^{155}Sm β^- decay 1969Un01,2005Ra33

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

Parent: ^{155}Sm: E=0.0; J$^\pi$=3/2$^-$; $T_{1/2}$=22.18 min *6*; Q(β^-)=1627.3 *12*; %β^- decay=100.0

The decay scheme is due primarily to 1969Un01 conbined with 2005Ra33.

1969Un01: source produced in ^{154}Sm(n,γ). Measured Eγ, Iγ, $\gamma\gamma$-coincidence, $T_{1/2}$ using Ge(Li), Si(Li) and NaI detectors.

2005Ra33: source produced in ^{154}Sm(n,γ). Measured Eγ, Iγ, $\gamma\gamma$-coincidence, deduced log *ft* values. Used angular correlation results from 2004Ge20.

There is a general good agreement in between 1969Un01 (and earlier studies) and 2005Ra33. The differences are noted in the text.

Other measurements: 2004Ge20, 1974BeYP, 1971Be23, 1970Re08, 1969BoZO, 1968Wi12, 1968Ma15, 1967Wi12, 1967Wi11, 1966Fu11, 1965Ma24, 1965Fu13, 1963Kr04, 1961Ve04, 1960Su03, 1959Sc37, 1950Wi07, 1942Ku03.

^{155}Eu Levels

E(level)	J$^\pi$ †	$T_{1/2}$	Comments
0.0‡	5/2$^+$	4.753 y *14*	
78.61‡ *4*	7/2$^+$		
104.320# *5*	5/2$^-$	0.104 ns *10*	$T_{1/2}$: from β-ce(K)(t) (1968Ma15).
168.99# *12*	7/2$^-$		
245.734@ *12*	3/2$^+$	1.35 ns *10*	$T_{1/2}$: from $\beta\gamma$(t) (1967Ko17).
307.32@ *6*	5/2$^+$		
391.38@ *19*	7/2$^+$		
768.23 *9*	3/2$^-$		
817.56 *12*	5/2$^-$		
876.90 *15*	(1/2)$^+$		
911.14 *19*	3/2$^+$		
923.18 *23*	1/2$^+$		
1096.7 *6*	(3/2$^+$,5/2$^+$)		
1101.78 *19*	3/2$^-$		
1107.00 *18*	3/2$^-$,5/2$^-$		
1263.60 *25*	3/2$^-$,5/2$^-$		
1301.41 *15*	5/2,7/2$^+$		

† From Adopted Levels.
‡ Band(A): Member of the g.s. band. Configuration=5/2[413].
# Band(B): 5/2[532] band member.
@ Band(C): 3/2[411] band member.

β^- radiations

E(decay)	E(level)	Iβ^- ‡	Log *ft* †	Comments
(325.9 *12*)	1301.41	0.12 *1*	6.1	av Eβ=93.29 *39* E(decay): from $\beta\gamma$ coincidences, 1965Fu13 measure Eβ=300 *20*.
(363.7 *12*)	1263.60	0.017 *2*	7.1	av Eβ=105.50 *40*
(520.3 *12*)	1107.00	0.031 *2*	7.3	av Eβ=158.54 *43*
(525.5 *12*)	1101.78	0.030 *2*	7.4	av Eβ=160.38 *43*
(530.6 *14*)	1096.7	0.0031 *6*	8.4	av Eβ=162.16 *48* E(decay): from $\beta\gamma$ coincidences, 1965Fu13 measure Eβ=550 *30*.
(704.1 *12*)	923.18	0.0043 *15*	8.7	av Eβ=225.14 *46*
(716.2 *12*)	911.14	0.0094 *20*	8.3	av Eβ=229.64 *46*
(750.4 *12*)	876.90	0.014 *2*	8.2	av Eβ=242.52 *46*

Continued on next page (footnotes at end of table)

^{155}Sm β^- decay 1969Un01,2005Ra33 (continued)

β^- radiations (continued)

E(decay)	E(level)	Iβ^-‡	Log *ft*†	Comments
(809.7 *12*)	817.56	0.065 *4*	7.7	av Eβ=265.14 *47*
(859.1 *12*)	768.23	0.32 *2*	7.1	av Eβ=284.17 *47* E(decay): from $\beta\gamma$ coincidences, 1965Fu13 measure Eβ=850 *50*.
(1320.0 *12*)	307.32	1.91 *11*	7.0	av Eβ=471.07 *51*
(1381.6 *12*)	245.734	4.62 *12*	6.7	av Eβ=497.00 *51*
(1523.0 *12*)	104.320	92.5 *14*	5.5	av Eβ=557.10 *52* E(decay): measured values: 1530 *15* (1963Kr04); 1520 *15* (1965Fu13).
(1627.3# *12*)	0.0	≤1	≥7.6	av Eβ=601.98 *52*

† Rounded off values given without uncertainties (see comments on the γ(^{155}Eu) table).
‡ Absolute intensity per 100 decays.
# Existence of this branch is questionable.

γ(^{155}Eu)

Iγ normalization: Calculated by the evaluator assuming Iβ(g.s.)=0.5% *5* and requiring intensity balance at each level. 1963Kr04 report Iβ(g.s.)≤ 1%.

2005Ra33 give very small I$_\gamma$ uncertainties that most likely seem to not completely include the uncertainties of the efficiency calibration procedure (mentioned without descriptive details), which implies that the weighted average values are dominated by their values, with small uncertainties. For these reasons the log *ft* values are rounded off and listed without uncertainties (see β^- radiations table).

I(K x ray)/I(104γ)=0.229 *10*. Weighted average of: 0.236 *24* (1969Un01); 0.230 *16* (1969BoZO semi); 0.225 *16* (1969BoZO scin).

The very precise values for Eγ's given by 2005Ra33 (much more precise than those measured very precisely with curved-crystal spectrometer (from 1970Re08, marked in the text)) were not adopted here (exceptions are noted separately). Unless special developments or precautions were taken (not mentioned by 2005Ra33), HPGe detectors are not usually trusted to such precision.

E$_\gamma$[†a]	I$_\gamma$[‡o]	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.[#@]	δ[#&lm]	α[n]	Comments
25.69[cb] *6*	14 *2*	104.320	5/2$^-$	78.61	7/2$^+$	E1		2.06 *4*	α(L)=1.62 *3*; α(M)=0.353 *6* α(N)=0.0772 *12*; α(O)=0.01027 *16*; α(P)=0.000521 *8* %Iγ=0.53 *8*. I$_\gamma$: 1968Wi12 report Iγ=49 *5* for this transition. This was not used in computing the listed Iγ value.
[x]30.5[cb] *5*	15 *1*								%Iγ=0.57 *4*, using the calculated normalization. I$_\gamma$: from 1968Wi12. Since the Iγ value reported by these authors for the near-lying 25.6 γ is much larger that that reported in the other studies, this value may also be too large.
[x]53.1[cb] *4*	0.40[e] *15*								%Iγ=0.015 *6*.
61.55[c] *6*	5.5 *3*	307.32	5/2$^+$	245.734	3/2$^+$	M1(+E2)	0.050 *26*	7.51	α(K)=6.32 *9*; α(L)=0.93 *3*; α(M)=0.203 *8* α(N)=0.0463 *16*; α(O)=0.00731 *22*; α(P)=0.000703 *11* %Iγ=0.210 *12*. δ: adopted value; deduced from 1968Wi12 (this dataset): 0.29 *+6−4*.
[x]63.1[cb] *5*	0.3[e] *1*								%Iγ=0.011 *4*.
64.5[fb] *5*	0.20 *4*	168.99	7/2$^-$	104.320	5/2$^-$	M1+E2	0.11[k] *+5−9*	6.62 *20*	α(K)=5.50 *15*; α(L)=0.88 *9*; α(M)=0.191 *22* α(N)=0.044 *5*; α(O)=0.0068 *7*; α(P)=0.000610 *17* %Iγ=0.0076 *16*. Mult.,δ: adopted values; δ from 2004Ge20 (this dataset): +0.09 *11*.
78.65[c] *7*	8.4 *8*	78.61	7/2$^+$	0.0	5/2$^+$	M1+E2	0.641 *+29−28*	4.34 *8*	α(K)=2.83 *5*; α(L)=1.17 *5*; α(M)=0.269 *12* α(N)=0.060 *3*; α(O)=0.0085 *4*; α(P)=0.000290 *6* %Iγ=0.32 *3*. δ: adopted value; deduced from 1968Wi12 (this dataset): 0.60 *8*.
[x]80.0[cb] *5*	0.85[e] *20*					E1		0.518 *12*	α(K)=0.433 *10*; α(L)=0.0666 *15*; α(M)=0.0144 *4*

$^{155}_{63}$Eu$_{92}$-3

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

E_γ [†a]	I_γ [‡o]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [#@]	δ [#&lm]	α [n]	Comments
									α(N)=0.00322 *8*; α(O)=0.000478 *11*; α(P)=3.50×10^{-5} *8* %Iγ=0.032 *8*.
84.1[f] *5*	0.061 *15*	391.38	7/2$^+$	307.32	5/2$^+$	M1+E2	0.113 *+25−31*	3.06 *7*	α(K)=2.56 *6*; α(L)=0.391 *14*; α(M)=0.085 *4* α(N)=0.0194 *8*; α(O)=0.00304 *11*; α(P)=0.000282 *7* %Iγ=0.0023 *6*.
90.1[fb] *5*	0.25 *6*	168.99	7/2$^-$	78.61	7/2$^+$	E1		0.376 *8*	α(K)=0.315 *7*; α(L)=0.0476 *10*; α(M)=0.01026 *22* α(N)=0.00231 *5*; α(O)=0.000344 *8*; α(P)=2.59×10^{-5} *6* %Iγ=0.0095 *23*.
104.320[g] *5*	1950 *18*	104.320	5/2$^-$	0.0	5/2$^+$	E1		0.253	α(K)=0.213 *3*; α(L)=0.0316 *5*; α(M)=0.00679 *10* α(N)=0.001530 *22*; α(O)=0.000230 *4*; α(P)=1.79×10^{-5} *3* %Iγ=74.4 *5*. Additional information 1. I_γ: average includes Iγ=2000 *90*, as reported by 1970Re08, but excludes Iγ=2200 *40*, reported by 1967Ag05.
138.30[c] *15*	2.5 *5*	307.32	5/2$^+$	168.99	7/2$^-$	E1		0.1180	α(K)=0.0997 *15*; α(L)=0.01435 *21*; α(M)=0.00309 *5* α(N)=0.000697 *10*; α(O)=0.0001062 *16*; α(P)=8.70×10^{-6} *13* %Iγ=0.095 *19*.
141.411[g] *11*	51.8 *5*	245.734	3/2$^+$	104.320	5/2$^-$	E1		0.1111	α(K)=0.0939 *14*; α(L)=0.01349 *19*; α(M)=0.00290 *4* α(N)=0.000656 *10*; α(O)=9.99×10^{-5} *14*; α(P)=8.22×10^{-6} *12* %Iγ=1.98 *3*. I_γ: average includes Iγ=56 *5*, as reported by 1970Re08.
167.16[c] *6*	0.98 *2*	245.734	3/2$^+$	78.61	7/2$^+$	E2[j]		0.395	α(K)=0.264 *4*; α(L)=0.1020 *15*; α(M)=0.0235 *4* α(N)=0.00523 *8*; α(O)=0.000734 *11*; α(P)=2.16×10^{-5} *3* %Iγ=0.0374 *9*.
169.1 *3*	1.04 *10*	168.99	7/2$^-$	0.0	5/2$^+$	E1		0.0686	α(K)=0.0581 *9*; α(L)=0.00824 *13*; α(M)=0.00177 *3* α(N)=0.000401 *6*; α(O)=6.14×10^{-5} *9*; α(P)=5.20×10^{-6} *8* %Iγ=0.040 *4*.
178.3[f] *5*	0.07 *2*	1101.78	3/2$^-$	923.18	1/2$^+$	E1		0.0595 *10*	α(K)=0.0505 *8*; α(L)=0.00712 *12*; α(M)=0.001531 *25* α(N)=0.000347 *6*; α(O)=5.32×10^{-5} *9*; α(P)=4.54×10^{-6} *8* %Iγ=0.0027 *8*.
183.4[fb] *5*	0.05 *1*	1107.00	3/2$^-$,5/2$^-$	923.18	1/2$^+$				%Iγ=0.0019 *4*.

From ENSDF

$^{155}_{63}$Eu$_{92}$-4

γ(^{155}Eu) (continued)

E_γ[†a]	I_γ[‡o]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#@]	δ[#&lm]	α[n]	Comments
195.7 *4*	0.23 *2*	1107.00	3/2⁻,5/2⁻	911.14	3/2⁺	E1		0.0464	α(K)=0.0394 *6*; α(L)=0.00553 *9*; α(M)=0.001188 *18* α(N)=0.000269 *4*; α(O)=4.15×10⁻⁵ *7*; α(P)=3.59×10⁻⁶ *6* %Iγ=0.0088 *8*.
203.1 *2*	1.3 *3*	307.32	5/2⁺	104.320	5/2⁻	E1		0.0421	α(K)=0.0357 *5*; α(L)=0.00500 *8*; α(M)=0.001074 *16* α(N)=0.000244 *4*; α(O)=3.75×10⁻⁵ *6*; α(P)=3.26×10⁻⁶ *5* %Iγ=0.050 *12*. Mult.,δ: big δ=−0.44 *17* value found for ΔJ=0, E1+M2 transition by 2004Ge20.
[x]205.7[d] *1*	0.65 *2*								%Iγ=0.0248 *8*.
220.1[fb] *6*	0.056 *14*	1096.7	(3/2⁺,5/2⁺)	876.90	(1/2)⁺				%Iγ=0.0021 *6*.
224.8[d] *2*	0.055 *11*	1101.78	3/2⁻	876.90	(1/2)⁺	E1		0.0322	α(K)=0.0273 *4*; α(L)=0.00381 *6*; α(M)=0.000818 *12* α(N)=0.000186 *3*; α(O)=2.87×10⁻⁵ *4*; α(P)=2.53×10⁻⁶ *4* %Iγ=0.0021 *5*.
228.7 *6*	1.36 *4*	307.32	5/2⁺	78.61	7/2⁺	M1+E2	1.0 *+4−3*	0.160 *8*	α(K)=0.128 *10*; α(L)=0.0252 *13*; α(M)=0.0056 *4* α(N)=0.00127 *7*; α(O)=0.000190 *8*; α(P)=1.30×10⁻⁵ *14* %Iγ=0.0519 *17*. Mult.,δ: adopted values; 1968Wi12 list mult=E1(or E2).
230.2[d] *2*	0.087 *7*	1107.00	3/2⁻,5/2⁻	876.90	(1/2)⁺				%Iγ=0.0033 *3*.
245.73[g] *5*	100	245.734	3/2⁺	0.0	5/2⁺	M1+E2	+0.281[k] *22*	0.1471	α(K)=0.1239 *18*; α(L)=0.0182 *3*; α(M)=0.00394 *6* α(N)=0.000901 *13*; α(O)=0.0001419 *20*; α(P)=1.350×10⁻⁵ *21* %Iγ=3.82 *4*. δ: adopted value, from 2004Ge20 (this dataset).
[x]280[hb] *1*	0.4 *1*								%Iγ=0.015 *4*.
287.1 *4*	0.037 *7*	391.38	7/2⁺	104.320	5/2⁻	E1		0.01711	α(K)=0.01457 *21*; α(L)=0.00200 *3*; α(M)=0.000430 *7* α(N)=9.77×10⁻⁵ *15*; α(O)=1.519×10⁻⁵ *22*; α(P)=1.377×10⁻⁶ *20* %Iγ=0.0014 *3*.
307.3 *3*	0.32 *5*	307.32	5/2⁺	0.0	5/2⁺				%Iγ=0.0122 *20*.
426.2 *2*	0.38 *4*	817.56	5/2⁻	391.38	7/2⁺	E1		0.00651	α(K)=0.00556 *8*; α(L)=0.000749 *11*; α(M)=0.0001606 *23* α(N)=3.66×10⁻⁵ *6*; α(O)=5.73×10⁻⁶ *8*; α(P)=5.40×10⁻⁷ *8* %Iγ=0.0145 *16*.
460.80 *13*	1.95 *20*	768.23	3/2⁻	307.32	5/2⁺	E1		0.00543	α(K)=0.00464 *7*; α(L)=0.000623 *9*; α(M)=0.0001335 *19* α(N)=3.04×10⁻⁵ *5*; α(O)=4.77×10⁻⁶ *7*; α(P)=4.53×10⁻⁷ *7* %Iγ=0.074 *8*.

$^{155}_{63}$Eu$_{92}$-5

^{155}Sm β^- decay 1969Un01,2005Ra33 (continued)

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

E_γ[†a]	I_γ[‡o]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#@]	δ[#&lm]	α[n]	Comments
510.2 *2*	0.36 *6*	817.56	5/2⁻	307.32	5/2⁺	E1		0.00431	α(K)=0.00368 *6*; α(L)=0.000492 *7*; α(M)=0.0001054 *15* α(N)=2.40×10^{-5} *4*; α(O)=3.78×10^{-6} *6*; α(P)=3.61×10^{-7} *5* %Iγ=0.0137 *23*.
522.54 *15*	4.4 *4*	768.23	3/2⁻	245.734	3/2⁺	E1		0.00409	α(K)=0.00349 *5*; α(L)=0.000466 *7*; α(M)=9.98×10^{-5} *14* α(N)=2.28×10^{-5} *4*; α(O)=3.58×10^{-6} *5*; α(P)=3.43×10^{-7} *5* %Iγ=0.168 *16*.
571.8 *2*	0.53 *3*	817.56	5/2⁻	245.734	3/2⁺	E1		0.00335	α(K)=0.00287 *4*; α(L)=0.000381 *6*; α(M)=8.15×10^{-5} *12* α(N)=1.86×10^{-5} *3*; α(O)=2.93×10^{-6} *5*; α(P)=2.83×10^{-7} *4* %Iγ=0.0202 *12*.
603.8 *2*	0.28 *2*	911.14	3/2⁺	307.32	5/2⁺	M1		0.01452	α(K)=0.01237 *18*; α(L)=0.001690 *24*; α(M)=0.000363 *5* α(N)=8.33×10^{-5} *12*; α(O)=1.325×10^{-5} *19*; α(P)=1.339×10^{-6} *19* %Iγ=0.0107 *8*.
631.2 *2*	0.48 *2*	876.90	(1/2)⁺	245.734	3/2⁺				%Iγ=0.0183 *8*.
648.6 *2*	0.25 *5*	817.56	5/2⁻	168.99	7/2⁻	M1		0.01216	α(K)=0.01036 *15*; α(L)=0.001411 *20*; α(M)=0.000304 *5* α(N)=6.95×10^{-5} *10*; α(O)=1.107×10^{-5} *16*; α(P)=1.119×10^{-6} *16* %Iγ=0.0095 *20*.
664.00 *16*	1.8 *2*	768.23	3/2⁻	104.320	5/2⁻	M1+E2	−0.231[k] *21*	0.01122 *17*	α(K)=0.00956 *14*; α(L)=0.001307 *19*; α(M)=0.000281 *4* α(N)=6.44×10^{-5} *10*; α(O)=1.024×10^{-5} *15*; α(P)=1.030×10^{-6} *16* %Iγ=0.069 *8*. δ: adopted value, from 2004Ge20 (this dataset).
665[b] *1*	0.15 *4*	911.14	3/2⁺	245.734	3/2⁺	M1		0.01143	α(K)=0.00974 *15*; α(L)=0.001326 *20*; α(M)=0.000285 *5* α(N)=6.53×10^{-5} *10*; α(O)=1.040×10^{-5} *15*; α(P)=1.052×10^{-6} *16* %Iγ=0.0057 *16*.
677.2 *3*	0.21 *3*	923.18	1/2⁺	245.734	3/2⁺				%Iγ=0.0080 *12*.
713.4 *8*	0.15 *3*	817.56	5/2⁻	104.320	5/2⁻	M1		0.00961	α(K)=0.00819 *12*; α(L)=0.001113 *16*; α(M)=0.000239 *4* α(N)=5.48×10^{-5} *8*; α(O)=8.73×10^{-6} *13*; α(P)=8.84×10^{-7} *13* %Iγ=0.0057 *12*.
[x]758.0[cb] *15*	0.09[e] *5*								%Iγ=0.0034 *19*.
768.4 *4*	0.22 *7*	768.23	3/2⁻	0.0	5/2⁺				%Iγ=0.008 *3*.
818.1[ib]	0.025 *5*	817.56	5/2⁻	0.0	5/2⁺				%Iγ=0.00095 *20*.
830[fb] *20*	0.025 *5*	911.14	3/2⁺	78.61	7/2⁺				%Iγ=0.00095 *20*.
[x]861.1[ib]	0.13 *3*								%Iγ=0.0050 *12*. Shown deexciting the 1106.8 level by 1969Un01. 1986Pr03 report an 861.26 γ, albeit with a much smaller Iγ value (relative to those of the other deexciting γ′s) than that

γ(^{155}Eu) (continued)

E_γ [†a]	I_γ [‡o]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [#@]	δ [#&lm]	α [n]	Comments
									given here, but show it as unplaced. Later 2005Ra33 did not observe this transition. The evaluator has chosen not to associate this transition with the decay of the 1106.8 level.
880[fb] *10*	0.075 *15*	876.90	(1/2)$^+$	0.0	5/2$^+$				%Iγ=0.0029 *6*.
911[ib]	0.025 *5*	911.14	3/2$^+$	0.0	5/2$^+$				%Iγ=0.00095 *20*.
923[i]	0.026 *2*	923.18	1/2$^+$	0.0	5/2$^+$				%Iγ=0.00099 *8*.
932.9 *4*	0.27 *2*	1101.78	3/2$^-$	168.99	7/2$^-$	(E2)		0.00303	α(K)=0.00256 *4*; α(L)=0.000371 *6*; α(M)=8.02×10^{-5} *12* α(N)=1.83×10^{-5} *3*; α(O)=2.86×10^{-6} *4*; α(P)=2.63×10^{-7} *4* %Iγ=0.0103 *8*.
997.9 *4*	0.37 *4*	1101.78	3/2$^-$	104.320	5/2$^-$	(E2)		0.00263	α(K)=0.00222 *4*; α(L)=0.000318 *5*; α(M)=6.86×10^{-5} *10* α(N)=1.566×10^{-5} *22*; α(O)=2.46×10^{-6} *4*; α(P)=2.29×10^{-7} *4* %Iγ=0.0141 *16*.
1002.7 *3*	0.43 *2*	1107.00	3/2$^-$,5/2$^-$	104.320	5/2$^-$	M1+E2	−0.35[k] *6*	0.00404 *8*	α(K)=0.00345 *7*; α(L)=0.000465 *9*; α(M)=9.99×10^{-5} *19* α(N)=2.29×10^{-5} *5*; α(O)=3.64×10^{-6} *7*; α(P)=3.69×10^{-7} *8* %Iγ=0.0164 *8*.
1018[ib]	0.025 *5*	1263.60	3/2$^-$,5/2$^-$	245.734	3/2$^+$				%Iγ=0.00095 *20*.
1055[i]	0.033 *10*	1301.41	5/2,7/2$^+$	245.734	3/2$^+$				%Iγ=0.0013 *4*.
1096[ib]	0.025 *5*	1096.7	(3/2$^+$,5/2$^+$)	0.0	5/2$^+$				%Iγ=0.00095 *20*.
1132[i]	0.05 *1*	1301.41	5/2,7/2$^+$	168.99	7/2$^-$				%Iγ=0.0019 *4*.
1159.7 *3*	0.37 *3*	1263.60	3/2$^-$,5/2$^-$	104.320	5/2$^-$	M1		0.00299	α(K)=0.00255 *4*; α(L)=0.000341 *5*; α(M)=7.32×10^{-5} *11* α(N)=1.678×10^{-5} *24*; α(O)=2.68×10^{-6} *4*; α(P)=2.73×10^{-7} *4*; α(IPF)=2.42×10^{-6} *4* %Iγ=0.0141 *12*. I_γ: 1969Un01 report Iγ=0.091 *23* for this transition. This was not used in computing the listed Iγ value.
[x]1172.1 *3*	0.05 *1*								%Iγ=0.0019 *4*. E_γ: from 2005Ra33.
1197.7 *4*	0.15 *2*	1301.41	5/2,7/2$^+$	104.320	5/2$^-$				%Iγ=0.0057 *8*. I_γ: 1969Un01 report Iγ=0.08 *2* for this transition. This was not used in computing the listed Iγ value.
[x]1206.8 *2*	0.06 *2*								%Iγ=0.0023 *8*. E_γ: from 2005Ra33.
1223.0 *3*	0.64 *4*	1301.41	5/2,7/2$^+$	78.61	7/2$^+$				%Iγ=0.0244 *16*.
1262.4 *5*	0.06 *2*	1263.60	3/2$^-$,5/2$^-$	0.0	5/2$^+$				%Iγ=0.0023 *8*. I_γ: 1966Fu11 report Iγ=0.14 *5*. This value was not used in computing the listed Iγ value.
1301.2 *2*	2.3 *2*	1301.41	5/2,7/2$^+$	0.0	5/2$^+$				%Iγ=0.088 *8*.

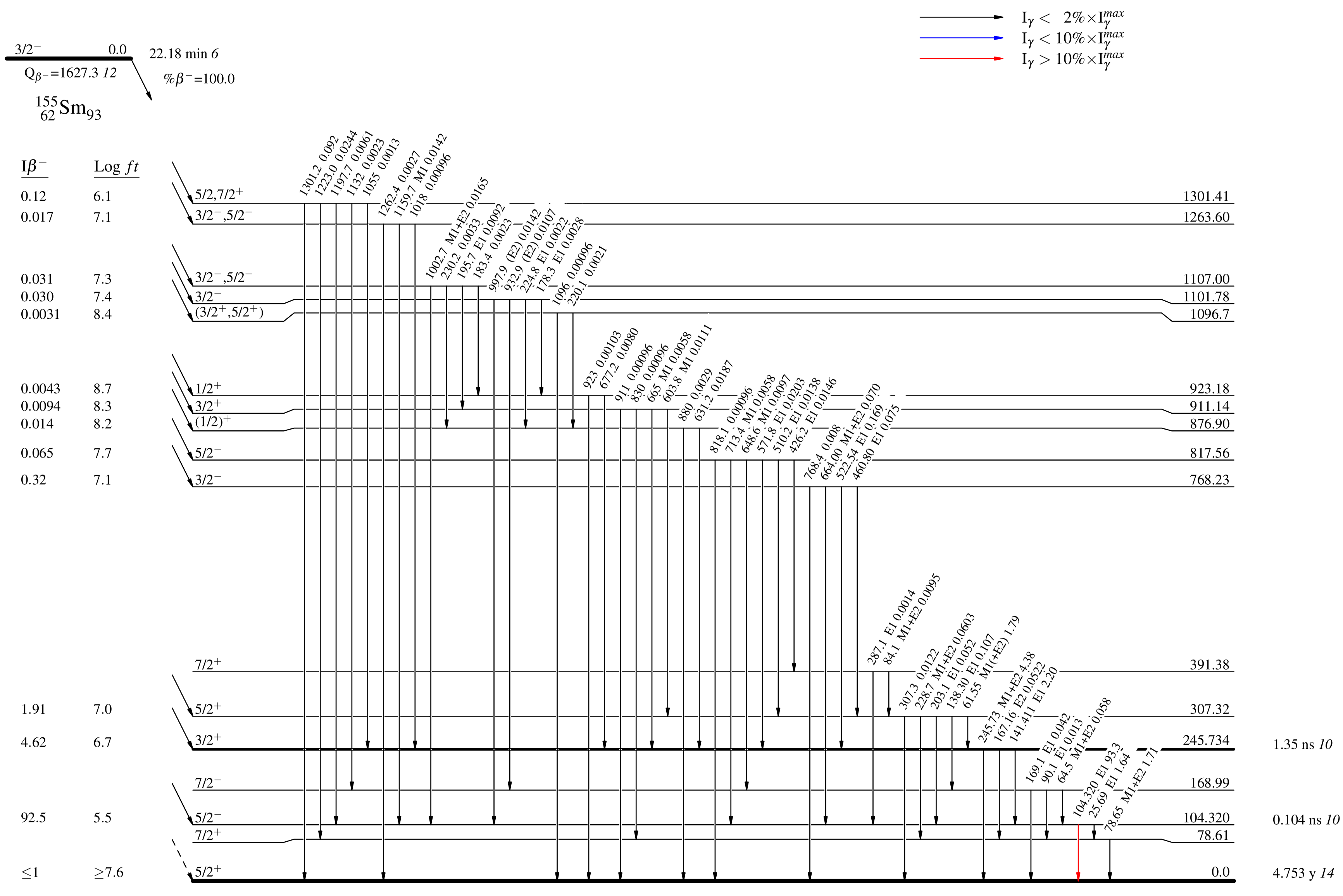
γ(^{155}Eu) (continued)

[†] Unless otherwise noted, the listed values are those of 1969Un01.
[‡] Unless otherwise noted, the listed values represent averages of the measurements of 1966Fu11, 1967Ag05, 1968Wi12, 1969BoZO, 1969Un01, and 2005Ra33 normalized to Iγ(245γ)=100. For the stronger transitions (Iγ>5), these are weighted averages. For the weaker ones, the averages are unweighted, with the listed uncertainties being typical of those reported by the various authors. The published uncertainties in 1967Ag05 seem quite small compared with those given in the other, and later, works included here, as well as comparable contemporary studies. Consequently, the evaluator has increased them in a number of instances to make them more nearly equal to those of the other Iγ values being averaged. The Iγ values of 1969Un01 have uncertainties ranging from 10% for strong transitions to 25% for weak transitions.
[#] Shown in the table are the adopted values (from Adopted Levels, Gammas dataset). Values deduced in this dataset are shown in commets.
[@] Values deduced in this dataset are deduced from comparison of α(K)exp, α(L)exp, and ce ratios measured by 1968Wi12 with theoretical values. The normalization of the γ-ray and ce intensities was done (by 1968Wi12) by requiring that α(L1)exp(104.3γ)=0.024 for this E1 transition. Although this value differs from α(L1)=0.022 as given by 1968Ha53 (whose values are employed in this evaluation), the conclusions drawn here are not materially affected by this difference in α(L1) values.
[&] Values deduced in this dataset are calculated by the evaluator from the L-subshell ratio data of 1968Wi12 unless noted otherwise.
[a] Additional γ energies deduced by 1968Wi12 from ce measurements include: 10.0, 62.2, 105.9, 107, 114.5, 121.1, 142.5.
[b] Not observed by 2005Ra33.
[c] From 1968Wi12.
[d] From 2005Ra33.
[e] From 1968Wi12.
[f] Observed only in $\gamma\gamma$-coincidence data of 1969Un01.
[g] From curved-crystal spectrometer measurement (1970Re08).
[h] From 1966Fu11.
[i] Private communication from 1966Fu11 to 1969Un01.
[j] From the measured α(K)exp=0.37 *15* (from 1968Wi12, as scaled down by the evaluator because of the difference in α(L1) values used to normalize the γ and electron intensities), mult=M1,E2. The placement in the decay scheme requires mult=E2.
[k] From angular correlation measurement using HPGe detectors placed at 90°, 120°, 150°, and 150° by 2004Ge20 (since they list unsigned and minus sign for the δ values the evaluator adopted tacitly the plus sign for the unsigned ones).
[l] Additional information 2.
[m] Additional information 3.
[n] Additional information 4.
[o] For absolute intensity per 100 decays, multiply by 0.0382 *4*.
[x] γ ray not placed in level scheme.

^{155}Sm β^- decay 1969Un01,2005Ra33

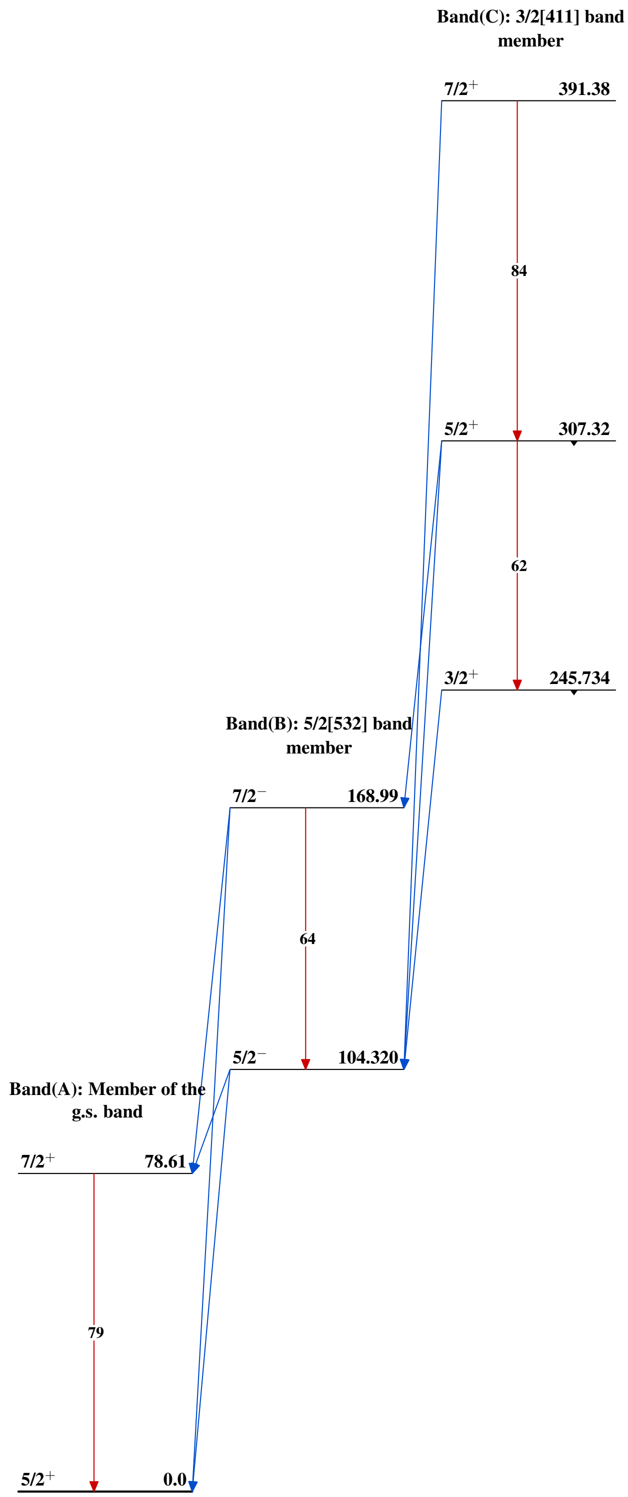
Decay Scheme

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



$^{155}_{63}$Eu$_{92}$

^{155}Sm β^- decay 1969Un01,2005Ra33



$^{155}_{63}Eu_{92}$