^{155}Tb ε decay 1976Me10

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	N. Nica	NDS 160, 1 (2019)	21-Oct-2019

Parent: ^{155}Tb: E=0.0; J$^\pi$=3/2$^+$; T$_{1/2}$=5.32 d *6*; Q(ε)=820 *10*; %ε decay=100.0

Additional information 1.

The decay scheme is due primarily to 1976Me10. However, using the results of the (n,γ) study of 1986Sc25 (see ^{154}Gd(n,γ) dataset for details about this article), the evaluator has chosen to eliminate several of the levels proposed by 1976Me10 and to change the placement of some of their γ rays.

1976Me10: chemical and isotope separated sources. γ radiation studied using Ge(Li), LEPS and Compton-suppression detectors. ce spectra studied using a 2-mm $\times$ 1-cm^2 Si(Li) detector. Measured Eγ,Iγ, Ice, α.

Other studies include: $\gamma(\theta)$ in nuclear orientation (1996KrZZ, 1980Bu27, 1975Wa01); electron spectra using magnetic spectrometers and spectrographs (1962Ha24, 1967Ko12, 1969Ga28, 1975Ch04, 1980Ab20). γ radiation using various Ge detectors (1969Me09 (includes one of the authors of 1976Me10), 1969Ga28, 1980Ab20). E0 admixtures are discussed by, e. g., 1986AbZW.

^{155}Gd Levels

1976Me10 report levels at 346.06 (J^π=(5/2$^-$)), 488.65 (J^π=(5/2)$^-$), 423.22 (J^π=1/2$^-$) and 721.06 (J^π=3/2,5/2$^+$). The first two of these were shown to deexcite via only one transition each, and these were placed elsewhere in the level scheme from the (n,γ) study of 1986Sc25. The third of these was assigned by 1976Me10 as the bandhead of the 1/2[530] band. 1986Sc25, however, place this 1/2$^-$ level, and one of its two proposed deexciting γ's, elsewhere in the scheme. Additionally, 1986Sc25 propose a 454.47 level that is not reported by 1976Me10. Inspection of the γ branching from this level reveals that some of the γ's reported by 1976Me10 to deexcite their 721 level are associated with the decay of this 454 level. The evaluator has not included the 346, 423, 488.65 and 721 levels but has incorporated the 454 in the decay scheme given here.

E(level)[†]	J$^\pi$[‡]	T$_{1/2}$	Comments
0.0[#]	3/2$^-$	stable	
59.9994[#] *24*	5/2$^-$		
86.530[@] *4*	5/2$^+$	6.50 ns *4*	T$_{1/2}$: from the adopted values. This value is based on a number of studies of both the ^{155}Tb ε decay and the ^{155}Eu β^- decay.
105.3140[@] *25*	3/2$^+$	1.16 ns *1*	T$_{1/2}$: from the adopted values. This value is based on a number of studies of both the ^{155}Tb ε decay and the ^{155}Eu β^- decay.
107.532[@] *15*	9/2$^+$		
117.963[@] *5*	7/2$^+$		
146.064[#] *10*	7/2$^-$		
266.601[&] *6*	5/2$^+$		
268.582[a] *7*	3/2$^+$		
286.944[b] *5*	3/2$^-$		
321.293[b] *7*	5/2$^-$		
326.017[a] *8*	5/2$^+$		
350.313[&] *17*	7/2$^+$		
367.512[d] *6*	1/2$^+$		
427.211[d] *5*	3/2$^+$		
450.609[e] *7*	3/2$^-$		
451.572[e] *9*	1/2$^-$		
454.459[c] *4*	5/2$^-$		
488.678[d] *6*	5/2$^+$		
559.319[f] *10*	1/2$^-$		
592.060[g] *7*	3/2$^-$		
614.791[f] *8*	3/2$^-$		

Continued on next page (footnotes at end of table)

^{155}Tb ε decay 1976Me10 (continued)

^{155}Gd Levels (continued)

E(level)[†]	J^{π}[‡]
647.770[g] *5*	5/2$^-$
658.96[f] *5*	5/2$^-$

[†] Listed values were calculated from a least-squares fit of the γ-ray energies. χ^2 norm = 12.4 greater than χ^2 critical = 1.4.
[‡] From adopted values.
[#] Band(A): g.s. band. Conf=3/2(521).
[@] Band(B): 3/2[651] band. This band is strongly Coriolis mixed with other Nilsson states originating from the i13/2 spherical shell-model state, as well as ΔN=2 mixed with 3/2[402].
[&] Band(C): 5/2[642] band. This band is strongly Coriolis mixed with other Nilsson states originating from the i13/2 spherical shell-model state.
[a] Band(D): 3/2[402] band. ΔN=2 mixed with 3/2[651].
[b] Band(E): 3/2[532] band.
[c] Band(F): Head of 5/2[523] band.
[d] Band(G): 1/2[400] band.
[e] Band(H): 1/2[530] band member.
[f] Band(I): K^{π}=1/2$^-$ band. Contains 1/2[521] and the K-2 γ vibration built on the g.s. band.
[g] Band(J): K^{π}=3/2$^-$ band. β vibration built on the g.s. band.

ε radiations

E(decay)	E(level)	Iε[†]	Log *ft*	Comments
(161 *10*)	658.96	0.0039 *4*	9.17 *9*	εK=0.736 *11*; εL=0.201 *8*; εM+=0.063 *3*
(172 *10*)	647.770	0.054 *5*	8.11 *8*	εK=0.746 *9*; εL=0.194 *7*; εM+=0.0604 *24*
(205 *10*)	614.791	0.051 *4*	8.33 *7*	εK=0.767 *6*; εL=0.178 *4*; εM+=0.0548 *15*
(228 *10*)	592.060	0.183 *15*	7.89 *6*	εK=0.777 *4*; εL=0.171 *3*; εM+=0.0522 *11*
(261 *10*)	559.319	0.139 *11*	8.15 *6*	εK=0.787 *3*; εL=0.1631 *22*; εM+=0.0494 *8*
(331 *10*)	488.678	0.93 *7*	7.57 *5*	εK=0.8018 *16*; εL=0.1525 *12*; εM+=0.0457 *4*
(366 *10*)	454.459	0.104 *9*	8.61 *5*	εK=0.8064 *13*; εL=0.1491 *10*; εM+=0.0445 *4*
(368 *10*)	451.572	0.020 *3*	9.34 *7*	εK=0.8067 *13*; εL=0.1488 *9*; εM+=0.0444 *4*
(369 *10*)	450.609	0.054 *7*	8.91 *7*	εK=0.8068 *12*; εL=0.1487 *9*; εM+=0.0444 *4*
(393 *10*)	427.211	4.7 *4*	7.03 *5*	εK=0.8094 *11*; εL=0.1469 *8*; εM+=0.0438 *3*
(452 *10*)	367.512	7.1 *4*	6.99 *4*	εK=0.8145 *8*; εL=0.1430 *6*; εM+=0.04243 *20*
(494 *10*)	326.017	0.66 *5*	8.10 *4*	εK=0.8173 *7*; εL=0.1410 *5*; εM+=0.04172 *16*
(499 *10*)	321.293	0.305 *22*	8.45 *4*	εK=0.8176 *6*; εL=0.1408 *5*; εM+=0.04165 *16*
(533 *10*)	286.944	1.18 *7*	7.92 *4*	εK=0.8194 *6*; εL=0.1394 *4*; εM+=0.04117 *14*
(551 *10*)	268.582	7.1 *4*	7.18 *3*	εK=0.8203 *5*; εL=0.1387 *4*; εM+=0.04094 *13*
(553 *10*)	266.601	17.9 *10*	6.78 *3*	εK=0.8204 *5*; εL=0.1387 *4*; εM+=0.04092 *13*
(715 *10*)	105.3140	38 *3*	6.69 *4*	εK=0.8261 *3*; εL=0.13447 *20*; εM+=0.03947 *7*
(733 *10*)	86.530	5.9 *19*	7.52 *14*	εK=0.8265 *3*; εL=0.13411 *19*; εM+=0.03934 *7*
(760 *10*)	59.9994	5.2 *5*	7.61 *5*	εK=0.8272 *3*; εL=0.13364 *18*; εM+=0.03918 *6*
(820 *10*)	0.0	9 *5*	7.44 *25*	εK=0.8285 *2*; εL=0.13268 *15*; εM+=0.03885 *6* Iε: calculated by 1976Me10 from measured Ice(K) and ε(K)/ε(total) ratios using K-fluorescence yield ω(K)=0.934 *22*.

[†] Absolute intensity per 100 decays.

γ(^{155}Gd)

Iγ normalization: Calculated assuming the ε branching to the g.s.=9% *5*, deduced by 1976Me10 from the measured K x-ray intensities.

E_γ	I_γ[†c]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[@]	δ[@a]	α[b]	$I_{(\gamma+ce)}$[c]	Comments
10.49 *4*	0.6 *2*	117.963	7/2$^+$	107.532	9/2$^+$	M1+E2	0.033 *+9−12*	3.3×10^2 *6*		α(L)=2.6×10^2 *5*; α(M)=58 *11* α(N)=13.2 *23*; α(O)=1.9 *3*; α(P)=0.0972 *18* E_γ: from 1975Ch04. I_γ: calculated from Iγ(57.98γ) and the ratio Iγ(10.4γ)/Iγ(57.98γ) determined in ^{155}Eu β$^-$ decay. 1976Me10 report I(γ+ce)≈183, deduced from ce(10.4γ)/ce(31.4γ), as determined in ^{155}Eu β$^-$ decay, and I(γ+ce)(31.4γ). This leads to Iγ(10.4γ)≈0.5 in agreement with the listed value. δ: adopted value, calculated by evaluator from subshell ratios L1/L1=1.0 *1*, L2/L1=0.28 *14*, L3/L1=0.27 *12* (1975Ch04).
18.769 *15*	2.52 *15*	105.3140	3/2$^+$	86.530	5/2$^+$	M1+E2	+0.274 *4*	361 *11*		α(L)=280 *8*; α(M)=64.8 *19* α(N)=14.4 *4*; α(O)=1.87 *6*; α(P)=0.01652 *24* δ: adopted value. Values calculated by evaluator for this dataset: 0.274 *4* from L1/L1=1.000 *45*, L2/L1=3.605 *60*, L3/L1=5.000 *70* (1975Ch04); 0.283 *17* from L1/L1=1.00 *10*, L2/L1=3.30 *33*, L3/L1=4.50 *45*, M/L1=3.20 *32*, N/L1=0.750 *75* (1962Ha24, with 10% unc adopted by evalutor).
20.999 *23*	≈0.065	107.532	9/2$^+$	86.530	5/2$^+$	E2[‡]		2.62×10^3	≈170	ce(L)/(γ+ce)=0.774 *8*; ce(M)/(γ+ce)=0.181 *4* ce(N)/(γ+ce)=0.0400 *9*; ce(O)/(γ+ce)=0.00509 *11*; ce(P)/(γ+ce)=1.51×10^{-6} *4* α(L)=2.03×10^3 *3*; α(M)=475 *8* α(N)=105.0 *16*; α(O)=13.36 *20*; α(P)=0.00395 *6* E_γ: from 1975Ch04. I_γ: calculated from listed I(γ+ce) and α(E2). $I_{(\gamma+ce)}$: estimated from Iγ(18.77γ) and Ice ratio from 1962Ha24.
26.533 *6*	15.7 *5*	86.530	5/2$^+$	59.9994	5/2$^-$	E1		1.95		α(L)=1.530 *22*; α(M)=0.336 *5* α(N)=0.0738 *11*; α(O)=0.00965 *14*; α(P)=0.000328 *5*
31.43 *9*	0.87 *20*	117.963	7/2$^+$	86.530	5/2$^+$	M1+E2	0.370 *14*	51 *3*		α(L)=39.2 *23*; α(M)=9.1 *6* α(N)=2.03 *12*; α(O)=0.268 *16*; α(P)=0.00336 *6* I_γ: calculated from Iγ(57γ) and ratio Iγ(31γ)/Iγ(57γ) measured in ^{155}Eu β$^-$

γ(^{155}Gd) (continued)

E_γ	I_γ [†c]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [@]	δ [@a]	α [b]	Comments
									decay (1969Me09). δ: adopted value.
[x]39.8 [#]									
[x]40.7 [#]									
45.299 *5*	63.9 *8*	105.3140	3/2+	59.9994	5/2−	E1		0.437	α(L)=0.343 *5*; α(M)=0.0747 *11* α(N)=0.01665 *24*; α(O)=0.00231 *4*; α(P)=9.60×10^{-5} *14*
[x]55.650 *8*	0.08 *6*								Shown deexciting the 647.7 level by 1976Me10. 1986Sc25, in their (n,γ) study, do not report a γ having this energy.
57.983 *5*	8.17 *22*	117.963	7/2+	59.9994	5/2−	E1		1.238	α(K)=1.020 *15*; α(L)=0.1712 *24*; α(M)=0.0372 *6* α(N)=0.00834 *12*; α(O)=0.001181 *17*; α(P)=5.31×10^{-5} *8*
59.63	0.85 *15*	427.211	3/2+	367.512	1/2+	E2(+M1)	≥0.50	14.7 *39*	α(K)=4.9 *18*; α(L)=7.6 *43*; α(M)=1.8 *11* α(N)=0.40 *23*; α(O)=0.052 *29*; α(P)=3.4×10^{-4} *16* E_γ: from 1967Ko12. I_γ: from Iγ(59.6γ)/Iγ(160.5γ+340.6γ) as given in the Adopted Levels, Gammas data set and from Iγ(160.5γ+340.6γ) reported here, one computes Iγ(59.6γ)=1.1 *4*. 1976Me10 give Iγ(59.6γ)<1. The listed value represents a reasonable combination of these two.
60.012 *3*	44.2 *15*	59.9994	5/2−	0.0	3/2−	M1+E2	−0.198 *8*	9.14	α(K)=7.25 *11*; α(L)=1.47 *4*; α(M)=0.329 *9* α(N)=0.0749 *20*; α(O)=0.0110 *3*; α(P)=0.000543 *8* δ: adopted value. Values calculated by evaluator for this dataset: 0.165 *15* from L1/L1=1.0 *1*, L2/L1=0.277 *28*, L3/L1=0.239 *24*, M1/L1=0.196 *20*, M2/L1=0.047 *5*, M3/L1=0.047 *5*, N/L1=0.044 *4* (1967Ko12, with 10% unc adopted by evalutor); 0.207 *12* (1967Ha24) from L1/L1=1.00 *10*, L2/L1=0.276 *28*, L3/L1=0.248 *25*, M/L1=0.310 *31*, N/L1=0.114 *11* (1962Ha24, with 10% unc adopted by evalutor).
61.49 *4*	1.14 *15*	488.678	5/2+	427.211	3/2+	M1+E2	≈0.42	≈9.41	α(K)≈6.33; α(L)≈2.39; α(M)≈0.549 α(N)≈0.1236; α(O)≈0.01704; α(P)≈0.000467
[x]79.2	<1					not E1			Mult.: from Ice(K)≈0.8, as reported by 1976Me10.
80.6 *1*	0.6 *4*	367.512	1/2+	286.944	3/2−	(E1)		0.521	α(K)=0.435 *7*; α(L)=0.0678 *10*; α(M)=0.01470 *22* α(N)=0.00331 *5*; α(O)=0.000479 *7*; α(P)=2.36×10^{-5} *4*
86.0 *2*	0.6	146.064	7/2−	59.9994	5/2−	M1+E2	−0.184 *23*	3.15	α(K)=2.59 *4*; α(L)=0.436 *16*; α(M)=0.096 *4* α(N)=0.0220 *9*; α(O)=0.00332 *11*; α(P)=0.000192 *4* E_γ: from 1962Ha24. I_γ: from 1969Ga28. Other: ≈0.7, from Ice(K)≈2 (1976Me10). Note, however, that this value is much smaller than expected from, e.g., the ^{155}Eu β− decay. From that decay, Iγ would be expected to be ≈5.9. Note that the very strong 86.55 γ may have influenced the value deduced for Iγ(86.0 γ) in the ^{155}Tb ε decay. δ: adopted value. 0.19 *4* (1975Kr04, γγ(θ)) for this dataset.
86.55 *3*	1276 *25*	86.530	5/2+	0.0	3/2−	E1		0.431	α(K)=0.360 *5*; α(L)=0.0555 *8*; α(M)=0.01203 *17* α(N)=0.00271 *4*; α(O)=0.000394 *6*; α(P)=1.97×10^{-5} *3*

γ(^{155}Gd) (continued)

E_γ	I_γ[†c]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[@]	δ[@a]	α[b]	Comments
99.02 *25*	3.46 *15*	367.512	$1/2^+$	268.582	$3/2^+$	M1[‡]		2.07 *4*	α(K)=1.75 *3*; α(L)=0.253 *4*; α(M)=0.0549 *9* α(N)=0.01263 *20*; α(O)=0.00196 *3*; α(P)=0.0001305 *21*
101.16 *1*	6.4 *4*	427.211	$3/2^+$	326.017	$5/2^+$	M1+E2	≈0.50	≈2.04	α(K)≈1.541; α(L)≈0.388; α(M)≈0.0880 α(N)≈0.0199; α(O)≈0.00284; α(P)≈0.0001093
^{x}102.4 *1*	0.6 *2*					E2,M1		2.09 *22*	α(K)=1.34 *25*; α(L)=0.58 *36*; α(M)=0.135 *86* α(N)=0.030 *19*; α(O)=0.0041 *24*; α(P)=8.6×10^{-5} *33*
^{x}103.3 *1*	0.4 *2*					M1		1.83	α(K)=1.549 *23*; α(L)=0.224 *4*; α(M)=0.0486 *7* α(N)=0.01118 *16*; α(O)=0.001734 *25*; α(P)=0.0001156 *17* Tentatively placed by 1976Me10 between the 592 and 488.65 levels. This latter level is now not believed to exist, and the γ branching from the 592 level, as reported by 1986Sc25, does not include a 103.3 γ.
105.318 *3*	1000	105.3140	$3/2^+$	0.0	$3/2^-$	E1		0.254	α(K)=0.213 *3*; α(L)=0.0320 *5*; α(M)=0.00693 *10* α(N)=0.001567 *22*; α(O)=0.000230 *4*; α(P)=1.201×10^{-5} *17*
^{x}118.0[#]	<0.1					not E1			1976Me10 indicate that the existence of this transition is doubtful. Mult.: from Ice(K)=0.2 and Iγ.
120.6 *3*	2.74 *25*	266.601	$5/2^+$	146.064	$7/2^-$	E1		0.176 *3*	α(K)=0.1483 *23*; α(L)=0.0219 *4*; α(M)=0.00474 *8* α(N)=0.001075 *17*; α(O)=0.0001586 *25*; α(P)=8.51×10^{-6} *13*
^{x}125.1 *1*	0.2 *1*								
^{x}129.3[e] *1*	0.23[e] *16*								I_γ: 1976Me10 report Iγ=0.25 *15* for this γ and suggest two possible placements for it. A small fraction (0.020 *4* units) of this intensity can be associated with the decay of the 450.6 level. The other placement suggested by 1976Me10 is out of a 721.06 level. However, such a level is now not believed to be populated in the ^{155}Tb ε decay. It has been assumed here that the remainder of this 129.3 γ intensity is unplaced.
129.3[ef] *1*	0.020[e] *4*	450.609	$3/2^-$	321.293	$5/2^-$				I_γ: calculated using Iγ(129.3γ)/Iγ(450.5γ) from the Adopted Levels, Gammas data set and Iγ(450.6γ). 1976Me10 report Iγ=0.25 *15* for this γ and suggest two possible placements for it. One of these is from this level and the other is out of a 721.06 level. However, a 721.06 level now is not believed to be populated in the ^{155}Tb decay.
132.0[f] *1*	0.3 *1*	559.319	$1/2^-$	427.211	$3/2^+$				
^{x}136.2 *1*	0.15 *10*								1976Me10 suggest two placements for this γ, namely out of the the 423.2 and the 559.3 levels. However, the evaluator has not adopted the 423.2 level proposed by these authors, and the (n,γ) data do not find a 136.2 γ that deexcites the 559 level.
138.29[f] *7*	0.96 *9*	488.678	$5/2^+$	350.313	$7/2^+$	(M1)		0.800	α(K)=0.676 *10*; α(L)=0.0972 *14*; α(M)=0.0211 *3* α(N)=0.00486 *7*; α(O)=0.000754 *11*; α(P)=5.04×10^{-5} *7*

$^{155}_{64}$Gd$_{91}$-5

γ(^{155}Gd) (continued)

E_γ	I_γ [†c]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [@]	δ [@a]	α [b]	$I_{(\gamma+ce)}$ [c]	Comments
141.5 *1*	0.16 *8*	592.060	3/2$^-$	450.609	3/2$^-$	(M1)		0.750		α(K)=0.634 *9*; α(L)=0.0911 *13*; α(M)=0.0198 *3* α(N)=0.00456 *7*; α(O)=0.000707 *10*; α(P)=4.72×10^{-5} *7*
146.05 *3*	1.9 *4*	146.064	7/2$^-$	0.0	3/2$^-$	(E2)		0.649		α(K)=0.398 *6*; α(L)=0.194 *3*; α(M)=0.0453 *7* α(N)=0.01015 *15*; α(O)=0.001361 *19*; α(P)=2.12×10^{-5} *3*
148.64 *1*	105.5 *9*	266.601	5/2$^+$	117.963	7/2$^+$	M1+E2	−0.14 *1*	0.653		α(K)=0.549 *8*; α(L)=0.0812 *12*; α(M)=0.0177 *3* α(N)=0.00407 *6*; α(O)=0.000628 *9*; α(P)=4.07×10^{-5} *6* δ: weighted average of −0.14 *1* (1996KrZZ) and −0.12 *2* (1975Wa01). 1976Me10 report δ=0.14 *4*.
150.63 *5*	1.19 *7*	268.582	3/2$^+$	117.963	7/2$^+$	(E2)		0.583		α(K)=0.363 *5*; α(L)=0.1702 *24*; α(M)=0.0397 *6* α(N)=0.00888 *13*; α(O)=0.001194 *17*; α(P)=1.95×10^{-5} *3* E_γ: 1976Me10 suggest that this peak may be a doublet. However, from the γ branching from this level as observed in (n,γ), the Iγ value computed for this γ is 1.04 *16*, reasonably close to that seen here. From Iγ considerations, then, this peak is probably not a doublet.
158.57 *5*	1.73 *9*	427.211	3/2$^+$	268.582	3/2$^+$	(M1)		0.545		α(K)=0.461 *7*; α(L)=0.0661 *10*; α(M)=0.01436 *21* α(N)=0.00330 *5*; α(O)=0.000513 *8*; α(P)=3.43×10^{-5} *5*
159.1 *1*	0.3 *1*	266.601	5/2$^+$	107.532	9/2$^+$					
160.51 *10*	31.1 *6*	427.211	3/2$^+$	266.601	5/2$^+$	M1(+E2)[‡]		0.50 *3*		α(K)=0.37 *8*; α(L)=0.097 *33*; α(M)=0.0220 *82* α(N)=0.0050 *18*; α(O)=7.0×10^{-4} *21*; α(P)=2.48×10^{-5} *84*
161.29 *1*	109.8 *11*	266.601	5/2$^+$	105.3140	3/2$^+$	M1+E2	−0.28 *+6−7*	0.515		α(K)=0.429 *8*; α(L)=0.068 *3*; α(M)=0.0148 *7* α(N)=0.00340 *14*; α(O)=0.000518 *17*; α(P)=3.15×10^{-5} *8* δ: from 1996KrZZ. Others: −0.47 *+14−97* (1975Wa01); ≈0.31 (1976Me10).
162.65 *2*	≈0.7	488.678	5/2$^+$	326.017	5/2$^+$	[M1,E2]		0.48 *3*	≈1	ce(K)/(γ+ce)=0.24 *4*; ce(L)/(γ+ce)=0.062 *20*; ce(M)/(γ+ce)=0.0142 *51* ce(N)/(γ+ce)=0.0032 *12*; ce(O)/(γ+ce)=4.5×10^{-4} *14*; ce(P)/(γ+ce)=1.62×10^{-5} *55* α(K)=0.36 *7*; α(L)=0.092 *31*; α(M)=0.0209 *76* α(N)=0.0047 *17*; α(O)=6.7×10^{-4} *20*; α(P)=2.39×10^{-5} *81* E_γ: from 1980Ab20. I_γ: photons not observed by 1976Me10, who report I(γ+ce)≈1. Listed value computed by the evaluator from I(γ+ce) and the listed α value.
163.28 *1*	176.9 *18*	268.582	3/2$^+$	105.3140	3/2$^+$	M1+E2	0.05 *4*	0.502		α(K)=0.424 *6*; α(L)=0.0610 *10*; α(M)=0.01326 *21* α(N)=0.00305 *5*; α(O)=0.000473 *7*; α(P)=3.16×10^{-5} *5*

^{155}Tb ε decay 1976Me10 (continued)

$\gamma(^{155}$Gd) (continued)

E_γ	I_γ[†c]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[@]	δ[@a]	α[b]	Comments
									δ: weighted average of: 0.03 *5* (1996KrZZ) and 0.13 *9* (1975Wa01). 1976Me10 report $\delta\approx$0.1.
[x]169.0 *1*	0.1 *1*								Existence of this γ is questionable (1976Me10).
175.29 *2*	1.77 *18*	321.293	5/2$^-$	146.064	7/2$^-$	(M1)		0.412	α(K)=0.349 *5*; α(L)=0.0499 *7*; α(M)=0.01084 *16* α(N)=0.00249 *4*; α(O)=0.000387 *6*; α(P)=2.59$\times10^{-5}$ *4*
[x]178.0 *1*	0.3 *2*								
180.08 *1*	297 *6*	266.601	5/2$^+$	86.530	5/2$^+$	M1+E2	−0.214 *10*	0.380	α(K)=0.319 *5*; α(L)=0.0478 *7*; α(M)=0.01043 *15* α(N)=0.00240 *4*; α(O)=0.000368 *6*; α(P)=2.35$\times10^{-5}$ *4* δ: weighted average of −0.215 *14* (1975Wa01), −0.188 *+16−22* (1980Bu27),and −0.24 *2* (1996KrZZ). 1976Me10 list δ=0.18.
181.69 *9*	16.8 *2*	286.944	3/2$^-$	105.3140	3/2$^+$	E1		0.0586	α(K)=0.0496 *7*; α(L)=0.00707 *10*; α(M)=0.001529 *22* α(N)=0.000348 *5*; α(O)=5.21$\times10^{-5}$ *8*; α(P)=3.00$\times10^{-6}$ *5*
182.1 *1*	4.4 *2*	268.582	3/2$^+$	86.530	5/2$^+$	(M1)		0.371	α(K)=0.314 *5*; α(L)=0.0449 *7*; α(M)=0.00974 *14* α(N)=0.00224 *4*; α(O)=0.000348 *5*; α(P)=2.33$\times10^{-5}$ *4*
[x]185.3 *1*	0.3 *2*								
[x]186.0 *1*	0.05 *5*								
[x]188.3 *1*	0.10 *4*								
[x]191.4 *1*	0.036 *15*					(M1)		0.323	α(K)=0.273 *4*; α(L)=0.0391 *6*; α(M)=0.00848 *12* α(N)=0.00195 *3*; α(O)=0.000303 *5*; α(P)=2.03$\times10^{-5}$ *3* Placed between the 614 and 423 levels by 1976Me10. However, this latter level is now not believed to exist, and the γ branching from the 614 level, as reported by 1986Sc25, does not include a 191.4 γ.
193.319 *4*	0.038 *7*	647.770	5/2$^-$	454.459	5/2$^-$	M1,E2		0.28 *4*	α(K)=0.22 *5*; α(L)=0.049 *11*; α(M)=0.0110 *28* α(N)=0.0025 *6*; α(O)=0.00036 *7*; α(P)=1.48$\times10^{-5}$ *50* 1976Me10 report Ice(K)$\approx$0.11. E_γ,Mult.: from 1986Sc25, (n,γ). I_γ: computed by the evaluator from Iγ(501.7γ+529.7γ) and the γ branching out of this level as reported by 1986Sc25. This γ is shown unplaced by 1976Me10.
200.411 *4*	9.16 *20*	286.944	3/2$^-$	86.530	5/2$^+$	E1		0.0452	α(K)=0.0383 *6*; α(L)=0.00542 *8*; α(M)=0.001171 *17* α(N)=0.000267 *4*; α(O)=4.01$\times10^{-5}$ *6*; α(P)=2.34$\times10^{-6}$ *4* δ: 1996KrZZ report δ=0.17 *13*. 1975Wa01 report δ=−0.16 *12*.
201.0 *10*	0.5 *3*	488.678	5/2$^+$	286.944	3/2$^-$				
203.37 *2*	1.15 *12*	321.293	5/2$^-$	117.963	7/2$^+$				
206.54 *2*	6.8 *5*	266.601	5/2$^+$	59.9994	5/2$^-$	E1		0.0417	α(K)=0.0353 *5*; α(L)=0.00500 *7*; α(M)=0.001080 *16* α(N)=0.000246 *4*; α(O)=3.70$\times10^{-5}$ *6*; α(P)=2.17$\times10^{-6}$ *3*
208.05 *5*	9.2 *5*	326.017	5/2$^+$	117.963	7/2$^+$	M1		0.257	α(K)=0.217 *3*; α(L)=0.0310 *5*; α(M)=0.00673 *10* α(N)=0.001550 *22*; α(O)=0.000241 *4*; α(P)=1.614$\times10^{-5}$ *23*
208.58 *5*	2.3 *5*	268.582	3/2$^+$	59.9994	5/2$^-$	E1		0.0406	α(K)=0.0344 *5*; α(L)=0.00487 *7*; α(M)=0.001052 *15* α(N)=0.000240 *4*; α(O)=3.61$\times10^{-5}$ *5*; α(P)=2.12$\times10^{-6}$ *3*
216.02 *5*	5.4 *4*	321.293	5/2$^-$	105.3140	3/2$^+$				
218.4[f] *1*	0.3 *2*	326.017	5/2$^+$	107.532	9/2$^+$				

From ENSDF

$^{155}_{64}Gd_{91}$-7

$\gamma(^{155}Gd)$ (continued)

E_γ	I_γ[†c]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[@]	δ[@a]	α[b]	Comments
220.07 *5*	6.63 *19*	488.678	5/2+	268.582	3/2+	M1,E2		0.19 *3*	α(K)=0.15 *4*; α(L)=0.031 *5*; α(M)=0.0070 *13* α(N)=0.0016 *3*; α(O)=0.000231 *25*; α(P)=1.03×10^{-5} *36* Mult.: from 1986Sc25, (n,γ). 1976Me10 report mult=(E1).
220.70 *5*	20.24 *20*	326.017	5/2+	105.3140	3/2+	M1(+E2)	−0.1 *3*	0.218 *8*	α(K)=0.184 *10*; α(L)=0.0264 *12*; α(M)=0.0057 *4* α(N)=0.00132 *7*; α(O)=0.000205 *7*; α(P)=1.37×10^{-5} *10* δ: from 1975Wa01. 1976Me10 report δ≤0.33.
222.0 *1*	0.8 *4*	488.678	5/2+	266.601	5/2+				
226.95 *1*	5.91 *8*	286.944	3/2−	59.9994	5/2−	M1		0.203	α(K)=0.1715 *24*; α(L)=0.0244 *4*; α(M)=0.00530 *8* α(N)=0.001219 *17*; α(O)=0.000189 *3*; α(P)=1.272×10^{-5} *18*
[x]230.2 *1*	0.07 *3*								
232.33 *2*	0.69 *8*	350.313	7/2+	117.963	7/2+	(M1)		0.190	α(K)=0.1609 *23*; α(L)=0.0229 *4*; α(M)=0.00497 *7* α(N)=0.001143 *16*; α(O)=0.0001776 *25*; α(P)=1.193×10^{-5} *17*
234.78 *1*	1.32 *8*	321.293	5/2−	86.530	5/2+				
237.5[f] *4*	0.11 *8*	559.319	1/2−	321.293	5/2−				
239.45 *1*	9.03 *8*	326.017	5/2+	86.530	5/2+	M1(+E2)	0.0 *+2−3*	0.175 *4*	α(K)=0.148 *3*; α(L)=0.0211 *4*; α(M)=0.00457 *9* α(N)=0.001053 *18*; α(O)=0.0001635 *25*; α(P)=1.10×10^{-5} *3* δ: from 1975Wa01. 1996KrZZ report δ=0.0 *+5−2* or 1.5 *+11−8*. 1976Me10 report δ≤0.25.
242.80 *2*	0.62 *3*	350.313	7/2+	107.532	9/2+	E2(+M1)		0.14 *3*	α(K)=0.11 *3*; α(L)=0.0223 *21*; α(M)=0.0050 *6* α(N)=0.00113 *12*; α(O)=0.000166 *9*; α(P)=7.9×10^{-6} *27*
245.00[f] *9*	0.11 *6*	350.313	7/2+	105.3140	3/2+				
[x]246.05 *9*	0.05 *2*								Shown deexciting the 592 level by 1976Me10.
[x]248.6 *1*	0.2 *1*								
261.25 *1*	1.58 *25*	321.293	5/2−	59.9994	5/2−	(M1)		0.1384	α(K)=0.1172 *17*; α(L)=0.01662 *24*; α(M)=0.00361 *5* α(N)=0.000830 *12*; α(O)=0.0001289 *18*; α(P)=8.67×10^{-6} *13*
262.27 *1*	210.6 *21*	367.512	1/2+	105.3140	3/2+	M1(+E2)	−0.06 *+8−6*	0.1368	α(K)=0.1158 *17*; α(L)=0.01645 *23*; α(M)=0.00357 *5* α(N)=0.000822 *12*; α(O)=0.0001276 *18*; α(P)=8.57×10^{-6} *13* δ: from 1975Wa01.
266.02 *8*	0.11 *1*	326.017	5/2+	59.9994	5/2−				
268.56 *1*	28.3 *19*	268.582	3/2+	0.0	3/2−	E1		0.0211	α(K)=0.0179 *3*; α(L)=0.00249 *4*; α(M)=0.000539 *8* α(N)=0.0001230 *18*; α(O)=1.86×10^{-5} *3*; α(P)=1.129×10^{-6} *16*
271.0[f] *5*	0.08 *5*	592.060	3/2−	321.293	5/2−				
[x]275.38 *8*	0.12 *5*								
[x]278.6 *1*	0.1 *1*								
281.06 *1*	12.05 *15*	367.512	1/2+	86.530	5/2+	E2		0.0738	α(K)=0.0558 *8*; α(L)=0.01400 *20*; α(M)=0.00318 *5* α(N)=0.000719 *10*; α(O)=0.0001016 *15*; α(P)=3.44×10^{-6} *5*
286.96 *1*	12.62 *25*	286.944	3/2−	0.0	3/2−	M1+E2	−0.14 *5*	0.1069 *17*	α(K)=0.0904 *14*; α(L)=0.01289 *18*; α(M)=0.00280 *4* α(N)=0.000644 *9*; α(O)=9.99×10^{-5} *14*; α(P)=6.67×10^{-6} *11* δ: from 1996KrZZ. 1975Wa01 report −0.24≤δ≤0.21. 1976Me10 report δ<0.50.
290.2[df] *1*	0.08[d] *3*	350.313	7/2+	59.9994	5/2−				

$^{155}_{64}Gd_{91}$-8

$\gamma(^{155}$Gd) (continued)

E_γ	I_γ[†c]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[@]	δ[@a]	α[b]	Comments
290.2[df] *1*	0.08[d] *3*	559.319	1/2$^-$	268.582	3/2$^+$				
^{x}294.75 *15*	0.05 *2*								Tentatively proposed by 1976Me10 to deexcite a 721.06 level. However, the evaluator does not regard the evidence for such a level in the ^{155}Tb decay as convincing.
^{x}303.1 *1*	0.09 *6*								
304.6 *5*	0.020 *3*	450.609	3/2$^-$	146.064	7/2$^-$				Shown as unplaced by 1976Me10 and having Iγ≤0.05. However, in (n,γ) a 304.53 γ with Iγ=0.020 *3* (on this intensity scale) is is found to deexcite this level. I_γ: calculated using Iγ(304.5γ)/Iγ(450.5γ) from the Adopted Levels, Gammas data set and Iγ(450.6γ).
305.11 *10*	0.12 *5*	592.060	3/2$^-$	286.944	3/2$^-$	(M1)		0.0914	α(K)=0.0774 *11*; α(L)=0.01093 *16*; α(M)=0.00237 *4* α(N)=0.000546 *8*; α(O)=8.48×10^{-5} *12*; α(P)=5.72×10^{-6} *8*
309.21 *3*	0.19 *3*	427.211	3/2$^+$	117.963	7/2$^+$				
^{x}317.9 *1*	0.08 *4*								Shown deexciting a 423.2 level by 1976Me10. However, the (n,γ) data do not confirm the existence of a level with the properties proposed by these authors. The evaluator has assumed that such a level does not exist and thus has shown this γ as being unplaced.
321.83 *1*	7.2 *3*	427.211	3/2$^+$	105.3140	3/2$^+$	M1+E2	≈0.77	≈0.0679	α(K)≈0.0562; α(L)≈0.00914; α(M)≈0.00201 α(N)≈0.000460; α(O)≈6.95×10^{-5}; α(P)≈4.00×10^{-6} δ: 1996KrZZ report −5.2≤δ≤−0.5.
323.53 *8*	0.9 *3*	592.060	3/2$^-$	268.582	3/2$^+$				
325.44 *9*	0.18 *5*	592.060	3/2$^-$	266.601	5/2$^+$				
^{x}328.1 *3*	0.08 *4*								
336.56 *1*	1.3 *1*	454.459	5/2$^-$	117.963	7/2$^+$	E1		0.01197	α(K)=0.01019 *15*; α(L)=0.001402 *20*; α(M)=0.000303 *5* α(N)=6.92×10^{-5} *10*; α(O)=1.054×10^{-5} *15*; α(P)=6.54×10^{-7} *10* Shown unplaced by 1976Me10. Mult.: from 1986Sc25,(n,γ). From α(K)exp=0.023 *5*, 1976Me10 give mult=E1+M2 or E2?.
340.67 *1*	47.1 *9*	427.211	3/2$^+$	86.530	5/2$^+$	M1(+E2)	0.02 *7*	0.0683	α(K)=0.0579 *9*; α(L)=0.00814 *12*; α(M)=0.001765 *25* α(N)=0.000406 *6*; α(O)=6.32×10^{-5} *9*; α(P)=4.26×10^{-6} *7* δ: 1976Me10 report δ<0.50. 1975Wa01 report δ=2.5 *+5−4*.
342.58 *5*	0.31 *8*	488.678	5/2$^+$	146.064	7/2$^-$				
^{x}344.0 *9*	0.3 *3*								
346.036 *25*	0.26 *4*	451.572	1/2$^-$	105.3140	3/2$^+$	E1		0.01118	α(K)=0.00952 *14*; α(L)=0.001308 *19*; α(M)=0.000282 *4* α(N)=6.45×10^{-5} *9*; α(O)=9.84×10^{-6} *14*; α(P)=6.13×10^{-7} *9* Reported by 1976Me10 to deexcite a 346.06 level. Mult.: from the adopted values. 1976Me10 report mult=(E2).
^{x}349.1 *9*	0.039 *16*								
364.06 *1*	0.46 *8*	450.609	3/2$^-$	86.530	5/2$^+$				
367.36[e] *1*	31[e] *5*	367.512	1/2$^+$	0.0	3/2$^-$	E1+M2	≈0.04	≈0.00999	α(K)≈0.00850; α(L)≈0.001173; α(M)≈0.000253 α(N)≈5.80×10^{-5}; α(O)≈8.85×10^{-6}; α(P)≈5.55×10^{-7} I_γ: computed by the evaluator using Iγ(367.3γ)/Iγ(262.7γ) from

γ(^{155}Gd) (continued)

E_γ	I_γ [†c]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [@]	δ [@a]	α [b]	Comments
									the Adopted Levels, Gammas data set and Iγ(262.2γ), with the result then scaled up so that the summed γ intensity for the two placements equals 90, the value (92.3 *8*) given by 1976Me10 for their 367.36 γ, after removal of the contribution (2.0) of a 367.9 γ seen in (n,γ) but not reported by 1976Me10 (see comment on the 367.9 γ from the 454.4 level). Note that the split reported by these authors (≈37) agrees well with that given here, but they associate it with the other placement (out of the 427.2 level) of this γ.
367.36[e] *1*	59[e] *7*	427.211	3/2$^+$	59.9994	5/2$^-$	E1		0.00967	α(K)=0.00823 *12*; α(L)=0.001129 *16*; α(M)=0.000243 *4* α(N)=5.57×10^{-5} *8*; α(O)=8.50×10^{-6} *12*; α(P)=5.32×10^{-7} *8* I_γ: computed by the evaluator using Iγ(160.5γ+340.6γ)/Iγ(367.2γ) from the Adopted Levels, Gammas data set and Iγ(160.5γ+340.6γ), with the result then scaled up so that the summed γ intensity for the two placements equals 90, the value (92.3 *8*) given by 1976Me10 for their 367.36 γ, after removal of the contribution (2.0) of a 367.9 γ seen in (n,γ) but not reported by 1976Me10 (see comment on the 367.9 γ from the 454.4 level). Note that the split reported by these authors (≈57) agrees well with that given here, but they associate it with the other placement (from the 367.3 level) of this γ. δ: 1996KrZZ report δ=−0.03 *5*. 1976Me10 report δ≈0.04.
367.929 *1*	2.0 *2*	454.459	5/2$^-$	86.530	5/2$^+$				E_γ: from 1986Sc25, (n,γ). I_γ: computed by the evaluator from Iγ(454.45γ) and the γ branching out of this level, as reported by 1986Sc25. Note that this is only ≈2% of the intensity of the 367.35 peak, as reported by 1976Me10, and was not separately indicated by them.
370.73 *1*	9.07 *25*	488.678	5/2$^+$	117.963	7/2$^+$	M1+E2	−0.25 *+14−18*	0.0534 *24*	α(K)=0.0452 *22*; α(L)=0.00643 *15*; α(M)=0.00140 *3* α(N)=0.000321 *7*; α(O)=4.98×10^{-5} *14*; α(P)=3.31×10^{-6} *18* I_γ: γ shown doubly placed by 1976Me10. From the γ branching out of this level as observed in (n,γ) (1986Sc25), however, one computes Iγ=9.02 for this γ. The evaluator has thus concluded that all the intensity (9.07) reported by 1976Me10 for this γ is associated with the deexcitation of this level. δ: from 1996KrZZ. 1976Me10 report δ<0.33.
379.14 *3*	0.28 *8*	647.770	5/2$^-$	268.582	3/2$^+$				
381.06 *3*	0.21 *2*	488.678	5/2$^+$	107.532	9/2$^+$				
383.35 *1*	1.03 *15*	488.678	5/2$^+$	105.3140	3/2$^+$	M1		0.0501	α(K)=0.0425 *6*; α(L)=0.00596 *9*; α(M)=0.001291 *18* α(N)=0.000297 *5*; α(O)=4.62×10^{-5} *7*; α(P)=3.13×10^{-6} *5*
390.62 *1*	0.75 *15*	450.609	3/2$^-$	59.9994	5/2$^-$	M1		0.0477	α(K)=0.0405 *6*; α(L)=0.00567 *8*; α(M)=0.001229 *18* α(N)=0.000283 *4*; α(O)=4.40×10^{-5} *7*; α(P)=2.98×10^{-6} *5*
391.60 *1*	0.12 *5*	451.572	1/2$^-$	59.9994	5/2$^-$	E2		0.0273	Mult.: 1976Me10 indicate the possibility of an E0 component.

$^{155}_{64}$Gd$_{91}$-10

γ(^{155}Gd) (continued)

E_γ	I_γ [†c]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [@]	δ [@a]	α [b]	Comments
394.6 *5*	0.08 *5*	454.459	5/2⁻	59.9994	5/2⁻				
[x]396.0 *5*	0.08 *1*								
402.16 *1*	2.87 *18*	488.678	5/2⁺	86.530	5/2⁺	M1		0.0443	α(K)=0.0376 *6*; α(L)=0.00525 *8*; α(M)=0.001138 *16* α(N)=0.000262 *4*; α(O)=4.07×10^{-5} *6*; α(P)=2.76×10^{-6} *4* Mult.: 1976Me10 indicate the possibility of an E0 component.
427.18 *1*	1.09 *3*	427.211	3/2⁺	0.0	3/2⁻	E1		0.00676	α(K)=0.00576 *8*; α(L)=0.000783 *11*; α(M)=0.0001689 *24* α(N)=3.87×10^{-5} *6*; α(O)=5.92×10^{-6} *9*; α(P)=3.76×10^{-7} *6*
428.7 *1*	0.04 *2*	488.678	5/2⁺	59.9994	5/2⁻				
445.98 *1*	0.39 *9*	592.060	3/2⁻	146.064	7/2⁻				
450.64 *2*	1.12 *9*	450.609	3/2⁻	0.0	3/2⁻	M1(+E2)		0.0257 *73*	α(K)=0.0214 *66*; α(L)=0.0033 *6*; α(M)=0.00073 *12* α(N)=0.00017 *3*; α(O)=2.6×10^{-5} *5*; α(P)=1.52×10^{-6} *54*
451.60 *2*	0.39 *9*	451.572	1/2⁻	0.0	3/2⁻	M1,E2		0.0256 *73*	α(K)=0.0213 *66*; α(L)=0.0033 *6*; α(M)=0.00073 *12* α(N)=0.00017 *3*; α(O)=2.5×10^{-5} *5*; α(P)=1.51×10^{-6} *54* α: computed assuming δ=1.
454.45 *1*	0.79 *8*	454.459	5/2⁻	0.0	3/2⁻	M1		0.0323	α(K)=0.0274 *4*; α(L)=0.00382 *6*; α(M)=0.000827 *12* α(N)=0.000190 *3*; α(O)=2.96×10^{-5} *5*; α(P)=2.01×10^{-6} *3*
[x]474.11[&] *15*	≤0.015								
[x]484.8[&] *1*	0.012 *6*								
486.88 *15*	0.96 *8*	592.060	3/2⁻	105.3140	3/2⁺	E1		0.00500	α(K)=0.00427 *6*; α(L)=0.000577 *8*; α(M)=0.0001242 *18* α(N)=2.85×10^{-5} *4*; α(O)=4.37×10^{-6} *7*; α(P)=2.81×10^{-7} *4*
488.65 *15*	0.68 *12*	488.678	5/2⁺	0.0	3/2⁻	E1		0.00496	α(K)=0.00423 *6*; α(L)=0.000572 *8*; α(M)=0.0001232 *18* α(N)=2.82×10^{-5} *4*; α(O)=4.33×10^{-6} *6*; α(P)=2.78×10^{-7} *4*
[x]493.9 *1*	0.014 *7*								
[x]496.1[f] *1*	0.018 *9*								Shown deexciting a questionable 556.1 level by 1976Me10.
499.24 *6*	0.037 *6*	559.319	1/2⁻	59.9994	5/2⁻				
501.70 *7*	0.46 *3*	647.770	5/2⁻	146.064	7/2⁻	M1+E2	≤1.0	0.022 *3*	α(K)=0.019 *3*; α(L)=0.00272 *24*; α(M)=0.00059 *5* α(N)=0.000136 *12*; α(O)=2.10×10^{-5} *20*; α(P)=1.36×10^{-6} *21*
505.52 *1*	1.81 *11*	592.060	3/2⁻	86.530	5/2⁺	E1+M2	≈0.14	≈0.00602	α(K)≈0.00510; α(L)≈0.000719; α(M)≈0.0001559 α(N)≈3.58×10^{-5}; α(O)≈5.50×10^{-6}; α(P)≈3.55×10^{-7}
509.7 *2*	0.010 *4*	614.791	3/2⁻	105.3140	3/2⁺				
512.89 *9*	0.051 *8*	658.96	5/2⁻	146.064	7/2⁻				
529.76 *6*	0.47 *8*	647.770	5/2⁻	117.963	7/2⁺	E1		0.00414	α(K)=0.00354 *5*; α(L)=0.000476 *7*; α(M)=0.0001024 *15* α(N)=2.35×10^{-5} *4*; α(O)=3.61×10^{-6} *5*; α(P)=2.33×10^{-7} *4*
532.09 *5*	1.81 *25*	592.060	3/2⁻	59.9994	5/2⁻	E2		0.01186	α(K)=0.00970 *14*; α(L)=0.001693 *24*; α(M)=0.000375 *6* α(N)=8.54×10^{-5} *12*; α(O)=1.269×10^{-5} *18*; α(P)=6.54×10^{-7} *10*
[x]538.15 *3*	0.013 *8*								
542.45 *3*	0.16 *8*	647.770	5/2⁻	105.3140	3/2⁺				
554.78 *1*	0.79 *9*	614.791	3/2⁻	59.9994	5/2⁻	M1(+E2)	≤0.50	0.0186 *10*	α(K)=0.0157 *8*; α(L)=0.00221 *9*; α(M)=0.000478 *18* α(N)=0.000110 *5*; α(O)=1.71×10^{-5} *7*; α(P)=1.15×10^{-6} *7*
559.32 *1*	5.4 *3*	559.319	1/2⁻	0.0	3/2⁻	M1(+E2)	≤0.50	0.0182 *9*	α(K)=0.0154 *8*; α(L)=0.00216 *9*; α(M)=0.000468 *18* α(N)=0.000108 *4*; α(O)=1.67×10^{-5} *7*; α(P)=1.12×10^{-6} *7*
587.69 *4*	0.16 *3*	647.770	5/2⁻	59.9994	5/2⁻	E0+E2,M1		0.0130 *38*	α(K)=0.0109 *34*; α(L)=0.0016 *4*; α(M)=0.00035 *8*

$\gamma(^{155}Gd)$ (continued)

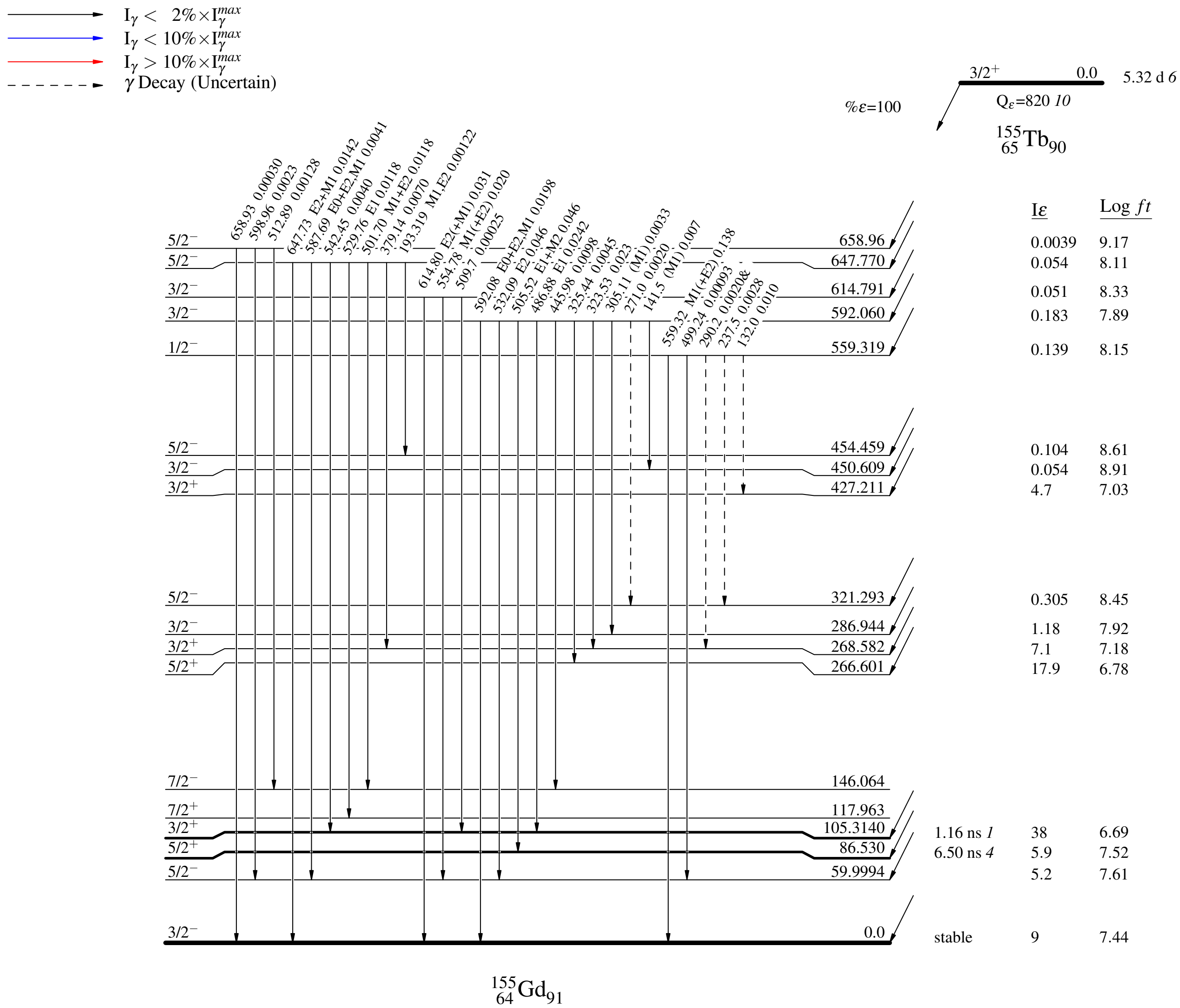
E_γ	I_γ[†c]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[@]	δ[@a]	α[b]	Comments
									α(N)=8.1×10^{-5} *18*; α(O)=1.2×10^{-5} *3*; α(P)=7.8×10^{-7} *27* α: weighted average of 0.24 *5* (1976Me10) and 0.205 *40* (1986AbZW).
592.08 *1*	0.78 *8*	592.060	3/2$^-$	0.0	3/2$^-$	E0+E2,M1		0.0128 *38*	α(K)=0.0107 *33*; α(L)=0.0016 *4*; α(M)=0.00035 *8* α(N)=8.0×10^{-5} *17*; α(O)=1.2×10^{-5} *3*; α(P)=7.7×10^{-7} *26* α: weighted average of 0.174 *19* (1976Me10) and 0.190 *30* (1986AbZW).
598.96 *6*	0.093 *11*	658.96	5/2$^-$	59.9994	5/2$^-$				
[x]603.25 *15*	0.03 *2*								
614.80 *1*	1.21 *8*	614.791	3/2$^-$	0.0	3/2$^-$	E2(+M1)	>1.53	0.0093 *11*	α(K)=0.0077 *9*; α(L)=0.00122 *10*; α(M)=0.000268 *21* α(N)=6.1×10^{-5} *5*; α(O)=9.3×10^{-6} *8*; α(P)=5.3×10^{-7} *7*
[x]615.7 *1*	0.08 *6*								
[x]634.51 *9*	0.037 *14*								1986Sc25 report a 634.543 γ deexciting a 752.551 level. If this is the same transition, then the 752.55 level is fed also in the ^{155}Tb ε decay.
647.73 *1*	0.56 *5*	647.770	5/2$^-$	0.0	3/2$^-$	E2+M1	>2.0	0.0079 *6*	α(K)=0.0065 *6*; α(L)=0.00103 *6*; α(M)=0.000227 *13* α(N)=5.2×10^{-5} *3*; α(O)=7.8×10^{-6} *5*; α(P)=4.5×10^{-7} *5*
658.93 *15*	0.012 *3*	658.96	5/2$^-$	0.0	3/2$^-$				

[†] I(Gd K x rays)=4654 *100*, relative to Iγ(105.32γ)=1000 (1976Me10).
[‡] Deduced by 1976Me10 from comparison of L-subshell ratios given in 1962Ha24 and 1967Ko12 with theoretical values.
[#] From 1962Ha24 or 1967Ko12.
[@] Unless otherwise noted, reported by 1976Me10 and based on measured α (mostly α(K)exp) values. In normalizing the measured electron-line intensities to those of the γ-ray lines, 1976Me10 used α(K)=0.118 for the theoretical M1 K-conversion coefficient of the 262.27 γ transition. This multipolarity is established independently from a variety of sources. Included among these are α(K)exp values (1969Ga28,1967Bl11) and $\gamma(\theta)$ (1975Wa01). Such studies, of course, cannot exclude a small admixture of E2.
[&] Two γ rays, 474.53 17 and 484.85 11, were found and placed at 592.5 level in (p,d),(p,dγ) dataset (2010Al15).
[a] Additional information 2.
[b] Additional information 3.
[c] For absolute intensity per 100 decays, multiply by 0.0251 *13*.
[d] Multiply placed with undivided intensity.
[e] Multiply placed with intensity suitably divided.
[f] Placement of transition in the level scheme is uncertain.
[x] γ ray not placed in level scheme.

$^{155}_{64}Gd_{91}$-12

^{155}Tb ε decay 1976Me10

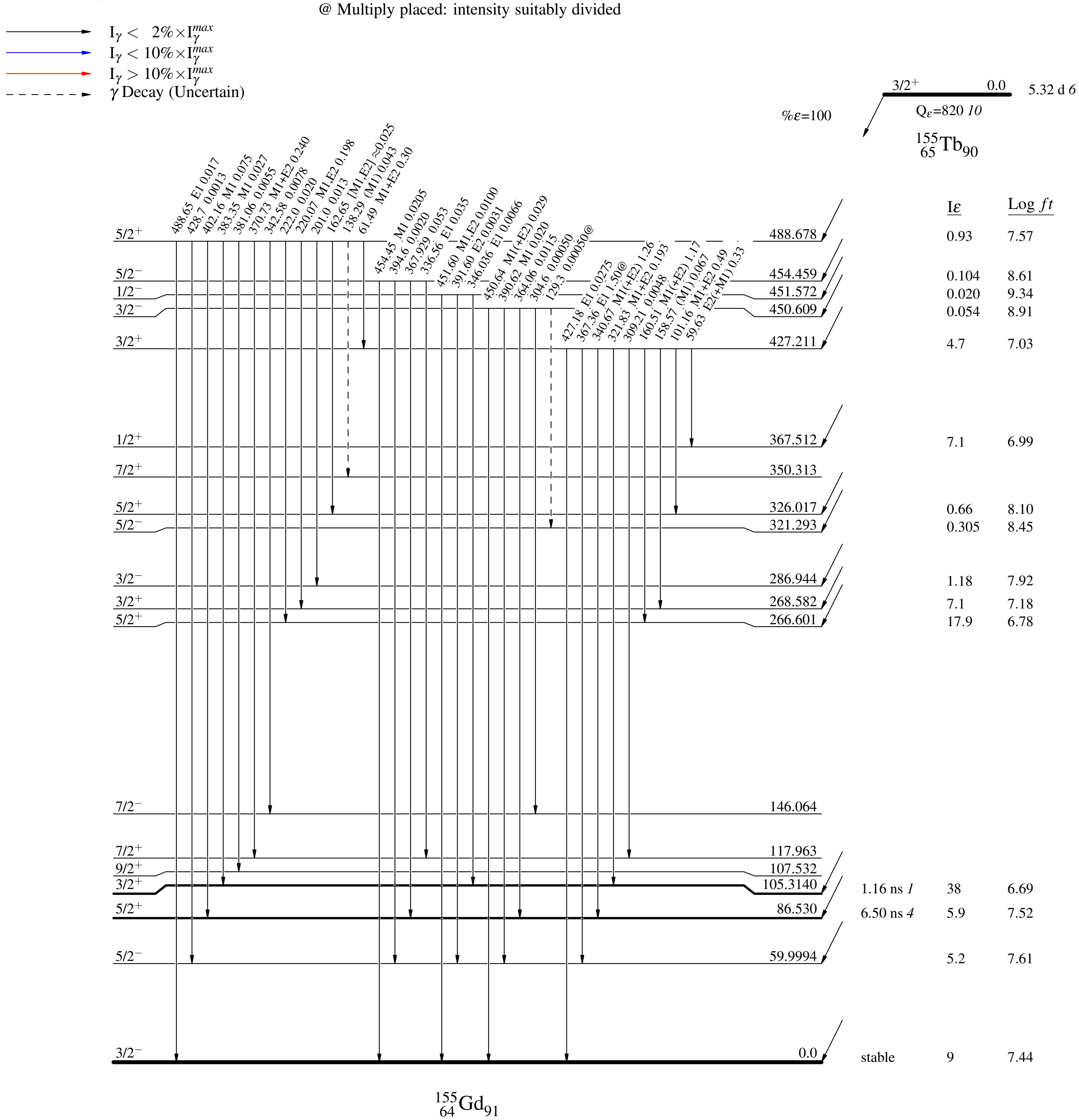
Decay Scheme



^{155}Tb ε decay 1976Me10

Decay Scheme (continued)

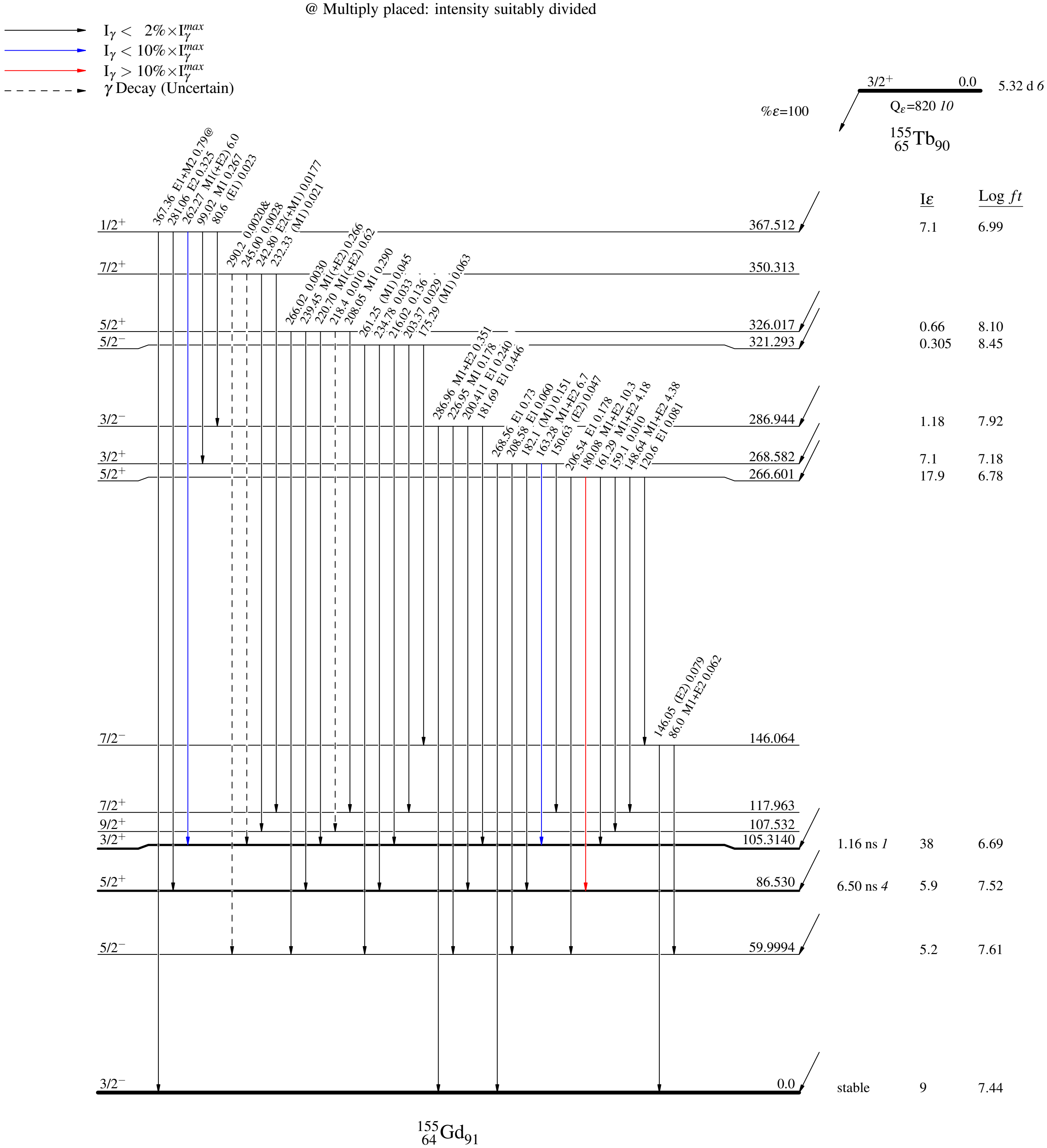
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided



^{155}Tb ε decay 1976Me10

Decay Scheme (continued)

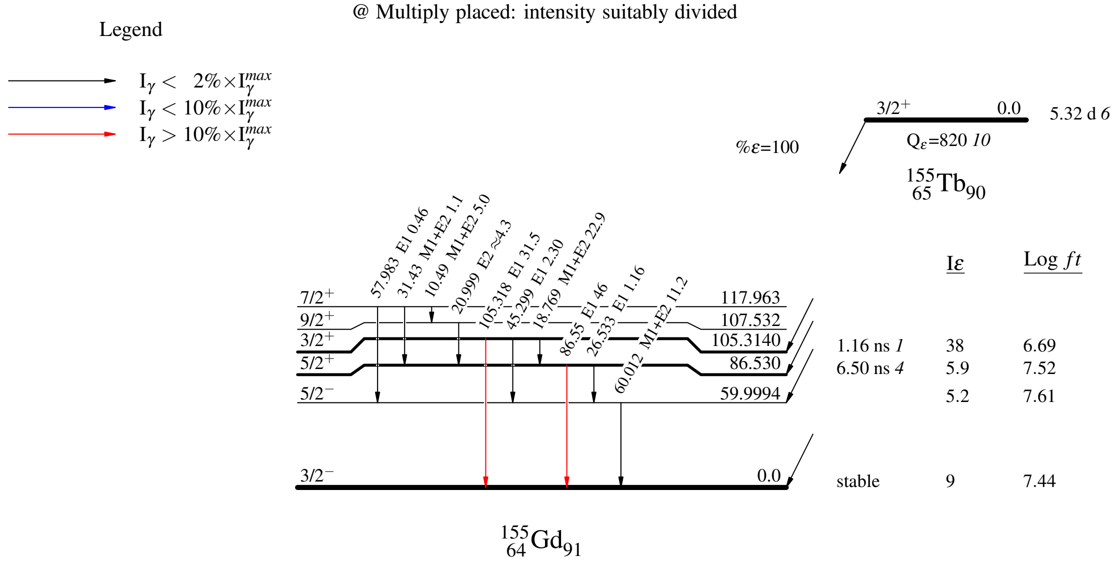
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided



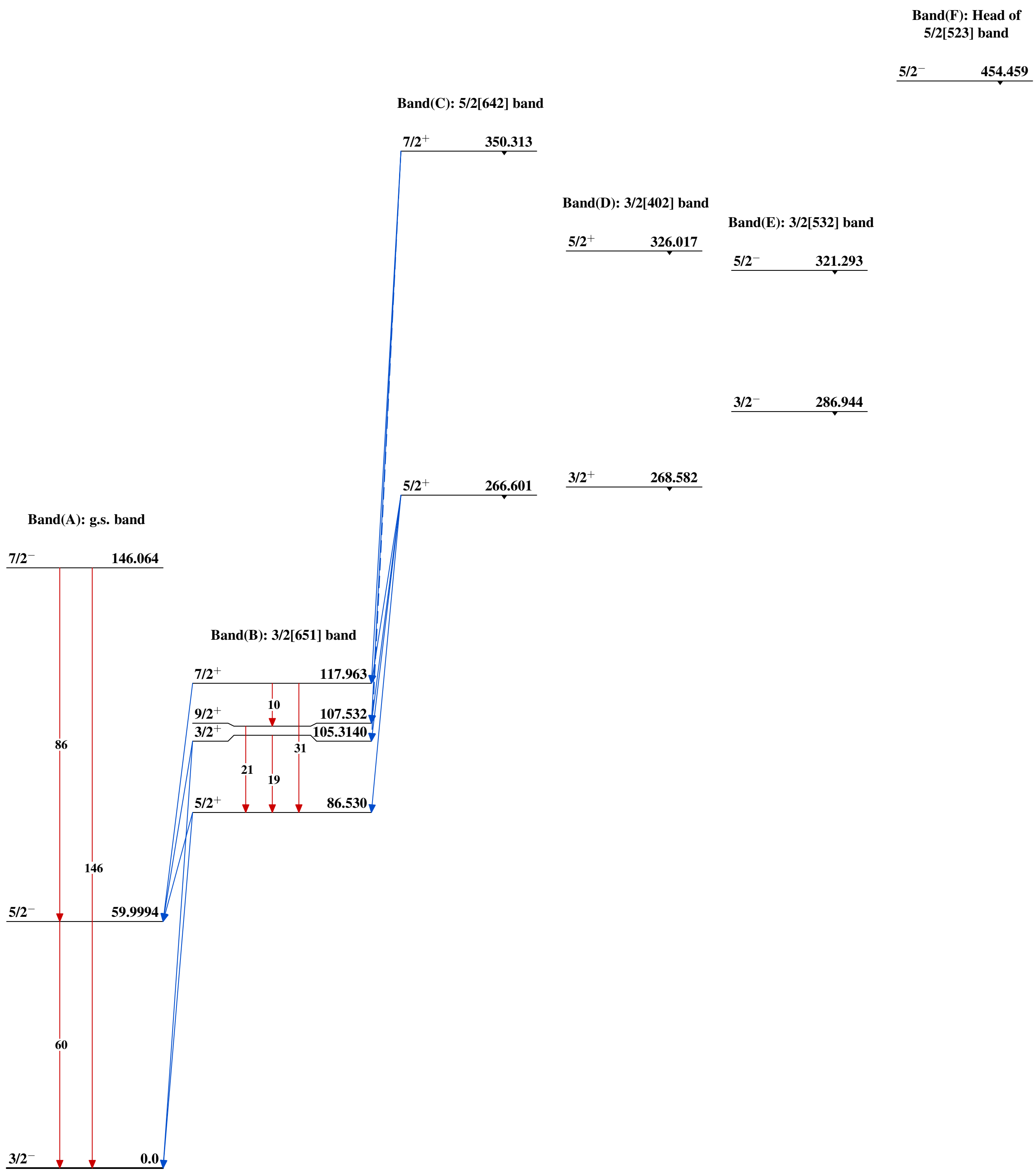
^{155}Tb ε decay 1976Me10

Decay Scheme (continued)

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

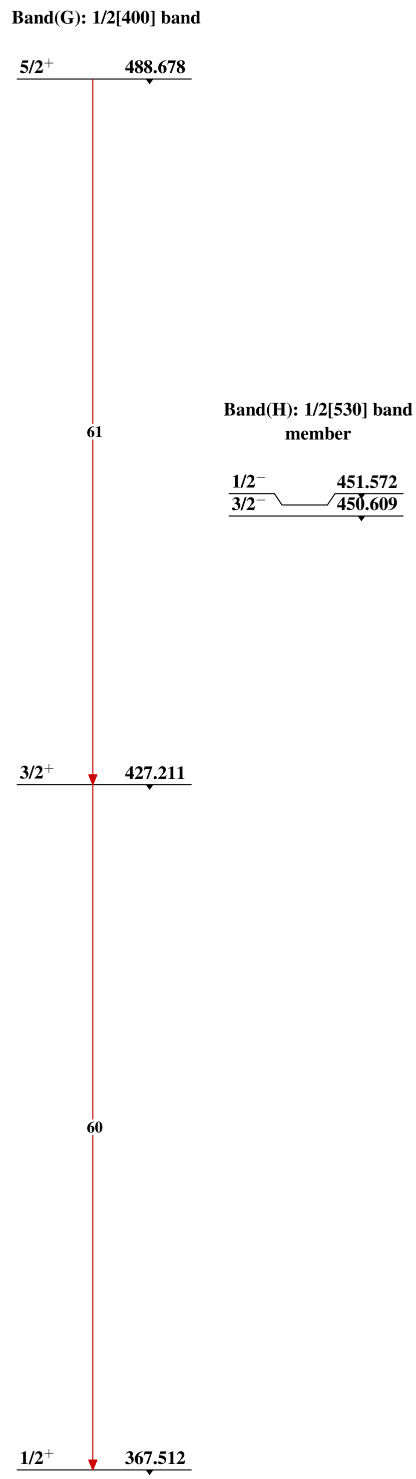


^{155}Tb ε decay 1976Me10



$^{155}_{64}Gd_{91}$

^{155}Tb ε decay 1976Me10 (continued)



$^{155}_{64}Gd_{91}$

^{155}Tb ε decay 1976Me10 (continued)