I_γ[†e]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	α[#]	Comments
								α(N+..)=3.7×10^{-5} *4* α(N)=1.15×10^{-5} *23*; α(O)=1.8×10^{-6} *4*; α(P)=1.2×10^{-7} *3*; α(IPF)=2.36×10^{-5} *13* α(K)exp=0.0022 *5* (1982Ba51,1971Go27,1962Ha24).
1315.10[a] *20*	0.07 *1*	1890.80	(1/2$^-$,3/2,5/2$^-$)	575.620	1/2$^-$			
1318.86 *18*	0.04 *2*	1745.76	1/2,3/2,5/2$^{(-)}$	426.687	5/2$^-$			
1320.5[b] *5*	0.02 *1*	1941.11	(1/2$^-$,3/2,5/2$^-$)	620.600	3/2$^-$,5/2$^{(-)}$			
1320.7[b] *5*	0.04 *1*	2132.53	1/2$^{(-)}$,3/2	811.837	3/2$^-$			
1339.01 *17*	0.08 *1*	2391.50	1/2,3/2	1052.20	1/2$^-$,3/2$^-$			
[x]1345.3[&] *6*	0.025 *11*							
1348.19[@] *6*	0.71 *2*	1456.62	1/2$^-$,3/2$^-$,5/2$^-$	108.093	5/2$^-$			E$_\gamma$: level energy difference=1348.53.
1350.3[d] *5*	0.10 *2*	1745.76	1/2,3/2,5/2$^{(-)}$	395.449	3/2$^-$			
1350.3[d] *5*	0.02 *1*	1970.91	1/2,3/2,5/2$^{(-)}$	620.600	3/2$^-$,5/2$^{(-)}$			
1351.9[b] *5*	0.89 *20*	1778.55	1/2$^-$,3/2$^-$	426.687	5/2$^-$			
1361.2[b] *5*	0.06 *1*	2173.19	1/2$^{(-)}$,3/2	811.837	3/2$^-$			
1362.21 *5*	0.44 *1*	1788.96	(1/2$^-$,3/2$^-$,5/2$^-$)	426.687	5/2$^-$	(M1,E2)	0.0019 *4*	α(K)=0.0016 *4*; α(L)=0.00021 *4*; α(M)=4.6×10^{-5} *9*; α(N+..)=4.8×10^{-5} *5* α(N)=1.06×10^{-5} *20*; α(O)=1.6×10^{-6} *4*; α(P)=1.11×10^{-7} *24*; α(IPF)=3.54×10^{-5} *21* α(K)exp=0.0020 *5* (1982Ba51,1971Go27).
1364.8[a] *7*	0.010 *5*	1941.11	(1/2$^-$,3/2,5/2$^-$)	575.620	1/2$^-$			
1369.56 *9*	0.15 *1*	1477.66	(1/2$^-$,3/2,5/2$^-$)	108.093	5/2$^-$			
1383.12 *5*	1.11 *3*	1778.55	1/2$^-$,3/2$^-$	395.449	3/2$^-$	(M1,E2)	0.0018 *4*	α(K)=0.0015 *3*; α(L)=0.00021 *4*; α(M)=4.4×10^{-5} *9*; α(N+..)=5.3×10^{-5} *5* α(N)=1.02×10^{-5} *19*; α(O)=1.6×10^{-6} *3*; α(P)=1.08×10^{-7} *23*; α(IPF)=4.11×10^{-5} *24* α(K)exp=0.0018 *4* (1982Ba51,1971Go27).
1385.42[a] *9*	0.28 *1*	1493.38	(1/2$^-$,3/2$^-$,5/2$^-$)	108.093	5/2$^-$			
1392.7[@a] *2*	0.05 *1*	2012.15	(1/2$^-$,3/2,5/2$^-$)	620.600	3/2$^-$,5/2$^{(-)}$			E$_\gamma$: level energy difference=1391.55.
1394.1[a] *2*	0.12 *1*	1788.96	(1/2$^-$,3/2$^-$,5/2$^-$)	395.449	3/2$^-$			
1395.3[d] *5*	0.05 *1*	1970.91	1/2,3/2,5/2$^{(-)}$	575.620	1/2$^-$			
1397.0[@] *1*	0.21 *1*	1505.42	1/2$^{(-)}$,3/2$^{(-)}$	108.093	5/2$^-$			
1402.5[a] *2*	0.030 *4*	1978.05	(3/2$^-$)	575.620	1/2$^-$			
1405.1[a] *4*	0.040 *4*	1405.14	3/2$^-$,5/2$^-$	0.0	7/2$^-$			
1410.4 *2*	0.08 *1*	1836.92	(3/2)$^-$	426.687	5/2$^-$	(M1,E2)	0.0018 *4*	α(K)=0.0015 *3*; α(L)=0.00020 *4*; α(M)=4.2×10^{-5} *8*; α(N+..)=6.1×10^{-5} *5* α(N)=9.8×10^{-6} *18*; α(O)=1.5×10^{-6} *3*; α(P)=1.03×10^{-7} *22*; α(IPF)=4.9×10^{-5} *3* α(K)exp=0.0036 *12* (1982Ba51,1971Go27).

$^{151}_{64}Gd_{87}$-23

^{151}Tb ε decay (17.609 h) 1986BuZX (continued)

γ(^{151}Gd) (continued)

E_γ [†]	I_γ [†e]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	α[#]	Comments
1413.7[d] 5	0.04 1	2034.36	1/2⁻,3/2⁻	620.600	3/2⁻,5/2⁽⁻⁾			
1435.7[a] 2	0.030 4	2246.95	1/2⁽⁻⁾,3/2	811.837	3/2⁻			
1439.4[d] 5	0.04 1	2421.74	1/2,3/2	982.27	(3/2)⁺			
1441.15[a] 17	0.07 1	1836.92	(3/2)⁻	395.449	3/2⁻			
1446.86 6	0.32 1	2034.36	1/2⁻,3/2⁻	587.443	3/2⁻			
1450.34 7	0.23 1	2070.97	1/2⁻,3/2⁻	620.600	3/2⁻,5/2⁽⁻⁾			
1455.6[b] 5	0.04 1	2076.09	1/2⁽⁻⁾,3/2	620.600	3/2⁻,5/2⁽⁻⁾			
1456.4[b] 5	0.10 2	2043.89	(1/2,3/2,5/2⁻)	587.443	3/2⁻			
1457.3[b] 5	0.05 1	1852.72	(1/2⁻,3/2⁻,5/2⁻)	395.449	3/2⁻			
1458.7[d] 5	0.05 1	2034.36	1/2⁻,3/2⁻	575.620	1/2⁻			
1464.3[a] 2	0.08 1	1890.80	(1/2⁻,3/2,5/2⁻)	426.687	5/2⁻			
1468.3[a] 3	0.030 3	2043.89	(1/2,3/2,5/2⁻)	575.620	1/2⁻			
1479.1[d] 5	0.020 3	2317.7	1/2⁽⁻⁾,3/2	839.319	1/2⁻			
1483.52 5	1.88 6	2070.97	1/2⁻,3/2⁻	587.443	3/2⁻	M1,E2	0.0016 3	α(K)=0.00131 24; α(L)=0.00018 3; α(M)=3.8×10⁻⁵ 7; α(N+..)=8.3×10⁻⁵ 7 α(N)=8.7×10⁻⁶ 16; α(O)=1.36×10⁻⁶ 25; α(P)=9.2×10⁻⁸ 19; α(IPF)=7.3×10⁻⁵ 5 α(K)exp=0.0018 6 (1982Ba51,1971Go27).
1495.3[b] 5	0.19 5	1890.80	(1/2⁻,3/2,5/2⁻)	395.449	3/2⁻			
1495.4[b] 5	0.64 13	2070.97	1/2⁻,3/2⁻	575.620	1/2⁻			
1495.5[b] 5	0.05 1	2116.09	1/2⁽⁻⁾,3/2⁽⁻⁾	620.600	3/2⁻,5/2⁽⁻⁾			
1500.4[a] 2	0.040 8	2076.09	1/2⁽⁻⁾,3/2	575.620	1/2⁻			
1508.1[b] 5	0.04 1	2128.72	1/2⁽⁻⁾,3/2	620.600	3/2⁻,5/2⁽⁻⁾			
1508.2[b] 5	0.02 1	2421.74	1/2,3/2	913.55	(3/2⁻)			
1511.55[a] 16	0.070 4	2099.00	(1/2,3/2,5/2⁻)	587.443	3/2⁻			
1514.37[a] 18	0.050 4	1941.11	(1/2⁻,3/2,5/2⁻)	426.687	5/2⁻			
1519.48 30	0.020 3	2106.9	(1/2,3/2,5/2⁻)	587.443	3/2⁻			
1531.3[d] 5	0.02 1	2444.86	1/2,3/2	913.55	(3/2⁻)			
1541.8[a] 3	0.020 4	2128.72	1/2⁽⁻⁾,3/2	587.443	3/2⁻			
1545.9 3	0.040 5	1941.11	(1/2⁻,3/2,5/2⁻)	395.449	3/2⁻			
1553.2[a] 3	0.020 3	1552.70	(3/2⁻,5/2⁻)	0.0	7/2⁻			
1556.8[a] 2	0.050 9	2132.53	1/2⁽⁻⁾,3/2	575.620	1/2⁻			
1575.46 14	0.060 3	1970.91	1/2,3/2,5/2⁽⁻⁾	395.449	3/2⁻			
1579.3[b] 5	0.02 1	2154.9	(1/2,3/2,5/2⁻)	575.620	1/2⁻			
1579.75 6	0.23 1	2391.50	1/2,3/2	811.837	3/2⁻			
1584.8 2	0.040 4	2012.15	(1/2⁻,3/2,5/2⁻)	426.687	5/2⁻			
1585.6[d] 5	0.02 1	2173.19	1/2⁽⁻⁾,3/2	587.443	3/2⁻			
1599.60 4	0.91 3	1707.68	1/2⁽⁻⁾,3/2⁽⁻⁾	108.093	5/2⁻	(M1,E2)	0.00142 23	α(K)=0.00111 19; α(L)=0.000149 25; α(M)=3.2×10⁻⁵ 6;

$^{151}_{64}Gd_{87}$-24

^{151}Tb ε decay (17.609 h) 1986BuZX (continued)

γ(^{151}Gd) (continued)

E_γ [†]	I_γ [†e]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [‡]	α [#]	Comments
								α(N+..)=0.000126 *9* α(N)=7.4×10^{-6} *12*; α(O)=1.15×10^{-6} *20*; α(P)=7.9×10^{-8} *15*; α(IPF)=0.000118 *8* α(K)exp=0.0017 *6* (1982Ba51).
1605.5[b] *5*	0.07 *2*	2444.86	1/2,3/2	839.319	1/2$^-$			
1607.6[b] *5*	0.02 *1*	2034.36	1/2$^-$,3/2$^-$	426.687	5/2$^-$			
1618.25 *28*	0.040 *4*	2205.94	1/2$^{(-)}$,3/2	587.443	3/2$^-$			
1626.3[d] *5*	0.02 *1*	2246.95	1/2$^{(-)}$,3/2	620.600	3/2$^-$,5/2$^{(-)}$			
1630.3 *2*	0.070 *4*	2205.94	1/2$^{(-)}$,3/2	575.620	1/2$^-$			
1633.02 *8*	0.19 *1*	2444.86	1/2,3/2	811.837	3/2$^-$			
1633.4[b] *5*	0.05 *1*	2220.9	1/2,3/2	587.443	3/2$^-$			
1638.2[@] *1*	0.22 *1*	2034.36	1/2$^-$,3/2$^-$	395.449	3/2$^-$			E_γ: level energy difference=1638.91.
1644.39[a] *13*	0.090 *4*	2070.97	1/2$^-$,3/2$^-$	426.687	5/2$^-$			
1649.33 *12*	0.080 *4*	2076.09	1/2$^{(-)}$,3/2	426.687	5/2$^-$			
1669.2[b] *5*	0.03 *1*	2256.7	1/2,3/2	587.443	3/2$^-$			
1670.50 *4*	2.27 *8*	1778.55	1/2$^-$,3/2$^-$	108.093	5/2$^-$	(M1,E2)	0.00134 *20*	α(K)=0.00102 *17*; α(L)=0.000136 *21*; α(M)=2.9×10^{-5} *5*; α(N+..)=0.000156 *11* α(N)=6.7×10^{-6} *11*; α(O)=1.05×10^{-6} *17*; α(P)=7.2×10^{-8} *13*; α(IPF)=0.000148 *10* α(K)exp=0.0015 *4* (1982Ba51,1971Go27).
1671.3[b] *5*	0.04 *1*	2246.95	1/2$^{(-)}$,3/2	575.620	1/2$^-$			
1675.57 *8*	0.17 *1*	2070.97	1/2$^-$,3/2$^-$	395.449	3/2$^-$			
1680.8[b] *5*	0.07 *2*	2076.09	1/2$^{(-)}$,3/2	395.449	3/2$^-$			
1681.1[b] *5*	0.04 *1*	2256.7	1/2,3/2	575.620	1/2$^-$			
1689.53 *6*	0.36 *1*	2116.09	1/2$^{(-)}$,3/2$^{(-)}$	426.687	5/2$^-$	(M1,E2)	0.00132 *20*	α(K)=0.00099 *16*; α(L)=0.000133 *21*; α(M)=2.9×10^{-5} *5*; α(N+..)=0.000164 *12* α(N)=6.6×10^{-6} *11*; α(O)=1.02×10^{-6} *16*; α(P)=7.0×10^{-8} *12*; α(IPF)=0.000157 *11* α(K)exp=0.0016 *5* (1982Ba51).
1702.8[a] *4*	0.030 *3*	2128.72	1/2$^{(-)}$,3/2	426.687	5/2$^-$			
1705.90 *18*	0.070 *4*	2132.53	1/2$^{(-)}$,3/2	426.687	5/2$^-$			
1720.46 *7*	0.26 *4*	2116.09	1/2$^{(-)}$,3/2$^{(-)}$	395.449	3/2$^-$			
1728.70 *13*	0.090 *4*	1836.92	(3/2)$^-$	108.093	5/2$^-$			
1733.3[d] *5*	0.010 *5*	2128.72	1/2$^{(-)}$,3/2	395.449	3/2$^-$			
1737.1[d] *5*	0.02 *1*	2132.53	1/2$^{(-)}$,3/2	395.449	3/2$^-$			
1744.61[a] *13*	0.070 *7*	1852.72	(1/2$^-$,3/2$^-$,5/2$^-$)	108.093	5/2$^-$			
1746.7[b] *5*	0.040 *6*	2173.19	1/2$^{(-)}$,3/2	426.687	5/2$^-$			
1748.7 *4*	0.040 *6*	2324.32	1/2$^{(-)}$,3/2	575.620	1/2$^-$			
1759.43 *21*	0.020 *3*	2154.9	(1/2,3/2,5/2$^-$)	395.449	3/2$^-$			

$^{151}_{64}Gd_{87}$-25

γ(^{151}Gd) (continued)

E_γ †	I_γ †e	E_i(level)	J_i^π	E_f	J_f^π	E_γ †	I_γ †e	E_i(level)	J_i^π	E_f	J_f^π
1777.6b 5	0.12 3	2173.19	1/2(−),3/2	395.449	3/2−	x1941.6& 2	0.032 10				
1779.2b 5	0.23 5	2205.94	1/2(−),3/2	426.687	5/2−	x1956.3& 4	0.022 10				
1803.85a 19	0.050 3	2391.50	1/2,3/2	587.443	3/2−	1962.37 16	0.10 2	2070.97	1/2−,3/2−	108.093	5/2−
1811.04 20	0.030 4	2205.94	1/2(−),3/2	395.449	3/2−	1967.1@ 3	0.040 3	2076.09	1/2(−),3/2	108.093	5/2−
1815.8b 5	0.60 12	2391.50	1/2,3/2	575.620	1/2−	1974.28 26	0.020 3	2400.6	1/2(−),3/2	426.687	5/2−
1817.1b 5	0.03 1	2243.8	1/2(−),3/2	426.687	5/2−	1978.15ac 15	0.020 5	1978.05	(3/2−)	0.0	7/2−
1820.10a 10	0.040 3	2246.95	1/2(−),3/2	426.687	5/2−	1995.76 17	0.090 5	2391.50	1/2,3/2	395.449	3/2−
1825.4a 3	0.020 2	2220.9	1/2,3/2	395.449	3/2−	2005.0 4	0.010 2	2400.6	1/2(−),3/2	395.449	3/2−
1834.3d 5	0.010 5	2421.74	1/2,3/2	587.443	3/2−	2007.9a 4	0.020 6	2116.09	1/2(−),3/2(−)	108.093	5/2−
1837.5ac 4	0.010 2	1836.92	(3/2)−	0.0	7/2−	2020.45 12	0.100 5	2128.72	1/2(−),3/2	108.093	5/2−
1846.1d 5	0.02 1	2421.74	1/2,3/2	575.620	1/2−	2026.28 13	0.080 3	2421.74	1/2,3/2	395.449	3/2−
1848.3d 5	0.02 1	2243.8	1/2(−),3/2	395.449	3/2−	2047.5a 3	0.010 1	2443.0	(1/2,3/2)	395.449	3/2−
1861.23a 23	0.020 4	2256.7	1/2,3/2	395.449	3/2−	2064.98 19	0.020 2	2173.19	1/2(−),3/2	108.093	5/2−
1869.2b 5	0.09 2	2444.86	1/2,3/2	575.620	1/2−	x2090.1a 2	0.060 4				
1869.87 9	0.31 2	1978.05	(3/2−)	108.093	5/2−	2097.4 2	0.070 4	2205.94	1/2(−),3/2	108.093	5/2−
1890.6a 4	0.020 2	2317.7	1/2(−),3/2	426.687	5/2−	2136.2a 4	0.017 2	2243.8	1/2(−),3/2	108.093	5/2−
1897.61 14	0.060 3	2324.32	1/2(−),3/2	426.687	5/2−	2209.6dc 5	0.010 5	2317.7	1/2(−),3/2	108.093	5/2−
x1902.6& 2	0.040 8					2291.6 4	0.020 3	2400.6	1/2(−),3/2	108.093	5/2−

† From 1986BuZX. Authors quote statistical uncertainties. In some cases the evaluator has rounded the energy values and increased uncertainty to a minimum of 0.010 keV. An additional uncertainty of 3% has been added in quadrature to Iγ's. Values agree well with other main references. Severe disagreements between 1986BuZX and 1982Ba51 are noted.

‡ Unless otherwise stated values are from ce data. Sign of δ is from γγ(θ). γγ(θ) data of 1979Va14 have been reanalyzed by the evaluator using authors' quoted A_2 and A_4 coefficients.

Theoretical values corresponding to assigned mult and δ deduced from α(exp)'s, subshell data and γγ(θ). The ce data data have been normalized to the 251.86γ treated as M1 (α(K)=0.132). α(exp)'s have been deduced (evaluator) by using Iγ's from 1986BuZX and Ice's from unweighted av of available values. α(exp) is assigned an uncertainty of 25 to 50% when no error is quoted on Ice by the authors. For mult=M1,E2; α value overlaps both multipolarities.

@ Poor fit to the decay scheme.

& Reported by 1982Ba51 only.

a Reported by 1986BuZX only.

b 1986BuZX propose this as a part of a complex line. The authors obtain Eγ and Iγ from γγ data. Uncertainty of 0.5 keV to Eγ and 20% to Iγ assigned by the evaluator.

c Placement by energy fit only (1986BuZX).

d From 1986BuZX only. Eγ and Iγ from γγ data. Uncertainty of 0.5 keV to Eγ and 20% to Iγ assigned by the evaluator.

e For absolute intensity per 100 decays, multiply by 0.283 8.

$\gamma(^{151}$Gd) (continued)

[f] Placement of transition in the level scheme is uncertain.
[x] γ ray not placed in level scheme.

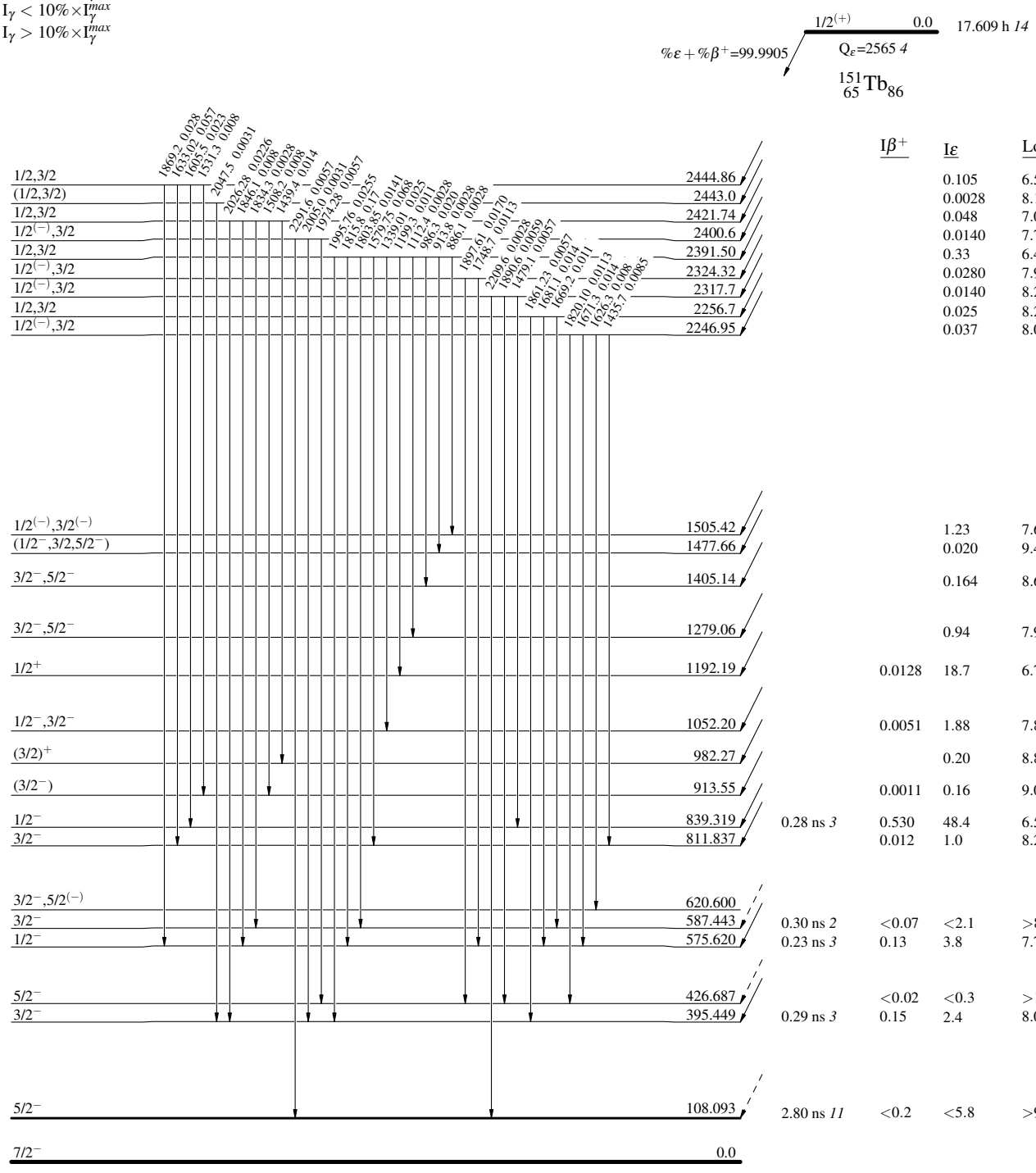
^{151}Tb ε decay (17.609 h) 1986BuZX

Decay Scheme

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

Legend

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



		Iβ+	Iε	Log *ft*
2444.86			0.105	6.53
2443.0			0.0028	8.13
2421.74			0.048	7.09
2400.6			0.0140	7.79
2391.50			0.33	6.48
2324.32			0.0280	7.90
2317.7			0.0140	8.23
2256.7			0.025	8.21
2246.95			0.037	8.07
1505.42			1.23	7.68
1477.66			0.020	9.49
1405.14			0.164	8.64
1279.06			0.94	7.97
1192.19		0.0128	18.7	6.73
1052.20		0.0051	1.88	7.81
982.27			0.20	8.8
913.55		0.0011	0.16	9.0
839.319	0.28 ns *3*	0.530	48.4	6.52
811.837		0.012	1.0	8.23
620.600				
587.443	0.30 ns *2*	<0.07	<2.1	>8.0
575.620	0.23 ns *3*	0.13	3.8	7.76
426.687		<0.02	<0.3	>10.2[1u]
395.449	0.29 ns *3*	0.15	2.4	8.0
108.093	2.80 ns *11*	<0.2	<5.8	>9.1[1u]
0.0				

$^{151}_{64}Gd_{87}$

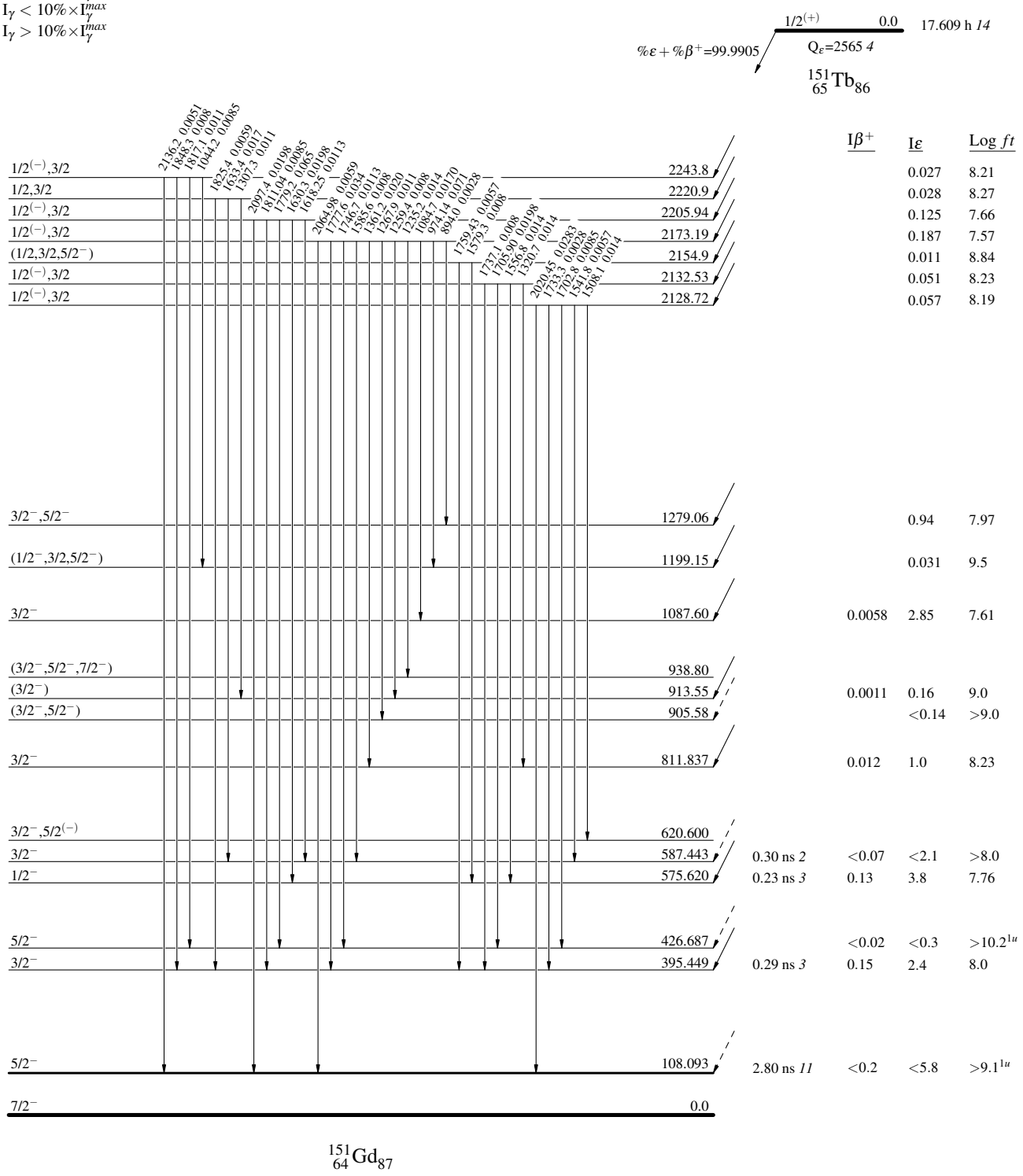
^{151}Tb ε decay (17.609 h) 1986BuZX

Decay Scheme (continued)

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

Legend

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



$^{151}_{64}Gd_{87}$

^{151}Tb ε decay (17.609 h) 1986BuZX

Decay Scheme (continued)

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

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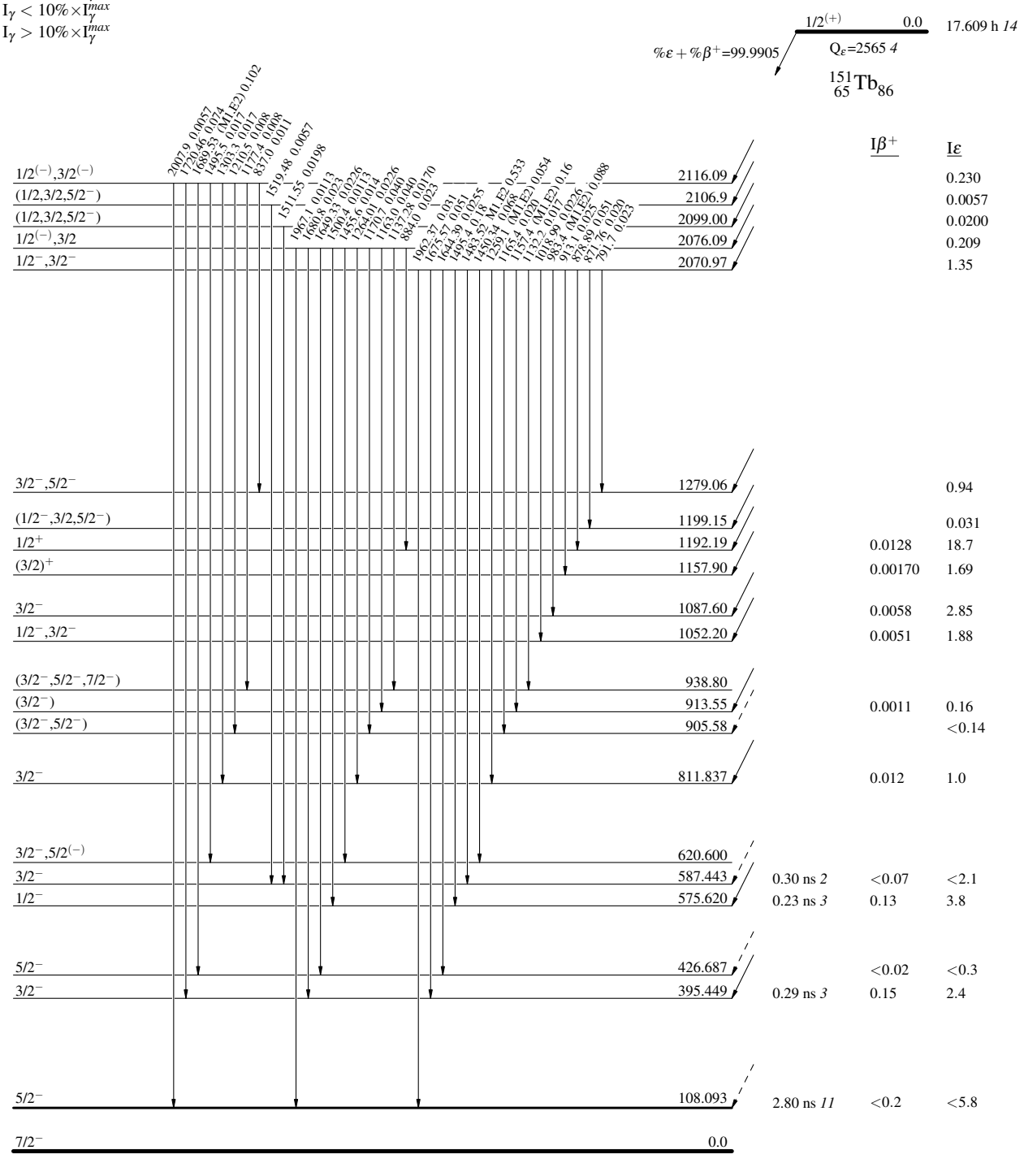

$^{151}_{64}Gd_{87}$

^{151}Tb ε decay (17.609 h) 1986BuZX

Decay Scheme (continued)

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

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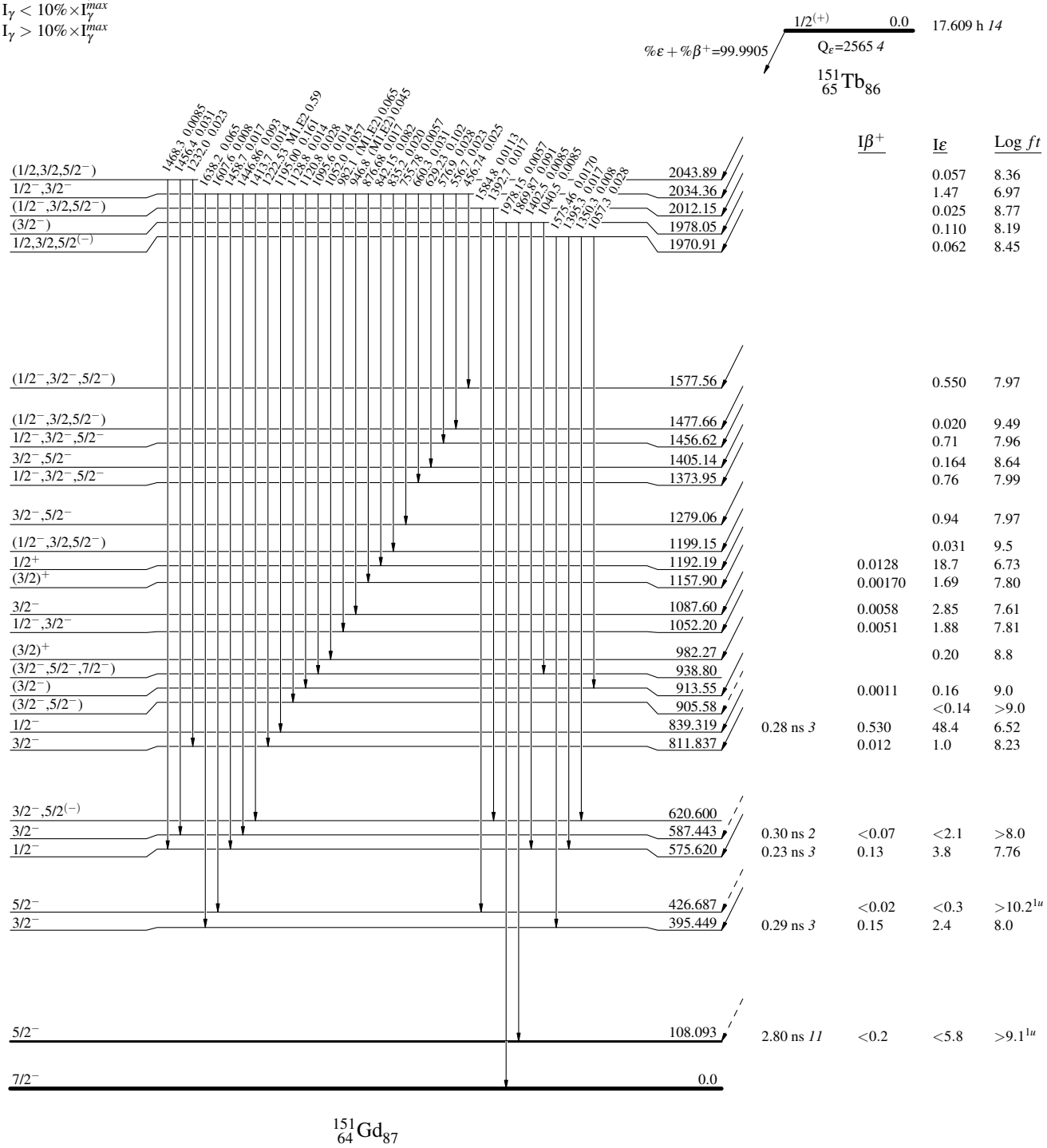

^{151}Tb ε decay (17.609 h) 1986BuZX

Decay Scheme (continued)

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

Legend

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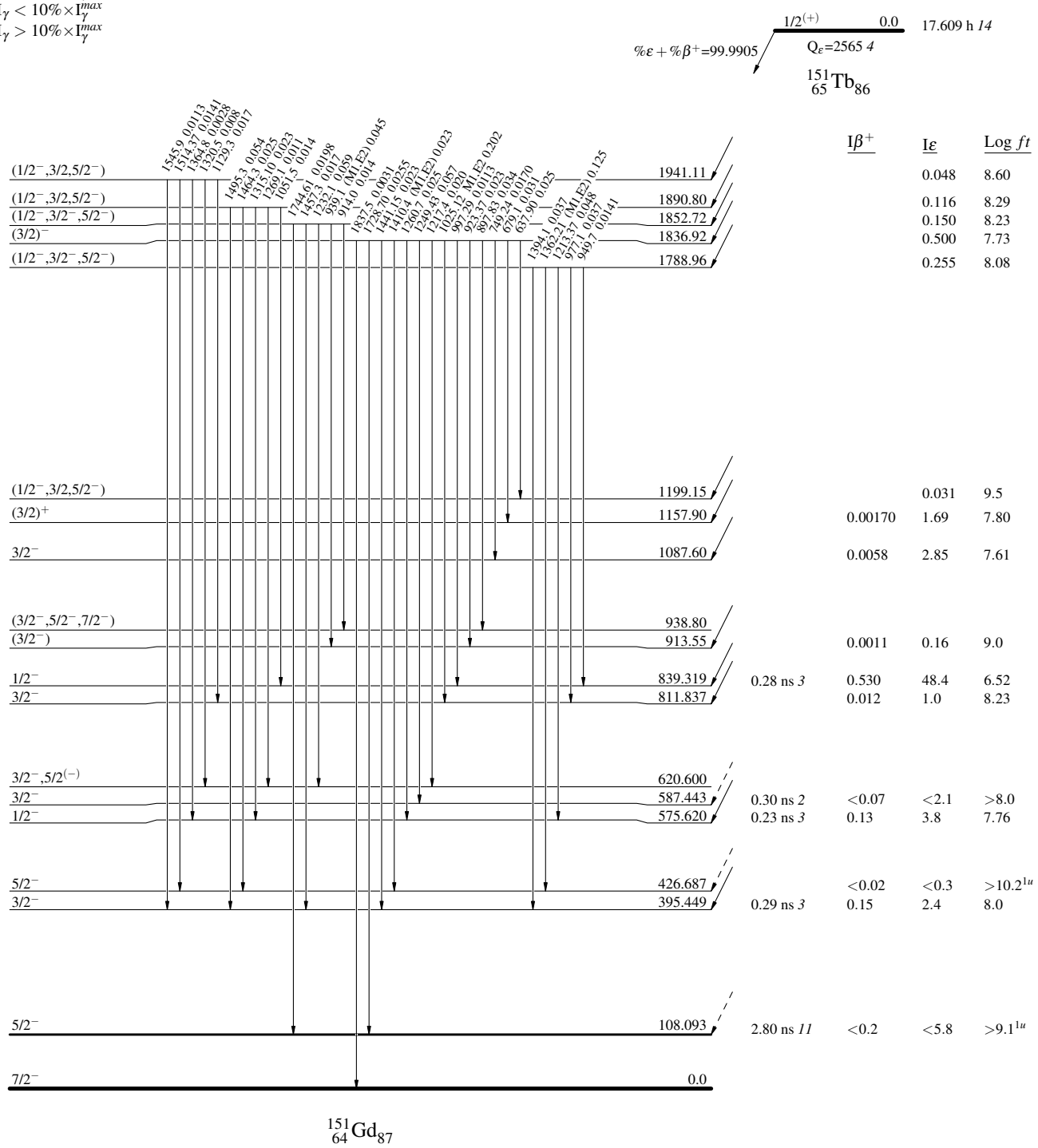

	Iβ+	Iε	Log *ft*
1941.11		0.048	8.60
1890.80		0.116	8.29
1852.72		0.150	8.23
1836.92		0.500	7.73
1788.96		0.255	8.08
1199.15		0.031	9.5
1157.90	0.00170	1.69	7.80
1087.60	0.0058	2.85	7.61
938.80			
913.55	0.0011	0.16	9.0
839.319	0.530	48.4	6.52
811.837	0.012	1.0	8.23
620.600			
587.443	<0.07	<2.1	>8.0
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^{151}Tb ε decay (17.609 h) 1986BuZX

Decay Scheme (continued)

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

Legend

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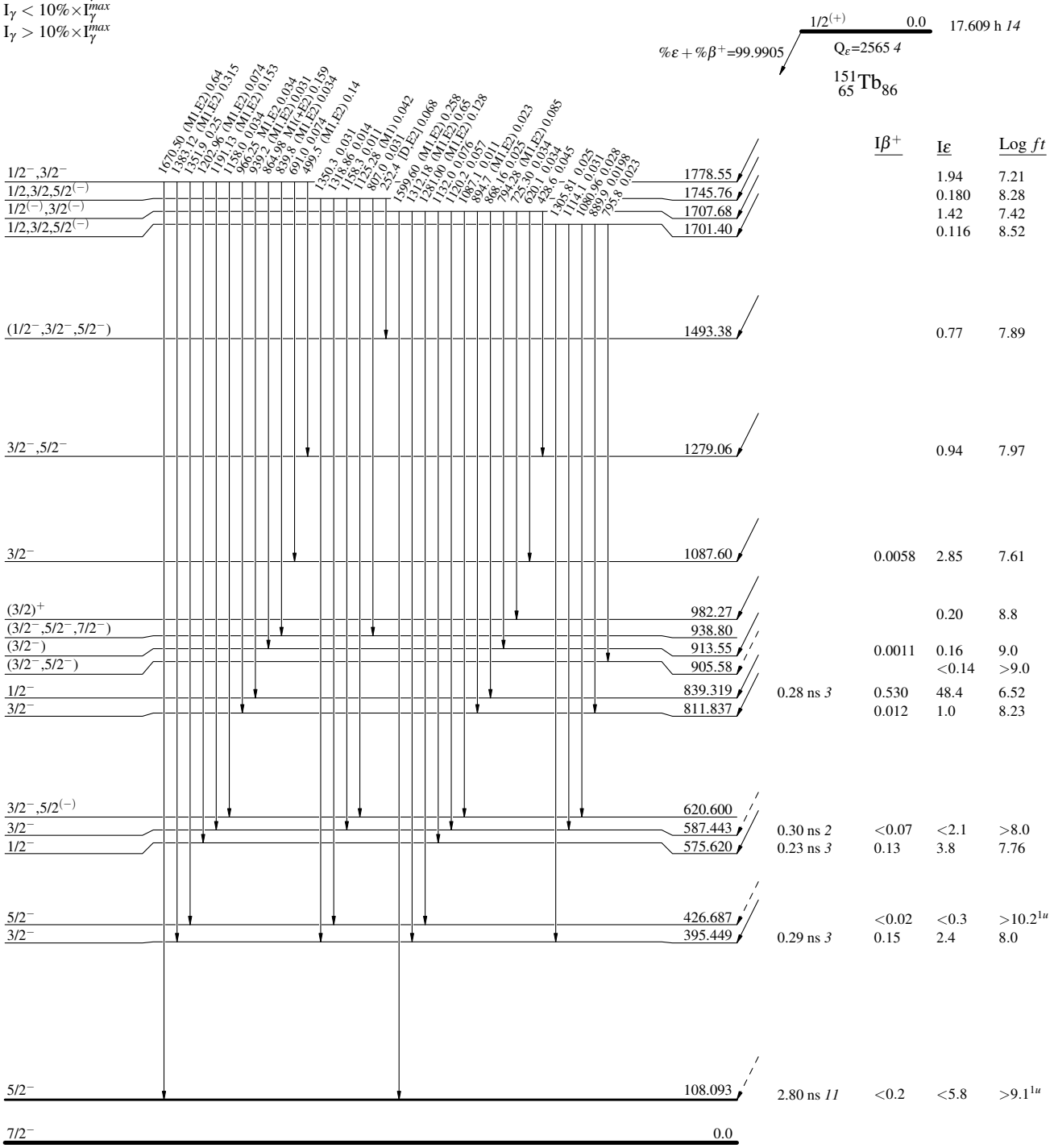

		Iβ+	Iε	Log *ft*
1778.55			1.94	7.21
1745.76			0.180	8.28
1707.68			1.42	7.42
1701.40			0.116	8.52
1493.38			0.77	7.89
1279.06			0.94	7.97
1087.60		0.0058	2.85	7.61
982.27			0.20	8.8
938.80				
913.55		0.0011	0.16	9.0
905.58			<0.14	>9.0
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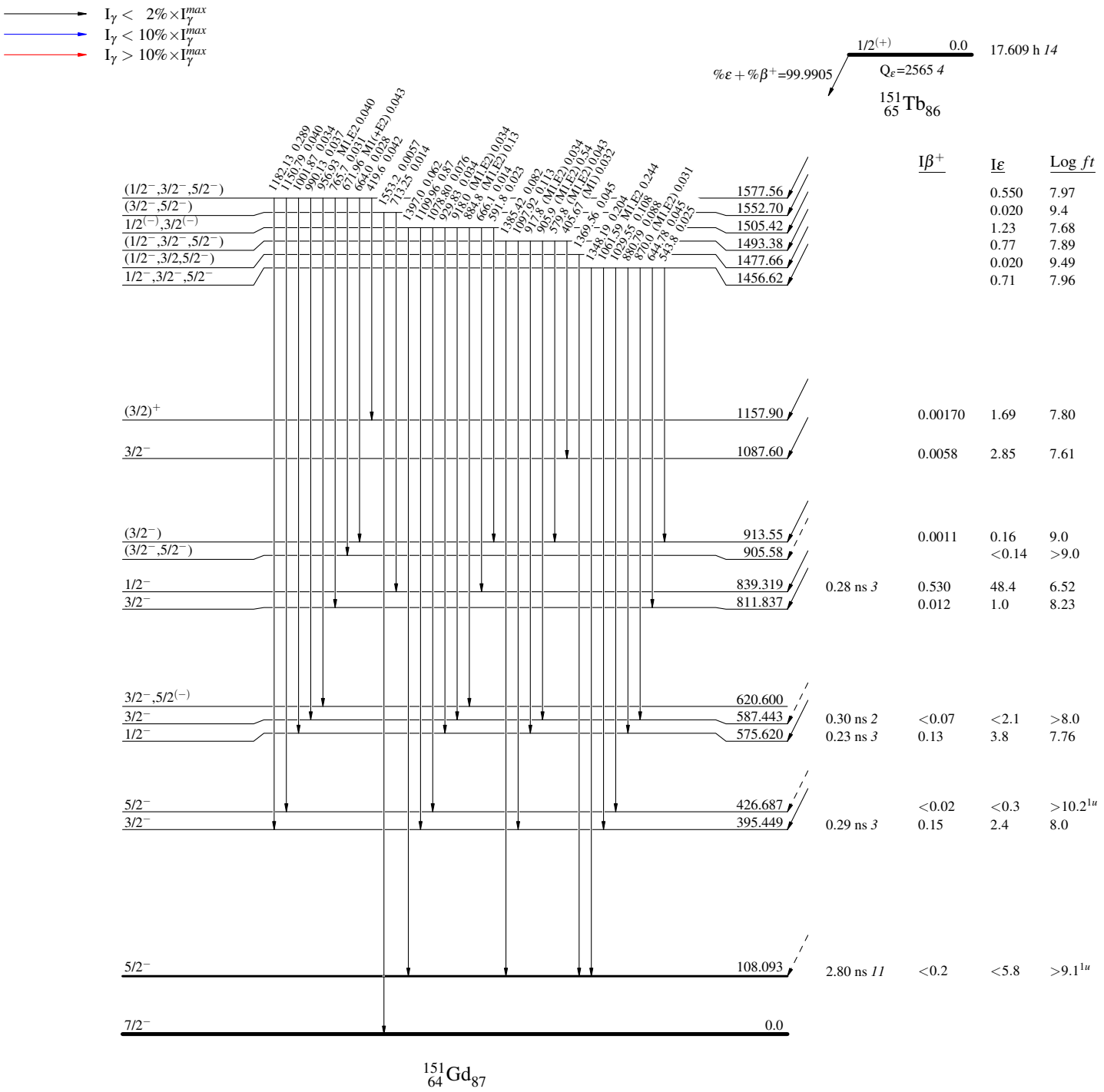
$^{151}_{64}Gd_{87}$

^{151}Tb ε decay (17.609 h) 1986BuZX

Decay Scheme (continued)

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



^{151}Tb ε decay (17.609 h) 1986BuZX

Decay Scheme (continued)

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

Legend

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

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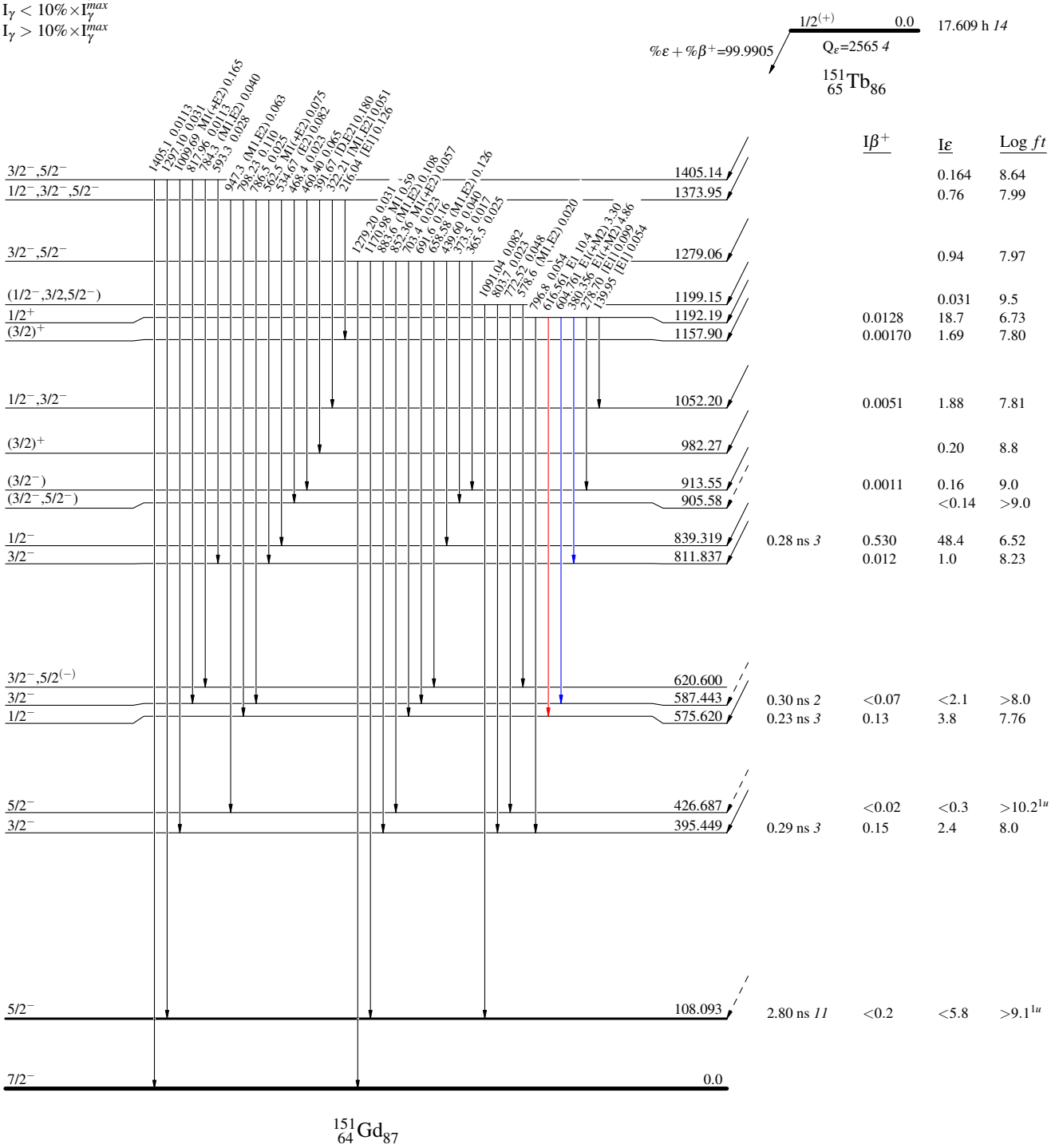
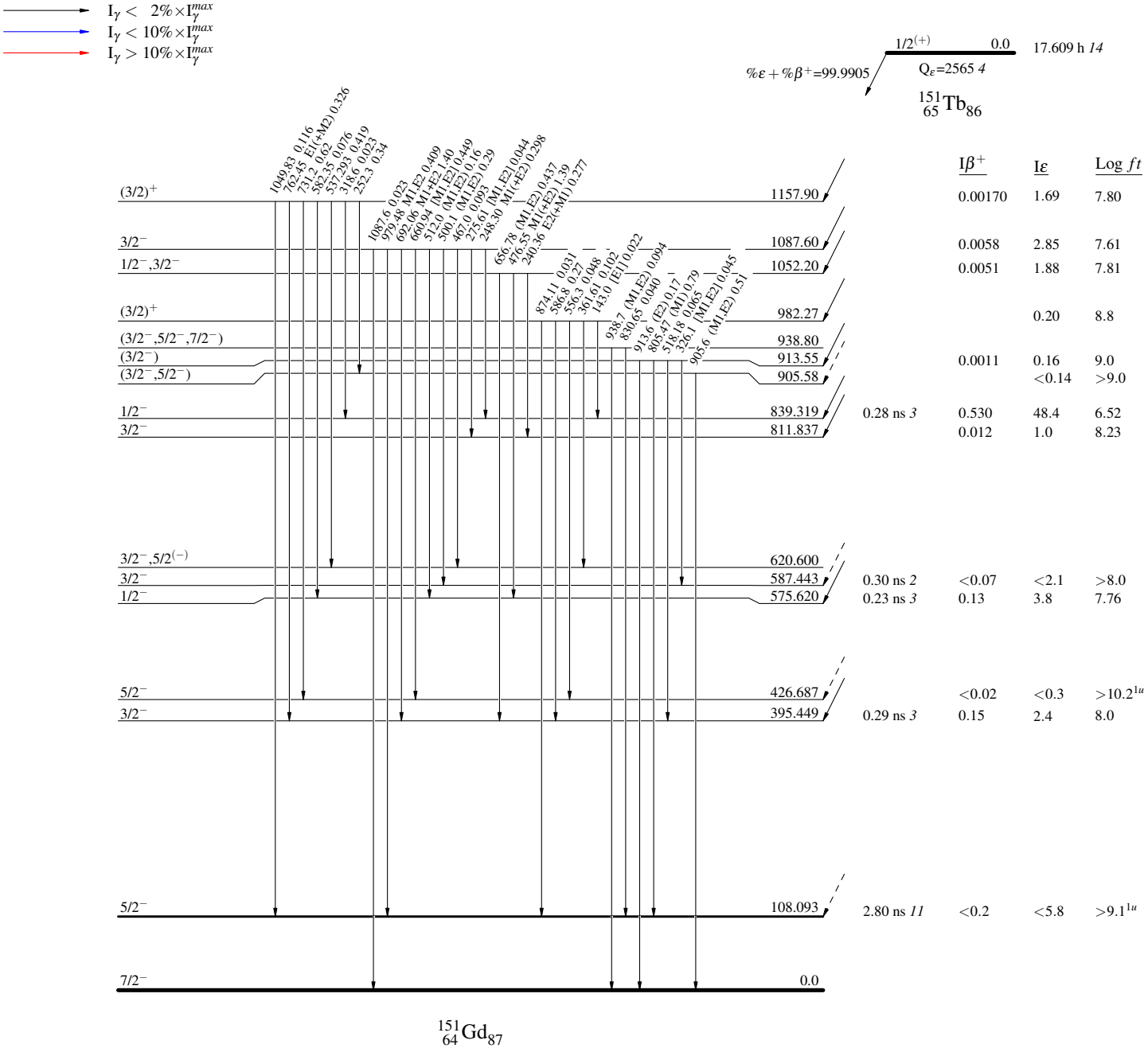


^{151}Tb ε decay (17.609 h) 1986BuZX

Decay Scheme (continued)

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



^{151}Tb ε decay (17.609 h) 1986BuZX

Decay Scheme (continued)

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