^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	N. Nica	NDS 200,2 (2025)	22-Aug-2022

Additional information 1.

These data are from 1987Ba52, unless otherwise noted; this article includes some or all of the data presented by the authors of 1978PrZY, 1977St14, and 1978PrZK, so the evaluator assumes that the data of 1987Ba52 replace the corresponding data of these earlier articles. The internal-conversion data are given in more detail in 1978PrZY; and the primary γ data are given explicitly only in 1978PrZY. 1987Ba52 give results for thermal-neutron capture, resonance-averaged capture with 2-keV neutrons, and resonance capture at 2.4 and 3.3 eV; the latter data are given in other data sets in this evaluation. Level half-lives are given by 1984Ro06. Other (n,γ) results are given by 1960Sc05, 1963Or02, 1964Be41, 1966Ne06, 1967Bo30, 1968Gr32, 1969MuZM, 1975StZI (see 1977St14), and 1977PrZT (see 1978PrZY).

Experimental methods:

1960Sc05: Probably thermal-n capture in normal Eu. Measured Eγ and Iγ with curved-crystal spectrometer; report 10 γ's, mostly in ^{152}Eu.

1963Or02: Thermal-n capture in enriched (95%) sample. Measured Eγ and Iγ with curved-crystal spectrometer; report 9 γ's.

1964Be41: Thermal-n capture in enriched sample. Measured γ's with NaI(Tl) detectors; report 2 level lifetimes from $\gamma\gamma$ and xγ coin.

1966Ne06: Measured Iγ curved-crystal spectrometer; report 4 γ's.

1967Bo30: Capture in enriched (98.9% and 1.8%) samples. Measured ce in magnetic spectrograph with FWHM=0.4% with ≈ 50% uncertainty on intensities; report ≈ 50 γ's.

1975StZI: Abstract only. See 1977St14.

1977St14: Capture in enriched (99.1%) sample. Measured ce with magnetic spectrometer and γ's at low energies with Si(Li) and Ge detectors and at high energies with a pair spectrometer based on a Ge detector. Measured $\gamma\gamma$ coincidences and lifetimes by $\gamma\gamma$(t).

1978PrZY: Same measurement methods as 1987Ba52. Also, abstracts and summary by same authors: 1977PrZT, 1978PrZJ, and 1978PrZK.

1984Ro06: Capture in enriched (99.1%) target. Measured lifetimes by delayed $\gamma\gamma$(t) with Ge detector and plastic scintillator.

1987Ba52: Capture at ILL reactor. Measured ce with magnetic spectrometer (FWHM=0.03% at 200 keV) and γ's with curved-crystal spectrometers (FWHM ≤ 0.1 keV at 100 keV) below 1500 keV and with pair spectrometer above this energy.

^{154}Eu Levels

For a listing of the configuration assignments for the various bands, see the Adopted Levels data set. These assignments are those proposed by 1987Ba52.

E(level)[†]	J$^\pi$[‡]	T$_{1/2}$[#]	Comments
0.0[@]	3$^-$		
68.1702[&] *4*	2$^+$	2.4 μs *4*	T$_{1/2}$: From 1977St14; other: 4 μs *1* (1964Be41).
71.9118[&] *6*	1$^+$		
80.6560[@] *7*	4$^-$		
82.8200[a] *6*	1$^-$	20 ns *5*	T$_{1/2}$: From 1977St14.
99.9484[&] *4*	3$^+$	≤2 ns	T$_{1/2}$: Other: 91 ns *10* (1977St14). 1984Ro06 also report a component of 80 ns *15* related to the 31.78 γ peak, but say it does not belong to this level.
100.8612[b] *4*	4$^+$	55 ns *3*	T$_{1/2}$: Weighted average of 55 ns *4* (1977St14) and 54 ns *5* (1984Ro06); other: 70 ns *10* (1964Be41).
122.5582[a] *5*	2$^-$		
127.4301[&] *4*	4$^+$	≤10 ns	T$_{1/2}$: From 1977St14.
129.6795[c] *4*	4$^-$	≤2 ns	T$_{1/2}$: Other: ≤ 10 ns (1977St14).
134.7814[d] *5*	1$^+$		
136.6967[b] *5*	5$^+$		

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^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06 (continued)

^{154}Eu Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$[#]	Comments
145.3[f]	8⁻		
162.4299[e] 6	1⁻	≤0.1 ns	
173.6022[a] 5	3⁻		
175.4817[c] 5	5⁻		
180.7439[@] 11	5⁻		
180.8092[e] 5	2⁻		
185.0509[d] 6	2⁺		
192.2939[&] 5	4⁺,5⁺		
196.1211[b] 8	4⁺,5⁺,6⁺		
203.8168[g] 5	3,4⁺	0.80 ns 10	
214.0746[e] 4	3⁻	≤0.1 ns	
229.7951[c] 9	4⁺,5,6		
230.8810[a] 5	4⁻		
235.2787[h] 5	4⁻	≤0.1 ns	
239.2889[i] 6	3⁻	0.96 ns 15	
249.4186[j] 6	1⁺,2⁺	≤0.2 ns	
251.8253[d] 6	3⁺		
255.2096[g] 7	4⁺,5⁺		
258.1901[&] 10	4⁺,5⁺,6⁺		
272.8512[a] 5	5⁻	≤0.1 ns	
278.5480[j] 6	2⁺		
279.0377[k] 11	0⁻		
279.3791[e] 6	4⁻		
281.6791[l] 6	3⁺	0.25 ns 10	
282.8087[m] 6	1⁺,2⁺	≤0.6 ns	
286.9494[n] 13	0⁺,1⁺		
292.8200[g] 9	4⁺,5⁺,6⁺		
295.9225[l] 6	3⁺,4⁺		
299.8081[@] 15	5⁻,6⁻		
309.9953[m] 7	3⁺	≤0.1 ns	
312.2856[h] 3	5⁻		
315.3133[k] 8	1⁻		
319.2100[o] 7	3⁺,4⁺	≤0.1 ns	
326.8726 10	3⁺,4⁺		
328.0177[i] 7	4⁻		
332.324[l] 3	3⁺,4⁺,5⁺		
334.8346[n] 10	1⁺,2⁺		
335.7621[j] 8	3⁺		
338.0996[d] 14	4⁺		
342.1315[k] 7	2⁻		
349.8207[n] 8	2⁺		
356.1031[a] 11	5⁻,6⁻		
362.5962[q] 20	1⁻		
363.9665 16	4⁻,5⁻	≤0.1 ns	Possible $K^{\pi}=5^{-}$ bandhead, conf=(π 5/2[413])+(ν 5/2[523]).
364.0549[m] 18	3⁺,4⁺,5⁺		
371.8996[p] 9	2⁺		
378.7268[e] 12	5⁻		

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^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06 (continued)

^{154}Eu Levels (continued)

E(level)[†]	Jπ[‡]	Comments
390.4267[q] 15	2⁻	
390.4489[o] 14	4⁺	
401.091[n] 3	2⁺,3⁺	
402.7890[r] 26	0⁺,1⁺,2⁺	
403.5175[j] 9	3⁺,4⁺	
407.0338[k] 21	3⁻	
410.0748[s] 26	1⁻	
411.8891 23	4⁺	
414.698[s] 5	0⁻	
415.6551 10	4⁺,5⁺	Possible bandhead of a $K^\pi=5^+$ band, conf=(π 5/2[413])+(ν 5/2[642]).
419.6903[t] 11	2⁻	
425.472[p] 7	1⁺,2⁺	
425.7890 16	4⁻	Possible $K^\pi=4^-$ bandhead, conf=(π 5/2[532])+(ν 3/2[651]).
428.1890[i] 20	4⁻,5⁻	
428.7117 17	4⁺,5⁺	Possible $K^\pi=4^+$ bandhead, conf=(π 5/2[532])+(ν 3/2[532]).
429.9187[q] 10	3⁻	
435.940 3	1⁻	
451.0074[r] 24	2⁺,3⁺	
451.356[s] 3	2⁻	
467.5320 23	4⁻	Possible $K^\pi=4^-$ bandhead, conf=(π 5/2[532])+(ν 3/2[402]).
471.1510[s] 24	(3,4)⁻	
471.8890 10	4⁻,(3⁻)	Possible bandhead of a $K^\pi=4^-$ band, conf=(π 3/2[411])-(ν 11/2[505]).
479.142[t] 3	3⁻	
485.1826[q] 20	3⁻,4⁻	
486.3840 16	3⁺,4⁺	Jπ: Probable $K^\pi=3^+$ bandhead, conf=(π 5/2[413])+(ν 1/2[400]).
505.1400 20	3⁻	
513.271[k] 4	4⁻,(2⁻,3⁻)	
515.9284 17	3⁻	Probable $K^\pi=3^-$ bandhead, conf=(π 5/2[413])+(ν 1/2[530]).
521.0540[r] 27	3⁺	
532.7393 16	4⁻,(3)⁻	
545.949 3	2⁻	
549.587[u] 3	1⁻	
551.3139 24	4⁻	
553.734[q] 4	5⁻,(4⁻)	
555.3030 20	4⁻	
572.469 4	4⁻	
584.3902 25	3⁻	
593.142 6	3⁻	
593.7260 23	4⁻	
599.633[u] 6	2⁻	
619.6 3		
635.8 6		
663.5 3		
741.3 3		
784.1 6		
796.70 23		
828.6 5		
849.3 7		
857.3 8		
905.6 3		
945.2 3		
960.5 4		
970.36 20		

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^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06 (continued)

^{154}Eu Levels (continued)

E(level)[†]	Jπ[‡]	Comments
1045.5 *4*		
1068.55 *23*		
1120.0 *3*		
1173.1 *3*		
1211.13 *21*		
1217.7 *3*		
1263.6 *6*		
1289.5 *9*		
1308.1 *11*		
1316.8 *11*		
1330.76 *23*		
1344.4 *4*		
1407.5 *7*		
1423.4 *8*		
1434.7 *8*		
6442.22 *24*	$2^+,3^+$	E(level): n-capture state. Jπ: From s-wave n capture by the ^{153}Eu gs ($J^\pi=5/2^+$).

[†] From 1987Ba52 for levels below 600 keV. For levels above 600 keV, energies are computed from thermal-neutron capture state energy of 6442.2 keV and the primary γ energy from 1978PrZY.

[‡] From 1987Ba52 and based on γ multipolarities, γ intensities in resonance-average n capture, and band structure. The conclusions from resonance-averaged capture are not given explicitly by the authors but were taken into consideration in arriving at their J^π assignments. The $J^{\pi\prime}$s in the Adopted Levels differ in some ways because they are based on the specific arguments given there. The (n,γ) level-scheme table (table 3) and the summary of levels from all the data (table 4) of 1987Ba52 give slightly different J^π assignments; those quoted here are generally from this latter table in 1987Ba52.

[#] From 1984Ro06, unless otherwise noted. These are from (n,γ) only. See Adopted Levels for results from all measurements.

[@] Band(A): $K^\pi=3^-$ band.

[&] Band(B): $K^\pi=1^+$ band.

[a] Band(C): $K^\pi=1^-$ band.

[b] Band(D): $K^\pi=4^+$ band.

[c] Band(E): $K^\pi=4^-$ band.

[d] Band(F): $K^\pi=1^+$ band.

[e] Band(G): $K^\pi=1^-$ band.

[f] Band(H): $K^\pi=8^-$ bandhead.

[g] Band(I): $K^\pi=4^+$ band.

[h] Band(J): $K^\pi=4^-$ band.

[i] Band(K): $K^\pi=3^-$ band.

[j] Band(L): $K^\pi=1^+$ band.

[k] Band(M): $K^\pi=0^-$ band.

[l] Band(N): $K^\pi=3^+$ band.

[m] Band(O): $K^\pi=2^+$ band.

[n] Band(P): $K^\pi=0^+$ band.

[o] Band(Q): $K^\pi=3^+$ band.

[p] Band(R): $K^\pi=0^+$ band.

[q] Band(S): $K^\pi=1^-$ band.

[r] Band(T): $K^\pi=1^+$ band.

[s] Band(U): $K^\pi=0^-$ band.

[t] Band(V): $K^\pi=2^-$ band.

[u] Band(W): Proposed $K^\pi=1^-$ band.

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06 (continued)

$\gamma(^{154}Eu)$

Iγ normalization: From 1987Ba52. Others: 1977St14, 1963Or02, and 1966Ne06.

E_γ †	I_γ ‡ c	E_i(level)	J_i^π	E_f	J_f^π	Mult.#	δ#	α b	$I_{(\gamma+ce)}$ c	Comments
0.91		100.8612	4^+	99.9484	3^+				800	$I_{(\gamma+ce)}$: Quoted by 1987Ba52 on the basis of IT decay study (1976Ch08).
(3.74)		71.9118	1^+	68.1702	2^+	[M1+E2]		1.5×10^6 *15*		α(M)=1.2×10^6 *12* α(N)=2.7×10^5 *27*; α(O)=3.5×10^4 *35*; α(P)=16 *14*
(8.6)		145.3	8^-	136.6967	5^+				5	$I_{(\gamma+ce)}$: Deduced by 1987Ba52.
10.905@ *14*	26@ *5*	82.8200	1^-	71.9118	1^+	(E1)		21.73 *31*		α(L)=16.98 *24*; α(M)=3.85 *6* α(N)=0.807 *12*; α(O)=0.0891 *13*; α(P)=0.00315 *4*
14.634@ *17*	77@ *15*	82.8200	1^-	68.1702	2^+	(E1)		9.77 *14*		α(L)=7.66 *11*; α(M)=1.703 *24* α(N)=0.363 *5*; α(O)=0.0434 *6*; α(P)=0.001742 *25*
18.070@ *16*	3.5@ *7*	328.0177	4^-	309.9953	3^+					Mult.: ce data are consistent with E1 or M1.
27.4815 *3*	73 *14*	127.4301	4^+	99.9484	3^+	M1+E2	0.032 *5*	13.18 *28*		α(L)=10.34 *22*; α(M)=2.24 *5* α(N)=0.512 *11*; α(O)=0.0803 *16*; α(P)=0.00754 *11*
27.754 *13*	10 *5*	362.5962	1^-	334.8346	$1^+,2^+$					Mult.: ce data are consistent with E1 or M1.
x28.6401 *5*	19. *3*									
28.8182 *2*	416 *41*	129.6795	4^-	100.8612	4^+	E1		1.496 *21*		α(L)=1.176 *16*; α(M)=0.256 *4* α(N)=0.0561 *8*; α(O)=0.00759 *11*; α(P)=0.000403 *6*
29.148@ *14*	20@ *4*	278.5480	2^+	249.4186	$1^+,2^+$					Mult.: Reported as (E1), but J^π's require M1,E2.
31.7783 *4*	280 *45*	99.9484	3^+	68.1702	2^+	M1+E2	0.030 *3*	8.43 *13*		α(L)=6.61 *10*; α(M)=1.433 *22* α(N)=0.327 *5*; α(O)=0.0515 *8*; α(P)=0.00491 *7*
32.700 *4*	2.10 *20*	100.8612	4^+	68.1702	2^+	E2		265 *4*		α(L)=205.4 *29*; α(M)=48.0 *7* α(N)=10.59 *15*; α(O)=1.399 *20*; α(P)=0.000817 *11*
33.2651 *3*	19.0 *15*	214.0746	3^-	180.8092	2^-	M1		7.13 *10*		I_γ: Deduced by 1987Ba52 from ce data; measured value is < 3.9. α(L)=5.59 *8*; α(M)=1.209 *17* α(N)=0.277 *4*; α(O)=0.0438 *6*; α(P)=0.00429 *6*
33.3896 *5*	8.4 *11*	282.8087	$1^+,2^+$	249.4186	$1^+,2^+$	M1		7.05 *10*		α(L)=5.53 *8*; α(M)=1.196 *17* α(N)=0.274 *4*; α(O)=0.0433 *6*; α(P)=0.00424 *6*

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06 (continued)

$\gamma(^{154}Eu)$ (continued)

E_γ[†]	I_γ[‡c]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ[#]	α[b]	Comments
									α(P)=0.00424 *6*
35.8352 *4*	54 *3*	136.6967	5^+	100.8612	4^+	M1+E2	0.09 *2*	7.0 *6*	α(L)=5.5 *5*; α(M)=1.21 *12* α(N)=0.274 *26*; α(O)=0.0420 *34*; α(P)=0.00342 *5*
36.4011[d] *5*	12.0[d] *12*	319.2100	3^+,4^+	282.8087	1^+,2^+				Mult.: Assigned M1+E2 for doubly placed γ.
36.4011[d] *5*	12.0[d] *12*	332.324	3^+,4^+,5^+	295.9225	3^+,4^+				Mult.: Assigned M1+E2 for doubly placed γ.
37.5722 *8*	11.0 *12*	272.8512	5^-	235.2787	4^-	M1+E2		$7.\times10^1$ *6*	α(L)=5; α(M)=13 *12* α(N)=2.8 *26*; α(O)=0.37 *34*; α(P)=0.0018 *12* Mult.: Shown as M1+M2 in the γ-ray line list of 1987Ba52, but this is most likely a misprint, since it is shown as M1+E2 in their level−scheme table.
38.7850 *2*	61 *4*	175.4817	5^-	136.6967	5^+	E1		0.651 *9*	α(L)=0.512 *7*; α(M)=0.1110 *16* α(N)=0.02453 *34*; α(O)=0.00344 *5*; α(P)=0.0002034 *28*
39.7374 *7*	337 *19*	122.5582	2^-	82.8200	1^-	M1		4.21 *6*	α(L)=3.31 *5*; α(M)=0.715 *10* α(N)=0.1636 *23*; α(O)=0.0259 *4*; α(P)=0.00254 *4* δ: < 0.33.
39.8704 *10*	7.4 *16*	162.4299	1^-	122.5582	2^-	M1		4.17 *6*	α(L)=3.28 *5*; α(M)=0.708 *10* α(N)=0.1620 *23*; α(O)=0.0256 *4*; α(P)=0.002515 *35*
41.9705 *6*	18.0 *17*	272.8512	5^-	230.8810	4^-	M1		3.59 *5*	α(L)=2.81 *4*; α(M)=0.608 *9* α(N)=0.1392 *19*; α(O)=0.02204 *31*; α(P)=0.002162 *30*
42.3865 *20*	19.0 *13*	281.6791	3^+	239.2889	3^-	E1		0.507 *7*	α(L)=0.399 *6*; α(M)=0.0864 *12* α(N)=0.01913 *27*; α(O)=0.00271 *4*; α(P)=0.0001650 *23*
42.9794 *26*	9.8 *12*	235.2787	4^-	192.2939	4^+,5^+				
45.8021 *4*	152 *12*	175.4817	5^-	129.6795	4^-	M1+E2	0.08 *1*	3.08 *9*	α(L)=2.41 *7*; α(M)=0.526 *16* α(N)=0.120 *4*; α(O)=0.0186 *5*; α(P)=0.001665 *23*
46.0278 *10*	17.0 *16*	180.8092	2^-	134.7814	1^+				
46.1720 *6*	31 *3*	173.6022	3^-	127.4301	4^+	E1		0.399 *6*	α(L)=0.314 *4*; α(M)=0.0678 *9* α(N)=0.01506 *21*; α(O)=0.002147 *30*; α(P)=0.0001347 *19*
50.2690 *13*	16.0 *26*	185.0509	2^+	134.7814	1^+	M1		13.34 *19*	α(K)=11.23 *16*; α(L)=1.655 *23*; α(M)=0.358 *5* α(N)=0.0819 *11*; α(O)=0.01296 *18*; α(P)=0.001273 *18*
50.6419 *15*	22 *4*	122.5582	2^-	71.9118	1^+	(E1)		1.706 *24*	α(K)=1.399 *20*; α(L)=0.2417 *34*; α(M)=0.0523 *7* α(N)=0.01162 *16*; α(O)=0.001671 *23*; α(P)=0.0001079 *15*
51.0429 *5*	48 *6*	173.6022	3^-	122.5582	2^-	M1		12.81 *18*	α(K)=10.79 *15*; α(L)=1.582 *22*; α(M)=0.342 *5* α(N)=0.0783 *11*; α(O)=0.01239 *17*; α(P)=0.001217 *17* δ: < 0.33.
54.3129 *10*	5.7 *6*	229.7951	4^+,5,6	175.4817	5^-				
54.3872 *15*	26.0 *25*	122.5582	2^-	68.1702	2^+	E1		1.429 *20*	α(K)=1.178 *16*; α(L)=0.1977 *28*; α(M)=0.0427 *6* α(N)=0.00952 *13*; α(O)=0.001376 *19*; α(P)=9.08×10^{-5} *13*

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^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06 (continued)

γ(^{154}Eu) (continued)

E_γ[†]	I_γ[‡c]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[b]	Comments
57.2141 *17*	7.2 *10*	335.7621	3^+	278.5480	2^+	M1	9.25 *13*	α(K)=7.81 *11*; α(L)=1.132 *16*; α(M)=0.2446 *34* α(N)=0.0560 *8*; α(O)=0.00887 *12*; α(P)=0.000871 *12*
57.2792 *5*	13.0 *13*	230.8810	4^-	173.6022	3^-	M1	9.22 *13*	α(K)=7.79 *11*; α(L)=1.128 *16*; α(M)=0.2438 *34* α(N)=0.0558 *8*; α(O)=0.00884 *12*; α(P)=0.000868 *12*
59.260 *3*	3.6 *7*	127.4301	4^+	68.1702	2^+	E2	17.96 *25*	α(K)=3.43 *5*; α(L)=11.24 *16*; α(M)=2.64 *4* α(N)=0.584 *8*; α(O)=0.0779 *11*; α(P)=0.000284 *4*
59.4244 *6*	8.3 *3*	196.1211	$4^+,5^+,6^+$	136.6967	5^+	M1	8.29 *12*	α(K)=7.00 *10*; α(L)=1.013 *14*; α(M)=0.2189 *31* α(N)=0.0501 *7*; α(O)=0.00794 *11*; α(P)=0.000780 *11*
60.261 *3*	9.7 *12*	410.0748	1^-	349.8207	2^+			
60.6437 *13*	3.8 *5*	295.9225	$3^+,4^+$	235.2787	4^-			
61.6764 *4*	21.0 *12*	235.2787	4^-	173.6022	3^-	M1	7.45 *10*	α(K)=6.29 *9*; α(L)=0.908 *13*; α(M)=0.1963 *27* α(N)=0.0449 *6*; α(O)=0.00712 *10*; α(P)=0.000700 *10*
62.8705 *23*	25 *3*	134.7814	1^+	71.9118	1^+	M1	7.05 *10*	α(K)=5.95 *8*; α(L)=0.859 *12*; α(M)=0.1856 *26* α(N)=0.0425 *6*; α(O)=0.00673 *9*; α(P)=0.000662 *9*
64.8638 *3*	35.0 *25*	192.2939	$4^+,5^+$	127.4301	4^+	M1	6.44 *9*	α(K)=5.44 *8*; α(L)=0.784 *11*; α(M)=0.1694 *24* α(N)=0.0388 *5*; α(O)=0.00614 *9*; α(P)=0.000604 *8*
65.3045 *4*	16.0 *8*	279.3791	4^-	214.0746	3^-	M1	6.31 *9*	α(K)=5.33 *7*; α(L)=0.769 *11*; α(M)=0.1661 *23* α(N)=0.0380 *5*; α(O)=0.00602 *8*; α(P)=0.000592 *8*
65.8962 *9*	7.7 *5*	258.1901	$4^+,5^+,6^+$	192.2939	$4^+,5^+$	M1	6.15 *9*	α(K)=5.19 *7*; α(L)=0.749 *10*; α(M)=0.1618 *23* α(N)=0.0370 *5*; α(O)=0.00587 *8*; α(P)=0.000577 *8*
66.6114 *4*	33.0 *20*	134.7814	1^+	68.1702	2^+	M1	5.96 *8*	α(K)=5.03 *7*; α(L)=0.725 *10*; α(M)=0.1568 *22* α(N)=0.0359 *5*; α(O)=0.00569 *8*; α(P)=0.000559 *8* δ: < 0.4.
66.7749 *5*	21.0 *10*	251.8253	3^+	185.0509	2^+	M1	5.92 *8*	α(K)=5.00 *7*; α(L)=0.720 *10*; α(M)=0.1557 *22* α(N)=0.0356 *5*; α(O)=0.00565 *8*; α(P)=0.000555 *8*
67.0127 *6*	6.2 *5*	349.8207	2^+	282.8087	$1^+,2^+$	M1	5.86 *8*	α(K)=4.95 *7*; α(L)=0.713 *10*; α(M)=0.1541 *22* α(N)=0.0353 *5*; α(O)=0.00559 *8*; α(P)=0.000549 *8*
67.6065 *14*	2.9 *6*	281.6791	3^+	214.0746	3^-			
[x]67.7452 *11*	5.1 *8*							Mult.: ce data are consistent with E1 or M1, but this may include the 67.7564 γ.
67.7564 *9*	7.9 *8*	403.5175	$3^+,4^+$	335.7621	3^+			Mult.: ce data are consistent with E1 or M1, but this may include the unplaced 67.7452 γ.
68.1711 *5*	3.72×10^3 *20*	68.1702	2^+	0.0	3^-	E1	0.793 *11*	α(K)=0.660 *9*; α(L)=0.1046 *15*; α(M)=0.02256 *32* α(N)=0.00505 *7*; α(O)=0.000742 *10*; α(P)=5.22×10^{-5} *7* δ: δ(M2/E1) < 0.07 (1977St14).
68.6103 *9*	4.9 *7*	249.4186	$1^+,2^+$	180.8092	2^-			
70.7286 *22*	3.4 *11*	486.3840	$3^+,4^+$	415.6551	$4^+,5^+$			
71.192 *3*	1.7 *6*	403.5175	$3^+,4^+$	332.324	$3^+,4^+,5^+$			
71.2398 *14*	3.4 *5*	390.4489	4^+	319.2100	$3^+,4^+$			

$^{154}_{63}Eu_{91}$-7

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06 (continued)

γ(^{154}Eu) (continued)

E_γ [†]	I_γ [‡c]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[b]	Comments
73.6546 *5*	4.9 *5*	173.6022	3⁻	99.9484	3⁺			
74.1383 *9*	26.0 *10*	203.8168	3,4⁺	129.6795	4⁻	E1	0.634 *9*	α(K)=0.529 *7*; α(L)=0.0825 *12*; α(M)=0.01780 *25* α(N)=0.00399 *6*; α(O)=0.000589 *8*; α(P)=4.23×10^{-5} *6*
[x]74.1679 *15*	5.1 *3*							
74.6205 *10*	70 *3*	175.4817	5⁻	100.8612	4⁺	E1	0.623 *9*	α(K)=0.520 *7*; α(L)=0.0810 *11*; α(M)=0.01747 *24* α(N)=0.00391 *5*; α(O)=0.000579 *8*; α(P)=4.16×10^{-5} *6*
74.7195 *14*	3.6 *4*	309.9953	3⁺	235.2787	4⁻			
77.8625 *4*	17.0 *8*	281.6791	3⁺	203.8168	3,4⁺	M1	3.79 *5*	α(K)=3.21 *4*; α(L)=0.460 *6*; α(M)=0.0995 *14* α(N)=0.02278 *32*; α(O)=0.00361 *5*; α(P)=0.000355 *5*
78.2198 *15*	1.9 *3*	251.8253	3⁺	173.6022	3⁻			
79.1129 *8*	3.10 *20*	309.9953	3⁺	230.8810	4⁻			
79.6105 *5*	4.6 *6*	162.4299	1⁻	82.8200	1⁻			
79.7292 *18*	2.8 *3*	255.2096	4⁺,5⁺	175.4817	5⁻			
80.6559 *11*	60 *3*	80.6560	4⁻	0.0	3⁻	M1	3.43 *5*	α(K)=2.90 *4*; α(L)=0.416 *6*; α(M)=0.0898 *13* α(N)=0.02057 *29*; α(O)=0.00326 *5*; α(P)=0.000321 *4*
80.8607 *9*	87 *5*	180.8092	2⁻	99.9484	3⁺	E1	0.503 *7*	α(K)=0.421 *6*; α(L)=0.0646 *9*; α(M)=0.01393 *19* α(N)=0.00312 *4*; α(O)=0.000464 *6*; α(P)=3.41×10^{-5} *5*
[x]82.268 *4*	3.1 *5*							
82.370 *6*	1.6 *5*	364.0549	3⁺,4⁺,5⁺	281.6791	3⁺			
83.2520 *10*	6.8 *3*	356.1031	5⁻,6⁻	272.8512	5⁻	M1	3.13 *4*	α(K)=2.64 *4*; α(L)=0.379 *5*; α(M)=0.0820 *11* α(N)=0.01876 *26*; α(O)=0.00297 *4*; α(P)=0.000293 *4*
83.3302 *17*	3.00 *20*	415.6551	4⁺,5⁺	332.324	3⁺,4⁺,5⁺	M1	3.12 *4*	α(K)=2.64 *4*; α(L)=0.378 *5*; α(M)=0.0817 *11* α(N)=0.01871 *26*; α(O)=0.00297 *4*; α(P)=0.000292 *4*
83.799 *12*	1.7 *6*	551.3139	4⁻	467.5320	4⁻			
83.9338 *12*	2.7 *3*	335.7621	3⁺	251.8253	3⁺			
84.4003 *16*	2.8 *3*	214.0746	3⁻	129.6795	4⁻			
[x]84.613 *4*	2.2 *4*							
85.1003 *10*	23.0 *10*	185.0509	2⁺	99.9484	3⁺	M1	2.93 *4*	α(K)=2.481 *35*; α(L)=0.356 *5*; α(M)=0.0769 *11* α(N)=0.01761 *25*; α(O)=0.00279 *4*; α(P)=0.000275 *4*
[x]86.2812 *5*	8.1 *4*					M1,E2	3.5 *7*	α(K)=2.05 *33*; α(L)=1.1 *8*; α(M)=0.26 *19* α(N)=0.06 *4*; α(O)=0.008 *5*; α(P)=1.9×10^{-4} *7*
86.6444 *2*	33.0 *20*	214.0746	3⁻	127.4301	4⁺	E1	0.418 *6*	α(K)=0.350 *5*; α(L)=0.0532 *7*; α(M)=0.01146 *16* α(N)=0.00257 *4*; α(O)=0.000384 *5*; α(P)=2.86×10^{-5} *4*
86.9889 *6*	9.7 *6*	249.4186	1⁺,2⁺	162.4299	1⁻	E1	0.413 *6*	α(K)=0.347 *5*; α(L)=0.0526 *7*; α(M)=0.01133 *16* α(N)=0.00255 *4*; α(O)=0.000379 *5*; α(P)=2.83×10^{-5} *4*
88.7289 *4*	7.9 *4*	328.0177	4⁻	239.2889	3⁻	M1	2.60 *4*	α(K)=2.200 *31*; α(L)=0.315 *4*; α(M)=0.0681 *10* α(N)=0.01560 *22*; α(O)=0.002473 *35*; α(P)=0.0002437 *34*
89.0060 *14*	3.0 *3*	292.8200	4⁺,5⁺,6⁺	203.8168	3,4⁺			

$^{154}_{63}Eu_{91}$-8

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06 (continued)

γ(^{154}Eu) (continued)

E_γ †	I_γ ‡ c	E_i(level)	J_i^π	E_f	J_f^π	Mult. #	α b	Comments
x89.1993 *18*	1.80 *20*							
x89.4823 *9*	5.20 *20*					M1	2.54 *4*	α(K)=2.147 *30*; α(L)=0.308 *4*; α(M)=0.0665 *9* α(N)=0.01523 *21*; α(O)=0.002413 *34*; α(P)=0.0002378 *33*
90.3116 *24*	4.1 *3*	342.1315	2^-	251.8253	3^+			
90.5157 *22*	132 *6*	162.4299	1^-	71.9118	1^+	E1	0.371 *5*	α(K)=0.312 *4*; α(L)=0.0470 *7*; α(M)=0.01013 *14* α(N)=0.002277 *32*; α(O)=0.000340 *5*; α(P)=2.56×10^{-5} *4*
91.5170 *8*	6.6 *3*	214.0746	3^-	122.5582	2^-			
92.1069 *8*	15.0 *15*	295.9225	3^+,4^+	203.8168	3,4^+	M1	2.337 *33*	α(K)=1.976 *28*; α(L)=0.283 *4*; α(M)=0.0612 *9* α(N)=0.01401 *20*; α(O)=0.002220 *31*; α(P)=0.0002188 *31*
92.3440 *22*	1.60 *20*	192.2939	4^+,5^+	99.9484	3^+			
x92.8134 *15*	2.3 *3*							
93.0991 *13*	9.3 *5*	229.7951	4^+,5,6	136.6967	5^+	(E1)	0.344 *5*	α(K)=0.289 *4*; α(L)=0.0435 *6*; α(M)=0.00936 *13* α(N)=0.002104 *29*; α(O)=0.000315 *4*; α(P)=2.388×10^{-5} *33*
93.347 *5*	2.0 *4*	371.8996	2^+	278.5480	2^+	M1	2.248 *31*	α(K)=1.901 *27*; α(L)=0.272 *4*; α(M)=0.0589 *8* α(N)=0.01348 *19*; α(O)=0.002136 *30*; α(P)=0.0002105 *29*
93.5235 *20*	6.5 *3*	403.5175	3^+,4^+	309.9953	3^+	M1	2.236 *31*	α(K)=1.891 *26*; α(L)=0.271 *4*; α(M)=0.0585 *8* α(N)=0.01340 *19*; α(O)=0.002125 *30*; α(P)=0.0002094 *29*
94.2626 *16*	214 *10*	162.4299	1^-	68.1702	2^+	E1	0.333 *5*	α(K)=0.280 *4*; α(L)=0.0420 *6*; α(M)=0.00904 *13* α(N)=0.002032 *28*; α(O)=0.000304 *4*; α(P)=2.314×10^{-5} *32*
95.8643 *15*	2.5 *3*	428.1890	4^-,5^-	332.324	3^+,4^+,5^+			
x96.728 *6*	2.9 *4*							
97.7396 *14*	2.3 *3*	278.5480	2^+	180.8092	2^-			
99.248 *5*	1.4 *3*	272.8512	5^-	173.6022	3^-			
99.3475 *12*	11.0 *5*	378.7268	5^-	279.3791	4^-	M1	1.880 *26*	α(K)=1.590 *22*; α(L)=0.2276 *32*; α(M)=0.0492 *7* α(N)=0.01126 *16*; α(O)=0.001785 *25*; α(P)=0.0001760 *25*
100.0880 *10*	28.0 *20*	180.7439	5^-	80.6560	4^-	M1	1.841 *26*	α(K)=1.557 *22*; α(L)=0.2228 *31*; α(M)=0.0481 *7* α(N)=0.01102 *15*; α(O)=0.001748 *24*; α(P)=0.0001723 *24*
100.8592 *10*	698 *15*	100.8612	4^+	0.0	3^-	E1	0.277 *4*	α(K)=0.2332 *33*; α(L)=0.0347 *5*; α(M)=0.00747 *10* α(N)=0.001681 *24*; α(O)=0.0002525 *35*; α(P)=1.949×10^{-5} *27*
101.2002 *6*	9.8 *4*	230.8810	4^-	129.6795	4^-	M1	1.783 *25*	α(K)=1.508 *21*; α(L)=0.2158 *30*; α(M)=0.0466 *7* α(N)=0.01068 *15*; α(O)=0.001693 *24*; α(P)=0.0001670 *23*
x101.2684 *8*	3.70 *20*							
101.441 *4*	1.10 *20*	332.324	3^+,4^+,5^+	230.8810	4^-			
101.523 *4*	1.30 *20*	451.356	2^-	349.8207	2^+			
102.0007 *10*	15.0 *8*	282.8087	1^+,2^+	180.8092	2^-	E1	0.269 *4*	α(K)=0.2263 *32*; α(L)=0.0336 *5*; α(M)=0.00724 *10* α(N)=0.001629 *23*; α(O)=0.0002448 *34*; α(P)=1.894×10^{-5} *27*
102.2250 *25*	9.4 *5*	185.0509	2^+	82.8200	1^-	E1	0.267 *4*	α(K)=0.2250 *31*; α(L)=0.0334 *5*; α(M)=0.00719 *10* α(N)=0.001619 *23*; α(O)=0.0002434 *34*; α(P)=1.883×10^{-5} *26*

$^{154}_{63}Eu_{91}$-9

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06 (continued)

γ(^{154}Eu) (continued)

E_γ[†]	I_γ[‡c]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[b]	Comments
102.9558 *3*	102 *3*	203.8168	3,4$^+$	100.8612	4$^+$	M1	1.698 *24*	α(K)=1.436 *20*; α(L)=0.2054 *29*; α(M)=0.0444 *6* α(N)=0.01016 *14*; α(O)=0.001611 *23*; α(P)=0.0001589 *22* δ: < 0.33.
103.4498 *20*	1.3 *3*	230.8810	4$^-$	127.4301	4$^+$			
103.6276 *15*	2.6 *3*	295.9225	3$^+$,4$^+$	192.2939	4$^+$,5$^+$	M1	1.666 *23*	α(K)=1.409 *20*; α(L)=0.2016 *28*; α(M)=0.0436 *6* α(N)=0.00998 *14*; α(O)=0.001582 *22*; α(P)=0.0001560 *22*
[x]103.7561 *18*	1.9 *3*					M1	1.660 *23*	α(K)=1.404 *20*; α(L)=0.2009 *28*; α(M)=0.0434 *6* α(N)=0.00994 *14*; α(O)=0.001576 *22*; α(P)=0.0001554 *22*
103.898 *3*	1.5 *3*	279.3791	4$^-$	175.4817	5$^-$			
104.8804 *22*	4.6 *5*	335.7621	3$^+$	230.8810	4$^-$			
104.9463 *14*	24.0 *20*	278.5480	2$^+$	173.6022	3$^-$	E1	0.2491 *35*	α(K)=0.2096 *29*; α(L)=0.0310 *4*; α(M)=0.00668 *9* α(N)=0.001504 *21*; α(O)=0.0002264 *32*; α(P)=1.761×10^{-5} *25*
105.4308 *12*	62 *3*	173.6022	3$^-$	68.1702	2$^+$	E1	0.2460 *34*	α(K)=0.2071 *29*; α(L)=0.0306 *4*; α(M)=0.00660 *9* α(N)=0.001485 *21*; α(O)=0.0002235 *31*; α(P)=1.741×10^{-5} *24*
105.6000 *6*	20.0 *12*	235.2787	4$^-$	129.6795	4$^-$	M1	1.579 *22*	α(K)=1.336 *19*; α(L)=0.1910 *27*; α(M)=0.0413 *6* α(N)=0.00945 *13*; α(O)=0.001498 *21*; α(P)=0.0001478 *21*
105.7771 *12*	3.0 *3*	279.3791	4$^-$	173.6022	3$^-$	M1	1.571 *22*	α(K)=1.329 *19*; α(L)=0.1901 *27*; α(M)=0.0411 *6* α(N)=0.00941 *13*; α(O)=0.001491 *21*; α(P)=0.0001471 *21*
106.569 *5*	0.90 *20*	425.7890	4$^-$	319.2100	3$^+$,4$^+$			
[x]106.7304 *9*	2.40 *20*					M1	1.532 *21*	α(K)=1.296 *18*; α(L)=0.1852 *26*; α(M)=0.0400 *6* α(N)=0.00917 *13*; α(O)=0.001453 *20*; α(P)=0.0001434 *20*
107.601 *4*	1.70 *20*	403.5175	3$^+$,4$^+$	295.9225	3$^+$,4$^+$			
107.8470 *10*	2.60 *20*	235.2787	4$^-$	127.4301	4$^+$			
108.762[d] *12*	1.4[d] *6*	363.9665	4$^-$,5$^-$	255.2096	4$^+$,5$^+$			
108.762[d] *12*	1.4[d] *6*	390.4489	4$^+$	281.6791	3$^+$			
108.8927 *15*	155 *7*	180.8092	2$^-$	71.9118	1$^+$	E1	0.2254 *32*	α(K)=0.1898 *27*; α(L)=0.0280 *4*; α(M)=0.00602 *8* α(N)=0.001357 *19*; α(O)=0.0002045 *29*; α(P)=1.603×10^{-5} *22*
[x]109.120 *13*	1.0 *6*							
109.6097 *11*	31.0 *15*	239.2889	3$^-$	129.6795	4$^-$	M1	1.419 *20*	α(K)=1.201 *17*; α(L)=0.1716 *24*; α(M)=0.0371 *5* α(N)=0.00849 *12*; α(O)=0.001347 *19*; α(P)=0.0001329 *19*
109.752 *6*	2.0 *7*	513.271	4$^-$,(2$^-$,3$^-$)	403.5175	3$^+$,4$^+$			
111.864 *3*	2.00 *20*	239.2889	3$^-$	127.4301	4$^+$			
112.495 *5*	2.0 *5*	584.3902	3$^-$	471.8890	4$^-$,(3$^-$)			
112.6393 *16*	38.0 *20*	180.8092	2$^-$	68.1702	2$^+$	E1	0.2057 *29*	α(K)=0.1733 *24*; α(L)=0.0254 *4*; α(M)=0.00548 *8* α(N)=0.001234 *17*; α(O)=0.0001864 *26*; α(P)=1.471×10^{-5} *21*
112.701 *13*	1.5 *6*	235.2787	4$^-$	122.5582	2$^-$			
113.1398 *6*	5.8 *5*	185.0509	2$^+$	71.9118	1$^+$	E2,M1	1.42 *13*	α(K)=0.97 *13*; α(L)=0.36 *20*; α(M)=0.08 *5* α(N)=0.018 *10*; α(O)=0.0026 *13*; α(P)=9.2×10^{-5} *29*

$^{154}_{63}Eu_{91}$-10

γ(^{154}Eu) (continued)

E_γ [†]	I_γ [‡c]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ[#]	α[b]	Comments
113.2135 *19*	2.00 *10*	214.0746	3⁻	100.8612	4⁺				
113.5012 *25*	1.0 *4*	425.7890	4⁻	312.2856	5⁻				
114.1248 *9*	5.4 *5*	214.0746	3⁻	99.9484	3⁺	E1		0.1985 *28*	α(K)=0.1673 *23*; α(L)=0.02453 *34*; α(M)=0.00528 *7* α(N)=0.001190 *17*; α(O)=0.0001798 *25*; α(P)=1.422×10^{-5} *20*
115.176 *4*	1.40 *20*	295.9225	3⁺,4⁺	180.7439	5⁻				
[x]116.0439 *11*	2.6 *3*								
116.1182 *7*	16.0 *10*	278.5480	2⁺	162.4299	1⁻	E1		0.1894 *27*	α(K)=0.1597 *22*; α(L)=0.02337 *33*; α(M)=0.00503 *7* α(N)=0.001134 *16*; α(O)=0.0001714 *24*; α(P)=1.361×10^{-5} *19*
116.611 *3*	4.40 *20*	279.0377	0⁻	162.4299	1⁻				
116.8813 *16*	11.0 *6*	185.0509	2⁺	68.1702	2⁺	M1		1.182 *17*	α(K)=1.000 *14*; α(L)=0.1428 *20*; α(M)=0.0309 *4* α(N)=0.00707 *10*; α(O)=0.001121 *16*; α(P)=0.0001106 *15*
117.050 *4*	3.7 *3*	251.8253	3⁺	134.7814	1⁺	E2		1.374 *19*	α(K)=0.759 *11*; α(L)=0.476 *7*; α(M)=0.1108 *16* α(N)=0.02461 *34*; α(O)=0.00337 *5*; α(P)=5.74×10^{-5} *8*
118.5129 *7*	33.0 *10*	255.2096	4⁺,5⁺	136.6967	5⁺	M1+E2	0.15 *9*	1.140 *17*	α(K)=0.957 *15*; α(L)=0.144 *10*; α(M)=0.0313 *25* α(N)=0.0072 *5*; α(O)=0.00112 *7*; α(P)=0.0001052 *22*
[x]118.873 *9*	0.60 *20*								
119.0643 *10*	7.0 *3*	299.8081	5⁻,6⁻	180.7439	5⁻				Mult.: Assigned (M1) by authors, but α_K(exp) allows E1 or E2.
119.746 *9*	0.60 *20*	415.6551	4⁺,5⁺	295.9225	3⁺,4⁺				
[x]119.966 *3*	1.40 *20*								
120.3790 *14*	41.0 *16*	282.8087	1⁺,2⁺	162.4299	1⁻	E1		0.1718 *24*	α(K)=0.1449 *20*; α(L)=0.02113 *30*; α(M)=0.00455 *6* α(N)=0.001025 *14*; α(O)=0.0001553 *22*; α(P)=1.241×10^{-5} *17*
[x]122.276 *10*	0.50 *20*								
122.484 *8*	1.3 *4*	371.8996	2⁺	249.4186	1⁺,2⁺				
[x]122.8891 *12*	2.7 *4*								
[x]124.0265 *17*	2.40 *20*					M1		0.999 *14*	α(K)=0.845 *12*; α(L)=0.1206 *17*; α(M)=0.0261 *4* α(N)=0.00597 *8*; α(O)=0.000946 *13*; α(P)=9.35×10^{-5} *13*
124.2013 *17*	1.90 *20*	328.0177	4⁻	203.8168	3,4⁺				
124.3943 *13*	36.0 *20*	251.8253	3⁺	127.4301	4⁺	E2(+M1)		1.05 *6*	α(K)=0.74 *10*; α(L)=0.24 *12*; α(M)=0.055 *29* α(N)=0.012 *6*; α(O)=0.0018 *8*; α(P)=7.1×10^{-5} *22*
124.944 *3*	5.0 *4*	309.9953	3⁺	185.0509	2⁺	M1		0.978 *14*	α(K)=0.828 *12*; α(L)=0.1181 *17*; α(M)=0.0255 *4* α(N)=0.00584 *8*; α(O)=0.000927 *13*; α(P)=9.15×10^{-5} *13*
125.5311 *11*	10.0 *5*	255.2096	4⁺,5⁺	129.6795	4⁻				
125.712 *8*	0.50 *20*	532.7393	4⁻,(3)⁻	407.0338	3⁻				
[x]125.9133 *16*	2.50 *20*								
126.8623 *12*	36.0 *10*	249.4186	1⁺,2⁺	122.5582	2⁻	E1		0.1490 *21*	α(K)=0.1258 *18*; α(L)=0.01825 *26*; α(M)=0.00393 *5* α(N)=0.000886 *12*; α(O)=0.0001345 *19*; α(P)=1.085×10^{-5} *15*

$^{154}_{63}$Eu$_{91}$-11

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06 (continued)

γ(^{154}Eu) (continued)

E_γ †	I_γ ‡ c	E_i(level)	J_i^π	E_f	J_f^π	Mult. #	α b	Comments
128.0598 *17*	7.0 *4*	342.1315	2^-	214.0746	3^-	E2	0.998 *14*	α(K)=0.585 *8*; α(L)=0.320 *4*; α(M)=0.0743 *10* α(N)=0.01651 *23*; α(O)=0.002276 *32*; α(P)=4.51×10^{-5} *6*
128.4995 *23*	2.3 *3*	332.324	$3^+,4^+,5^+$	203.8168	$3,4^+$			
128.689 *6*	0.60 *20*	363.9665	$4^-,5^-$	235.2787	4^-			
x128.877 *3*	1.10 *20*							
129.1878 *15*	11.0 *9*	309.9953	3^+	180.8092	2^-	E1	0.1419 *20*	α(K)=0.1198 *17*; α(L)=0.01735 *24*; α(M)=0.00373 *5* α(N)=0.000843 *12*; α(O)=0.0001279 *18*; α(P)=1.036×10^{-5} *15*
129.2665 *9*	20.0 *13*	251.8253	3^+	122.5582	2^-	E1	0.1416 *20*	α(K)=0.1196 *17*; α(L)=0.01732 *24*; α(M)=0.00373 *5* α(N)=0.000841 *12*; α(O)=0.0001277 *18*; α(P)=1.034×10^{-5} *14*
129.426 *3*	1.40 *20*	467.5320	4^-	338.0996	4^+			
129.677 *9*	6.2 *5*	129.6795	4^-	0.0	3^-	M1	0.880 *12*	α(K)=0.745 *10*; α(L)=0.1062 *15*; α(M)=0.02295 *32* α(N)=0.00526 *7*; α(O)=0.000834 *12*; α(P)=8.24×10^{-5} *12*
130.2596 *14*	6.3 *4*	315.3133	1^-	185.0509	2^+	E1	0.1387 *19*	α(K)=0.1172 *16*; α(L)=0.01695 *24*; α(M)=0.00365 *5* α(N)=0.000823 *12*; α(O)=0.0001251 *18*; α(P)=1.014×10^{-5} *14*
130.7585 *16*	2.50 *20*	258.1901	$4^+,5^+,6^+$	127.4301	4^+			
130.9318 *7*	33.0 *12*	230.8810	4^-	99.9484	3^+	E1	0.1368 *19*	α(K)=0.1156 *16*; α(L)=0.01671 *23*; α(M)=0.00360 *5* α(N)=0.000812 *11*; α(O)=0.0001233 *17*; α(P)=1.001×10^{-5} *14*
131.2560 *16*	3.2 *3*	214.0746	3^-	82.8200	1^-	(E2)	0.915 *13*	α(K)=0.545 *8*; α(L)=0.287 *4*; α(M)=0.0666 *9* α(N)=0.01481 *21*; α(O)=0.002045 *29*; α(P)=4.22×10^{-5} *6*
133.3853 *19*	1.4 *5*	584.3902	3^-	451.0074	$2^+,3^+$			
134.414 *5*	1.5 *3*	235.2787	4^-	100.8612	4^+			
134.500 *4*	5.1 *3*	315.3133	1^-	180.8092	2^-	E2	0.840 *12*	α(K)=0.507 *7*; α(L)=0.258 *4*; α(M)=0.0598 *8* α(N)=0.01331 *19*; α(O)=0.001840 *26*; α(P)=3.95×10^{-5} *6*
134.5788 *14*	6.3 *3*	326.8726	$3^+,4^+$	192.2939	$4^+,5^+$	E2	0.838 *12*	α(K)=0.506 *7*; α(L)=0.257 *4*; α(M)=0.0597 *8* α(N)=0.01328 *19*; α(O)=0.001836 *26*; α(P)=3.94×10^{-5} *6*
x134.802 *5*	1.1 *3*							
134.907 *10*	1.0 *4*	549.587	1^-	414.698	0^-			
135.3317 *6*	52.0 *20*	235.2787	4^-	99.9484	3^+	E1	0.1251 *18*	α(K)=0.1057 *15*; α(L)=0.01524 *21*; α(M)=0.00328 *5* α(N)=0.000741 *10*; α(O)=0.0001127 *16*; α(P)=9.20×10^{-6} *13*
135.902 *4*	1.60 *20*	428.7117	$4^+,5^+$	292.8200	$4^+,5^+,6^+$			
136.3954 *18*	3.0 *6*	309.9953	3^+	173.6022	3^-			
136.5631 *24*	2.3 *3*	486.3840	$3^+,4^+$	349.8207	2^+			
x136.6341 *23*	1.8 *3*							
136.8791 *16*	8.1 *4*	419.6903	2^-	282.8087	$1^+,2^+$	E1	0.1213 *17*	α(K)=0.1025 *14*; α(L)=0.01477 *21*; α(M)=0.00318 *4* α(N)=0.000718 *10*; α(O)=0.0001092 *15*; α(P)=8.93×10^{-6} *13*
x137.054 *5*	1.1 *3*					M1,E2	0.770 *20*	α(K)=0.56 *8*; α(L)=0.16 *7*; α(M)=0.037 *18* α(N)=0.008 *4*; α(O)=0.0012 *5*; α(P)=5.4×10^{-5} *16*
x137.5470 *13*	2.90 *20*					M1,E2	0.761 *19*	α(K)=0.55 *8*; α(L)=0.16 *7*; α(M)=0.037 *17* α(N)=0.008 *4*; α(O)=0.0012 *5*; α(P)=5.3×10^{-5} *16*

$^{154}_{63}Eu_{91}$-12

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06 (continued)

γ(^{154}Eu) (continued)

E_γ [†]	I_γ [‡c]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[b]	Comments
138.426 *3*	2.1 *5*	239.2889	3⁻	100.8612	4⁺			
[x]138.989 *8*	1.0 *3*							
[x]139.777 *3*	1.5 *5*							
140.660 *3*	2.6 *3*	419.6903	2⁻	279.0377	0⁻	E2	0.718 *10*	α(K)=0.444 *6*; α(L)=0.2125 *30*; α(M)=0.0492 *7* α(N)=0.01095 *15*; α(O)=0.001518 *21*; α(P)=3.49×10^{-5} *5*
141.141 *4*	1.1 *4*	419.6903	2⁻	278.5480	2⁺			
141.367 *7*	2.9 *16*	451.356	2⁻	309.9953	3⁺			
[x]142.3711 *12*	6.10 *25*					E1	0.1091 *15*	α(K)=0.0922 *13*; α(L)=0.01324 *19*; α(M)=0.00285 *4* α(N)=0.000643 *9*; α(O)=9.81×10^{-5} *14*; α(P)=8.08×10^{-6} *11*
[x]142.964 *4*	2.2 *3*							
143.050 *5*	0.9 *3*	485.1826	3⁻,4⁻	342.1315	2⁻			
143.7678 *17*	4.00 *20*	278.5480	2⁺	134.7814	1⁺	E2	0.665 *9*	α(K)=0.416 *6*; α(L)=0.1934 *27*; α(M)=0.0447 *6* α(N)=0.00996 *14*; α(O)=0.001383 *19*; α(P)=3.29×10^{-5} *5*
144.2614 *18*	6.5 *4*	279.0377	0⁻	134.7814	1⁺	E1	0.1052 *15*	α(K)=0.0890 *12*; α(L)=0.01277 *18*; α(M)=0.00275 *4* α(N)=0.000620 *9*; α(O)=9.46×10^{-5} *13*; α(P)=7.81×10^{-6} *11*
145.011 *7*	4.4 *7*	471.8890	4⁻,(3⁻)	326.8726	3⁺,4⁺	E1	0.1038 *15*	α(K)=0.0878 *12*; α(L)=0.01258 *18*; α(M)=0.00271 *4* α(N)=0.000612 *9*; α(O)=9.33×10^{-5} *13*; α(P)=7.71×10^{-6} *11*
145.4210 *4*	103 *3*	272.8512	5⁻	127.4301	4⁺	E1	0.1030 *14*	α(K)=0.0871 *12*; α(L)=0.01249 *17*; α(M)=0.00269 *4* α(N)=0.000607 *8*; α(O)=9.26×10^{-5} *13*; α(P)=7.65×10^{-6} *11*
145.808 *5*	7 *3*	338.0996	4⁺	192.2939	4⁺,5⁺	E2,M1	0.633 *9*	α(K)=0.47 *7*; α(L)=0.13 *5*; α(M)=0.029 *13* α(N)=0.0066 *28*; α(O)=9.5×10^{-4} *35*; α(P)=4.5×10^{-5} *14*
145.9048 *4*	151 *5*	214.0746	3⁻	68.1702	2⁺	E1	0.1021 *14*	α(K)=0.0863 *12*; α(L)=0.01237 *17*; α(M)=0.00266 *4* α(N)=0.000601 *8*; α(O)=9.17×10^{-5} *13*; α(P)=7.59×10^{-6} *11*
148.028 *9*	0.70 *20*	282.8087	1⁺,2⁺	134.7814	1⁺			
148.2680[d] *21*	1.70[d] *20*	555.3030	4⁻	407.0338	3⁻			Mult.: Reported as E2 for doubly placed γ; J^π's allow both γ's to be M1,E2.
148.2680[d] *21*	1.70[d] *20*	599.633	2⁻	451.356	2⁻			Mult.: Reported as E2 for doubly placed γ; J^π's allow both γ's to be M1,E2.
149.435 *11*	1.3 *3*	485.1826	3⁻,4⁻	335.7621	3⁺			
149.775 *3*	2.0 *3*	334.8346	1⁺,2⁺	185.0509	2⁺	M1,E2	0.582 *10*	α(K)=0.43 *6*; α(L)=0.12 *5*; α(M)=0.026 *11* α(N)=0.0059 *24*; α(O)=8.6×10^{-4} *30*; α(P)=4.2×10^{-5} *13*
150.707 *3*	1.7 *4*	335.7621	3⁺	185.0509	2⁺	M1	0.577 *8*	α(K)=0.488 *7*; α(L)=0.0694 *10*; α(M)=0.01500 *21* α(N)=0.00344 *5*; α(O)=0.000545 *8*; α(P)=5.39×10^{-5} *8*
151.3771 *16*	4.9 *5*	429.9187	3⁻	278.5480	2⁺			Mult.: Reported E2 incompatible with J^π's. Mult.: Reported as E2, but J^π requires E1.
151.684 *4*	1.9 *3*	403.5175	3⁺,4⁺	251.8253	3⁺	M1,E2	0.559 *11*	α(K)=0.42 *6*; α(L)=0.11 *4*; α(M)=0.025 *10* α(N)=0.0056 *23*; α(O)=8.2×10^{-4} *28*; α(P)=4.1×10^{-5} *12*

$^{154}_{63}Eu_{91}$-13

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06 (continued)

γ(^{154}Eu) (continued)

E_γ[†]	I_γ[‡c]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[b]	Comments
151.888 *4*	10.0 *8*	251.8253	3^+	99.9484	3^+	M1	0.564 *8*	α(K)=0.478 *7*; α(L)=0.0679 *10*; α(M)=0.01467 *21* α(N)=0.00336 *5*; α(O)=0.000533 *7*; α(P)=5.28×10^{-5} *7*
151.993 *4*	4.5 *5*	281.6791	3^+	129.6795	4^-	E1	0.0914 *13*	α(K)=0.0774 *11*; α(L)=0.01105 *15*; α(M)=0.002376 *33* α(N)=0.000537 *8*; α(O)=8.21×10^{-5} *11*; α(P)=6.83×10^{-6} *10*
152.5344 *13*	12.0 *8*	328.0177	4^-	175.4817	5^-	E2	0.541 *8*	α(K)=0.348 *5*; α(L)=0.1501 *21*; α(M)=0.0346 *5* α(N)=0.00772 *11*; α(O)=0.001076 *15*; α(P)=2.79×10^{-5} *4*
152.8546 *15*	5.0[&] *6*	485.1826	3^-,4^-	332.324	3^+,4^+,5^+	E1	0.0900 *13*	α(K)=0.0762 *11*; α(L)=0.01088 *15*; α(M)=0.002339 *33* α(N)=0.000529 *7*; α(O)=8.08×10^{-5} *11*; α(P)=6.73×10^{-6} *9*
[x]153.0493 *14*	2.8 *3*					E1	0.0897 *13*	α(K)=0.0759 *11*; α(L)=0.01084 *15*; α(M)=0.002331 *33* α(N)=0.000527 *7*; α(O)=8.05×10^{-5} *11*; α(P)=6.71×10^{-6} *9*
153.268 *4*	1.8 *4*	326.8726	3^+,4^+	173.6022	3^-			
154.016 *4*	5.2 *5*	532.7393	4^-,$(3)^-$	378.7268	5^-	E2	0.524 *7*	α(K)=0.338 *5*; α(L)=0.1440 *20*; α(M)=0.0332 *5* α(N)=0.00741 *10*; α(O)=0.001033 *14*; α(P)=2.72×10^{-5} *4*
154.3459 *15*	10.0 *9*	255.2096	4^+,5^+	100.8612	4^+	M1	0.539 *8*	α(K)=0.457 *6*; α(L)=0.0649 *9*; α(M)=0.01403 *20* α(N)=0.00321 *4*; α(O)=0.000510 *7*; α(P)=5.04×10^{-5} *7*
154.9532 *10*	20.0 *16*	335.7621	3^+	180.8092	2^-	E1	0.0868 *12*	α(K)=0.0734 *10*; α(L)=0.01047 *15*; α(M)=0.002252 *32* α(N)=0.000509 *7*; α(O)=7.79×10^{-5} *11*; α(P)=6.50×10^{-6} *9*
155.993 *3*	18.0 *13*	278.5480	2^+	122.5582	2^-	E1	0.0852 *12*	α(K)=0.0721 *10*; α(L)=0.01028 *14*; α(M)=0.002211 *31* α(N)=0.000500 *7*; α(O)=7.65×10^{-5} *11*; α(P)=6.39×10^{-6} *9*
156.1222 *10*	21.0 *15*	292.8200	4^+,5^+,6^+	136.6967	5^+	M1	0.522 *7*	α(K)=0.442 *6*; α(L)=0.0629 *9*; α(M)=0.01358 *19* α(N)=0.00311 *4*; α(O)=0.000493 *7*; α(P)=4.89×10^{-5} *7*
156.444 *9*	0.7 *3*	239.2889	3^-	82.8200	1^-			Mult.: Reported as M1, but J^π's require E2.
156.668 *5*	1.7 *3*	411.8891	4^+	255.2096	4^+,5^+	E2,M1	0.505 *14*	α(K)=0.38 *6*; α(L)=0.10 *4*; α(M)=0.022 *9* α(N)=0.0050 *19*; α(O)=7.3×10^{-4} *24*; α(P)=3.7×10^{-5} *11*
156.826[d] *3*	9.1[d] *6*	279.3791	4^-	122.5582	2^-			Mult.: Reported as E1 for doubly placed γ; J^π's require E2 for this γ.
156.826[d] *3*	9.1[d] *6*	572.469	4^-	415.6551	4^+,5^+			Mult.: Reported as E1 for doubly placed γ; from the J^π's this γ is E1 and the other is E2.
[x]157.0895 *19*	1.8 *4*					M1	0.514 *7*	α(K)=0.435 *6*; α(L)=0.0618 *9*; α(M)=0.01335 *19* α(N)=0.00306 *4*; α(O)=0.000485 *7*; α(P)=4.80×10^{-5} *7*
[x]157.197 *4*	2.2 *3*					E1	0.0835 *12*	α(K)=0.0707 *10*; α(L)=0.01007 *14*; α(M)=0.002165 *30* α(N)=0.000490 *7*; α(O)=7.49×10^{-5} *10*; α(P)=6.27×10^{-6} *9*
157.8246 *10*	22.0 *15*	371.8996	2^+	214.0746	3^-	E1	0.0826 *12*	α(K)=0.0699 *10*; α(L)=0.00996 *14*; α(M)=0.002141 *30* α(N)=0.000484 *7*; α(O)=7.41×10^{-5} *10*; α(P)=6.21×10^{-6} *9*
[x]157.958 *8*	1.8 *4*					(M1)	0.506 *7*	α(K)=0.428 *6*; α(L)=0.0608 *9*; α(M)=0.01314 *18* α(N)=0.00301 *4*; α(O)=0.000478 *7*; α(P)=4.73×10^{-5} *7*

$^{154}_{63}Eu_{91}$-14

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06 (continued)

γ(^{154}Eu) (continued)

E_γ [†]	I_γ [‡c]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[b]	Comments
158.312 *3*	1.4[&] *3*	485.1826	3^-,4^-	326.8726	3^+,4^+	E1	0.0819 *11*	α(K)=0.0693 *10*; α(L)=0.00987 *14*; α(M)=0.002123 *30* α(N)=0.000480 *7*; α(O)=7.35×10^{-5} *10*; α(P)=6.16×10^{-6} *9*
[x]158.434 *9*	1.0 *3*					M1,E2	0.488 *15*	α(K)=0.37 *6*; α(L)=0.094 *34*; α(M)=0.021 *8* α(N)=0.0048 *18*; α(O)=7.0×10^{-4} *22*; α(P)=3.6×10^{-5} *11*
158.6326 *11*	10.0 *7*	239.2889	3^-	80.6560	4^-	M1,E2	0.486 *15*	α(K)=0.37 *6*; α(L)=0.094 *34*; α(M)=0.021 *8* α(N)=0.0048 *18*; α(O)=6.9×10^{-4} *22*; α(P)=3.6×10^{-5} *11*
159.221 *3*	5.5 *4*	295.9225	3^+,4^+	136.6967	5^+	E2	0.467 *7*	α(K)=0.306 *4*; α(L)=0.1251 *18*; α(M)=0.0288 *4* α(N)=0.00643 *9*; α(O)=0.000899 *13*; α(P)=2.478×10^{-5} *35*
[x]159.502 *6*	2.3 *5*							
160.142 *3*	2.6 *3*	363.9665	4^-,5^-	203.8168	3,4^+	E1	0.0794 *11*	α(K)=0.0672 *9*; α(L)=0.00957 *13*; α(M)=0.002057 *29* α(N)=0.000465 *7*; α(O)=7.12×10^{-5} *10*; α(P)=5.98×10^{-6} *8*
160.2498 *12*	11.0 *7*	282.8087	1^+,2^+	122.5582	2^-	E1	0.0793 *11*	α(K)=0.0671 *9*; α(L)=0.00955 *13*; α(M)=0.002053 *29* α(N)=0.000464 *7*; α(O)=7.11×10^{-5} *10*; α(P)=5.97×10^{-6} *8*
161.3212 *9*	14.0 *11*	342.1315	2^-	180.8092	2^-	M1	0.477 *7*	α(K)=0.404 *6*; α(L)=0.0573 *8*; α(M)=0.01239 *17* α(N)=0.00284 *4*; α(O)=0.000450 *6*; α(P)=4.46×10^{-5} *6*
162.159 *4*	3.0 *3*	335.7621	3^+	173.6022	3^-	E1	0.0768 *11*	α(K)=0.0650 *9*; α(L)=0.00924 *13*; α(M)=0.001987 *28* α(N)=0.000450 *6*; α(O)=6.88×10^{-5} *10*; α(P)=5.79×10^{-6} *8*
162.608 *7*	0.74 *18*	338.0996	4^+	175.4817	5^-			
[x]162.895 *4*	1.8 *3*							
[x]163.0390 *23*	2.40 *20*					E1	0.0757 *11*	α(K)=0.0641 *9*; α(L)=0.00910 *13*; α(M)=0.001957 *27* α(N)=0.000443 *6*; α(O)=6.78×10^{-5} *9*; α(P)=5.71×10^{-6} *8*
[x]163.654 *4*	1.80 *20*							
163.808 *5*	8.9 *6*	356.1031	5^-,6^-	192.2939	4^+,5^+	E1	0.0747 *10*	α(K)=0.0633 *9*; α(L)=0.00899 *13*; α(M)=0.001932 *27* α(N)=0.000437 *6*; α(O)=6.70×10^{-5} *9*; α(P)=5.64×10^{-6} *8*
164.4971 *15*	13.0 *8*	338.0996	4^+	173.6022	3^-	E1	0.0739 *10*	α(K)=0.0626 *9*; α(L)=0.00888 *12*; α(M)=0.001910 *27* α(N)=0.000432 *6*; α(O)=6.62×10^{-5} *9*; α(P)=5.58×10^{-6} *8*
166.2407 *12*	5.8 *4*	295.9225	3^+,4^+	129.6795	4^-	E1	0.0718 *10*	α(K)=0.0608 *9*; α(L)=0.00863 *12*; α(M)=0.001855 *26* α(N)=0.000420 *6*; α(O)=6.43×10^{-5} *9*; α(P)=5.43×10^{-6} *8*
166.5963 *9*	61 *3*	249.4186	1^+,2^+	82.8200	1^-	E1	0.07140 *99*	α(K)=0.0605 *8*; α(L)=0.00858 *12*; α(M)=0.001845 *26* α(N)=0.000417 *6*; α(O)=6.40×10^{-5} *9*; α(P)=5.40×10^{-6} *8*
[x]167.024 *4*	2.9 *4*					E1	0.0709 *10*	α(K)=0.0601 *8*; α(L)=0.00852 *12*; α(M)=0.001832 *26* α(N)=0.000415 *6*; α(O)=6.35×10^{-5} *9*; α(P)=5.37×10^{-6} *8*
167.1729 *18*	4.8 *6*	486.3840	3^+,4^+	319.2100	3^+,4^+	M1	0.432 *6*	α(K)=0.366 *5*; α(L)=0.0519 *7*; α(M)=0.01121 *16* α(N)=0.00257 *4*; α(O)=0.000407 *6*; α(P)=4.04×10^{-5} *6*

$^{154}_{63}Eu_{91}$-15

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06 (continued)

$\gamma(^{154}Eu)$ (continued)

E_γ[†]	I_γ[‡c]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[b]	Comments
[x]167.6384 *25*	5.8 *5*					E2,M1	0.410 *19*	α(K)=0.31 *5*; α(L)=0.076 *25*; α(M)=0.017 *6* α(N)=0.0039 *13*; α(O)=5.6×10^{-4} *16*; α(P)=3.1×10^{-5} *9*
167.850 *5*	1.5 *4*	363.9665	4$^-$,5$^-$	196.1211	4$^+$,5$^+$,6$^+$			Mult.: Reported M1,E2 incompatible with J^π's.
[x]168.261 *6*	2.4 *3*					M1	0.424 *6*	α(K)=0.359 *5*; α(L)=0.0510 *7*; α(M)=0.01101 *15* α(N)=0.002521 *35*; α(O)=0.000400 *6*; α(P)=3.96×10^{-5} *6*
168.5278 *9*	15.0 *11*	342.1315	2$^-$	173.6022	3$^-$	M1	0.422 *6*	α(K)=0.357 *5*; α(L)=0.0507 *7*; α(M)=0.01096 *15* α(N)=0.002510 *35*; α(O)=0.000398 *6*; α(P)=3.95×10^{-5} *6*
169.647 *14*	0.63 *15*	451.356	2$^-$	281.6791	3$^+$			
[x]170.712 *24*	0.8 *4*					M1,E2	0.387 *21*	α(K)=0.30 *5*; α(L)=0.071 *22*; α(M)=0.016 *5* α(N)=0.0036 *12*; α(O)=5.3×10^{-4} *14*; α(P)=2.9×10^{-5} *9*
171.115 *3*	9.3 *10*	239.2889	3$^-$	68.1702	2$^+$	E1	0.0664 *9*	α(K)=0.0563 *8*; α(L)=0.00797 *11*; α(M)=0.001714 *24* α(N)=0.000388 *5*; α(O)=5.95×10^{-5} *8*; α(P)=5.05×10^{-6} *7*
171.224 *10*	1.60 *20*	521.0540	3$^+$	349.8207	2$^+$	M1	0.404 *6*	α(K)=0.342 *5*; α(L)=0.0485 *7*; α(M)=0.01048 *15* α(N)=0.002401 *34*; α(O)=0.000381 *5*; α(P)=3.78×10^{-5} *5*
[x]171.481 *12*	0.80 *26*							
171.7576[d] *24*	4.5[d] *5*	364.0549	3$^+$,4$^+$,5$^+$	192.2939	4$^+$,5$^+$			Mult.: Reported as M1 for doubly placed γ.
171.7576[d] *24*	4.5[d] *5*	407.0338	3$^-$	235.2787	4$^-$			Mult.: Reported as M1 for doubly placed γ.
[x]172.277 *3*	2.4 *4*					E2	0.356 *5*	α(K)=0.2405 *34*; α(L)=0.0899 *13*; α(M)=0.02066 *29* α(N)=0.00461 *6*; α(O)=0.000649 *9*; α(P)=1.987×10^{-5} *28*
172.4045 *19*	3.8 *6*	334.8346	1$^+$,2$^+$	162.4299	1$^-$	E1	0.0651 *9*	α(K)=0.0552 *8*; α(L)=0.00781 *11*; α(M)=0.001679 *24* α(N)=0.000380 *5*; α(O)=5.83×10^{-5} *8*; α(P)=4.95×10^{-6} *7*
[x]172.802 *4*	3.2 *4*					E2	0.353 *5*	α(K)=0.2383 *33*; α(L)=0.0888 *12*; α(M)=0.02040 *29* α(N)=0.00455 *6*; α(O)=0.000640 *9*; α(P)=1.970×10^{-5} *28*
172.9777 *25*	5.9 *4*	428.1890	4$^-$,5$^-$	255.2096	4$^+$,5$^+$	E1	0.0645 *9*	α(K)=0.0547 *8*; α(L)=0.00774 *11*; α(M)=0.001664 *23* α(N)=0.000377 *5*; α(O)=5.78×10^{-5} *8*; α(P)=4.91×10^{-6} *7*
173.502 *11*	1.5 *5*	428.7117	4$^+$,5$^+$	255.2096	4$^+$,5$^+$			
[x]173.7788 *24*	2.50 *24*					E2	0.346 *5*	α(K)=0.2342 *33*; α(L)=0.0867 *12*; α(M)=0.01993 *28* α(N)=0.00445 *6*; α(O)=0.000626 *9*; α(P)=1.939×10^{-5} *27*
[x]174.612 *4*	0.97 *23*							
175.221 *7*	1.40 *17*	309.9953	3$^+$	134.7814	1$^+$	E2	0.336 *5*	α(K)=0.2284 *32*; α(L)=0.0838 *12*; α(M)=0.01925 *27* α(N)=0.00430 *6*; α(O)=0.000605 *8*; α(P)=1.894×10^{-5} *27*
[x]175.435 *5*	3.2 *4*					E2	0.335 *5*	α(K)=0.2275 *32*; α(L)=0.0834 *12*; α(M)=0.01915 *27* α(N)=0.00427 *6*; α(O)=0.000602 *8*; α(P)=1.888×10^{-5} *26*
176.147 *6*	4.8 *5*	407.0338	3$^-$	230.8810	4$^-$	M1	0.373 *5*	α(K)=0.316 *4*; α(L)=0.0448 *6*; α(M)=0.00968 *14* α(N)=0.002218 *31*; α(O)=0.000352 *5*; α(P)=3.49×10^{-5} *5*

$^{154}_{63}Eu_{91}$-16

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06 (continued)

γ(^{154}Eu) (continued)

E_γ †	I_γ ‡ c	E_i(level)	J_i^π	E_f	J_f^π	Mult. #	α b	Comments
176.212 *5*	10.0 *10*	349.8207	2^+	173.6022	3^-	E1	0.0614 *9*	α(K)=0.0521 *7*; α(L)=0.00736 *10*; α(M)=0.001581 *22* α(N)=0.000358 *5*; α(O)=5.50×10^{-5} *8*; α(P)=4.68×10^{-6} *7*
176.346 *4*	4.2 *7*	390.4267	2^-	214.0746	3^-	M1,E2	0.351 *22*	α(K)=0.27 *5*; α(L)=0.063 *18*; α(M)=0.014 *5* α(N)=0.0032 *10*; α(O)=4.7×10^{-4} *12*; α(P)=2.7×10^{-5} *8*
x176.814 *10*	1.3 *3*					M1,E2	0.348 *22*	α(K)=0.27 *5*; α(L)=0.063 *18*; α(M)=0.014 *4* α(N)=0.0032 *10*; α(O)=4.7×10^{-4} *12*; α(P)=2.6×10^{-5} *8*
177.5086 *12*	27.0 *19*	249.4186	$1^+,2^+$	71.9118	1^+	M1	0.365 *5*	α(K)=0.310 *4*; α(L)=0.0439 *6*; α(M)=0.00948 *13* α(N)=0.002171 *30*; α(O)=0.000345 *5*; α(P)=3.42×10^{-5} *5*
x178.901 *4*	3.4 *6*					E2,E1		
179.4302 *11*	14.0 *11*	279.3791	4^-	99.9484	3^+	E1	0.0585 *8*	α(K)=0.0496 *7*; α(L)=0.00700 *10*; α(M)=0.001505 *21* α(N)=0.000341 *5*; α(O)=5.23×10^{-5} *7*; α(P)=4.47×10^{-6} *6*
179.701 *8*	1.9 *4*	342.1315	2^-	162.4299	1^-	M1,E2	0.331 *23*	α(K)=0.26 *4*; α(L)=0.059 *17*; α(M)=0.013 *4* α(N)=0.0030 *9*; α(O)=0.00044 *11*; α(P)=2.5×10^{-5} *8*
179.911 *6*	1.8 *7*	251.8253	3^+	71.9118	1^+			
180.3782 *14*	17.0 *13*	415.6551	$4^+,5^+$	235.2787	4^-	E1	0.0577 *8*	α(K)=0.0489 *7*; α(L)=0.00690 *10*; α(M)=0.001483 *21* α(N)=0.000336 *5*; α(O)=5.16×10^{-5} *7*; α(P)=4.41×10^{-6} *6*
180.804 *3*	1.7 *5*	180.8092	2^-	0.0	3^-	M1	0.347 *5*	α(K)=0.294 *4*; α(L)=0.0417 *6*; α(M)=0.00900 *13* α(N)=0.002062 *29*; α(O)=0.000327 *5*; α(P)=3.25×10^{-5} *5*
x181.169 *5*	3.0 *7*					E1	0.0570 *8*	α(K)=0.0484 *7*; α(L)=0.00682 *10*; α(M)=0.001466 *21* α(N)=0.000332 *5*; α(O)=5.10×10^{-5} *7*; α(P)=4.36×10^{-6} *6*
181.2430 *18*	19.0 *14*	249.4186	$1^+,2^+$	68.1702	2^+	M1	0.345 *5*	α(K)=0.292 *4*; α(L)=0.0414 *6*; α(M)=0.00894 *13* α(N)=0.002048 *29*; α(O)=0.000325 *5*; α(P)=3.22×10^{-5} *5*
181.716 *6*	3.3 *4*	281.6791	3^+	99.9484	3^+	(E2)	0.297 *4*	α(K)=0.2044 *29*; α(L)=0.0721 *10*; α(M)=0.01654 *23* α(N)=0.00369 *5*; α(O)=0.000521 *7*; α(P)=1.710×10^{-5} *24*
181.786 *3*	25.0 *18*	362.5962	1^-	180.8092	2^-	M1	0.342 *5*	α(K)=0.290 *4*; α(L)=0.0411 *6*; α(M)=0.00887 *12* α(N)=0.002031 *28*; α(O)=0.000322 *5*; α(P)=3.20×10^{-5} *4*
182.5631 *14*	48 *4*	309.9953	3^+	127.4301	4^+	M1+E2	0.315 *23*	α(K)=0.24 *4*; α(L)=0.056 *15*; α(M)=0.012 *4* α(N)=0.0028 *8*; α(O)=0.00042 *10*; α(P)=2.4×10^{-5} *7*
182.6041 *18*	32 *4*	312.2856	5^-	129.6795	4^-	M1+E2	0.315 *23*	α(K)=0.24 *4*; α(L)=0.056 *15*; α(M)=0.012 *4* α(N)=0.0028 *8*; α(O)=0.00041 *10*; α(P)=2.4×10^{-5} *7*
182.9529 *24*	3.4 *4*	521.0540	3^+	338.0996	4^+			Mult.: Reported as E1, but J^π's require M1,E2.
x183.6424 *14*	7.8 *19*					E2	0.287 *4*	α(K)=0.1979 *28*; α(L)=0.0691 *10*; α(M)=0.01583 *22* α(N)=0.00354 *5*; α(O)=0.000500 *7*; α(P)=1.660×10^{-5} *23*
184.7728 *13*	12.0 *9*	415.6551	$4^+,5^+$	230.8810	4^-	E1	0.0541 *8*	α(K)=0.0459 *6*; α(L)=0.00646 *9*; α(M)=0.001389 *19* α(N)=0.000315 *4*; α(O)=4.84×10^{-5} *7*; α(P)=4.15×10^{-6} *6*

$^{154}_{63}Eu_{91}$-17

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06 (continued)

$\gamma(^{154}Eu)$ (continued)

E_γ †	I_γ ‡ c	E_i(level)	J_i^π	E_f	J_f^π	Mult. #	α b	Comments
185.920 *5*	1.40 *20*	505.1400	3^-	319.2100	3^+,4^+			
187.4366 *20*	44 *4*	309.9953	3^+	122.5582	2^-	E1	0.0521 *7*	α(K)=0.0442 *6*; α(L)=0.00622 *9*; α(M)=0.001336 *19* α(N)=0.000303 *4*; α(O)=4.65×10^{-5} *7*; α(P)=4.00×10^{-6} *6*
x187.549 *8*	3.0 *11*					E2	0.267 *4*	α(K)=0.1855 *26*; α(L)=0.0634 *9*; α(M)=0.01451 *20* α(N)=0.00324 *5*; α(O)=0.000459 *6*; α(P)=1.564×10^{-5} *22*
188.484 *3*	2.2 *3*	363.9665	4^-,5^-	175.4817	5^-	M1,E2	0.286 *24*	α(K)=0.22 *4*; α(L)=0.050 *12*; α(M)=0.0111 *31* α(N)=0.0025 *7*; α(O)=0.00037 *8*; α(P)=2.2×10^{-5} *7*
x189.116 *3*	4.7 *5*					E1	0.0508 *7*	α(K)=0.0431 *6*; α(L)=0.00607 *8*; α(M)=0.001304 *18* α(N)=0.000295 *4*; α(O)=4.54×10^{-5} *6*; α(P)=3.91×10^{-6} *5*
189.255 *3*	2.6 *3*	485.1826	3^-,4^-	295.9225	3^+,4^+			
x189.613 *3*	2.6 *3*					M1	0.305 *4*	α(K)=0.258 *4*; α(L)=0.0365 *5*; α(M)=0.00789 *11* α(N)=0.001807 *25*; α(O)=0.000287 *4*; α(P)=2.84×10^{-5} *4*
190.190 d *7*	9.3 d *7*	326.8726	3^+,4^+	136.6967	5^+			Mult.: Reported as E2 or E1 for doubly placed γ; from the $J^{\pi\prime}$s this γ can be M1,E2 and the other is E1.
190.190 d *7*	9.3 d *7*	471.8890	4^-,(3^-)	281.6791	3^+			Mult.: Reported as E2 or E1 for doubly placed γ; from the $J^{\pi\prime}$s, this γ is E1 and the other is M1,E2.
190.452 *10*	5.4 & *5*	364.0549	3^+,4^+,5^+	173.6022	3^-	E1	0.0499 *7*	α(K)=0.0423 *6*; α(L)=0.00595 *8*; α(M)=0.001279 *18* α(N)=0.000290 *4*; α(O)=4.46×10^{-5} *6*; α(P)=3.84×10^{-6} *5* E_γ: From the γ-ray "line list" of 1987Ba52. Listed as 190.352 in their (n,γ) level-scheme table.
191.087 *3*	8.1 *7*	371.8996	2^+	180.8092	2^-	E1	0.0495 *7*	α(K)=0.0420 *6*; α(L)=0.00590 *8*; α(M)=0.001268 *18* α(N)=0.000287 *4*; α(O)=4.42×10^{-5} *6*; α(P)=3.81×10^{-6} *5*
191.768 d *7*	1.4 d *4*	319.2100	3^+,4^+	127.4301	4^+	M1	0.295 *4*	α(K)=0.2501 *35*; α(L)=0.0354 *5*; α(M)=0.00764 *11* α(N)=0.001751 *25*; α(O)=0.000278 *4*; α(P)=2.76×10^{-5} *4*
191.768 d *7*	1.4 d *4*	471.1510	$(3,4)^-$	279.3791	4^-	M1	0.295 *4*	α(K)=0.2501 *35*; α(L)=0.0354 *5*; α(M)=0.00764 *11* α(N)=0.001751 *25*; α(O)=0.000278 *4*; α(P)=2.76×10^{-5} *4*
191.961 *3*	14.0 *11*	292.8200	4^+,5^+,6^+	100.8612	4^+	E2	0.2470 *35*	α(K)=0.1728 *24*; α(L)=0.0576 *8*; α(M)=0.01319 *18* α(N)=0.00295 *4*; α(O)=0.000418 *6*; α(P)=1.464×10^{-5} *21*
192.187 *5*	1.9 *3*	272.8512	5^-	80.6560	4^-			Mult.: 1987Ba52 give M1, but α_K(exp) also allows E1 or E2.
192.744 *5*	4.1 *5*	315.3133	1^-	122.5582	2^-	M1	0.291 *4*	α(K)=0.2467 *35*; α(L)=0.0349 *5*; α(M)=0.00754 *11* α(N)=0.001726 *24*; α(O)=0.000274 *4*; α(P)=2.72×10^{-5} *4*
192.947 *4*	3.0 *7*	407.0338	3^-	214.0746	3^-	M1	0.290 *4*	α(K)=0.2459 *34*; α(L)=0.0348 *5*; α(M)=0.00752 *11* α(N)=0.001721 *24*; α(O)=0.000273 *4*; α(P)=2.71×10^{-5} *4*

$^{154}_{63}Eu_{91}$-18

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06 (continued)

γ(^{154}Eu) (continued)

E_γ †	I_γ ‡ c	E_i(level)	J_i^π	E_f	J_f^π	Mult. #	α b	Comments
194.648 *6*	2.0 *3*	429.9187	3⁻	235.2787	4⁻	M1,E2	0.260 *24*	α(K)=0.20 *4*; α(L)=0.044 *10*; α(M)=0.0099 *26* α(N)=0.0022 *6*; α(O)=0.00033 *6*; α(P)=2.0×10^{-5} *6*
195.0622 *11*	31.0 *25*	295.9225	3⁺,4⁺	100.8612	4⁺	M1	0.282 *4*	α(K)=0.2387 *33*; α(L)=0.0338 *5*; α(M)=0.00729 *10* α(N)=0.001670 *23*; α(O)=0.000265 *4*; α(P)=2.63×10^{-5} *4*
x195.4187 *21*	3.6 *6*					E2,M1	0.256 *24*	α(K)=0.20 *4*; α(L)=0.044 *10*; α(M)=0.0098 *25* α(N)=0.0022 *5*; α(O)=0.00033 *6*; α(P)=2.0×10^{-5} *6*
195.624 *6*	9.3 *11*	332.324	3⁺,4⁺,5⁺	136.6967	5⁺	E2	0.2318 *32*	α(K)=0.1631 *23*; α(L)=0.0534 *7*; α(M)=0.01221 *17* α(N)=0.00273 *4*; α(O)=0.000387 *5*; α(P)=1.388×10^{-5} *19*
195.725 *4*	52 *4*	278.5480	2⁺	82.8200	1⁻	E1	0.0464 *6*	α(K)=0.0394 *6*; α(L)=0.00553 *8*; α(M)=0.001188 *17* α(N)=0.000269 *4*; α(O)=4.14×10^{-5} *6*; α(P)=3.58×10^{-6} *5*
195.9681 *21*	14.0 *12*	295.9225	3⁺,4⁺	99.9484	3⁺	M1	0.278 *4*	α(K)=0.2357 *33*; α(L)=0.0333 *5*; α(M)=0.00720 *10* α(N)=0.001649 *23*; α(O)=0.000262 *4*; α(P)=2.60×10^{-5} *4*
196.972 *3*	7.8 *6*	532.7393	4⁻,(3)⁻	335.7621	3⁺	E1	0.0456 *6*	α(K)=0.0387 *5*; α(L)=0.00543 *8*; α(M)=0.001167 *16* α(N)=0.000265 *4*; α(O)=4.07×10^{-5} *6*; α(P)=3.53×10^{-6} *5*
197.197 *4*	3.7 *4*	326.8726	3⁺,4⁺	129.6795	4⁻	E1	0.0455 *6*	α(K)=0.0386 *5*; α(L)=0.00542 *8*; α(M)=0.001164 *16* α(N)=0.000264 *4*; α(O)=4.06×10^{-5} *6*; α(P)=3.52×10^{-6} *5*
198.309 *4*	15.0 *11*	471.1510	(3,4)⁻	272.8512	5⁻	E2	0.2215 *31*	α(K)=0.1565 *22*; α(L)=0.0505 *7*; α(M)=0.01155 *16* α(N)=0.00258 *4*; α(O)=0.000367 *5*; α(P)=1.336×10^{-5} *19*
x198.806 *3*	1.9 *4*					M1,E2	0.244 *24*	α(K)=0.19 *4*; α(L)=0.041 *9*; α(M)=0.0092 *23* α(N)=0.0021 *5*; α(O)=0.00031 *6*; α(P)=1.9×10^{-5} *6*
199.033 d *4*	6.7 d *7*	429.9187	3⁻	230.8810	4⁻			Mult.: Reported as M1 for doubly placed γ, but α_K(exp) allows M1,E2 or and E1 and an M1. The J^π's for both placements imply M1,E2.
199.033 d *4*	6.7 d *7*	471.8890	4⁻,(3⁻)	272.8512	5⁻			Mult.: Reported as M1 for doubly placed γ, but α_K(exp) allows M1,E2 or an E1 and an M1. The J^π's for both placements imply M1,E2.
199.503 *5*	3.0 *6*	451.356	2⁻	251.8253	3⁺	E1	0.0441 *6*	α(K)=0.0374 *5*; α(L)=0.00525 *7*; α(M)=0.001128 *16* α(N)=0.000256 *4*; α(O)=3.94×10^{-5} *6*; α(P)=3.42×10^{-6} *5*
199.784 *10*	2.6 *4*	549.587	1⁻	349.8207	2⁺			
199.990 *4*	42 *3*	282.8087	1⁺,2⁺	82.8200	1⁻	E1	0.0438 *6*	α(K)=0.0372 *5*; α(L)=0.00521 *7*; α(M)=0.001120 *16* α(N)=0.000254 *4*; α(O)=3.91×10^{-5} *5*; α(P)=3.39×10^{-6} *5*
201.0215 *23*	32.0 *22*	281.6791	3⁺	80.6560	4⁻	E1	0.0432 *6*	α(K)=0.0367 *5*; α(L)=0.00514 *7*; α(M)=0.001105 *15* α(N)=0.0002504 *35*; α(O)=3.86×10^{-5} *5*; α(P)=3.35×10^{-6} *5*
201.393 *5*	3.3 *7*	338.0996	4⁺	136.6967	5⁺			
x201.462 *7*	4.5 *7*							
203.259 *6*	2.0 *4*	378.7268	5⁻	175.4817	5⁻			
203.506 *4*	15.5 *11*	485.1826	3⁻,4⁻	281.6791	3⁺	E1	0.0418 *6*	α(K)=0.0355 *5*; α(L)=0.00497 *7*; α(M)=0.001069 *15* α(N)=0.0002423 *34*; α(O)=3.73×10^{-5} *5*; α(P)=3.25×10^{-6} *5*

$^{154}_{63}Eu_{91}$-19

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06 (continued)

$\gamma(^{154}Eu)$ (continued)

E_γ †	I_γ ‡ c	E_i(level)	J_i^π	E_f	J_f^π	Mult. #	α b	Comments
204.1279 *21*	21.5 *15*	286.9494	0^+,1^+	82.8200	1^-	E1	0.0415 *6*	α(K)=0.0352 *5*; α(L)=0.00493 *7*; α(M)=0.001060 *15* α(N)=0.0002403 *34*; α(O)=3.70×10^{-5} *5*; α(P)=3.22×10^{-6} *5*
204.894 *3*	5.7 *7*	332.324	3^+,4^+,5^+	127.4301	4^+	E2	0.1986 *28*	α(K)=0.1416 *20*; α(L)=0.0443 *6*; α(M)=0.01011 *14* α(N)=0.002262 *32*; α(O)=0.000322 *5*; α(P)=1.218×10^{-5} *17*
x204.982 *3*	4.3 *6*					M1	0.2458 *34*	α(K)=0.2083 *29*; α(L)=0.0294 *4*; α(M)=0.00636 *9* α(N)=0.001456 *20*; α(O)=0.0002311 *32*; α(P)=2.295×10^{-5} *32*
205.122 *3*	2.6 *4*	378.7268	5^-	173.6022	3^-	E2	0.1979 *28*	α(K)=0.1411 *20*; α(L)=0.0441 *6*; α(M)=0.01007 *14* α(N)=0.002252 *32*; α(O)=0.000321 *4*; α(P)=1.214×10^{-5} *17*
205.800 *8*	2.0 *4*	485.1826	3^-,4^-	279.3791	4^-	E2	0.1957 *27*	α(K)=0.1397 *20*; α(L)=0.0435 *6*; α(M)=0.00993 *14* α(N)=0.002223 *31*; α(O)=0.000317 *4*; α(P)=1.203×10^{-5} *17*
206.6356 *14*	32.0 *24*	278.5480	2^+	71.9118	1^+	M1	0.2405 *34*	α(K)=0.2038 *29*; α(L)=0.0288 *4*; α(M)=0.00622 *9* α(N)=0.001424 *20*; α(O)=0.0002261 *32*; α(P)=2.245×10^{-5} *31*
207.1246 *13*	17.8 *14*	279.0377	0^-	71.9118	1^+	E1	0.0399 *6*	α(K)=0.0339 *5*; α(L)=0.00474 *7*; α(M)=0.001019 *14* α(N)=0.0002311 *32*; α(O)=3.56×10^{-5} *5*; α(P)=3.11×10^{-6} *4*
207.354 *3*	33 *3*	342.1315	2^-	134.7814	1^+	E1	0.0398 *6*	α(K)=0.0338 *5*; α(L)=0.00473 *7*; α(M)=0.001016 *14* α(N)=0.0002304 *32*; α(O)=3.55×10^{-5} *5*; α(P)=3.10×10^{-6} *4*
207.451 *4*	11.0 *13*	549.587	1^-	342.1315	2^-	E2	0.1906 *27*	α(K)=0.1363 *19*; α(L)=0.0422 *6*; α(M)=0.00962 *13* α(N)=0.002152 *30*; α(O)=0.000307 *4*; α(P)=1.176×10^{-5} *16*
x207.681 *11*	2.4 *5*							
208.076 *5*	3.4 *5*	411.8891	4^+	203.8168	$3,4^+$	M1	0.2360 *33*	α(K)=0.2000 *28*; α(L)=0.0282 *4*; α(M)=0.00610 *9* α(N)=0.001397 *20*; α(O)=0.0002218 *31*; α(P)=2.202×10^{-5} *31*
208.352 *15*	4.3 *7*	335.7621	3^+	127.4301	4^+	M1	0.2351 *33*	α(K)=0.1992 *28*; α(L)=0.0281 *4*; α(M)=0.00608 *9* α(N)=0.001392 *19*; α(O)=0.0002210 *31*; α(P)=2.194×10^{-5} *31*
x208.476 *12*	5.4 *8*					E1	0.0393 *5*	α(K)=0.0333 *5*; α(L)=0.00466 *7*; α(M)=0.001001 *14* α(N)=0.0002270 *32*; α(O)=3.50×10^{-5} *5*; α(P)=3.06×10^{-6} *4*
x209.039 *7*	3.5 *6*					E2	0.1858 *26*	α(K)=0.1332 *19*; α(L)=0.0409 *6*; α(M)=0.00933 *13* α(N)=0.002087 *29*; α(O)=0.000298 *4*; α(P)=1.151×10^{-5} *16*
209.468 *3*	13.0 *17*	371.8996	2^+	162.4299	1^-	E1	0.0388 *5*	α(K)=0.0329 *5*; α(L)=0.00460 *6*; α(M)=0.000989 *14* α(N)=0.0002242 *31*; α(O)=3.46×10^{-5} *5*; α(P)=3.02×10^{-6} *4*
209.702 *4*	5.6 *7*	390.4489	4^+	180.7439	5^-	E1	0.0387 *5*	α(K)=0.0328 *5*; α(L)=0.00459 *6*; α(M)=0.000986 *14* α(N)=0.0002235 *31*; α(O)=3.45×10^{-5} *5*; α(P)=3.01×10^{-6} *4*
210.048 *4*	22.0 *20*	309.9953	3^+	99.9484	3^+	M1	0.2299 *32*	α(K)=0.1949 *27*; α(L)=0.0275 *4*; α(M)=0.00594 *8* α(N)=0.001361 *19*; α(O)=0.0002161 *30*; α(P)=2.146×10^{-5} *30*

$^{154}_{63}Eu_{91}$-20

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06 (continued)

$\gamma(^{154}Eu)$ (continued)

E_γ [†]	I_γ [‡c]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[b]	Comments
210.384 *3*	42 *3*	278.5480	2^+	68.1702	2^+	M1	0.2289 *32*	α(K)=0.1940 *27*; α(L)=0.0274 *4*; α(M)=0.00592 *8* α(N)=0.001355 *19*; α(O)=0.0002151 *30*; α(P)=2.137×10^{-5} *30*
[x]210.556 *14*	2.0 *10*					M1	0.2284 *32*	α(K)=0.1936 *27*; α(L)=0.0273 *4*; α(M)=0.00590 *8* α(N)=0.001352 *19*; α(O)=0.0002146 *30*; α(P)=2.132×10^{-5} *30*
210.684 *12*	1.5 *7*	338.0996	4^+	127.4301	4^+	M1	0.2281 *32*	α(K)=0.1933 *27*; α(L)=0.0273 *4*; α(M)=0.00589 *8* α(N)=0.001350 *19*; α(O)=0.0002143 *30*; α(P)=2.128×10^{-5} *30*
210.9005 *21*	44 *4*	282.8087	1^+,2^+	71.9118	1^+	M1	0.2274 *32*	α(K)=0.1927 *27*; α(L)=0.0272 *4*; α(M)=0.00588 *8* α(N)=0.001346 *19*; α(O)=0.0002137 *30*; α(P)=2.122×10^{-5} *30*
[x]211.001 *6*	1.5 *5*					M1	0.2271 *32*	α(K)=0.1925 *27*; α(L)=0.0272 *4*; α(M)=0.00587 *8* α(N)=0.001344 *19*; α(O)=0.0002134 *30*; α(P)=2.120×10^{-5} *30*
211.424 *3*	6.3 *9*	312.2856	5^-	100.8612	4^+	E1	0.0378 *5*	α(K)=0.0321 *4*; α(L)=0.00449 *6*; α(M)=0.000964 *13* α(N)=0.0002186 *31*; α(O)=3.37×10^{-5} *5*; α(P)=2.95×10^{-6} *4*
213.2067 *24*	20.0 *22*	335.7621	3^+	122.5582	2^-	E1	0.0370 *5*	α(K)=0.0314 *4*; α(L)=0.00439 *6*; α(M)=0.000943 *13* α(N)=0.0002138 *30*; α(O)=3.30×10^{-5} *5*; α(P)=2.89×10^{-6} *4*
213.513 *5*	5.6 *7*	281.6791	3^+	68.1702	2^+	E2	0.1732 *24*	α(K)=0.1249 *17*; α(L)=0.0376 *5*; α(M)=0.00857 *12* α(N)=0.001918 *27*; α(O)=0.000274 *4*; α(P)=1.084×10^{-5} *15*
214.6370 *22*	16.0 *13*	282.8087	1^+,2^+	68.1702	2^+	M1	0.2168 *30*	α(K)=0.1837 *26*; α(L)=0.0259 *4*; α(M)=0.00560 *8* α(N)=0.001282 *18*; α(O)=0.0002036 *29*; α(P)=2.023×10^{-5} *28*
215.0344 *21*	16.0 *13*	286.9494	0^+,1^+	71.9118	1^+	M1	0.2157 *30*	α(K)=0.1828 *26*; α(L)=0.0258 *4*; α(M)=0.00557 *8* α(N)=0.001276 *18*; α(O)=0.0002025 *28*; α(P)=2.012×10^{-5} *28*
215.280 *5*	3.6 *7*	295.9225	3^+,4^+	80.6560	4^-	E1	0.0361 *5*	α(K)=0.0306 *4*; α(L)=0.00427 *6*; α(M)=0.000918 *13* α(N)=0.0002083 *29*; α(O)=3.22×10^{-5} *5*; α(P)=2.82×10^{-6} *4*
215.699 *6*	3.0 *6*	467.5320	4^-	251.8253	3^+			Mult.: Reported as E2, but J^π require E1.
215.838 *4*	7.8 *12*	429.9187	3^-	214.0746	3^-	M1	0.2135 *30*	α(K)=0.1809 *25*; α(L)=0.0255 *4*; α(M)=0.00551 *8* α(N)=0.001263 *18*; α(O)=0.0002005 *28*; α(P)=1.992×10^{-5} *28*
216.041 *3*	13.7 *13*	401.091	2^+,3^+	185.0509	2^+	M1	0.2129 *30*	α(K)=0.1805 *25*; α(L)=0.0255 *4*; α(M)=0.00550 *8* α(N)=0.001259 *18*; α(O)=0.0002000 *28*; α(P)=1.987×10^{-5} *28*
[x]216.124 *7*	5.0 *13*					M1,E2	0.190 *23*	α(K)=0.150 *30*; α(L)=0.031 *5*; α(M)=0.0068 *13* α(N)=0.00154 *29*; α(O)=0.000231 *31*; α(P)=1.5×10^{-5} *5*
216.823 *4*	10.6 *8*	390.4267	2^-	173.6022	3^-	M1,E2	0.188 *23*	α(K)=0.149 *30*; α(L)=0.030 *5*; α(M)=0.0068 *13* α(N)=0.00153 *28*; α(O)=0.000228 *30*; α(P)=1.5×10^{-5} *5*
217.348 *16*	1.5 *5*	513.271	4^-,(2^-,3^-)	295.9225	3^+,4^+			
217.732 *3*	5.5 *5*	402.7890	0^+,1^+,2^+	185.0509	2^+	E2	0.1624 *23*	α(K)=0.1176 *16*; α(L)=0.0348 *5*; α(M)=0.00792 *11* α(N)=0.001774 *25*; α(O)=0.000254 *4*; α(P)=1.025×10^{-5} *14*

$^{154}_{63}Eu_{91}$-21

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06 (continued)

γ(^{154}Eu) (continued)

E_γ[†]	I_γ[‡c]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[b]	Comments
[x]218.408 *5*	2.0 *4*							
219.318 *3*	16 *6*	471.1510	(3,4)$^-$	251.8253	3$^+$	E1	0.0343 *5*	α(K)=0.0292 *4*; α(L)=0.00407 *6*; α(M)=0.000874 *12* α(N)=0.0001982 *28*; α(O)=3.06×10^{-5} *4*; α(P)=2.69×10^{-6} *4*
219.574[d] *8*	1.5[d] *5*	342.1315	2$^-$	122.5582	2$^-$			
219.574[d] *8*	1.5[d] *5*	411.8891	4$^+$	192.2939	4$^+$,5$^+$			
219.991 *6*	1.8 *4*	515.9284	3$^-$	295.9225	3$^+$,4$^+$			
[x]220.7989 *22*	7.2 *6*					M1,E2	0.178 *23*	α(K)=0.141 *29*; α(L)=0.028 *4*; α(M)=0.0063 *12* α(N)=0.00143 *25*; α(O)=0.000214 *26*; α(P)=1.4×10^{-5} *4*
221.414 *4*	4.0 *5*	553.734	5$^-$,(4$^-$)	332.324	3$^+$,4$^+$,5$^+$			Mult.: ce data consistent with E2 or E1; level scheme requires Δπ=yes.
221.971 *5*	15 *3*	402.7890	0$^+$,1$^+$,2$^+$	180.8092	2$^-$			Mult.: Reported as E1 for triply placed γ, but α_K(exp) allows some E2 or M1 contribution; J^π's require E1 for this γ.
221.971[d] *5*	15[d] *3*	407.0338	3$^-$	185.0509	2$^+$			Mult.: Reported as E1 for triply placed γ, but α_K(exp) allows some E2 or M1 contribution; J^π's require E1 for this γ.
221.971[d] *5*	15[d] *3*	425.7890	4$^-$	203.8168	3,4$^+$			Mult.: Reported as E1 for triply placed γ, but α_K(exp) allows some E2 or M1 contribution; J^π's require E1 for this γ.
[x]222.764 *12*	4.0 *7*					E2	0.1506 *21*	α(K)=0.1097 *15*; α(L)=0.0318 *4*; α(M)=0.00724 *10* α(N)=0.001621 *23*; α(O)=0.0002323 *33*; α(P)=9.61×10^{-6} *13*
[x]223.073 *5*	3.6 *7*							
223.301 *3*	6.5 *11*	551.3139	4$^-$	328.0177	4$^-$	M1,E2	0.172 *23*	α(K)=0.137 *28*; α(L)=0.027 *4*; α(M)=0.0061 *11* α(N)=0.00138 *23*; α(O)=0.000206 *24*; α(P)=1.4×10^{-5} *4*
[x]223.716 *10*	1.8 *5*							
225.024 *6*	2.5 *4*	410.0748	1$^-$	185.0509	2$^+$			
225.730 *20*	1.7 *4*	505.1400	3$^-$	279.3791	4$^-$			
226.0080 *14*	50 *4*	326.8726	3$^+$,4$^+$	100.8612	4$^+$	M1	0.1883 *26*	α(K)=0.1596 *22*; α(L)=0.02250 *32*; α(M)=0.00486 *7* α(N)=0.001113 *16*; α(O)=0.0001767 *25*; α(P)=1.756×10^{-5} *25*
226.917 *10*	3.4 *4*	326.8726	3$^+$,4$^+$	99.9484	3$^+$	M1	0.1863 *26*	α(K)=0.1579 *22*; α(L)=0.02226 *31*; α(M)=0.00480 *7* α(N)=0.001100 *15*; α(O)=0.0001747 *24*; α(P)=1.737×10^{-5} *24*
227.153 *5*	33.0 *23*	328.0177	4$^-$	100.8612	4$^+$	E1	0.0313 *4*	α(K)=0.0266 *4*; α(L)=0.00370 *5*; α(M)=0.000795 *11* α(N)=0.0001805 *25*; α(O)=2.79×10^{-5} *4*; α(P)=2.462×10^{-6} *34*
227.277[d] *12*	8.5[d] *9*	349.8207	2$^+$	122.5582	2$^-$			Mult.: Reported as E1 for triply placed γ, but α_K(exp) allows some E2 or M1 contribution; J^π's require E1 for this γ.
227.277[d] *12*	8.5[d] *9*	363.9665	4$^-$,5$^-$	136.6967	5$^+$			Mult.: Reported as E1 for doubly placed γ, but α_K(exp) allows some E2 or M1 contribution; J^π's require E1 for this γ.
227.479 *9*	1.7 *6*	401.091	2$^+$,3$^+$	173.6022	3$^-$			
227.787 *10*	3.0 *4*	362.5962	1$^-$	134.7814	1$^+$	E1	0.0311 *4*	α(K)=0.0264 *4*; α(L)=0.00368 *5*; α(M)=0.000789 *11* α(N)=0.0001792 *25*; α(O)=2.77×10^{-5} *4*; α(P)=2.444×10^{-6} *34*

$^{154}_{63}Eu_{91}$-22

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06 (continued)

γ(^{154}Eu) (continued)

E_γ[†]	I_γ[‡c]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[b]	Comments
227.9955 *19*	21.5 *15*	390.4267	2$^-$	162.4299	1$^-$	M1	0.1839 *26*	α(K)=0.1559 *22*; α(L)=0.02197 *31*; α(M)=0.00474 *7* α(N)=0.001086 *15*; α(O)=0.0001725 *24*; α(P)=1.715×10^{-5} *24*
229.262 *4*	6.5 *5*	410.0748	1$^-$	180.8092	2$^-$	E2	0.1371 *19*	α(K)=0.1005 *14*; α(L)=0.0284 *4*; α(M)=0.00646 *9* α(N)=0.001447 *20*; α(O)=0.0002079 *29*; α(P)=8.86×10^{-6} *12*
229.771 *5*	5.9 *5*	593.7260	4$^-$	363.9665	4$^-$,5$^-$	M1	0.1800 *25*	α(K)=0.1526 *21*; α(L)=0.02151 *30*; α(M)=0.00464 *6* α(N)=0.001063 *15*; α(O)=0.0001688 *24*; α(P)=1.679×10^{-5} *24*
230.357 *10*	1.6 *3*	572.469	4$^-$	342.1315	2$^-$			
231.471 *4*	6.8 *7*	332.324	3$^+$,4$^+$,5$^+$	100.8612	4$^+$	E2	0.1328 *19*	α(K)=0.0976 *14*; α(L)=0.0274 *4*; α(M)=0.00622 *9* α(N)=0.001394 *20*; α(O)=0.0002004 *28*; α(P)=8.63×10^{-6} *12*
[x]231.950 *15*	1.8 *3*							
232.474 *7*	3.8 *7*	315.3133	1$^-$	82.8200	1$^-$	M1	0.1744 *24*	α(K)=0.1479 *21*; α(L)=0.02083 *29*; α(M)=0.00450 *6* α(N)=0.001030 *14*; α(O)=0.0001635 *23*; α(P)=1.626×10^{-5} *23* E_γ: γ may have significant contribution from ^{155}Eu.
232.595[d] *11*	2.3[d] *4*	428.7117	4$^+$,5$^+$	196.1211	4$^+$,5$^+$,6$^+$	M1	0.1742 *24*	α(K)=0.1477 *21*; α(L)=0.02080 *29*; α(M)=0.00449 *6* α(N)=0.001028 *14*; α(O)=0.0001633 *23*; α(P)=1.624×10^{-5} *23*
232.595[d] *11*	2.3[d] *4*	471.8890	4$^-$,(3$^-$)	239.2889	3$^-$	M1	0.1742 *24*	α(K)=0.1477 *21*; α(L)=0.02080 *29*; α(M)=0.00449 *6* α(N)=0.001028 *14*; α(O)=0.0001633 *23*; α(P)=1.624×10^{-5} *23*
233.436 *4*	7.0 *6*	407.0338	3$^-$	173.6022	3$^-$	M1	0.1725 *24*	α(K)=0.1462 *20*; α(L)=0.02060 *29*; α(M)=0.00445 *6* α(N)=0.001018 *14*; α(O)=0.0001617 *23*; α(P)=1.608×10^{-5} *23*
234.2504 *24*	9.6 *8*	515.9284	3$^-$	281.6791	3$^+$			Mult.: Reported as E1 or E2; level scheme requires $\Delta\pi$=yes.
234.883 *3*	8.5 *7*	334.8346	1$^+$,2$^+$	99.9484	3$^+$	M1,E2	0.148 *22*	α(K)=0.119 *25*; α(L)=0.0231 *28*; α(M)=0.0051 *8* α(N)=0.00116 *16*; α(O)=0.000174 *15*; α(P)=1.2×10^{-5} *4*
235.823 *6*	35 *4*	335.7621	3$^+$	99.9484	3$^+$	M1	0.1678 *23*	α(K)=0.1423 *20*; α(L)=0.02003 *28*; α(M)=0.00432 *6* α(N)=0.000990 *14*; α(O)=0.0001572 *22*; α(P)=1.564×10^{-5} *22*
236.368 *25*	2.2 *4*	428.7117	4$^+$,5$^+$	192.2939	4$^+$,5$^+$			
236.625 *4*	18.0 *13*	364.0549	3$^+$,4$^+$,5$^+$	127.4301	4$^+$	M1,E2	0.145 *21*	α(K)=0.116 *25*; α(L)=0.0225 *27*; α(M)=0.0050 *7* α(N)=0.00113 *15*; α(O)=0.000170 *14*; α(P)=1.2×10^{-5} *4*
[x]236.843 *3*	2.1 *4*					M1	0.1658 *23*	α(K)=0.1406 *20*; α(L)=0.01980 *28*; α(M)=0.00427 *6* α(N)=0.000979 *14*; α(O)=0.0001554 *22*; α(P)=1.546×10^{-5} *22*
237.233 *7*	30 *5*	338.0996	4$^+$	100.8612	4$^+$	M1	0.1651 *23*	α(K)=0.1400 *20*; α(L)=0.01971 *28*; α(M)=0.00425 *6* α(N)=0.000974 *14*; α(O)=0.0001547 *22*; α(P)=1.539×10^{-5} *22*
[x]238.121 *13*	5.5 *19*					E1	0.0277 *4*	α(K)=0.02354 *33*; α(L)=0.00327 *5*; α(M)=0.000702 *10* α(N)=0.0001593 *22*; α(O)=2.465×10^{-5} *35*; α(P)=2.187×10^{-6} *31*

$^{154}_{63}Eu_{91}$-23

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06 (continued)

γ(^{154}Eu) (continued)

E_γ †	I_γ ‡ c	E_i(level)	J_i^π	E_f	J_f^π	Mult. #	α b	Comments
238.560 *4*	12.5 *19*	319.2100	$3^+,4^+$	80.6560	4^-	E1	0.0276 *4*	α(K)=0.02342 *33*; α(L)=0.00325 *5*; α(M)=0.000698 *10* α(N)=0.0001585 *22*; α(O)=2.453×10^{-5} *34*; α(P)=2.177×10^{-6} *30*
238.8803 *22*	9.9 *9*	419.6903	2^-	180.8092	2^-	M1	0.1620 *23*	α(K)=0.1374 *19*; α(L)=0.01934 *27*; α(M)=0.00417 *6* α(N)=0.000956 *13*; α(O)=0.0001518 *21*; α(P)=1.511×10^{-5} *21*
239.2898 *12*	82 *6*	239.2889	3^-	0.0	3^-	M1	0.1613 *23*	α(K)=0.1368 *19*; α(L)=0.01925 *27*; α(M)=0.00415 *6* α(N)=0.000951 *13*; α(O)=0.0001511 *21*; α(P)=1.503×10^{-5} *21*
240.0420 *25*	8.1 *6*	362.5962	1^-	122.5582	2^-	M1,E2	0.139 *21*	α(K)=0.112 *24*; α(L)=0.0214 *24*; α(M)=0.0048 *6* α(N)=0.00108 *13*; α(O)=0.000162 *13*; α(P)=1.1×10^{-5} *4*
240.138 *3*	3.5 *4*	572.469	4^-	332.324	$3^+,4^+,5^+$			
240.278 *5*	1.80 *20*	471.1510	$(3,4)^-$	230.8810	4^-	M1	0.1595 *22*	α(K)=0.1352 *19*; α(L)=0.01903 *27*; α(M)=0.00411 *6* α(N)=0.000941 *13*; α(O)=0.0001494 *21*; α(P)=1.487×10^{-5} *21*
240.409 *9*	3.0 *3*	425.472	$1^+,2^+$	185.0509	2^+	E2	0.1174 *16*	α(K)=0.0870 *12*; α(L)=0.02365 *33*; α(M)=0.00536 *8* α(N)=0.001203 *17*; α(O)=0.0001734 *24*; α(P)=7.75×10^{-6} *11*
x241.497 *8*	2.2 *3*					M1	0.1573 *22*	α(K)=0.1334 *19*; α(L)=0.01877 *26*; α(M)=0.00405 *6* α(N)=0.000928 *13*; α(O)=0.0001474 *21*; α(P)=1.466×10^{-5} *21*
242.1894 *19*	23.0 *16*	342.1315	2^-	99.9484	3^+	E1	0.0265 *4*	α(K)=0.02253 *32*; α(L)=0.00312 *4*; α(M)=0.000671 *9* α(N)=0.0001523 *21*; α(O)=2.358×10^{-5} *33*; α(P)=2.097×10^{-6} *29*
x242.778 *4*	4.0 *3*					M1	0.1551 *22*	α(K)=0.1315 *18*; α(L)=0.01850 *26*; α(M)=0.00399 *6* α(N)=0.000915 *13*; α(O)=0.0001452 *20*; α(P)=1.446×10^{-5} *20*
243.411 *3*	26.0 *18*	315.3133	1^-	71.9118	1^+	E1	0.0262 *4*	α(K)=0.02223 *31*; α(L)=0.00308 *4*; α(M)=0.000662 *9* α(N)=0.0001503 *21*; α(O)=2.327×10^{-5} *33*; α(P)=2.071×10^{-6} *29*
x244.116 *21*	1.0 *3*					M1	0.1528 *21*	α(K)=0.1296 *18*; α(L)=0.01823 *26*; α(M)=0.00393 *6* α(N)=0.000901 *13*; α(O)=0.0001431 *20*; α(P)=1.424×10^{-5} *20*
x245.133 *5*	3.9 *3*					M1	0.1511 *21*	α(K)=0.1281 *18*; α(L)=0.01802 *25*; α(M)=0.00389 *5* α(N)=0.000891 *12*; α(O)=0.0001415 *20*; α(P)=1.408×10^{-5} *20*
247.131 *7*	18.8 *15*	315.3133	1^-	68.1702	2^+	E1	0.02514 *35*	α(K)=0.02138 *30*; α(L)=0.00296 *4*; α(M)=0.000636 *9* α(N)=0.0001444 *20*; α(O)=2.237×10^{-5} *31*; α(P)=1.994×10^{-6} *28*
247.359 *4*	3.3 *3*	328.0177	4^-	80.6560	4^-	M1,E2	0.127 *20*	α(K)=0.102 *23*; α(L)=0.0194 *18*; α(M)=0.0043 *5* α(N)=0.00097 *11*; α(O)=0.000147 *9*; α(P)=1.04×10^{-5} *33*
247.636 *4*	5.7 *5*	410.0748	1^-	162.4299	1^-	M1	0.1470 *21*	α(K)=0.1247 *17*; α(L)=0.01753 *25*; α(M)=0.00378 *5* α(N)=0.000867 *12*; α(O)=0.0001376 *19*; α(P)=1.370×10^{-5} *19*
x248.848 *25*	1.1 *3*							
249.094 *8*	14.5 *11*	429.9187	3^-	180.8092	2^-	M1	0.1447 *20*	α(K)=0.1227 *17*; α(L)=0.01725 *24*; α(M)=0.00372 *5* α(N)=0.000853 *12*; α(O)=0.0001354 *19*; α(P)=1.348×10^{-5} *19*

$^{154}_{63}Eu_{91}$-24

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06 (continued)

γ(^{154}Eu) (continued)

E_γ [†]	I_γ [‡c]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[b]	Comments
249.341 *6*	10.5 *8*	371.8996	2^+	122.5582	2^-	E1	0.02457 *34*	α(K)=0.02089 *29*; α(L)=0.00289 *4*; α(M)=0.000621 *9* α(N)=0.0001410 *20*; α(O)=2.186×10^{-5} *31*; α(P)=1.950×10^{-6} *27*
x250.094 *15*	3.2 *6*					M1	0.1431 *20*	α(K)=0.1214 *17*; α(L)=0.01707 *24*; α(M)=0.00368 *5* α(N)=0.000844 *12*; α(O)=0.0001340 *19*; α(P)=1.334×10^{-5} *19*
250.293 *6*	14.8 *12*	425.7890	4^-	175.4817	5^-	M1	0.1428 *20*	α(K)=0.1211 *17*; α(L)=0.01703 *24*; α(M)=0.00367 *5* α(N)=0.000842 *12*; α(O)=0.0001337 *19*; α(P)=1.331×10^{-5} *19*
250.887 *3*	3.0 *3*	435.940	1^-	185.0509	2^+			
252.0198 *15*	28.5 *23*	334.8346	1^+,2^+	82.8200	1^-	E1	0.02390 *33*	α(K)=0.02032 *28*; α(L)=0.00281 *4*; α(M)=0.000604 *8* α(N)=0.0001371 *19*; α(O)=2.126×10^{-5} *30*; α(P)=1.899×10^{-6} *27*
x252.1436 *19*	10.0 *8*					M1	0.1400 *20*	α(K)=0.1188 *17*; α(L)=0.01669 *23*; α(M)=0.00360 *5* α(N)=0.000825 *12*; α(O)=0.0001310 *18*; α(P)=1.305×10^{-5} *18*
x252.457 *17*	0.50 *15*							
252.713 *4*	7.3 *5*	428.1890	4^-,5^-	175.4817	5^-	M1	0.1392 *19*	α(K)=0.1180 *17*; α(L)=0.01659 *23*; α(M)=0.00358 *5* α(N)=0.000820 *11*; α(O)=0.0001302 *18*; α(P)=1.297×10^{-5} *18*
253.212 *6*	4.0 *7*	428.7117	4^+,5^+	175.4817	5^-	E1	0.02361 *33*	α(K)=0.02008 *28*; α(L)=0.00278 *4*; α(M)=0.000596 *8* α(N)=0.0001354 *19*; α(O)=2.100×10^{-5} *29*; α(P)=1.877×10^{-6} *26*
254.285 *6*	2.0 *5*	485.1826	3^-,4^-	230.8810	4^-			
255.136 *4*	1.30 *20*	435.940	1^-	180.8092	2^-	M1	0.1356 *19*	α(K)=0.1150 *16*; α(L)=0.01617 *23*; α(M)=0.00349 *5* α(N)=0.000799 *11*; α(O)=0.0001269 *18*; α(P)=1.264×10^{-5} *18*
x255.537 *4*	6.8 *4*					E2	0.0965 *14*	α(K)=0.0724 *10*; α(L)=0.01874 *26*; α(M)=0.00424 *6* α(N)=0.000951 *13*; α(O)=0.0001378 *19*; α(P)=6.53×10^{-6} *9*
x257.002 *9*	0.80 *20*							
x257.148 *7*	1.90 *20*							
257.256 *9*	14.5 *10*	419.6903	2^-	162.4299	1^-	M1	0.1327 *19*	α(K)=0.1125 *16*; α(L)=0.01581 *22*; α(M)=0.00341 *5* α(N)=0.000781 *11*; α(O)=0.0001241 *17*; α(P)=1.236×10^{-5} *17*
257.807 *5*	10.0 *7*	553.734	5^-,(4^-)	295.9225	3^+,4^+	E1	0.02254 *32*	α(K)=0.01917 *27*; α(L)=0.00265 *4*; α(M)=0.000569 *8* α(N)=0.0001292 *18*; α(O)=2.004×10^{-5} *28*; α(P)=1.795×10^{-6} *25*
x258.545 *8*	2.0 *3*							
x258.631 *6*	3.0 *3*							
x259.432 *9*	2.9 *5*					E2,M1	0.111 *19*	α(K)=0.090 *20*; α(L)=0.0166 *11*; α(M)=0.00367 *34* α(N)=0.00083 *7*; α(O)=0.000126 *5*; α(P)=9.2×10^{-6} *29*
x259.816 *6*	4.5 *7*					E2	0.0915 *13*	α(K)=0.0689 *10*; α(L)=0.01760 *25*; α(M)=0.00398 *6* α(N)=0.000893 *13*; α(O)=0.0001296 *18*; α(P)=6.23×10^{-6} *9*
259.8867 *23*	17.6 *16*	532.7393	4^-,$(3)^-$	272.8512	5^-	E2	0.0914 *13*	α(K)=0.0688 *10*; α(L)=0.01758 *25*; α(M)=0.00397 *6* α(N)=0.000892 *12*; α(O)=0.0001294 *18*; α(P)=6.23×10^{-6} *9*

$^{154}_{63}Eu_{91}$-25

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06 (continued)

γ(^{154}Eu) (continued)

E_γ [†]	I_γ [‡c]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[b]	Comments
[x]261.415 *6*	3.8 *3*					E2	0.0897 *13*	α(K)=0.0676 *9*; α(L)=0.01720 *24*; α(M)=0.00389 *5* α(N)=0.000873 *12*; α(O)=0.0001267 *18*; α(P)=6.13×10^{-6} *9*
262.50 *4*	0.9 *3*	572.469	4$^-$	309.9953	3$^+$			
262.917 *9*	10.0 *8*	334.8346	1$^+$,2$^+$	71.9118	1$^+$	M1,E2	0.107 *19*	α(K)=0.086 *20*; α(L)=0.0159 *10*; α(M)=0.00351 *30* α(N)=0.00080 *6*; α(O)=0.000120 *4*; α(P)=8.8×10^{-6} *28*
263.114 *3*	77 *5*	363.9665	4$^-$,5$^-$	100.8612	4$^+$	E1	0.02139 *30*	α(K)=0.01819 *25*; α(L)=0.002511 *35*; α(M)=0.000539 *8* α(N)=0.0001225 *17*; α(O)=1.901×10^{-5} *27*; α(P)=1.707×10^{-6} *24*
263.213 *8*	3.5 *6*	364.0549	3$^+$,4$^+$,5$^+$	100.8612	4$^+$	M1	0.1247 *17*	α(K)=0.1058 *15*; α(L)=0.01485 *21*; α(M)=0.00320 *4* α(N)=0.000734 *10*; α(O)=0.0001166 *16*; α(P)=1.162×10^{-5} *16*
[x]263.757 *5*	2.0 *3*					M1	0.1240 *17*	α(K)=0.1052 *15*; α(L)=0.01477 *21*; α(M)=0.00319 *4* α(N)=0.000730 *10*; α(O)=0.0001159 *16*; α(P)=1.155×10^{-5} *16*
265.082 *14*	0.60 *15*	479.142	3$^-$	214.0746	3$^-$			
[x]265.370 *5*	2.7 *6*					M1	0.1220 *17*	α(K)=0.1035 *14*; α(L)=0.01453 *20*; α(M)=0.00313 *4* α(N)=0.000718 *10*; α(O)=0.0001140 *16*; α(P)=1.136×10^{-5} *16*
265.961 *5*	3.4 *3*	451.0074	2$^+$,3$^+$	185.0509	2$^+$	M1	0.1213 *17*	α(K)=0.1029 *14*; α(L)=0.01444 *20*; α(M)=0.00312 *4* α(N)=0.0007137 *99*; α(O)=0.0001134 *16*; α(P)=1.130×10^{-5} *16*
266.251 *8*	1.30 *20*	593.142	3$^-$	326.8726	3$^+$,4$^+$			
266.667 *6*	4.0 *3*	334.8346	1$^+$,2$^+$	68.1702	2$^+$	M1	0.1204 *17*	α(K)=0.1022 *14*; α(L)=0.01434 *20*; α(M)=0.00309 *4* α(N)=0.000709 *10*; α(O)=0.0001125 *16*; α(P)=1.122×10^{-5} *16*
267.0000 *25*	16.5 *25*	349.8207	2$^+$	82.8200	1$^-$	E1	0.02060 *29*	α(K)=0.01752 *25*; α(L)=0.002417 *34*; α(M)=0.000519 *7* α(N)=0.0001179 *17*; α(O)=1.830×10^{-5} *26*; α(P)=1.646×10^{-6} *23*
267.589 *9*	14.0 *8*	335.7621	3$^+$	68.1702	2$^+$	M1	0.1193 *17*	α(K)=0.1012 *14*; α(L)=0.01421 *20*; α(M)=0.00306 *4* α(N)=0.000702 *10*; α(O)=0.0001115 *16*; α(P)=1.111×10^{-5} *16*
268.011 *4*	8.3 *6*	402.7890	0$^+$,1$^+$,2$^+$	134.7814	1$^+$	M1	0.1188 *17*	α(K)=0.1008 *14*; α(L)=0.01415 *20*; α(M)=0.00305 *4* α(N)=0.000699 *10*; α(O)=0.0001110 *16*; α(P)=1.106×10^{-5} *15*
[x]268.230 *5*	4.2 *4*					E2	0.0827 *12*	α(K)=0.0626 *9*; α(L)=0.01562 *22*; α(M)=0.00353 *5* α(N)=0.000792 *11*; α(O)=0.0001152 *16*; α(P)=5.70×10^{-6} *8*
[x]269.70 *3*	2.8 *13*					M1,E2	0.099 *18*	α(K)=0.080 *19*; α(L)=0.0146 *7*; α(M)=0.00323 *23* α(N)=0.00073 *5*; α(O)=0.0001110 *24*; α(P)=8.2×10^{-6} *26*
269.843 *13*	4.5 *4*	505.1400	3$^-$	235.2787	4$^-$	M1	0.1167 *16*	α(K)=0.0990 *14*; α(L)=0.01389 *19*; α(M)=0.00300 *4* α(N)=0.000686 *10*; α(O)=0.0001090 *15*; α(P)=1.086×10^{-5} *15*
270.222 *5*	33.0 *20*	342.1315	2$^-$	71.9118	1$^+$	E1	0.01997 *28*	α(K)=0.01699 *24*; α(L)=0.002342 *33*; α(M)=0.000503 *7* α(N)=0.0001143 *16*; α(O)=1.774×10^{-5} *25*; α(P)=1.598×10^{-6} *22*
[x]270.310 *7*								I_γ: I(ce)=0.47 *7*.
270.540 *9*	5.5 *4*	549.587	1$^-$	279.0377	0$^-$	M1	0.1159 *16*	α(K)=0.0983 *14*; α(L)=0.01379 *19*; α(M)=0.00297 *4* α(N)=0.000681 *10*; α(O)=0.0001082 *15*; α(P)=1.079×10^{-5} *15*

$^{154}_{63}Eu_{91}$-26

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06 (continued)

$\gamma(^{154}Eu)$ (continued)

E_γ [†]	I_γ [‡c]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α [b]	Comments
[x]271.313 *20*	1.30 *15*							
271.963 *4*	6.0 *6*	371.8996	2^+	99.9484	3^+	M1	0.1143 *16*	α(K)=0.0969 *14*; α(L)=0.01360 *19*; α(M)=0.00293 *4* α(N)=0.000672 *9*; α(O)=0.0001067 *15*; α(P)=1.064×10^{-5} *15*
[x]272.060 *3*	5.5 *6*					E1	0.01963 *27*	α(K)=0.01670 *23*; α(L)=0.002301 *32*; α(M)=0.000494 *7* α(N)=0.0001123 *16*; α(O)=1.744×10^{-5} *24*; α(P)=1.572×10^{-6} *22*
[x]272.981 *16*	0.80 *10*							
[x]274.117 *6*	6.0 *5*					M1	0.1119 *16*	α(K)=0.0949 *13*; α(L)=0.01331 *19*; α(M)=0.00287 *4* α(N)=0.000658 *9*; α(O)=0.0001045 *15*; α(P)=1.041×10^{-5} *15* I_γ: I(ce)=0.23 *3*.
274.250 *9*	3.5 *7*	505.1400	3^-	230.8810	4^-	M1	0.1117 *16*	α(K)=0.0948 *13*; α(L)=0.01329 *19*; α(M)=0.00287 *4* α(N)=0.000657 *9*; α(O)=0.0001043 *15*; α(P)=1.040×10^{-5} *15*
[x]274.733 *20*								
[x]274.947 *8*	1.7 *3*					M1	0.1110 *16*	α(K)=0.0942 *13*; α(L)=0.01320 *18*; α(M)=0.00285 *4* α(N)=0.000652 *9*; α(O)=0.0001036 *15*; α(P)=1.033×10^{-5} *14*
275.194 *3*	13.3 *7*	411.8891	4^+	136.6967	5^+	M1	0.1107 *15*	α(K)=0.0939 *13*; α(L)=0.01317 *18*; α(M)=0.00284 *4* α(N)=0.000651 *9*; α(O)=0.0001034 *14*; α(P)=1.031×10^{-5} *14*
[x]276.530 *6*	7.7 *5*					M1,E2	0.092 *17*	α(K)=0.075 *18*; α(L)=0.0135 *5*; α(M)=0.00297 *18* α(N)=0.000674 *33*; α(O)=0.0001025 *15*; α(P)=7.7×10^{-6} *25*
277.364 *10*	3.3 *3*	407.0338	3^-	129.6795	4^-	M1	0.1084 *15*	α(K)=0.0920 *13*; α(L)=0.01289 *18*; α(M)=0.00278 *4* α(N)=0.000637 *9*; α(O)=0.0001012 *14*; α(P)=1.009×10^{-5} *14*
277.781 *11*	16.5 *11*	451.356	2^-	173.6022	3^-	M1	0.1080 *15*	α(K)=0.0916 *13*; α(L)=0.01284 *18*; α(M)=0.00277 *4* α(N)=0.000634 *9*; α(O)=0.0001008 *14*; α(P)=1.005×10^{-5} *14*
277.892 *14*	16.5 *11*	349.8207	2^+	71.9118	1^+	M1	0.1079 *15*	α(K)=0.0915 *13*; α(L)=0.01283 *18*; α(M)=0.00277 *4* α(N)=0.000634 *9*; α(O)=0.0001007 *14*; α(P)=1.004×10^{-5} *14*
[x]278.295 *21*	1.4 *5*							
278.513 *9*	12.0 *7*	401.091	2^+,3^+	122.5582	2^-	E1	0.01849 *26*	α(K)=0.01573 *22*; α(L)=0.002166 *30*; α(M)=0.000465 *7* α(N)=0.0001057 *15*; α(O)=1.642×10^{-5} *23*; α(P)=1.484×10^{-6} *21*
278.954 *5*	6.6 *5*	415.6551	4^+,5^+	136.6967	5^+	M1	0.1068 *15*	α(K)=0.0906 *13*; α(L)=0.01270 *18*; α(M)=0.00274 *4* α(N)=0.000627 *9*; α(O)=9.96×10^{-5} *14*; α(P)=9.94×10^{-6} *14*
279.607[d] *6*	4.1[d] *4*	407.0338	3^-	127.4301	4^+	E1	0.01830 *26*	α(K)=0.01558 *22*; α(L)=0.002144 *30*; α(M)=0.000460 *6* α(N)=0.0001046 *15*; α(O)=1.625×10^{-5} *23*; α(P)=1.469×10^{-6} *21*
279.607[d] *6*	4.1[d] *4*	471.8890	4^-,(3^-)	192.2939	4^+,5^+	E1	0.01830 *26*	α(K)=0.01558 *22*; α(L)=0.002144 *30*; α(M)=0.000460 *6* α(N)=0.0001046 *15*; α(O)=1.625×10^{-5} *23*; α(P)=1.469×10^{-6} *21*
279.780 *6*	3.0 *4*	362.5962	1^-	82.8200	1^-	M1	0.1059 *15*	α(K)=0.0899 *13*; α(L)=0.01259 *18*; α(M)=0.00272 *4* α(N)=0.000622 *9*; α(O)=9.89×10^{-5} *14*; α(P)=9.86×10^{-6} *14*

$^{154}_{63}Eu_{91}$-27

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06 (continued)

γ(^{154}Eu) (continued)

E_γ [†]	I_γ [‡c]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[b]	Comments
[x]280.563 *15*	2.1 *5*					M1	0.1051 *15*	α(K)=0.0892 *12*; α(L)=0.01250 *18*; α(M)=0.00270 *4* α(N)=0.000618 *9*; α(O)=9.81×10^{-5} *14*; α(P)=9.78×10^{-6} *14*
281.684 *4*	195 *10*	281.6791	3$^+$	0.0	3$^-$	E1	0.01796 *25*	α(K)=0.01529 *21*; α(L)=0.002103 *29*; α(M)=0.000451 *6* α(N)=0.0001026 *14*; α(O)=1.595×10^{-5} *22*; α(P)=1.443×10^{-6} *20*
282.542 *10*	9.3 *15*	486.3840	3$^+$,4$^+$	203.8168	3,4$^+$	M1	0.1032 *14*	α(K)=0.0875 *12*; α(L)=0.01227 *17*; α(M)=0.00265 *4* α(N)=0.000606 *8*; α(O)=9.63×10^{-5} *13*; α(P)=9.60×10^{-6} *13*
[x]283.848 *19*	1.30 *20*					M1	0.1019 *14*	α(K)=0.0865 *12*; α(L)=0.01211 *17*; α(M)=0.00261 *4* α(N)=0.000599 *8*; α(O)=9.51×10^{-5} *13*; α(P)=9.48×10^{-6} *13*
[x]284.378 *5*	4.8 *4*					M1	0.1014 *14*	α(K)=0.0861 *12*; α(L)=0.01205 *17*; α(M)=0.00260 *4* α(N)=0.000596 *8*; α(O)=9.46×10^{-5} *13*; α(P)=9.44×10^{-6} *13*
[x]284.512 *5*	4.5 *4*					M1	0.1013 *14*	α(K)=0.0859 *12*; α(L)=0.01204 *17*; α(M)=0.00260 *4* α(N)=0.000595 *8*; α(O)=9.45×10^{-5} *13*; α(P)=9.42×10^{-6} *13*
285.752 *11*	0.50 *15*	521.0540	3$^+$	235.2787	4$^-$			
286.64 *3*	0.50 *15*	467.5320	4$^-$	180.8092	2$^-$			
288.221 *10*	1.70 *25*	415.6551	4$^+$,5$^+$	127.4301	4$^+$			
288.586 *6*	2.5 *3*	451.0074	2$^+$,3$^+$	162.4299	1$^-$			
[x]288.959 *7*	9.0 *19*					M1	0.0972 *14*	α(K)=0.0825 *12*; α(L)=0.01155 *16*; α(M)=0.002490 *35* α(N)=0.000570 *8*; α(O)=9.06×10^{-5} *13*; α(P)=9.04×10^{-6} *13*
289.084[d] *3*	27.0[d] *19*	371.8996	2$^+$	82.8200	1$^-$	E1	0.01682 *24*	α(K)=0.01432 *20*; α(L)=0.001967 *28*; α(M)=0.000422 *6* α(N)=9.60×10^{-5} *13*; α(O)=1.492×10^{-5} *21*; α(P)=1.354×10^{-6} *19*
289.084[d] *3*	27.0[d] *19*	425.7890	4$^-$	136.6967	5$^+$	E1	0.01682 *24*	α(K)=0.01432 *20*; α(L)=0.001967 *28*; α(M)=0.000422 *6* α(N)=9.60×10^{-5} *13*; α(O)=1.492×10^{-5} *21*; α(P)=1.354×10^{-6} *19*
289.628 *5*	2.7 *3*	599.633	2$^-$	309.9953	3$^+$			Mult.: Reported as E1 or E2; level scheme requires Δπ=yes.
290.150 *9*	1.80 *20*	521.0540	3$^+$	230.8810	4$^-$			
290.480 *5*	7.0 *4*	390.4267	2$^-$	99.9484	3$^+$	E1	0.01661 *23*	α(K)=0.01414 *20*; α(L)=0.001942 *27*; α(M)=0.000417 *6* α(N)=9.48×10^{-5} *13*; α(O)=1.474×10^{-5} *21*; α(P)=1.338×10^{-6} *19*
[x]290.739 *4*	5.0 *4*					E1	0.01658 *23*	α(K)=0.01411 *20*; α(L)=0.001938 *27*; α(M)=0.000416 *6* α(N)=9.46×10^{-5} *13*; α(O)=1.471×10^{-5} *21*; α(P)=1.336×10^{-6} *19*
291.067 *11*	3.5 *3*	505.1400	3$^-$	214.0746	3$^-$	M1	0.0953 *13*	α(K)=0.0809 *11*; α(L)=0.01132 *16*; α(M)=0.002442 *34* α(N)=0.000559 *8*; α(O)=8.89×10^{-5} *12*; α(P)=8.87×10^{-6} *12*
291.478 *5*	2.50 *20*	428.1890	4$^-$,5$^-$	136.6967	5$^+$			
[x]291.735 *14*	1.30 *20*							
292.067 *8*	1.90 *20*	467.5320	4$^-$	175.4817	5$^-$	M1,E2	0.079 *16*	α(K)=0.064 *16*; α(L)=0.01131 *19*; α(M)=0.00249 *8* α(N)=0.000566 *14*; α(O)=8.63×10^{-5} *21*; α(P)=6.6×10^{-6} *21*
293.054 *17*	0.80 *20*	572.469	4$^-$	279.3791	4$^-$			
293.903 *11*	0.90 *15*	467.5320	4$^-$	173.6022	3$^-$			

$^{154}_{63}Eu_{91}$-28

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06 (continued)

$\gamma(^{154}Eu)$ (continued)

E_γ[†]	I_γ[‡c]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[b]	Comments
294.100 *7*	5.5 *4*	479.142	3^-	185.0509	2^+	E1	0.01610 *23*	α(K)=0.01371 *19*; α(L)=0.001881 *26*; α(M)=0.000404 *6* α(N)=9.18×10^{-5} *13*; α(O)=1.428×10^{-5} *20*; α(P)=1.299×10^{-6} *18*
294.445 *12*	0.80 *15*	362.5962	1^-	68.1702	2^+			
295.915[d] *10*	2.0[d] *3*	295.9225	3^+,4^+	0.0	3^-			Mult.: Reported as M1,E2 for doubly placed γ; from the J^π's this γ is E1 and the other is M1,E2.
295.915[d] *10*	2.0[d] *3*	364.0549	3^+,4^+,5^+	68.1702	2^+			Mult.: Reported as M1,E2 for doubly placed γ; from the J^π's this γ is E2 and the other is E1.
296.087 *7*	21.0 *12*	425.7890	4^-	129.6795	4^-	M1	0.0911 *13*	α(K)=0.0773 *11*; α(L)=0.01081 *15*; α(M)=0.002332 *33* α(N)=0.000534 *7*; α(O)=8.49×10^{-5} *12*; α(P)=8.47×10^{-6} *12*
[x]296.646 *12*	4.20 *25*					M1	0.0906 *13*	α(K)=0.0769 *11*; α(L)=0.01076 *15*; α(M)=0.002320 *32* α(N)=0.000532 *7*; α(O)=8.44×10^{-5} *12*; α(P)=8.43×10^{-6} *12*
297.127 *4*	7.2 *5*	419.6903	2^-	122.5582	2^-	M1	0.0902 *13*	α(K)=0.0766 *11*; α(L)=0.01071 *15*; α(M)=0.002310 *32* α(N)=0.000529 *7*; α(O)=8.41×10^{-5} *12*; α(P)=8.39×10^{-6} *12*
297.466 *3*	7.4 *5*	532.7393	4^-,$(3)^-$	235.2787	4^-	M1	0.0900 *13*	α(K)=0.0764 *11*; α(L)=0.01068 *15*; α(M)=0.002303 *32* α(N)=0.000528 *7*; α(O)=8.38×10^{-5} *12*; α(P)=8.37×10^{-6} *12*
298.342 *12*	1.10 *20*	479.142	3^-	180.8092	2^-			
298.521 *10*	4.5 *3*	428.1890	4^-,5^-	129.6795	4^-	E2	0.0591 *8*	α(K)=0.0456 *6*; α(L)=0.01054 *15*; α(M)=0.002369 *33* α(N)=0.000533 *7*; α(O)=7.82×10^{-5} *11*; α(P)=4.23×10^{-6} *6*
299.0314 *21*	44 *3*	428.7117	4^+,5^+	129.6795	4^-	E1	0.01544 *22*	α(K)=0.01315 *18*; α(L)=0.001803 *25*; α(M)=0.000387 *5* α(N)=8.80×10^{-5} *12*; α(O)=1.369×10^{-5} *19*; α(P)=1.247×10^{-6} *17*
299.191 *10*	14.2 *10*	513.271	4^-,$(2^-,3^-)$	214.0746	3^-	E2	0.0587 *8*	α(K)=0.0453 *6*; α(L)=0.01046 *15*; α(M)=0.002350 *33* α(N)=0.000529 *7*; α(O)=7.75×10^{-5} *11*; α(P)=4.21×10^{-6} *6*
300.231[d] *4*	12.5[d] *8*	401.091	2^+,3^+	100.8612	4^+			Mult.: Reported as M1 for doubly placed γ; from the J^π's both γ are M1,E2.
300.231[d] *4*	12.5[d] *8*	429.9187	3^-	129.6795	4^-			Mult.: Reported as M1 for doubly placed γ; from the J^π's both γ are M1,E2.
300.768 *14*	0.60 *10*	428.1890	4^-,5^-	127.4301	4^+			
301.176 *5*	6.6 *6*	435.940	1^-	134.7814	1^+	E1	0.01516 *21*	α(K)=0.01291 *18*; α(L)=0.001770 *25*; α(M)=0.000380 *5* α(N)=8.64×10^{-5} *12*; α(O)=1.345×10^{-5} *19*; α(P)=1.226×10^{-6} *17*
301.278 *5*	5.6 *6*	428.7117	4^+,5^+	127.4301	4^+	M1	0.0870 *12*	α(K)=0.0738 *10*; α(L)=0.01032 *14*; α(M)=0.002226 *31* α(N)=0.000510 *7*; α(O)=8.10×10^{-5} *11*; α(P)=8.09×10^{-6} *11*
301.853[d] *8*	3.5[d] *3*	515.9284	3^-	214.0746	3^-			Mult.: Reported as M1 for doubly placed γ; the J^π's allow M1 or M1,E2 for both γ's.
301.853[d] *8*	3.5[d] *3*	532.7393	4^-,$(3)^-$	230.8810	4^-			Mult.: Reported as M1 for doubly placed γ; the J^π's allow M1 or M1,E2 for both γ's.

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06 (continued)

$\gamma(^{154}Eu)$ (continued)

E_γ [†]	I_γ [‡c]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α [b]	Comments
302.49 *3*	0.70 *20*	429.9187	3^-	127.4301	4^+			
302.665 *12*	7.5 *7*	403.5175	3^+,4^+	100.8612	4^+	E2	0.0566 *8*	α(K)=0.0438 *6*; α(L)=0.01003 *14*; α(M)=0.002253 *32* α(N)=0.000507 *7*; α(O)=7.44×10^{-5} *10*; α(P)=4.08×10^{-6} *6*
302.938 *11*	8.0 *6*	425.472	1^+,2^+	122.5582	2^-	E1	0.01494 *21*	α(K)=0.01273 *18*; α(L)=0.001744 *24*; α(M)=0.000374 *5* α(N)=8.51×10^{-5} *12*; α(O)=1.325×10^{-5} *19*; α(P)=1.208×10^{-6} *17*
[x]303.343 *8*	1.40 *20*							Mult.: Reported as (M1), but α_K(exp) allows E3, E1+M2, or E0+M1.
[x]303.545 *6*	2.6 *3*					M1	0.0852 *12*	α(K)=0.0724 *10*; α(L)=0.01012 *14*; α(M)=0.002181 *31* α(N)=0.000500 *7*; α(O)=7.94×10^{-5} *11*; α(P)=7.93×10^{-6} *11*
303.721 *7*	13.5 *9*	371.8996	2^+	68.1702	2^+	M1	0.0851 *12*	α(K)=0.0723 *10*; α(L)=0.01010 *14*; α(M)=0.002178 *30* α(N)=0.000499 *7*; α(O)=7.93×10^{-5} *11*; α(P)=7.91×10^{-6} *11*
304.378 *20*	1.00 *15*	485.1826	3^-,4^-	180.8092	2^-	M1	0.0846 *12*	α(K)=0.0718 *10*; α(L)=0.01004 *14*; α(M)=0.002165 *30* α(N)=0.000496 *7*; α(O)=7.88×10^{-5} *11*; α(P)=7.87×10^{-6} *11*
[x]304.718 *21*	1.90 *25*							
[x]304.879 *14*	2.5 *3*							
[x]305.051 *6*	2.4 *3*							
305.532 *11*	1.30 *15*	479.142	3^-	173.6022	3^-			E_γ: Value reported in the level-scheme table (table 3) of 1987Ba52. In their γ-ray line list (their table 1) 305.523 is listed.
[x]306.383 *5*	1.80 *20*							
307.001 *16*	2.50 *20*	521.0540	3^+	214.0746	3^-			Mult.: Reported as M1, but J^π's require E1.
307.348 *8*	14.5 *8*	429.9187	3^-	122.5582	2^-	M1	0.0825 *12*	α(K)=0.0700 *10*; α(L)=0.00978 *14*; α(M)=0.002110 *30* α(N)=0.000483 *7*; α(O)=7.68×10^{-5} *11*; α(P)=7.67×10^{-6} *11*
307.617 *10*	2.70 *24*	390.4267	2^-	82.8200	1^-	M1	0.0823 *12*	α(K)=0.0699 *10*; α(L)=0.00976 *14*; α(M)=0.002105 *29* α(N)=0.000482 *7*; α(O)=7.66×10^{-5} *11*; α(P)=7.65×10^{-6} *11*
[x]308.313 *7*	1.20 *14*					M1	0.0818 *11*	α(K)=0.0694 *10*; α(L)=0.00970 *14*; α(M)=0.002092 *29* α(N)=0.000479 *7*; α(O)=7.62×10^{-5} *11*; α(P)=7.60×10^{-6} *11*
[x]308.494 *12*	1.40 *14*							Mult.: Reported as (M1), but α_K(exp) allows E3, E1+M2, or E0+M1.
309.782 *8*	17.0 *12*	390.4489	4^+	80.6560	4^-	E1	0.01413 *20*	α(K)=0.01203 *17*; α(L)=0.001647 *23*; α(M)=0.000354 *5* α(N)=8.04×10^{-5} *11*; α(O)=1.252×10^{-5} *18*; α(P)=1.145×10^{-6} *16*
309.975 *7*	32.0 *16*	309.9953	3^+	0.0	3^-	E1	0.01411 *20*	α(K)=0.01201 *17*; α(L)=0.001645 *23*; α(M)=0.000353 *5* α(N)=8.03×10^{-5} *11*; α(O)=1.250×10^{-5} *18*; α(P)=1.143×10^{-6} *16*
[x]310.710 *6*	2.6 *3*							Mult.: Reported as (M1), but α_K(exp) allows E3, E1+M2, or E0+M1.
311.025 *7*	5.0 *4*	411.8891	4^+	100.8612	4^+	M1	0.0799 *11*	α(K)=0.0678 *9*; α(L)=0.00948 *13*; α(M)=0.002044 *29* α(N)=0.000468 *7*; α(O)=7.44×10^{-5} *10*; α(P)=7.43×10^{-6} *10*
[x]311.487 *10*	4.3 *3*					E2	0.0519 *7*	α(K)=0.0403 *6*; α(L)=0.00905 *13*; α(M)=0.002030 *28* α(N)=0.000457 *6*; α(O)=6.72×10^{-5} *9*; α(P)=3.77×10^{-6} *5*

$^{154}_{63}Eu_{91}$-30

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06 (continued)

$\gamma(^{154}Eu)$ (continued)

E_γ [†]	I_γ [‡c]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[b]	Comments
311.922 *10*	1.50[&] *15*	411.8891	4^+	99.9484	3^+	M1	0.0793 *11*	α(K)=0.0673 *9*; α(L)=0.00941 *13*; α(M)=0.002028 *28* α(N)=0.000465 *7*; α(O)=7.38×10^{-5} *10*; α(P)=7.37×10^{-6} *10*
[x]312.224 *15*	1.00 *20*					M1	0.0791 *11*	α(K)=0.0672 *9*; α(L)=0.00938 *13*; α(M)=0.002023 *28* α(N)=0.000463 *6*; α(O)=7.36×10^{-5} *10*; α(P)=7.35×10^{-6} *10*
[x]312.640 *3*	10.5 *5*					M1	0.0788 *11*	α(K)=0.0669 *9*; α(L)=0.00935 *13*; α(M)=0.002015 *28* α(N)=0.000462 *6*; α(O)=7.34×10^{-5} *10*; α(P)=7.33×10^{-6} *10*
[x]312.929 *8*	1.10 *10*							
[x]313.525 *6*	2.50 *18*					E2	0.0508 *7*	α(K)=0.0395 *6*; α(L)=0.00884 *12*; α(M)=0.001983 *28* α(N)=0.000446 *6*; α(O)=6.57×10^{-5} *9*; α(P)=3.70×10^{-6} *5*
[x]313.717 *6*	1.60 *16*					(M1)	0.0781 *11*	α(K)=0.0663 *9*; α(L)=0.00926 *13*; α(M)=0.001997 *28* α(N)=0.000457 *6*; α(O)=7.27×10^{-5} *10*; α(P)=7.26×10^{-6} *10*
314.805 *13*	2.40 *17*	415.6551	4^+,5^+	100.8612	4^+	M1	0.0774 *11*	α(K)=0.0657 *9*; α(L)=0.00918 *13*; α(M)=0.001979 *28* α(N)=0.000453 *6*; α(O)=7.20×10^{-5} *10*; α(P)=7.19×10^{-6} *10*
[x]315.416 *9*	4.4 *3*					M1	0.0770 *11*	α(K)=0.0654 *9*; α(L)=0.00913 *13*; α(M)=0.001968 *28* α(N)=0.000451 *6*; α(O)=7.17×10^{-5} *10*; α(P)=7.16×10^{-6} *10*
316.016[d] *8*	7.3[d] *4*	551.3139	4^-	235.2787	4^-			Mult.: Reported as M1 for doubly placed γ; J^π's allow both γ's to be M1,E2.
316.016[d] *8*	7.3[d] *4*	555.3030	4^-	239.2889	3^-			Mult.: Reported as M1 for doubly placed γ; J^π's allow both γ's to be M1,E2.
316.224 *10*	5.0 *4*	451.0074	2^+,3^+	134.7814	1^+	M1	0.0765 *11*	α(K)=0.0649 *9*; α(L)=0.00907 *13*; α(M)=0.001955 *27* α(N)=0.000448 *6*; α(O)=7.12×10^{-5} *10*; α(P)=7.11×10^{-6} *10*
316.576 *5*	16.3 *8*	451.356	2^-	134.7814	1^+	E1	0.01338 *19*	α(K)=0.01140 *16*; α(L)=0.001559 *22*; α(M)=0.000335 *5* α(N)=7.61×10^{-5} *11*; α(O)=1.185×10^{-5} *17*; α(P)=1.086×10^{-6} *15*
[x]317.271 *8*	1.70 *20*					M1	0.0758 *11*	α(K)=0.0644 *9*; α(L)=0.00899 *13*; α(M)=0.001938 *27* α(N)=0.000444 *6*; α(O)=7.05×10^{-5} *10*; α(P)=7.05×10^{-6} *10*
[x]317.493 *9*	1.80 *20*					M1	0.0757 *11*	α(K)=0.0643 *9*; α(L)=0.00897 *13*; α(M)=0.001934 *27* α(N)=0.000443 *6*; α(O)=7.04×10^{-5} *10*; α(P)=7.03×10^{-6} *10*
318.532 *6*	19.6 *12*	390.4267	2^-	71.9118	1^+	E1	0.01318 *18*	α(K)=0.01123 *16*; α(L)=0.001535 *21*; α(M)=0.000329 *5* α(N)=7.49×10^{-5} *10*; α(O)=1.167×10^{-5} *16*; α(P)=1.070×10^{-6} *15*
319.218 *3*	94 *5*	319.2100	3^+,4^+	0.0	3^-	E1	0.01311 *18*	α(K)=0.01117 *16*; α(L)=0.001526 *21*; α(M)=0.000328 *5* α(N)=7.45×10^{-5} *10*; α(O)=1.161×10^{-5} *16*; α(P)=1.065×10^{-6} *15*
319.732 *10*	7.0 *7*	419.6903	2^-	99.9484	3^+	E1	0.01306 *18*	α(K)=0.01112 *16*; α(L)=0.001520 *21*; α(M)=0.000326 *5* α(N)=7.42×10^{-5} *10*; α(O)=1.156×10^{-5} *16*; α(P)=1.061×10^{-6} *15*

$^{154}_{63}Eu_{91}$-31

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06 (continued)

$\gamma(^{154}Eu)$ (continued)

E_γ [†]	I_γ [‡c]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[b]	Comments
320.086 *5*	14.4 *10*	505.1400	3$^-$	185.0509	2$^+$	E1	0.01302 *18*	α(K)=0.01109 *16*; α(L)=0.001516 *21*; α(M)=0.000325 *5* α(N)=7.40×10^{-5} *10*; α(O)=1.153×10^{-5} *16*; α(P)=1.058×10^{-6} *15*
320.47 *6*	1.6 *3*	599.633	2$^-$	279.0377	0$^-$			
x321.016 *7*	4.5 *4*					E1	0.01293 *18*	α(K)=0.01101 *15*; α(L)=0.001505 *21*; α(M)=0.000323 *5* α(N)=7.35×10^{-5} *10*; α(O)=1.145×10^{-5} *16*; α(P)=1.050×10^{-6} *15*
x321.546 *6*	1.0 *3*							
x321.795 *11*	3.2 *3*					M1	0.0730 *10*	α(K)=0.0620 *9*; α(L)=0.00865 *12*; α(M)=0.001866 *26* α(N)=0.000427 *6*; α(O)=6.79×10^{-5} *10*; α(P)=6.79×10^{-6} *10*
322.862 *21*	1.0 *3*	403.5175	3$^+$,4$^+$	80.6560	4$^-$			
x323.323 *12*	1.40 *20*							
x323.517 *6*	3.4 *3*					M1	0.0720 *10*	α(K)=0.0612 *9*; α(L)=0.00853 *12*; α(M)=0.001839 *26* α(N)=0.000421 *6*; α(O)=6.70×10^{-5} *9*; α(P)=6.69×10^{-6} *9*
324.331 *6*	5.0 *3*	505.1400	3$^-$	180.8092	2$^-$	M1	0.0715 *10*	α(K)=0.0608 *9*; α(L)=0.00847 *12*; α(M)=0.001827 *26* α(N)=0.000419 *6*; α(O)=6.65×10^{-5} *9*; α(P)=6.65×10^{-6} *9*
x324.856 *6*	3.5 *7*							
x324.965 *9*	6.0 *7*							
x325.300 *20*	1.5 *5*							
325.470 *20*	1.5 *5*	425.472	1$^+$,2$^+$	99.9484	3$^+$			
x326.022 *8*	1.20 *20*							
326.387 *9*	1.10 *20*	407.0338	3$^-$	80.6560	4$^-$			
326.87 *3*	1.0 *3*	326.8726	3$^+$,4$^+$	0.0	3$^-$			
327.325 *6*	8.3 *4*	428.1890	4$^-$,5$^-$	100.8612	4$^+$	E1	0.01232 *17*	α(K)=0.01049 *15*; α(L)=0.001433 *20*; α(M)=0.000307 *4* α(N)=6.99×10^{-5} *10*; α(O)=1.090×10^{-5} *15*; α(P)=1.003×10^{-6} *14*
327.835 *6*	7.1 *4*	428.7117	4$^+$,5$^+$	100.8612	4$^+$	M1	0.0695 *10*	α(K)=0.0591 *8*; α(L)=0.00824 *12*; α(M)=0.001776 *25* α(N)=0.000407 *6*; α(O)=6.46×10^{-5} *9*; α(P)=6.46×10^{-6} *9*
328.009 *12*	1.80 *27*	328.0177	4$^-$	0.0	3$^-$	M1	0.0694 *10*	α(K)=0.0590 *8*; α(L)=0.00822 *12*; α(M)=0.001773 *25* α(N)=0.000406 *6*; α(O)=6.45×10^{-5} *9*; α(P)=6.45×10^{-6} *9*
328.459 *6*	3.50 *25*	451.0074	2$^+$,3$^+$	122.5582	2$^-$			Mult.: Reported as M1, but J^π requires E1.
x328.968 *9*	1.50 *20*							
329.956 *17*	2.6 *3*	429.9187	3$^-$	99.9484	3$^+$			Mult.: Reported as E1 or E2; of these, J^π's require E1.
x330.095 *12*	1.70 *25*					M1	0.0683 *10*	α(K)=0.0580 *8*; α(L)=0.00809 *11*; α(M)=0.001743 *24* α(N)=0.000399 *6*; α(O)=6.35×10^{-5} *9*; α(P)=6.34×10^{-6} *9*
x330.588 *6*	2.40 *24*					M1	0.0680 *10*	α(K)=0.0578 *8*; α(L)=0.00805 *11*; α(M)=0.001736 *24* α(N)=0.000398 *6*; α(O)=6.32×10^{-5} *9*; α(P)=6.32×10^{-6} *9*
330.877 *13*	4.3 *4*	402.7890	0$^+$,1$^+$,2$^+$	71.9118	1$^+$	M1	0.0679 *10*	α(K)=0.0576 *8*; α(L)=0.00804 *11*; α(M)=0.001732 *24* α(N)=0.000397 *6*; α(O)=6.31×10^{-5} *9*; α(P)=6.30×10^{-6} *9*

$^{154}_{63}Eu_{91}$-32

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06 (continued)

$\gamma(^{154}Eu)$ (continued)

E_γ [†]	I_γ [‡c]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[b]	Comments
331.540 *6*	2.10 *20*	505.1400	3^-	173.6022	3^-	M1	0.0675 *9*	α(K)=0.0573 *8*; α(L)=0.00799 *11*; α(M)=0.001723 *24* α(N)=0.000395 *6*; α(O)=6.27×10^{-5} *9*; α(P)=6.27×10^{-6} *9*
331.888 *7*	4.5 *5*	414.698	0^-	82.8200	1^-	M1	0.0673 *9*	α(K)=0.0572 *8*; α(L)=0.00797 *11*; α(M)=0.001718 *24* α(N)=0.000394 *6*; α(O)=6.26×10^{-5} *9*; α(P)=6.25×10^{-6} *9*
332.915 *5*	16.5 *8*	401.091	$2^+,3^+$	68.1702	2^+	M1	0.0668 *9*	α(K)=0.0567 *8*; α(L)=0.00791 *11*; α(M)=0.001704 *24* α(N)=0.000390 *5*; α(O)=6.20×10^{-5} *9*; α(P)=6.20×10^{-6} *9*
[x]334.382 *12*	1.8 *6*							
334.621 *8*	2.8 *3*	402.7890	$0^+,1^+,2^+$	68.1702	2^+	M1	0.0659 *9*	α(K)=0.0560 *8*; α(L)=0.00780 *11*; α(M)=0.001681 *24* α(N)=0.000385 *5*; α(O)=6.12×10^{-5} *9*; α(P)=6.12×10^{-6} *9*
[x]334.861 *16*	8.6 *4*					E1	0.01164 *16*	α(K)=0.00992 *14*; α(L)=0.001353 *19*; α(M)=0.000290 *4* α(N)=6.60×10^{-5} *9*; α(O)=1.030×10^{-5} *14*; α(P)=9.49×10^{-7} *13*
[x]335.484 *10*	3.10 *20*					E2	0.0414 *6*	α(K)=0.0325 *5*; α(L)=0.00697 *10*; α(M)=0.001558 *22* α(N)=0.000351 *5*; α(O)=5.20×10^{-5} *7*; α(P)=3.08×10^{-6} *4*
335.997 *4*	4.7 *3*	521.0540	3^+	185.0509	2^+	M1	0.0652 *9*	α(K)=0.0554 *8*; α(L)=0.00771 *11*; α(M)=0.001663 *23* α(N)=0.000381 *5*; α(O)=6.05×10^{-5} *8*; α(P)=6.05×10^{-6} *8*
336.882 *5*	1.50 *12*	419.6903	2^-	82.8200	1^-	M1	0.0647 *9*	α(K)=0.0550 *8*; α(L)=0.00766 *11*; α(M)=0.001651 *23* α(N)=0.000378 *5*; α(O)=6.01×10^{-5} *8*; α(P)=6.01×10^{-6} *8*
337.846 *6*	20.5 *10*	467.5320	4^-	129.6795	4^-	M1	0.0643 *9*	α(K)=0.0546 *8*; α(L)=0.00760 *11*; α(M)=0.001639 *23* α(N)=0.000375 *5*; α(O)=5.97×10^{-5} *8*; α(P)=5.97×10^{-6} *8*
[x]338.493 *11*	2.5 *4*					M1	0.0639 *9*	α(K)=0.0543 *8*; α(L)=0.00756 *11*; α(M)=0.001631 *23* α(N)=0.000374 *5*; α(O)=5.94×10^{-5} *8*; α(P)=5.94×10^{-6} *8*
338.873 *14*	1.7 *3*	407.0338	3^-	68.1702	2^+			
339.675 *7*	6.5 *5*	513.271	$4^-,(2^-,3^-)$	173.6022	3^-	M1	0.0633 *9*	α(K)=0.0538 *8*; α(L)=0.00749 *10*; α(M)=0.001616 *23* α(N)=0.000370 *5*; α(O)=5.88×10^{-5} *8*; α(P)=5.88×10^{-6} *8*
340.216 *20*	1.0 *3*	521.0540	3^+	180.8092	2^-			
340.459 *9*	2.7 *3*	515.9284	3^-	175.4817	5^-			
[x]340.701 *12*	8.5 *7*					(E2)	0.0395 *6*	α(K)=0.0311 *4*; α(L)=0.00660 *9*; α(M)=0.001476 *21* α(N)=0.000333 *5*; α(O)=4.93×10^{-5} *7*; α(P)=2.95×10^{-6} *4*
[x]341.540 *13*	2.3 *4*					M1	0.0624 *9*	α(K)=0.0530 *7*; α(L)=0.00739 *10*; α(M)=0.001592 *22* α(N)=0.000365 *5*; α(O)=5.80×10^{-5} *8*; α(P)=5.80×10^{-6} *8*
[x]341.858 *19*	8.2 *7*					M1	0.0623 *9*	α(K)=0.0529 *7*; α(L)=0.00737 *10*; α(M)=0.001588 *22* α(N)=0.000364 *5*; α(O)=5.78×10^{-5} *8*; α(P)=5.78×10^{-6} *8*
342.217 *6*	17.5 *12*	471.8890	$4^-,(3^-)$	129.6795	4^-	M1	0.0621 *9*	α(K)=0.0528 *7*; α(L)=0.00735 *10*; α(M)=0.001584 *22* α(N)=0.000363 *5*; α(O)=5.77×10^{-5} *8*; α(P)=5.77×10^{-6} *8*

$^{154}_{63}Eu_{91}$-33

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06 (continued)

$\gamma(^{154}Eu)$ (continued)

E_γ [†]	I_γ [‡c]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[b]	Comments
342.782 *13*	4.5 *15*	414.698	0^-	71.9118	1^+			Mult.: Reported as E1 or E2; of these, J^π's require E1.
[x]343.243 *19*	2.6 *9*							
343.65 *3*	1.4 *5*	471.1510	$(3,4)^-$	127.4301	4^+			
[x]344.677 *5*	12.9 *10*					M1	0.0610 *9*	α(K)=0.0518 *7*; α(L)=0.00721 *10*; α(M)=0.001554 *22* α(N)=0.000356 *5*; α(O)=5.66×10^{-5} *8*; α(P)=5.66×10^{-6} *8*
[x]344.841 *8*	7.2 *8*					E2	0.0381 *5*	α(K)=0.0300 *4*; α(L)=0.00633 *9*; α(M)=0.001415 *20* α(N)=0.000319 *4*; α(O)=4.73×10^{-5} *7*; α(P)=2.86×10^{-6} *4*
345.130 *23*	1.5 *5*	425.7890	4^-	80.6560	4^-	(M1)	0.0608 *9*	α(K)=0.0516 *7*; α(L)=0.00718 *10*; α(M)=0.001549 *22* α(N)=0.000355 *5*; α(O)=5.64×10^{-5} *8*; α(P)=5.64×10^{-6} *8*
347.112 *8*	1.60 *20*	429.9187	3^-	82.8200	1^-	E2	0.0374 *5*	α(K)=0.0295 *4*; α(L)=0.00619 *9*; α(M)=0.001383 *19* α(N)=0.000312 *4*; α(O)=4.63×10^{-5} *6*; α(P)=2.81×10^{-6} *4*
347.780 *5*	13.9 *7*	419.6903	2^-	71.9118	1^+	E1	0.01061 *15*	α(K)=0.00904 *13*; α(L)=0.001231 *17*; α(M)=0.000264 *4* α(N)=6.01×10^{-5} *8*; α(O)=9.38×10^{-6} *13*; α(P)=8.68×10^{-7} *12*
348.423 *24*	0.40 *10*	485.1826	$3^-,4^-$	136.6967	5^+			
350.208 *5*	3.60 *25*	599.633	2^-	249.4186	$1^+,2^+$			Mult.: Reported as E1 or E2; level scheme requires $\Delta\pi$=yes.
[x]350.879 *17*	1.3 *3*							
351.060 *18*	5.3 *3*	451.0074	$2^+,3^+$	99.9484	3^+	M1	0.0581 *8*	α(K)=0.0494 *7*; α(L)=0.00687 *10*; α(M)=0.001480 *21* α(N)=0.000339 *5*; α(O)=5.39×10^{-5} *8*; α(P)=5.39×10^{-6} *8*
[x]351.277 *28*	0.90 *20*							
351.711 *10*	6.4 *4*	479.142	3^-	127.4301	4^+			Mult.: Reported as E1 or E2; level scheme requires $\Delta\pi$=yes.
[x]352.118 *20*	0.60 *12*							
353.564 *8*	4.2 *3*	425.472	$1^+,2^+$	71.9118	1^+	M1	0.0570 *8*	α(K)=0.0484 *7*; α(L)=0.00674 *9*; α(M)=0.001453 *20* α(N)=0.000333 *5*; α(O)=5.29×10^{-5} *7*; α(P)=5.29×10^{-6} *7*
[x]354.031 *11*	1.30 *16*					M1	0.0568 *8*	α(K)=0.0483 *7*; α(L)=0.00672 *9*; α(M)=0.001447 *20* α(N)=0.000332 *5*; α(O)=5.27×10^{-5} *7*; α(P)=5.27×10^{-6} *7*
[x]354.653 *13*	1.00 *15*							
355.514 *8*	8.0 *4*	485.1826	$3^-,4^-$	129.6795	4^-	M1	0.0562 *8*	α(K)=0.0478 *7*; α(L)=0.00664 *9*; α(M)=0.001432 *20* α(N)=0.000328 *5*; α(O)=5.21×10^{-5} *7*; α(P)=5.22×10^{-6} *7*
[x]356.773 *17*	3.1 *3*					M1	0.0557 *8*	α(K)=0.0473 *7*; α(L)=0.00658 *9*; α(M)=0.001418 *20* α(N)=0.000325 *5*; α(O)=5.16×10^{-5} *7*; α(P)=5.17×10^{-6} *7*
357.279 *19*	1.20 *24*	425.472	$1^+,2^+$	68.1702	2^+	(M1)	0.0555 *8*	α(K)=0.0471 *7*; α(L)=0.00656 *9*; α(M)=0.001413 *20* α(N)=0.000324 *5*; α(O)=5.14×10^{-5} *7*; α(P)=5.15×10^{-6} *7*
[x]357.756 *19*	3.5 *4*					E2	0.0342 *5*	α(K)=0.0270 *4*; α(L)=0.00558 *8*; α(M)=0.001246 *17* α(N)=0.000281 *4*; α(O)=4.18×10^{-5} *6*; α(P)=2.59×10^{-6} *4*

$^{154}_{63}Eu_{91}$-34

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06 (continued)

$\gamma(^{154}Eu)$ (continued)

E_γ [†]	I_γ [‡c]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[b]	Comments
[x]357.993 *22*	2.7 *3*					M1	0.0552 *8*	α(K)=0.0469 *7*; α(L)=0.00652 *9*; α(M)=0.001405 *20* α(N)=0.000322 *5*; α(O)=5.12×10^{-5} *7*; α(P)=5.12×10^{-6} *7*
358.38 *3*	2.0 *7*	572.469	4$^-$	214.0746	3$^-$	M1,E2	0.045 *11*	α(K)=0.037 *10*; α(L)=0.0060 *5*; α(M)=0.00132 *8* α(N)=0.000300 *21*; α(O)=4.6×10^{-5} *5*; α(P)=3.8×10^{-6} *13*
[x]358.726 *13*	10.0 *6*					M1	0.0549 *8*	α(K)=0.0466 *7*; α(L)=0.00649 *9*; α(M)=0.001398 *20* α(N)=0.000320 *4*; α(O)=5.09×10^{-5} *7*; α(P)=5.09×10^{-6} *7*
358.956 *15*	2.1 *4*	486.3840	3$^+$,4$^+$	127.4301	4$^+$	M1	0.0548 *8*	α(K)=0.0466 *7*; α(L)=0.00647 *9*; α(M)=0.001395 *20* α(N)=0.000320 *4*; α(O)=5.08×10^{-5} *7*; α(P)=5.09×10^{-6} *7*
359.141 *7*	7.5 *5*	532.7393	4$^-$,(3)$^-$	173.6022	3$^-$	M1	0.0547 *8*	α(K)=0.0465 *7*; α(L)=0.00647 *9*; α(M)=0.001394 *20* α(N)=0.000319 *4*; α(O)=5.07×10^{-5} *7*; α(P)=5.08×10^{-6} *7*
[x]359.385 *19*	1.3 *4*							
[x]359.818 *7*	3.9 *3*					M1	0.0545 *8*	α(K)=0.0463 *6*; α(L)=0.00643 *9*; α(M)=0.001387 *19* α(N)=0.000318 *4*; α(O)=5.05×10^{-5} *7*; α(P)=5.05×10^{-6} *7*
360.39 *5*	2.0 *7*	599.633	2$^-$	239.2889	3$^-$			
[x]360.910 *20*	1.0 *3*							
361.752 *3*	14.5 *7*	429.9187	3$^-$	68.1702	2$^+$	E1	0.00963 *13*	α(K)=0.00822 *12*; α(L)=0.001116 *16*; α(M)=0.0002394 *34* α(N)=5.45×10^{-5} *8*; α(O)=8.51×10^{-6} *12*; α(P)=7.90×10^{-7} *11*
[x]363.249 *8*	1.30 *20*							
364.018 *5*	8.7 *5*	435.940	1$^-$	71.9118	1$^+$			Mult.: Reported as E1 or E2; of these, J^π's require E1.
364.377 *10*	2.2 *4*	599.633	2$^-$	235.2787	4$^-$			Mult.: Reported M1 incompatible with J^π's.
[x]364.969 *11*	2.2 *3*							
365.115 *11*	11.7 *9*	545.949	2$^-$	180.8092	2$^-$	M1	0.0524 *7*	α(K)=0.0445 *6*; α(L)=0.00619 *9*; α(M)=0.001334 *19* α(N)=0.000306 *4*; α(O)=4.86×10^{-5} *7*; α(P)=4.86×10^{-6} *7*
[x]365.507 *7*	2.30 *25*							
[x]365.848 *8*	2.0 *3*							
[x]366.990 *7*	4.3 *3*							
[x]367.277 *11*	2.1 *3*							
[x]367.509 *16*	1.6 *3*							
367.772 *4*	12.0 *7*	435.940	1$^-$	68.1702	2$^+$	E1	0.00926 *13*	α(K)=0.00789 *11*; α(L)=0.001071 *15*; α(M)=0.0002298 *32* α(N)=5.23×10^{-5} *7*; α(O)=8.17×10^{-6} *11*; α(P)=7.60×10^{-7} *11*
368.528 *3*	8.8 *5*	451.356	2$^-$	82.8200	1$^-$	M1	0.0512 *7*	α(K)=0.0435 *6*; α(L)=0.00604 *8*; α(M)=0.001302 *18* α(N)=0.000298 *4*; α(O)=4.74×10^{-5} *7*; α(P)=4.75×10^{-6} *7*
[x]369.154 *7*	4.9 *3*					M1	0.0509 *7*	α(K)=0.0433 *6*; α(L)=0.00601 *8*; α(M)=0.001296 *18* α(N)=0.000297 *4*; α(O)=4.72×10^{-5} *7*; α(P)=4.73×10^{-6} *7*
[x]369.448 *13*	2.0 *4*					M1	0.0508 *7*	α(K)=0.0432 *6*; α(L)=0.00600 *8*; α(M)=0.001293 *18* α(N)=0.000296 *4*; α(O)=4.71×10^{-5} *7*; α(P)=4.72×10^{-6} *7*

$^{154}_{63}Eu_{91}$-35

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06 (continued)

γ(^{154}Eu) (continued)

E_γ [†]	I_γ [‡c]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[b]	Comments
x369.935 *6*	5.9 *4*					E2	0.0310 *4*	α(K)=0.02460 *34*; α(L)=0.00499 *7*; α(M)=0.001111 *16* α(N)=0.0002507 *35*; α(O)=3.74×10^{-5} *5*; α(P)=2.365×10^{-6} *33*
370.305 *10*	2.10 *20*	584.3902	3$^-$	214.0746	3$^-$	M1	0.0505 *7*	α(K)=0.0429 *6*; α(L)=0.00596 *8*; α(M)=0.001285 *18* α(N)=0.000294 *4*; α(O)=4.68×10^{-5} *7*; α(P)=4.69×10^{-6} *7*
x370.78 *5*	1.30 *20*							
371.217 *19*	1.60 *20*	471.1510	(3,4)$^-$	99.9484	3$^+$			
371.940 *12*	3.0 *10*	471.8890	4$^-$,(3$^-$)	99.9484	3$^+$			
372.348 *4*	8.2 *5*	545.949	2$^-$	173.6022	3$^-$	M1	0.0498 *7*	α(K)=0.0423 *6*; α(L)=0.00588 *8*; α(M)=0.001267 *18* α(N)=0.000290 *4*; α(O)=4.61×10^{-5} *6*; α(P)=4.62×10^{-6} *6*
x373.663 *9*	1.30 *20*							
374.576 *16*	1.4 *5*	555.3030	4$^-$	180.7439	5$^-$			
375.827 *4*	5.3 *3*	551.3139	4$^-$	175.4817	5$^-$	M1	0.0486 *7*	α(K)=0.0413 *6*; α(L)=0.00574 *8*; α(M)=0.001236 *17* α(N)=0.000283 *4*; α(O)=4.50×10^{-5} *6*; α(P)=4.51×10^{-6} *6*
x377.070 *13*	1.00 *16*							
x377.675 *9*	2.50 *20*					M1	0.0480 *7*	α(K)=0.0408 *6*; α(L)=0.00566 *8*; α(M)=0.001220 *17* α(N)=0.000280 *4*; α(O)=4.44×10^{-5} *6*; α(P)=4.45×10^{-6} *6*
378.245 *12*	2.1 *3*	553.734	5$^-$,(4$^-$)	175.4817	5$^-$	M1	0.0478 *7*	α(K)=0.0406 *6*; α(L)=0.00564 *8*; α(M)=0.001215 *17* α(N)=0.000278 *4*; α(O)=4.43×10^{-5} *6*; α(P)=4.43×10^{-6} *6*
x378.420 *12*	2.2 *3*					M1,E2	0.038 *9*	α(K)=0.032 *9*; α(L)=0.0051 *5*; α(M)=0.00112 *9* α(N)=0.000255 *23*; α(O)=3.9×10^{-5} *5*; α(P)=3.3×10^{-6} *11*
379.066 *6*	12.7 *13*	593.142	3$^-$	214.0746	3$^-$	E2	0.0289 *4*	α(K)=0.02298 *32*; α(L)=0.00460 *6*; α(M)=0.001023 *14* α(N)=0.0002309 *32*; α(O)=3.45×10^{-5} *5*; α(P)=2.217×10^{-6} *31*
379.183 *4*	30.7 *15*	479.142	3$^-$	99.9484	3$^+$	E1	0.00860 *12*	α(K)=0.00733 *10*; α(L)=0.000994 *14*; α(M)=0.0002132 *30* α(N)=4.85×10^{-5} *7*; α(O)=7.59×10^{-6} *11*; α(P)=7.08×10^{-7} *10*
379.442 *7*	8.3 *6*	451.356	2$^-$	71.9118	1$^+$			
x380.209 *10*	3.8 *5*					M1,E2	0.038 *9*	α(K)=0.031 *9*; α(L)=0.0051 *5*; α(M)=0.00111 *9* α(N)=0.000252 *23*; α(O)=3.9×10^{-5} *5*; α(P)=3.3×10^{-6} *11*
x380.38 *3*	1.2 *4*							
x381.236 *15*	1.6 *3*							
381.703 *8*	8.9 *5*	555.3030	4$^-$	173.6022	3$^-$	M1	0.0467 *7*	α(K)=0.0397 *6*; α(L)=0.00551 *8*; α(M)=0.001187 *17* α(N)=0.000272 *4*; α(O)=4.32×10^{-5} *6*; α(P)=4.33×10^{-6} *6*
383.543 *6*	5.1 *4*	545.949	2$^-$	162.4299	1$^-$	M1	0.0461 *6*	α(K)=0.0392 *5*; α(L)=0.00544 *8*; α(M)=0.001172 *16* α(N)=0.000268 *4*; α(O)=4.27×10^{-5} *6*; α(P)=4.28×10^{-6} *6*
x383.77 *3*	1.5 *4*							
x383.976 *8*	2.40 *24*							
x384.287 *6*	3.1 *3*					M1	0.0459 *6*	α(K)=0.0390 *5*; α(L)=0.00541 *8*; α(M)=0.001166 *16* α(N)=0.000267 *4*; α(O)=4.25×10^{-5} *6*; α(P)=4.25×10^{-6} *6*

$^{154}_{63}Eu_{91}$-36

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06 (continued)

γ(^{154}Eu) (continued)

E_γ [†]	I_γ [‡c]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[b]	Comments
[x]384.789 *8*	2.7 *3*					M1	0.0457 *6*	α(K)=0.0389 *5*; α(L)=0.00539 *8*; α(M)=0.001162 *16* α(N)=0.000266 *4*; α(O)=4.23×10^{-5} *6*; α(P)=4.24×10^{-6} *6*
385.536 *5*	11.3 *6*	486.3840	3$^+$,4$^+$	100.8612	4$^+$	M1	0.0455 *6*	α(K)=0.0387 *5*; α(L)=0.00536 *8*; α(M)=0.001156 *16* α(N)=0.000265 *4*; α(O)=4.21×10^{-5} *6*; α(P)=4.22×10^{-6} *6*
386.244 *10*	9.6 *5*	515.9284	3$^-$	129.6795	4$^-$	M1	0.0453 *6*	α(K)=0.0385 *5*; α(L)=0.00534 *7*; α(M)=0.001150 *16* α(N)=0.000263 *4*; α(O)=4.19×10^{-5} *6*; α(P)=4.20×10^{-6} *6*
[x]386.835 *11*	2.20 *26*					M1	0.0451 *6*	α(K)=0.0383 *5*; α(L)=0.00532 *7*; α(M)=0.001146 *16* α(N)=0.000262 *4*; α(O)=4.17×10^{-5} *6*; α(P)=4.18×10^{-6} *6*
388.505 *4*	8.8 *4*	515.9284	3$^-$	127.4301	4$^+$	E1	0.00811 *11*	α(K)=0.00692 *10*; α(L)=0.000937 *13*; α(M)=0.0002009 *28* α(N)=4.57×10^{-5} *6*; α(O)=7.15×10^{-6} *10*; α(P)=6.69×10^{-7} *9*
[x]390.066 *7*	4.5 *5*					M1	0.0441 *6*	α(K)=0.0375 *5*; α(L)=0.00520 *7*; α(M)=0.001121 *16* α(N)=0.000257 *4*; α(O)=4.08×10^{-5} *6*; α(P)=4.09×10^{-6} *6*
390.463 *7*	20.7 *10*	390.4489	4$^+$	0.0	3$^-$	E1	0.00801 *11*	α(K)=0.00684 *10*; α(L)=0.000925 *13*; α(M)=0.0001984 *28* α(N)=4.52×10^{-5} *6*; α(O)=7.07×10^{-6} *10*; α(P)=6.61×10^{-7} *9*
[x]390.672 *10*	3.7 *4*					M1,E2	0.035 *9*	α(K)=0.029 *8*; α(L)=0.0047 *5*; α(M)=0.00102 *10* α(N)=0.000232 *24*; α(O)=3.6×10^{-5} *5*; α(P)=3.1×10^{-6} *10*
[x]391.007 *18*	1.6 *4*							
391.21 *4*	2.20 *24*	471.8890	4$^-$,(3$^-$)	80.6560	4$^-$			
[x]391.908 *8*	2.40 *24*					M1	0.0436 *6*	α(K)=0.0371 *5*; α(L)=0.00514 *7*; α(M)=0.001107 *15* α(N)=0.000254 *4*; α(O)=4.03×10^{-5} *6*; α(P)=4.04×10^{-6} *6*
393.645 *9*	3.10 *20*	521.0540	3$^+$	127.4301	4$^+$	M1,E2	0.034 *9*	α(K)=0.029 *8*; α(L)=0.0046 *5*; α(M)=0.00100 *10* α(N)=0.000227 *24*; α(O)=3.5×10^{-5} *5*; α(P)=3.0×10^{-6} *10*
[x]393.886 *6*	2.90 *26*							
[x]394.373 *8*	2.10 *17*					M1	0.0429 *6*	α(K)=0.0365 *5*; α(L)=0.00505 *7*; α(M)=0.001089 *15* α(N)=0.0002495 *35*; α(O)=3.97×10^{-5} *6*; α(P)=3.98×10^{-6} *6*
[x]396.013 *7*	2.10 *20*					M1	0.0424 *6*	α(K)=0.0361 *5*; α(L)=0.00500 *7*; α(M)=0.001077 *15* α(N)=0.0002468 *35*; α(O)=3.92×10^{-5} *5*; α(P)=3.93×10^{-6} *6*
[x]396.254 *19*	1.20 *20*							
396.996 *4*	6.7 *4*	572.469	4$^-$	175.4817	5$^-$	M1	0.0422 *6*	α(K)=0.0358 *5*; α(L)=0.00497 *7*; α(M)=0.001070 *15* α(N)=0.0002452 *34*; α(O)=3.90×10^{-5} *5*; α(P)=3.91×10^{-6} *5*
[x]397.402 *16*	1.8 *4*							
[x]398.052 *20*	1.3 *3*							
[x]398.409 *10*	1.50 *18*					M1	0.0418 *6*	α(K)=0.0355 *5*; α(L)=0.00492 *7*; α(M)=0.001060 *15* α(N)=0.0002429 *34*; α(O)=3.86×10^{-5} *5*; α(P)=3.87×10^{-6} *5*
398.868 *5*	5.5 *3*	572.469	4$^-$	173.6022	3$^-$	E2	0.02493 *35*	α(K)=0.01996 *28*; α(L)=0.00388 *5*; α(M)=0.000863 *12* α(N)=0.0001949 *27*; α(O)=2.92×10^{-5} *4*; α(P)=1.939×10^{-6} *27*

$^{154}_{63}Eu_{91}$-37

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06 (continued)

γ(^{154}Eu) (continued)

E_γ [†]	I_γ [‡c]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[b]	Comments
[x]399.282 *5*	9.9 *6*					E1	0.00760 *11*	α(K)=0.00648 *9*; α(L)=0.000876 *12*; α(M)=0.0001879 *26* α(N)=4.28×10^{-5} *6*; α(O)=6.70×10^{-6} *9*; α(P)=6.28×10^{-7} *9*
[x]401.200 *9*	3.60 *25*					M1	0.0410 *6*	α(K)=0.0349 *5*; α(L)=0.00483 *7*; α(M)=0.001041 *15* α(N)=0.0002385 *33*; α(O)=3.79×10^{-5} *5*; α(P)=3.80×10^{-6} *5*
401.407 *22*	1.4 *3*	593.7260	4$^-$	192.2939	4$^+$,5$^+$			
[x]402.065 *10*	5.0 *3*					M1	0.0408 *6*	α(K)=0.0347 *5*; α(L)=0.00481 *7*; α(M)=0.001035 *14* α(N)=0.0002371 *33*; α(O)=3.77×10^{-5} *5*; α(P)=3.78×10^{-6} *5*
403.43 *4*	1.3 *4*	403.5175	3$^+$,4$^+$	0.0	3$^-$			
403.629 *9*	4.2 *4*	584.3902	3$^-$	180.7439	5$^-$			
[x]404.159 *4*	8.3 *4*					*a*		
405.231 *14*	1.50 *20*	505.1400	3$^-$	99.9484	3$^+$			
[x]405.764 *16*	5.5 *3*					E2	0.02374 *33*	α(K)=0.01904 *27*; α(L)=0.00367 *5*; α(M)=0.000815 *11* α(N)=0.0001843 *26*; α(O)=2.76×10^{-5} *4*; α(P)=1.854×10^{-6} *26*
[x]407.237 *5*	4.6 *3*					M1,E2	0.031 *8*	α(K)=0.026 *7*; α(L)=0.0041 *5*; α(M)=0.00090 *10* α(N)=0.000206 *24*; α(O)=3.2×10^{-5} *5*; α(P)=2.7×10^{-6} *9*
[x]407.604 *6*	2.60 *20*							
[x]408.969 *10*	2.0 *3*					(M1)	0.0391 *5*	α(K)=0.0332 *5*; α(L)=0.00460 *6*; α(M)=0.000990 *14* α(N)=0.0002268 *32*; α(O)=3.61×10^{-5} *5*; α(P)=3.62×10^{-6} *5*
[x]409.708 *4*	14.0 *11*					E2	0.02310 *32*	α(K)=0.01854 *26*; α(L)=0.00356 *5*; α(M)=0.000790 *11* α(N)=0.0001785 *25*; α(O)=2.68×10^{-5} *4*; α(P)=1.807×10^{-6} *25*
[x]409.857 *7*	8.7 *9*					E1	0.00714 *10*	α(K)=0.00609 *9*; α(L)=0.000823 *12*; α(M)=0.0001764 *25* α(N)=4.02×10^{-5} *6*; α(O)=6.29×10^{-6} *9*; α(P)=5.91×10^{-7} *8*
410.973 *4*	11.4 *8*	479.142	3$^-$	68.1702	2$^+$	E1	0.00709 *10*	α(K)=0.00606 *8*; α(L)=0.000817 *11*; α(M)=0.0001752 *25* α(N)=3.99×10^{-5} *6*; α(O)=6.25×10^{-6} *9*; α(P)=5.87×10^{-7} *8*
411.181 *6*	7.0 *6*	545.949	2$^-$	134.7814	1$^+$	E1	0.00709 *10*	α(K)=0.00605 *8*; α(L)=0.000816 *11*; α(M)=0.0001750 *25* α(N)=3.99×10^{-5} *6*; α(O)=6.24×10^{-6} *9*; α(P)=5.87×10^{-7} *8*
[x]411.534 *8*	1.90 *20*					M1	0.0384 *5*	α(K)=0.0327 *5*; α(L)=0.00452 *6*; α(M)=0.000974 *14* α(N)=0.0002231 *31*; α(O)=3.55×10^{-5} *5*; α(P)=3.56×10^{-6} *5*
[x]412.115 *5*	4.5 *3*					M1	0.0383 *5*	α(K)=0.0325 *5*; α(L)=0.00451 *6*; α(M)=0.000970 *14* α(N)=0.0002223 *31*; α(O)=3.54×10^{-5} *5*; α(P)=3.55×10^{-6} *5*
412.312 *11*	3.2 *5*	593.142	3$^-$	180.8092	2$^-$	(E2)	0.02269 *32*	α(K)=0.01822 *26*; α(L)=0.00349 *5*; α(M)=0.000774 *11* α(N)=0.0001749 *24*; α(O)=2.63×10^{-5} *4*; α(P)=1.778×10^{-6} *25*
412.95 *4*	2.0 *3*	593.7260	4$^-$	180.7439	5$^-$	M1	0.0381 *5*	α(K)=0.0324 *5*; α(L)=0.00448 *6*; α(M)=0.000965 *14* α(N)=0.0002211 *31*; α(O)=3.52×10^{-5} *5*; α(P)=3.53×10^{-6} *5*

$^{154}_{63}Eu_{91}$-38

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06 (continued)

γ(^{154}Eu) (continued)

E_γ [†]	I_γ [‡c]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[b]	Comments
413.311 *12*	14.0 *8*	513.271	4⁻,(2⁻,3⁻)	99.9484	3⁺	E1	0.00700 *10*	α(K)=0.00597 *8*; α(L)=0.000806 *11*; α(M)=0.0001729 *24* α(N)=3.94×10⁻⁵ *6*; α(O)=6.17×10⁻⁶ *9*; α(P)=5.80×10⁻⁷ *8*
x413.511 *14*	6.4 *5*					E2	0.02250 *32*	α(K)=0.01808 *25*; α(L)=0.00345 *5*; α(M)=0.000766 *11* α(N)=0.0001732 *24*; α(O)=2.60×10⁻⁵ *4*; α(P)=1.765×10⁻⁶ *25*
x414.064 *11*	1.20 *20*							
415.019 *27*	1.90 *20*	515.9284	3⁻	100.8612	4⁺			
x415.604 *12*	1.40 *20*							
x417.0286 *24*	15.7 *8*					E2	0.02197 *31*	α(K)=0.01767 *25*; α(L)=0.00336 *5*; α(M)=0.000745 *10* α(N)=0.0001685 *24*; α(O)=2.533×10⁻⁵ *35*; α(P)=1.726×10⁻⁶ *24*
x417.759 *7*	2.7 *3*							
418.274 *10*	7.9 *4*	593.7260	4⁻	175.4817	5⁻	E2	0.02179 *31*	α(K)=0.01753 *25*; α(L)=0.00333 *5*; α(M)=0.000738 *10* α(N)=0.0001669 *23*; α(O)=2.509×10⁻⁵ *35*; α(P)=1.713×10⁻⁶ *24*
x418.915 *12*	2.4 *4*							
x419.354 *14*	2.0 *3*							
420.096 *20*	12.1 *6*	593.7260	4⁻	173.6022	3⁻	M1	0.0364 *5*	α(K)=0.0310 *4*; α(L)=0.00429 *6*; α(M)=0.000923 *13* α(N)=0.0002114 *30*; α(O)=3.36×10⁻⁵ *5*; α(P)=3.37×10⁻⁶ *5*
x420.63 *3*	2.0 *5*					M1	0.0363 *5*	α(K)=0.0309 *4*; α(L)=0.00427 *6*; α(M)=0.000920 *13* α(N)=0.0002107 *30*; α(O)=3.35×10⁻⁵ *5*; α(P)=3.36×10⁻⁶ *5*
421.656 *14*	2.1 *4*	551.3139	4⁻	129.6795	4⁻	M1	0.0361 *5*	α(K)=0.0307 *4*; α(L)=0.00424 *6*; α(M)=0.000914 *13* α(N)=0.0002094 *29*; α(O)=3.33×10⁻⁵ *5*; α(P)=3.34×10⁻⁶ *5*
x422.47 *3*	1.6 *3*							
x422.794 *3*	15.5 *7*					E2	0.02114 *30*	α(K)=0.01702 *24*; α(L)=0.00322 *5*; α(M)=0.000713 *10* α(N)=0.0001612 *23*; α(O)=2.425×10⁻⁵ *34*; α(P)=1.666×10⁻⁶ *23*
424.517 *18*	2.1 *5*	505.1400	3⁻	80.6560	4⁻			
x426.429 *16*	2.9 *5*							
x426.683 *10*	3.9 *5*					E1	0.00649 *9*	α(K)=0.00554 *8*; α(L)=0.000747 *10*; α(M)=0.0001602 *22* α(N)=3.65×10⁻⁵ *5*; α(O)=5.72×10⁻⁶ *8*; α(P)=5.39×10⁻⁷ *8*
x427.081 *5*	5.4 *4*					M1	0.0349 *5*	α(K)=0.0297 *4*; α(L)=0.00411 *6*; α(M)=0.000884 *12* α(N)=0.0002025 *28*; α(O)=3.22×10⁻⁵ *5*; α(P)=3.23×10⁻⁶ *5*
x427.653 *24*	3.4 *3*							
427.845 *18*	2.2 *5*	555.3030	4⁻	127.4301	4⁺			
x429.07 *3*	1.00 *20*							
429.85 *3*	1.10 *20*	429.9187	3⁻	0.0	3⁻			
x430.923 *17*	3.6 *3*							
x431.104 *23*	2.3 *5*							
x431.692 *9*	3.7 *4*							
432.728 *12*	14.3 *21*	555.3030	4⁻	122.5582	2⁻	E2	0.01981 *28*	α(K)=0.01599 *22*; α(L)=0.00299 *4*; α(M)=0.000662 *9* α(N)=0.0001496 *21*; α(O)=2.255×10⁻⁵ *32*; α(P)=1.569×10⁻⁶ *22*

$^{154}_{63}Eu_{91}$-39

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06 (continued)

γ(^{154}Eu) (continued)

E_γ [†]	I_γ [‡c]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [#]	α [b]	Comments
[x]433.472 *6*	6.3 *4*					M1	0.0336 *5*	α(K)=0.0286 *4*; α(L)=0.00395 *6*; α(M)=0.000851 *12* α(N)=0.0001949 *27*; α(O)=3.10×10^{-5} *4*; α(P)=3.11×10^{-6} *4*
[x]433.870 *15*	5.7 *9*					M1	0.0335 *5*	α(K)=0.0285 *4*; α(L)=0.00394 *6*; α(M)=0.000849 *12* α(N)=0.0001944 *27*; α(O)=3.09×10^{-5} *4*; α(P)=3.10×10^{-6} *4*
[x]434.005 *13*	3.4 *4*							
[x]434.301 *13*	6.0 *5*					M1	0.0334 *5*	α(K)=0.0284 *4*; α(L)=0.00393 *6*; α(M)=0.000846 *12* α(N)=0.0001939 *27*; α(O)=3.08×10^{-5} *4*; α(P)=3.10×10^{-6} *4*
435.765 *20*	2.5 *4*	572.469	4$^-$	136.6967	5$^+$			
435.973 *22*	1.6 *4*	435.940	1$^-$	0.0	3$^-$			
[x]436.792 *19*	1.9 *3*							
436.96 *3*	2.4 *6*	505.1400	3$^-$	68.1702	2$^+$			
[x]437.886 *12*	4.0 *3*							
[x]438.747 *4*	6.0 *4*					M1	0.0326 *5*	α(K)=0.0277 *4*; α(L)=0.00383 *5*; α(M)=0.000824 *12* α(N)=0.0001888 *26*; α(O)=3.00×10^{-5} *4*; α(P)=3.02×10^{-6} *4*
[x]439.607 *8*	2.20 *20*							
[x]440.113 *26*	1.0 *5*							
[x]440.64 *5*	1.0 *3*							
[x]441.39 *5*	1.4 *5*							
[x]441.924 *11*	3.1 *5*							
[x]442.460 *8*	4.9 *5*					M1,E2	0.025 *7*	α(K)=0.021 *6*; α(L)=0.0033 *5*; α(M)=0.00071 *10* α(N)=0.000162 *23*; α(O)=2.5×10^{-5} *4*; α(P)=2.2×10^{-6} *7*
[x]442.898 *12*	3.0 *4*							
[x]443.271 *5*	7.2 *5*					E2,M1	0.025 *7*	α(K)=0.021 *6*; α(L)=0.0032 *5*; α(M)=0.00071 *10* α(N)=0.000161 *23*; α(O)=2.5×10^{-5} *4*; α(P)=2.2×10^{-6} *7*
[x]443.826 *5*	8.0 *5*					E1	0.00592 *8*	α(K)=0.00506 *7*; α(L)=0.000680 *10*; α(M)=0.0001458 *20* α(N)=3.32×10^{-5} *5*; α(O)=5.21×10^{-6} *7*; α(P)=4.93×10^{-7} *7*
[x]444.939 *21*	1.6 *3*							
[x]445.783 *24*	1.6 *3*							
445.991 *8*	4.20 *20*	545.949	2$^-$	99.9484	3$^+$			
[x]447.096 *7*	4.5 *3*							
[x]447.530 *12*	3.1 *3*							
447.747 *5*	14.8 *7*	515.9284	3$^-$	68.1702	2$^+$	E1	0.00580 *8*	α(K)=0.00496 *7*; α(L)=0.000666 *9*; α(M)=0.0001428 *20* α(N)=3.25×10^{-5} *5*; α(O)=5.10×10^{-6} *7*; α(P)=4.83×10^{-7} *7*
[x]449.499 *10*	4.4 *3*					M1	0.0306 *4*	α(K)=0.0260 *4*; α(L)=0.00359 *5*; α(M)=0.000774 *11* α(N)=0.0001773 *25*; α(O)=2.82×10^{-5} *4*; α(P)=2.83×10^{-6} *4*
[x]450.227 *10*	3.9 *3*							
451.00 *3*	1.4 *5*	451.0074	2$^+$,3$^+$	0.0	3$^-$			

$^{154}_{63}Eu_{91}$-40

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06 (continued)

$\gamma(^{154}Eu)$ (continued)

E_γ [†]	I_γ [‡c]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[b]	Comments
[x]451.640 *13*	5.0 *5*							
[x]451.911 *16*	5.2 *4*							
[x]452.444 *9*	4.4 *4*							
452.889 *5*	16.9 *8*	521.0540	3^+	68.1702	2^+	M1	0.0300 *4*	α(K)=0.0256 *4*; α(L)=0.00353 *5*; α(M)=0.000759 *11* α(N)=0.0001739 *24*; α(O)=2.77×10^{-5} *4*; α(P)=2.78×10^{-6} *4*
[x]453.834 *18*	1.8 *6*							
454.65 *3*	2.0 *7*	584.3902	3^-	129.6795	4^-			
[x]455.97 *4*	2.6 *3*							
456.992 *15*	12.2 *11*	584.3902	3^-	127.4301	4^+			
[x]457.114 *14*	8.3 *11*							
[x]459.212 *21*	1.00 *17*							
[x]460.714 *16*	3.0 *5*					M1	0.0288 *4*	α(K)=0.02446 *34*; α(L)=0.00337 *5*; α(M)=0.000726 *10* α(N)=0.0001663 *23*; α(O)=2.65×10^{-5} *4*; α(P)=2.66×10^{-6} *4*
[x]461.891 *18*	1.30 *20*							
[x]462.28 *8*	1.10 *25*							
[x]463.560 *6*	3.9 *3*					M1	0.0283 *4*	α(K)=0.02408 *34*; α(L)=0.00332 *5*; α(M)=0.000715 *10* α(N)=0.0001637 *23*; α(O)=2.60×10^{-5} *4*; α(P)=2.62×10^{-6} *4*
465.727 *11*	7.8 *4*	593.142	3^-	127.4301	4^+			
[x]465.976 *19*	2.8 *4*							
[x]466.352 *21*	1.20 *20*							
[x]468.621 *5*	4.5 *3*					M1,E2	0.022 *6*	α(K)=0.018 *5*; α(L)=0.0028 *5*; α(M)=0.00060 *9* α(N)=0.000138 *21*; α(O)=2.1×10^{-5} *4*; α(P)=1.9×10^{-6} *6*
[x]469.25 *3*	1.40 *20*							
[x]470.40 *4*	0.9 *3*							
[x]471.532 *7*	5.3 *4*					M1	0.0271 *4*	α(K)=0.02305 *32*; α(L)=0.00318 *4*; α(M)=0.000684 *10* α(N)=0.0001566 *22*; α(O)=2.492×10^{-5} *35*; α(P)=2.506×10^{-6} *35*
471.897 *9*	10.2 *5*	471.8890	4^-,(3^-)	0.0	3^-	M1	0.0270 *4*	α(K)=0.02301 *32*; α(L)=0.00317 *4*; α(M)=0.000682 *10* α(N)=0.0001563 *22*; α(O)=2.487×10^{-5} *35*; α(P)=2.501×10^{-6} *35*
472.553 *15*	2.30 *20*	572.469	4^-	99.9484	3^+			
[x]474.022 *3*	8.1 *4*					M1	0.0267 *4*	α(K)=0.02275 *32*; α(L)=0.00313 *4*; α(M)=0.000675 *9* α(N)=0.0001545 *22*; α(O)=2.458×10^{-5} *34*; α(P)=2.472×10^{-6} *35*
[x]476.73 *5*	0.80 *20*							
[x]477.115 *6*	4.5 *3*					M1	0.0263 *4*	α(K)=0.02237 *31*; α(L)=0.00308 *4*; α(M)=0.000663 *9* α(N)=0.0001520 *21*; α(O)=2.417×10^{-5} *34*; α(P)=2.431×10^{-6} *34*
[x]478.268 *23*	1.90 *23*							
[x]478.721 *25*	1.40 *17*							
[x]479.586 *8*	2.70 *20*							
[x]480.25 *4*	1.6 *5*							
[x]480.59 *4*	2.0 *7*							

$^{154}_{63}Eu_{91}$-41

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06 (continued)

γ(^{154}Eu) (continued)

E_γ [†]	I_γ [‡c]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[b]	Comments
x481.01 *4*	2.0 *7*							
x482.054 *10*	8.0 *4*					E1	0.00490 *7*	α(K)=0.00419 *6*; α(L)=0.000561 *8*; α(M)=0.0001201 *17* α(N)=2.74×10^{-5} *4*; α(O)=4.30×10^{-6} *6*; α(P)=4.10×10^{-7} *6*
x482.58 *4*	2.0 *7*							
x483.04 *4*	2.0 *7*							
483.56 *3*	2.6 *9*	584.3902	3$^-$	100.8612	4$^+$			
x484.114 *25*	3.3 *3*							
x484.829 *8*	5.2 *4*							
x485.946 *24*	1.7 *4*							
486.391 *5*	7.3 *4*	486.3840	3$^+$,4$^+$	0.0	3$^-$	E1	0.00480 *7*	α(K)=0.00410 *6*; α(L)=0.000549 *8*; α(M)=0.0001177 *16* α(N)=2.68×10^{-5} *4*; α(O)=4.21×10^{-6} *6*; α(P)=4.02×10^{-7} *6*
x487.31 *3*	2.6 *5*					M1	0.02492 *35*	α(K)=0.02120 *30*; α(L)=0.00292 *4*; α(M)=0.000628 *9* α(N)=0.0001439 *20*; α(O)=2.289×10^{-5} *32*; α(P)=2.303×10^{-6} *32*
x488.48 *8*	3.3 *5*					M1	0.02477 *35*	α(K)=0.02107 *30*; α(L)=0.00290 *4*; α(M)=0.000624 *9* α(N)=0.0001430 *20*; α(O)=2.275×10^{-5} *32*; α(P)=2.289×10^{-6} *32*
x488.63 *7*	2.5 *5*							
x489.61 *4*	5.4 *6*					M1	0.02462 *34*	α(K)=0.02095 *29*; α(L)=0.00288 *4*; α(M)=0.000621 *9* α(N)=0.0001422 *20*; α(O)=2.261×10^{-5} *32*; α(P)=2.276×10^{-6} *32*
x491.560 *6*	2.5 *5*							
x491.881 *11*	8.0 *6*					M1	0.02433 *34*	α(K)=0.02071 *29*; α(L)=0.00285 *4*; α(M)=0.000613 *9* α(N)=0.0001405 *20*; α(O)=2.235×10^{-5} *31*; α(P)=2.249×10^{-6} *31*
x492.576 *10*	5.7 *5*					M1,E2	0.019 *5*	α(K)=0.016 *5*; α(L)=0.0024 *4*; α(M)=0.00053 *9* α(N)=0.000120 *20*; α(O)=1.87×10^{-5} *35*; α(P)=1.7×10^{-6} *6*
x493.45 *3*	2.6 *5*							
x493.658 *20*	3.4 *5*							
x494.255 *9*	4.9 *5*					M1	0.02404 *34*	α(K)=0.02046 *29*; α(L)=0.00281 *4*; α(M)=0.000606 *8* α(N)=0.0001387 *19*; α(O)=2.207×10^{-5} *31*; α(P)=2.221×10^{-6} *31*
x494.609 *8*	5.7 *5*					M1	0.02399 *34*	α(K)=0.02042 *29*; α(L)=0.00281 *4*; α(M)=0.000605 *8* α(N)=0.0001385 *19*; α(O)=2.203×10^{-5} *31*; α(P)=2.217×10^{-6} *31*
x495.845 *20*	1.7 *4*							
x496.978 *10*	4.5 *4*					M1,E2	0.019 *5*	α(K)=0.016 *5*; α(L)=0.0024 *4*; α(M)=0.00051 *8* α(N)=0.000117 *20*; α(O)=1.83×10^{-5} *35*; α(P)=1.6×10^{-6} *5*
x497.380 *9*	5.4 *4*					*a*		
x497.826 *15*	3.3 *5*							
x498.582 *25*	2.1 *4*							
x499.132 *25*	3.7 *4*							
499.714 *20*	3.6 *3*	599.633	2$^-$	99.9484	3$^+$			
x500.882 *12*	3.1 *3*							
x501.94 *3*	3.5 *9*							

$^{154}_{63}Eu_{91}$-42

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06 (continued)

γ(^{154}Eu) (continued)

E_γ [†]	I_γ [‡c]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[b]	Comments
[x]503.92 *4*	1.40 *25*							
[x]504.593 *9*	3.80 *25*							
[x]505.852 *18*	2.40 *20*							
[x]506.38 *6*	1.90 *20*							
[x]507.17 *5*	3.0 *10*							
[x]507.90 *6*	1.0 *3*							
[x]508.66 *3*	4.4 *6*							
[x]509.492 *12*	6.4 *5*					M1	0.02226 *31*	α(K)=0.01894 *27*; α(L)=0.00260 *4*; α(M)=0.000560 *8* α(N)=0.0001283 *18*; α(O)=2.042×10^{-5} *29*; α(P)=2.056×10^{-6} *29*
[x]511.06 *6*	1.0 *3*							
[x]511.672 *11*	11.0 *7*					M1	0.02202 *31*	α(K)=0.01874 *26*; α(L)=0.00257 *4*; α(M)=0.000554 *8* α(N)=0.0001269 *18*; α(O)=2.019×10^{-5} *28*; α(P)=2.034×10^{-6} *28*
[x]512.170 *22*	2.8 *5*							
[x]515.79 *4*	6.6 *6*							
516.209 *6*	12.4 *6*	584.3902	3$^-$	68.1702	2$^+$	E1	0.00420 *6*	α(K)=0.00359 *5*; α(L)=0.000479 *7*; α(M)=0.0001026 *14* α(N)=2.340×10^{-5} *33*; α(O)=3.68×10^{-6} *5*; α(P)=3.52×10^{-7} *5*
516.818 *13*	6.6 *5*	599.633	2$^-$	82.8200	1$^-$	M1	0.02147 *30*	α(K)=0.01827 *26*; α(L)=0.002509 *35*; α(M)=0.000540 *8* α(N)=0.0001237 *17*; α(O)=1.968×10^{-5} *28*; α(P)=1.982×10^{-6} *28*
[x]518.280 *14*	4.6 *5*							
[x]519.080 *26*	1.9 *4*							
[x]519.758 *9*	3.7 *3*							
[x]520.721 *12*	3.5 *3*							
[x]521.37 *4*	1.5 *5*							
[x]521.773 *16*	4.5 *6*							
[x]523.09 *3*	3.1 *3*							
[x]524.260 *16*	3.1 *5*							
524.964 *8*	5.8 *4*	593.142	3$^-$	68.1702	2$^+$			
[x]527.557 *10*	3.9 *3*					M1	0.02038 *29*	α(K)=0.01735 *24*; α(L)=0.002381 *33*; α(M)=0.000512 *7* α(N)=0.0001174 *16*; α(O)=1.868×10^{-5} *26*; α(P)=1.882×10^{-6} *26*
[x]528.605 *11*	2.9 *3*							
[x]530.312 *22*	2.3 *3*							
[x]531.47 *3*	5.2 *4*					M1	0.02000 *28*	α(K)=0.01703 *24*; α(L)=0.002336 *33*; α(M)=0.000503 *7* α(N)=0.0001152 *16*; α(O)=1.833×10^{-5} *26*; α(P)=1.847×10^{-6} *26*
532.69 *3*	2.1 *5*	532.7393	4$^-$,(3)$^-$	0.0	3$^-$			
[x]533.273 *13*	4.0 *4*							
[x]533.791 *17*	5.4 *7*							
[x]534.081 *25*	4.3 *5*							
[x]535.213 *18*	8.8 *12*					E1	0.00387 *5*	α(K)=0.00331 *5*; α(L)=0.000441 *6*; α(M)=9.45×10^{-5} *13* α(N)=2.156×10^{-5} *30*; α(O)=3.39×10^{-6} *5*; α(P)=3.26×10^{-7} *5*

$^{154}_{63}Eu_{91}$-43

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06 (continued)

γ(^{154}Eu) (continued)

E_γ [†]	I_γ [‡ c]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [#]	α [b]	Comments
[x]535.51 *3*	3.9 *10*							
[x]536.17 *3*	3.6 *4*							
[x]536.711 *10*	5.3 *4*					M1	0.01951 *27*	α(K)=0.01661 *23*; α(L)=0.002278 *32*; α(M)=0.000490 *7* α(N)=0.0001123 *16*; α(O)=1.787×10^{-5} *25*; α(P)=1.801×10^{-6} *25*
[x]539.127 *14*	5.8 *6*							
[x]540.566 *14*	8.9 *11*					*a*		
[x]540.795 *12*	11.9 *12*					*a*		
[x]542.255 *20*	3.7 *5*							
545.82 *5*	2.7 *3*	545.949	2$^-$	0.0	3$^-$			
[x]546.14 *5*	2.2 *7*							
[x]547.17 *4*	6.4 *5*					M1,E2	0.015 *4*	α(K)=0.012 *4*; α(L)=0.00182 *35*; α(M)=0.00039 *7* α(N)=9.0×10^{-5} *17*; α(O)=1.41×10^{-5} *29*; α(P)=1.3×10^{-6} *4*
[x]547.546 *25*	3.7 *4*							
[x]548.504 *18*	5.1 *4*					M1	0.01847 *26*	α(K)=0.01573 *22*; α(L)=0.002156 *30*; α(M)=0.000464 *6* α(N)=0.0001063 *15*; α(O)=1.691×10^{-5} *24*; α(P)=1.705×10^{-6} *24*
[x]549.353 *7*	7.8 *5*							
[x]550.25 *3*	3.6 *3*							
[x]550.78 *3*	3.4 *6*							
5007.2 *8*	1.26 *11*	6442.22	2$^+$,3$^+$	1434.7				
5018.5 *8*	2.52 *16*	6442.22	2$^+$,3$^+$	1423.4				
5034.4 *7*	2.82 *15*	6442.22	2$^+$,3$^+$	1407.5				
5097.5 *4*	2.51 *16*	6442.22	2$^+$,3$^+$	1344.4				
5111.15 *23*	2.75 *17*	6442.22	2$^+$,3$^+$	1330.76				
5125.1 *11*	1.17 *10*	6442.22	2$^+$,3$^+$	1316.8				
5133.8 *11*	0.59 *5*	6442.22	2$^+$,3$^+$	1308.1				
5152.4 *9*	0.42 *8*	6442.22	2$^+$,3$^+$	1289.5				
5178.3 *6*	1.13 *10*	6442.22	2$^+$,3$^+$	1263.6				
5224.2 *3*	3.55 *23*	6442.22	2$^+$,3$^+$	1217.7				
5230.77 *21*	9.4 *5*	6442.22	2$^+$,3$^+$	1211.13				
5268.8 *3*	2.41 *16*	6442.22	2$^+$,3$^+$	1173.1				
5321.9 *3*	3.37 *20*	6442.22	2$^+$,3$^+$	1120.0				
5373.35 *23*	4.87 *28*	6442.22	2$^+$,3$^+$	1068.55				
5396.4 *4*	1.66 *13*	6442.22	2$^+$,3$^+$	1045.5				
5471.53 *20*	9.0 *5*	6442.22	2$^+$,3$^+$	970.36				
5481.4 *4*	1.53 *11*	6442.22	2$^+$,3$^+$	960.5				
5496.65 *25*	3.88 *21*	6442.22	2$^+$,3$^+$	945.2				
5536.3 *3*	7.00 *20*	6442.22	2$^+$,3$^+$	905.6				
5584.6 *8*	0.74 *9*	6442.22	2$^+$,3$^+$	857.3				
5592.6 *7*	0.96 *13*	6442.22	2$^+$,3$^+$	849.3				
5613.3 *5*	3.32 *16*	6442.22	2$^+$,3$^+$	828.6				
5645.19 *23*	3.23 *18*	6442.22	2$^+$,3$^+$	796.70				

$^{154}_{63}Eu_{91}$-44

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06 (continued)

γ(^{154}Eu) (continued)

E_γ †	I_γ ‡ c	E_i(level)	J_i^π	E_f	J_f^π
5657.8 *6*	0.49 *6*	6442.22	$2^+,3^+$	784.1	
5700.6 *3*	2.15 *13*	6442.22	$2^+,3^+$	741.3	
5778.4 *3*	3.03 *17*	6442.22	$2^+,3^+$	663.5	
5806.1 *6*	0.38 *7*	6442.22	$2^+,3^+$	635.8	
5822.3 *3*	1.99 *13*	6442.22	$2^+,3^+$	619.6	
5849.4 *4*	0.58 *7*	6442.22	$2^+,3^+$	593.142	3^-
5869.4 *4*	0.99 *8*	6442.22	$2^+,3^+$	572.469	4^-
5892.2 *3*	0.66 *9*	6442.22	$2^+,3^+$	549.587	1^-
5909.21 *21*	15.4 *8*	6442.22	$2^+,3^+$	532.7393	$4^-,(3)^-$
5921.0 *7*	0.54 *28*	6442.22	$2^+,3^+$	521.0540	3^+
5925.9 *4*	1.95 *15*	6442.22	$2^+,3^+$	515.9284	3^-
5968.6 *3*	1.04 *10*	6442.22	$2^+,3^+$	471.8890	$4^-,(3^-)$
6012.19 *23*	4.63 *25*	6442.22	$2^+,3^+$	429.9187	3^-
6051.88 *23*	4.03 *22*	6442.22	$2^+,3^+$	390.4267	2^-
6101.1 *3*	2.26 *17*	6442.22	$2^+,3^+$	342.1315	2^-
6114.2 *5*	2.35 *21*	6442.22	$2^+,3^+$	326.8726	$3^+,4^+$
6146.4 *6*	1.16 *17*	6442.22	$2^+,3^+$	295.9225	$3^+,4^+$
6163.0 *4*	1.72 *11*	6442.22	$2^+,3^+$	278.5480	2^+
6190.2 *3*	1.35 *9*	6442.22	$2^+,3^+$	251.8253	3^+
6206.6 *4*	1.06 *8*	6442.22	$2^+,3^+$	235.2787	4^-
6256.8 *12*	0.33 *11*	6442.22	$2^+,3^+$	185.0509	2^+
6261.0 *3*	2.56 *17*	6442.22	$2^+,3^+$	180.8092	2^-
6268.2 *3*	2.26 *13*	6442.22	$2^+,3^+$	173.6022	3^-
6315.7 *4*	0.05 *1*	6442.22	$2^+,3^+$	127.4301	4^+
6319.6 *3*	1.57 *14*	6442.22	$2^+,3^+$	122.5582	2^-
6342.5 *6*	0.003 *1*	6442.22	$2^+,3^+$	99.9484	3^+
6359.1 *4*	1.09 *6*	6442.22	$2^+,3^+$	82.8200	1^-
6374.7 *8*	0.17 *3*	6442.22	$2^+,3^+$	68.1702	2^+
6441.85 *25*	3.59 *19*	6442.22	$2^+,3^+$	0.0	3^-

† From 1987Ba52 for γ's from levels below 600 keV and from 1978PrZY for γ's from the capture state, unless otherwise noted. The uncertainties in Eγ from 1987Ba52 do not include a calibration uncertainty of 1 part in 10^5. Other sets of Eγ: 1977St14 from semiconductor detectors and 1963Or02 and 1969MuZM from curved-crystal spectrometers.

‡ From 1987Ba52 for γ's from levels below 600 keV and from 1978PrZY for γ's from the capture state, unless otherwise noted.

From ^{154}Eu Adopted γ radiations, but primarily from these (n,γ) studies and based on L-subshell ratios and α_K(exp) and α_L(exp) values (1987Ba52 and 1978PrZY). Other: 1977St14.

@ From 1977St14.

& 1987Ba52 indicate possible double placement, but the other placement is not given.

a Reported as E1 or E2.

b Additional information 2.

c For intensity per 100 neutron captures, multiply by 0.010 *2*.

d Multiply placed with undivided intensity.

x γ ray not placed in level scheme.

$^{154}_{63}Eu_{91}$-45

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06

Level Scheme

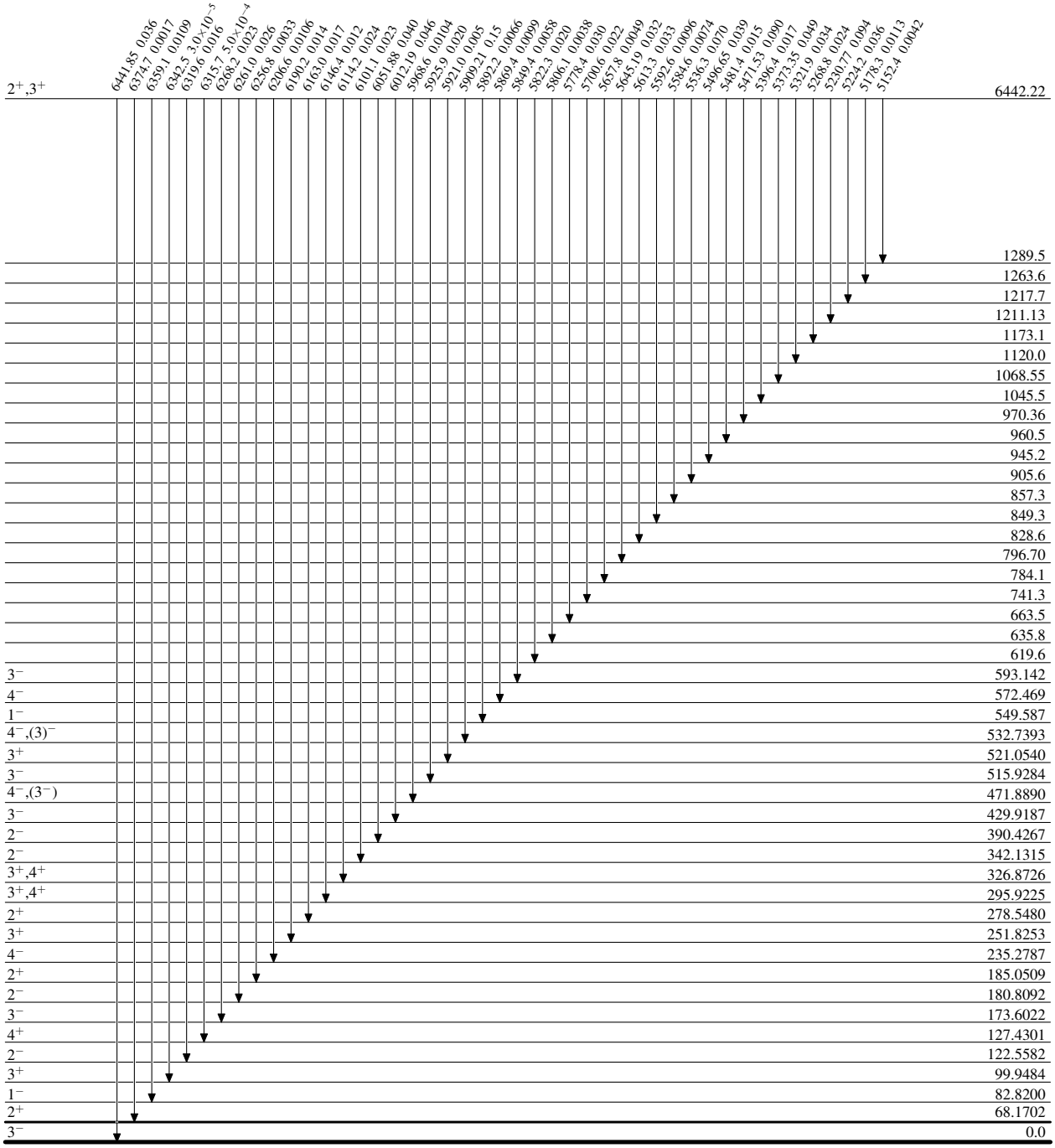
Intensities: Iγ(1+α) per 100 thermal-neutron captures.

Legend

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

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

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



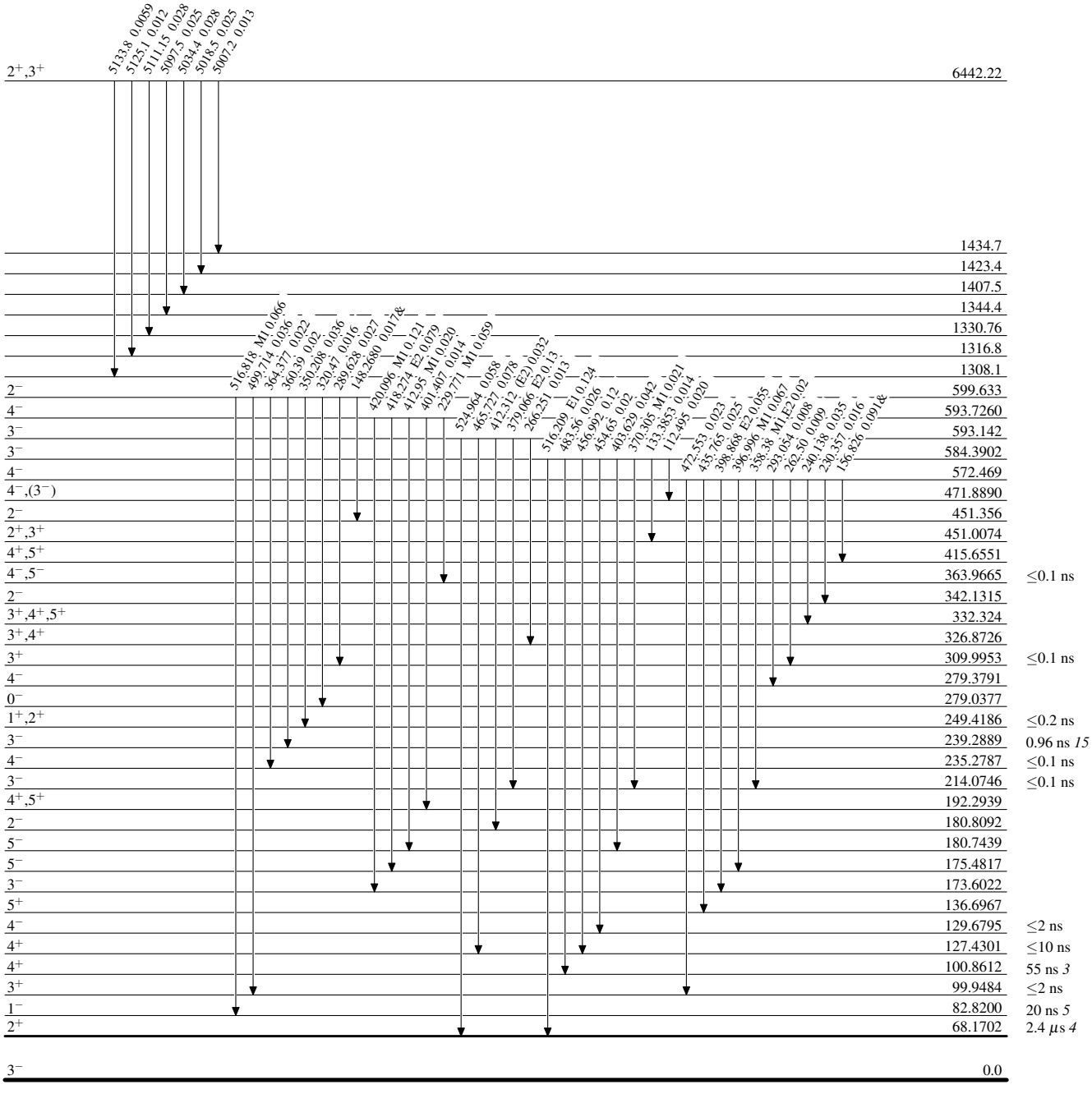
$^{154}_{63}Eu_{91}$

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06

Level Scheme (continued)

Intensities: Iγ(1+α) per 100 thermal-neutron captures.
& Multiply placed: undivided intensity given

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



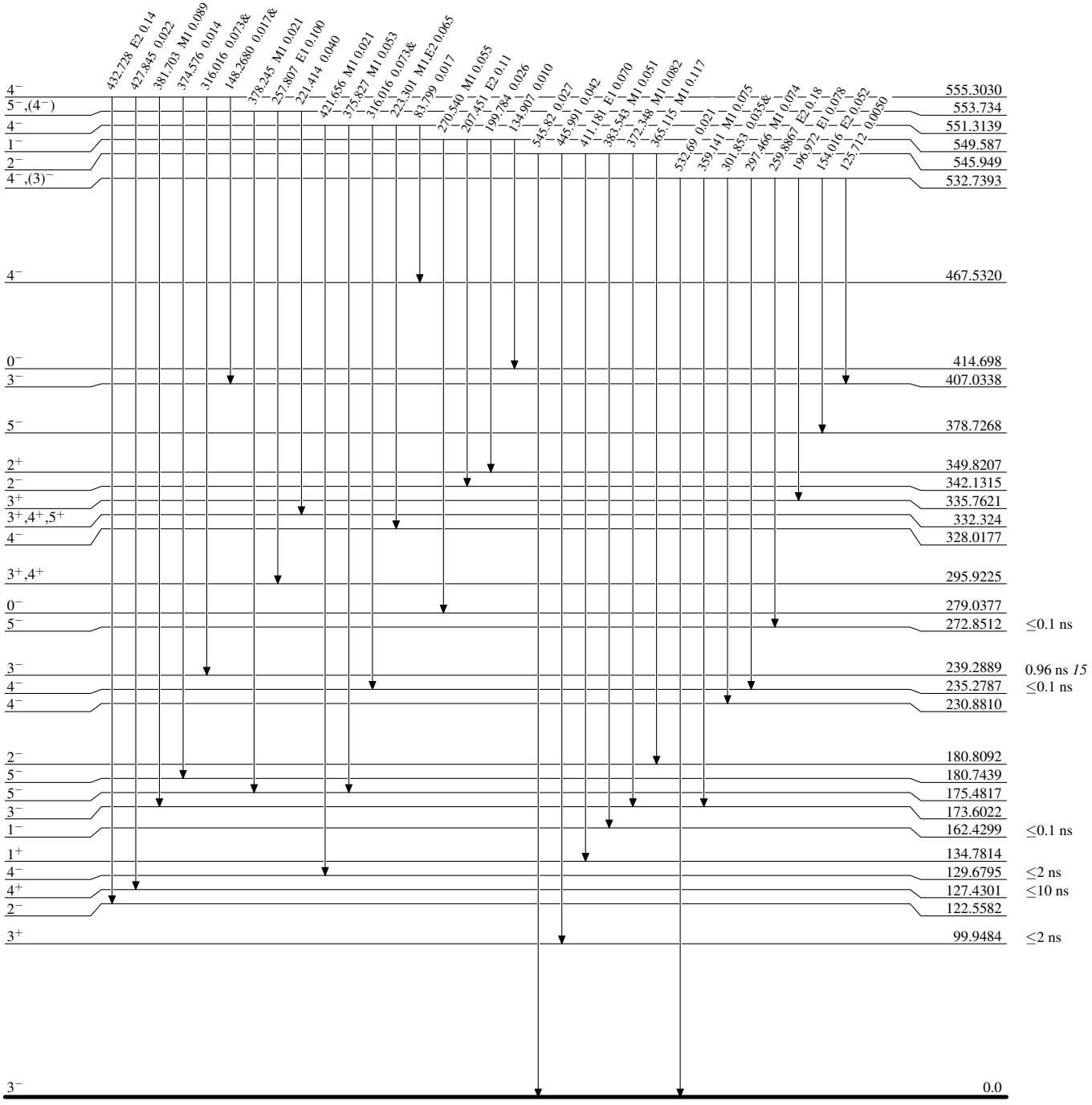
$^{154}_{63}Eu_{91}$

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06

Level Scheme (continued)

Intensities: Iγ(1+α) per 100 thermal-neutron captures.
& Multiply placed: undivided intensity given

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



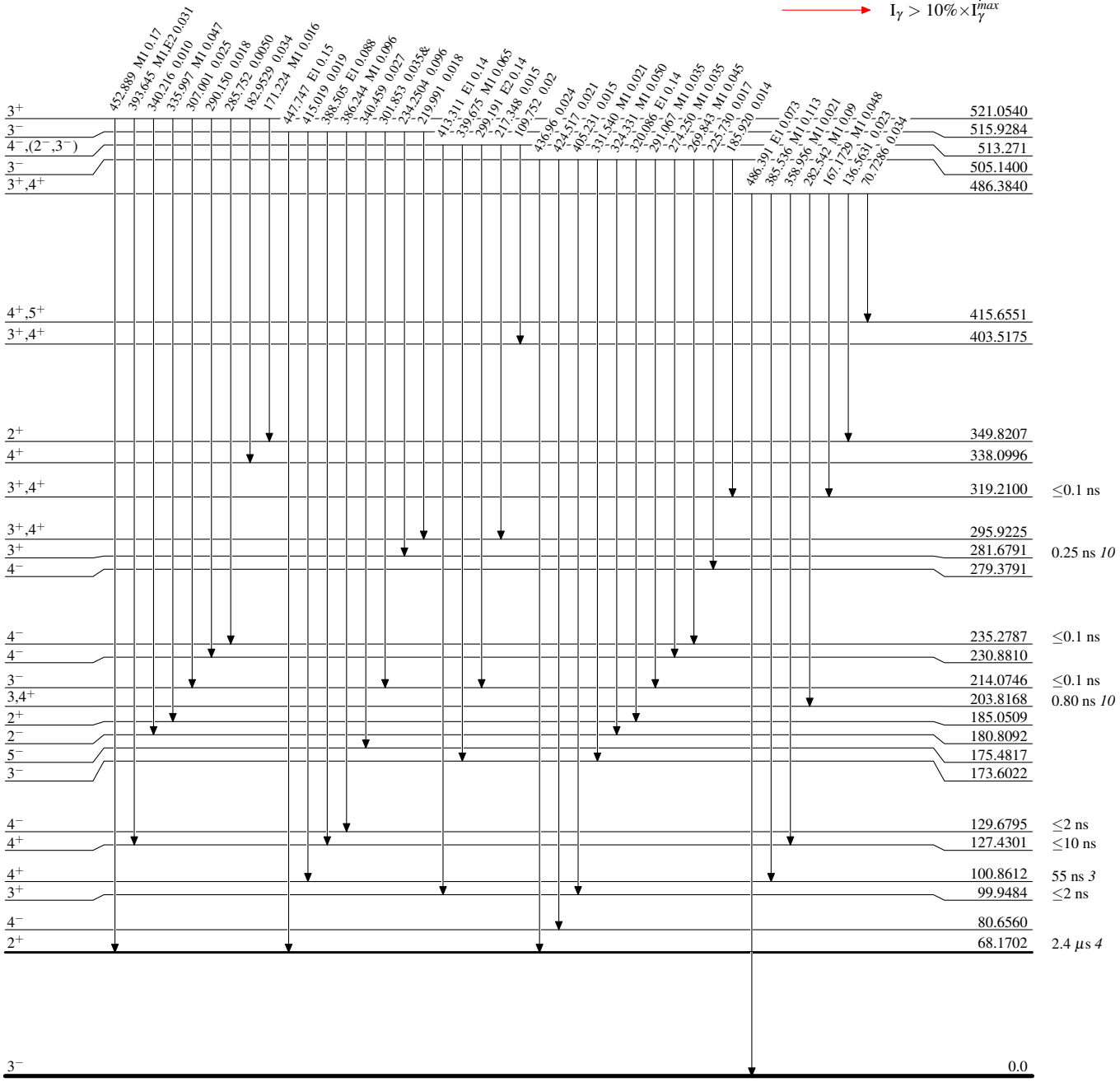
$^{154}_{63}Eu_{91}$

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06

Level Scheme (continued)

Intensities: Iγ(1+α) per 100 thermal-neutron captures.
& Multiply placed: undivided intensity given

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



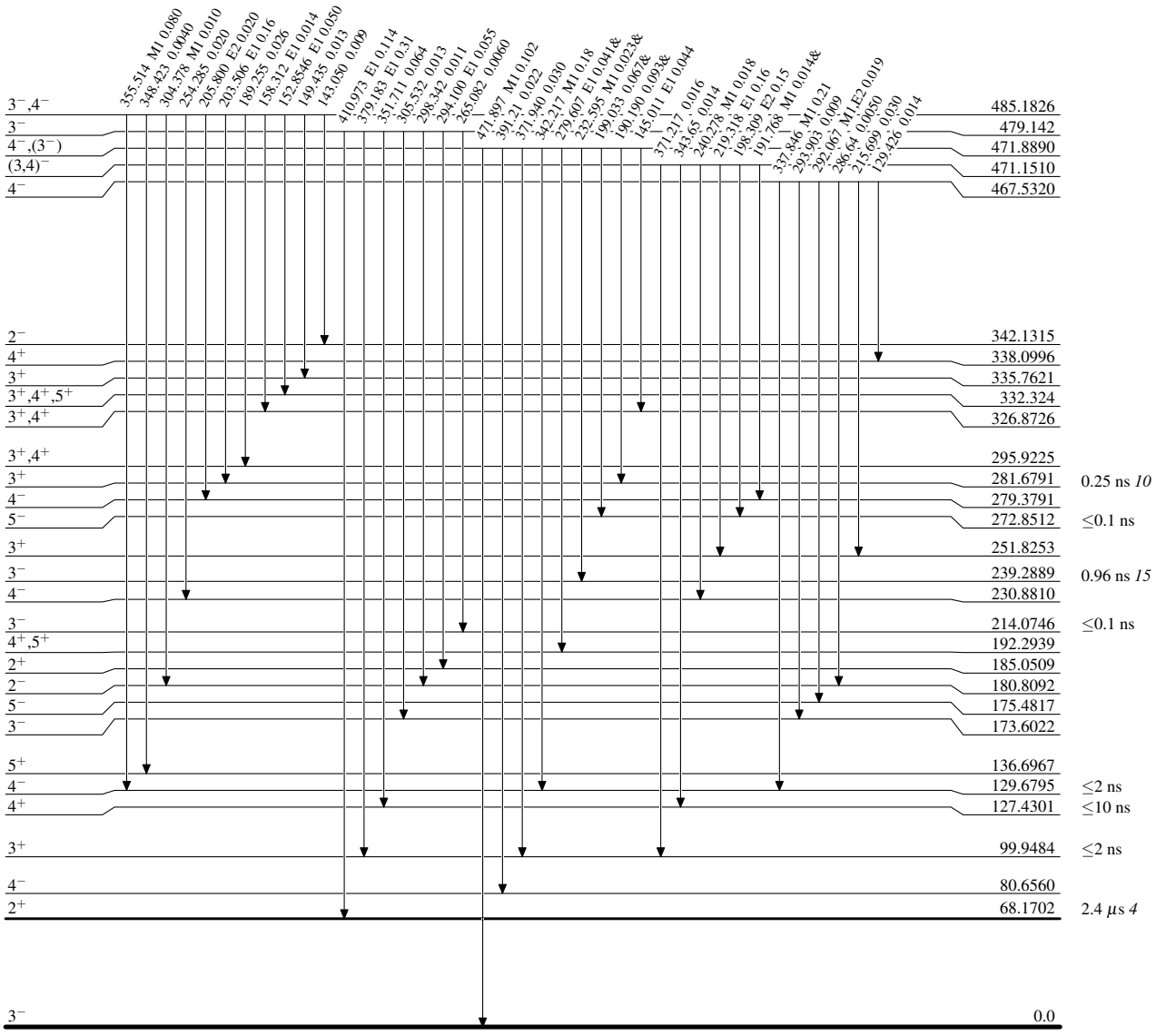
$^{154}_{63}Eu_{91}$

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06

Level Scheme (continued)

Intensities: Iγ(1+α) per 100 thermal-neutron captures.
& Multiply placed: undivided intensity given

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



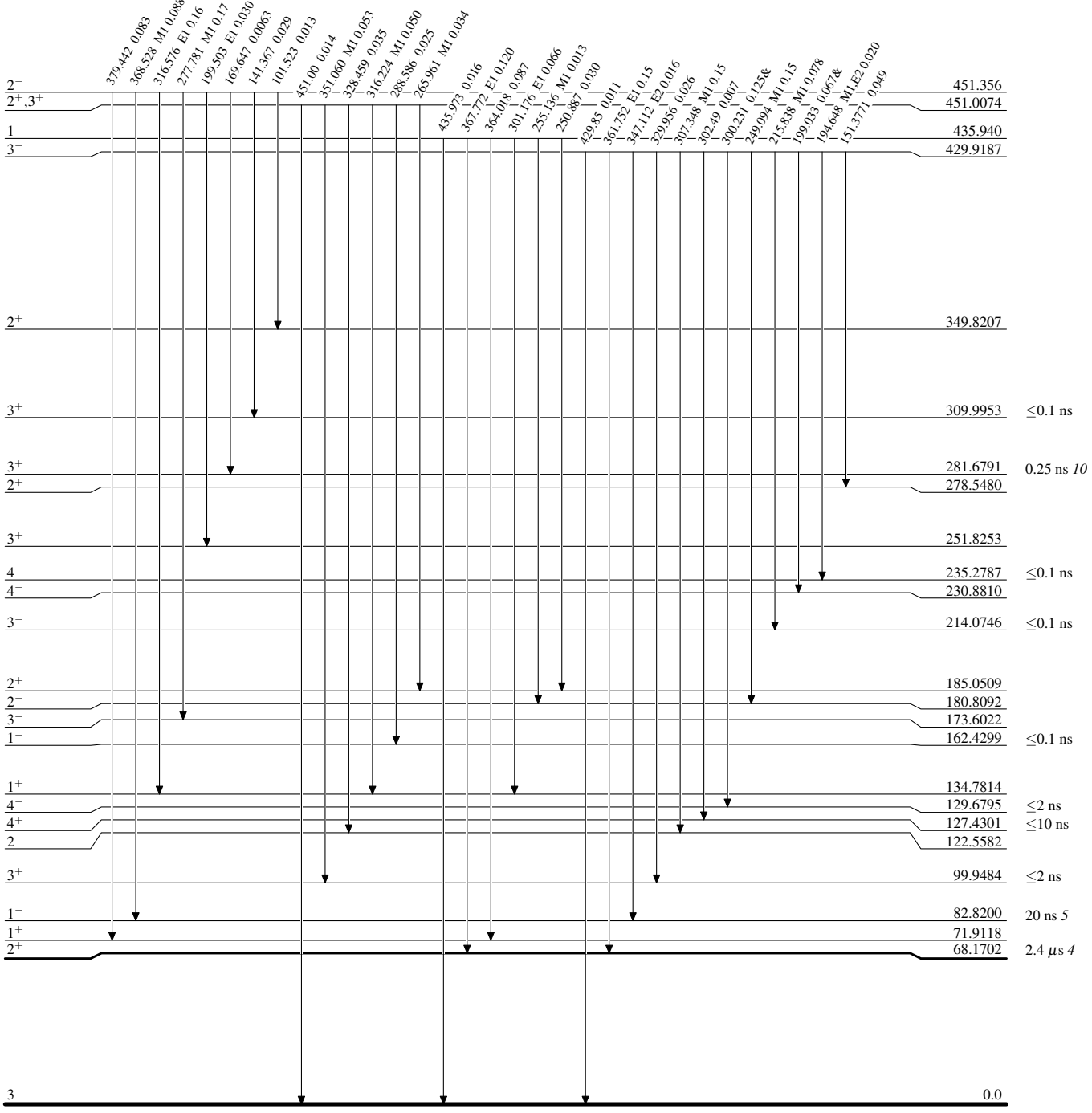
$^{154}_{63}Eu_{91}$

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06

Level Scheme (continued)

Intensities: Iγ(1+α) per 100 thermal-neutron captures.
& Multiply placed: undivided intensity given

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



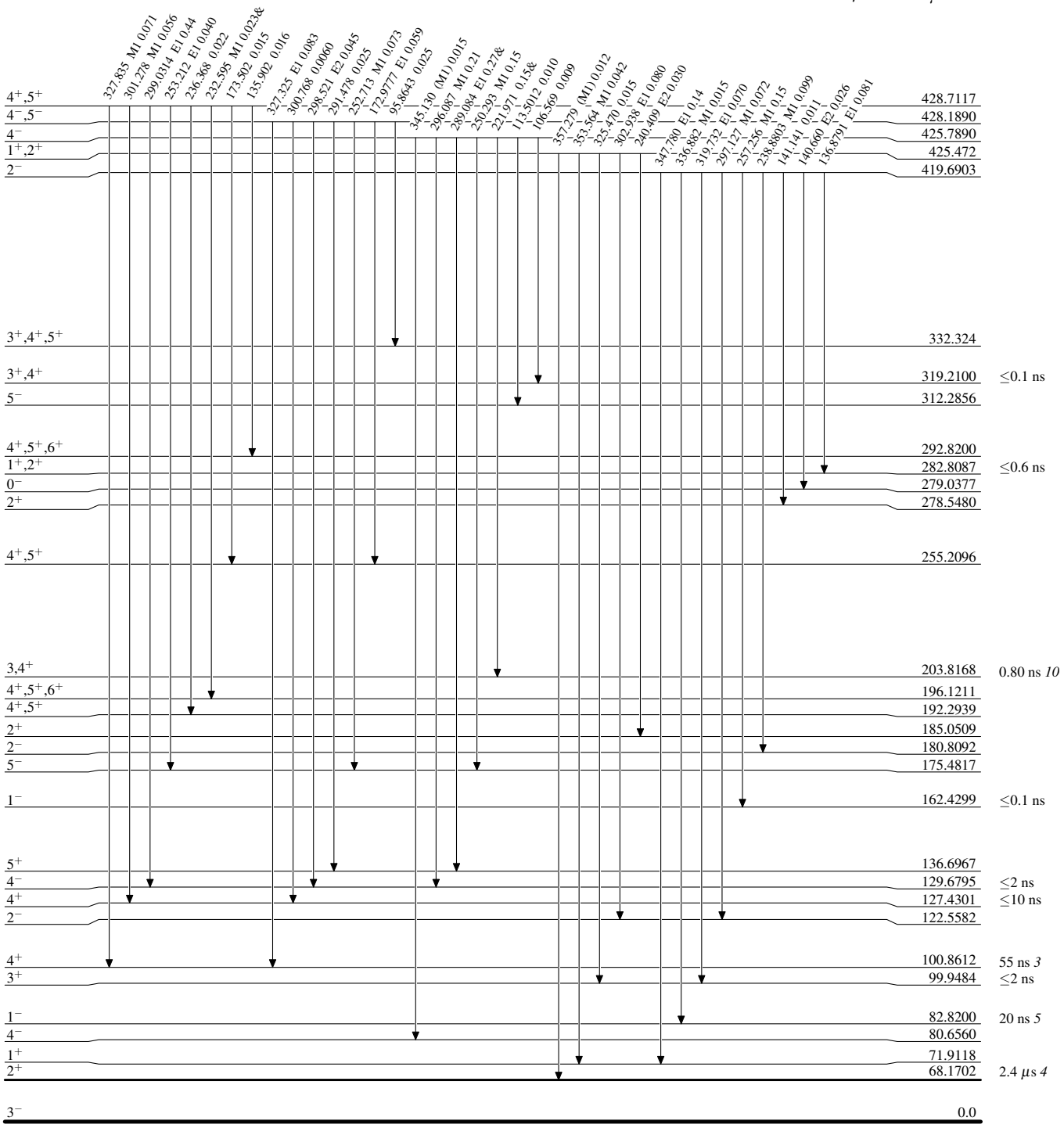
$^{154}_{63}Eu_{91}$

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06

Level Scheme (continued)

Intensities: Iγ(1+α) per 100 thermal-neutron captures.
& Multiply placed: undivided intensity given

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



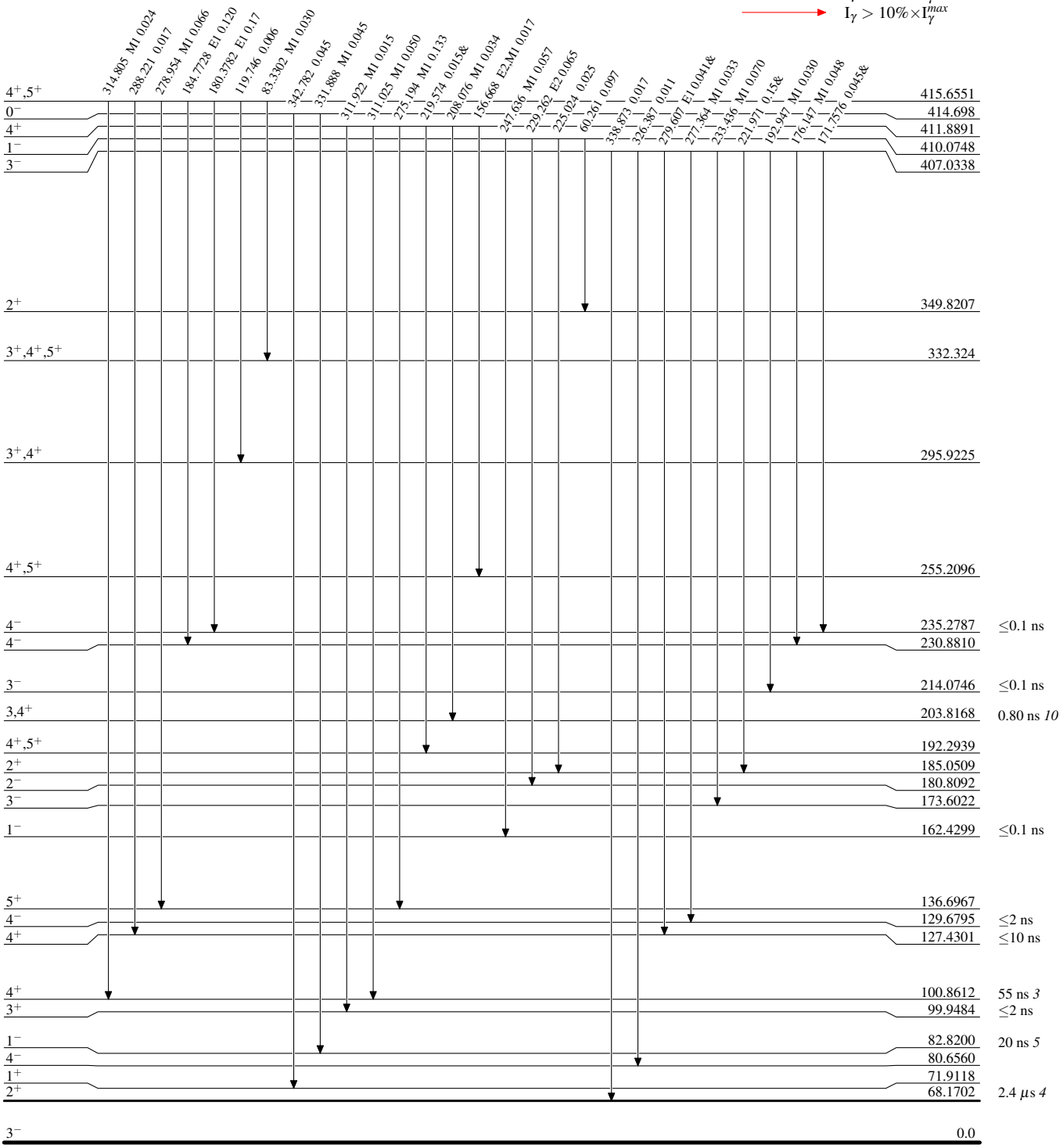
$^{154}_{63}Eu_{91}$

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06

Level Scheme (continued)

Intensities: Iγ(1+α) per 100 thermal-neutron captures.
& Multiply placed: undivided intensity given

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

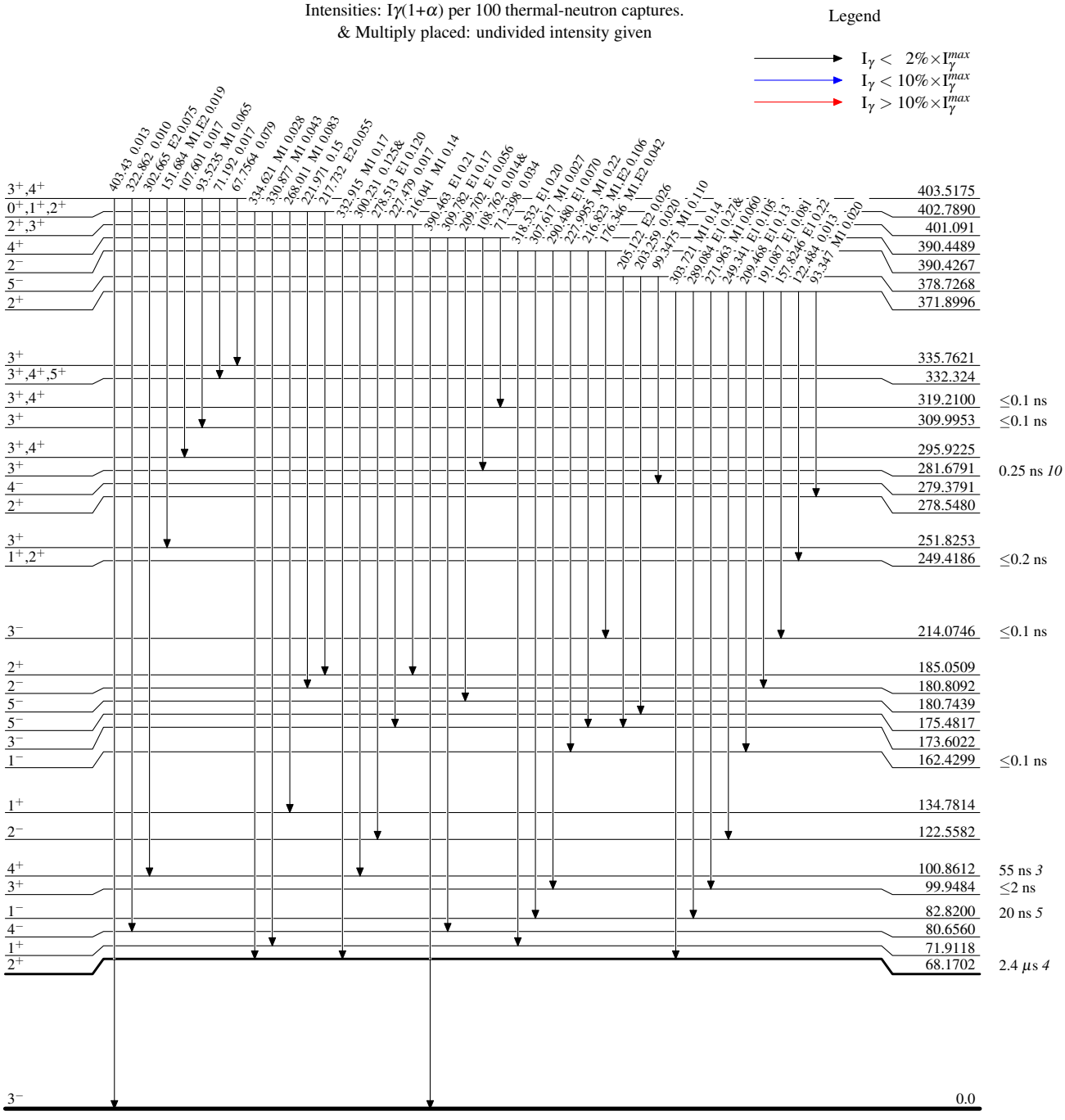


$^{154}_{63}Eu_{91}$

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06

Level Scheme (continued)

Intensities: Iγ(1+α) per 100 thermal-neutron captures.
& Multiply placed: undivided intensity given

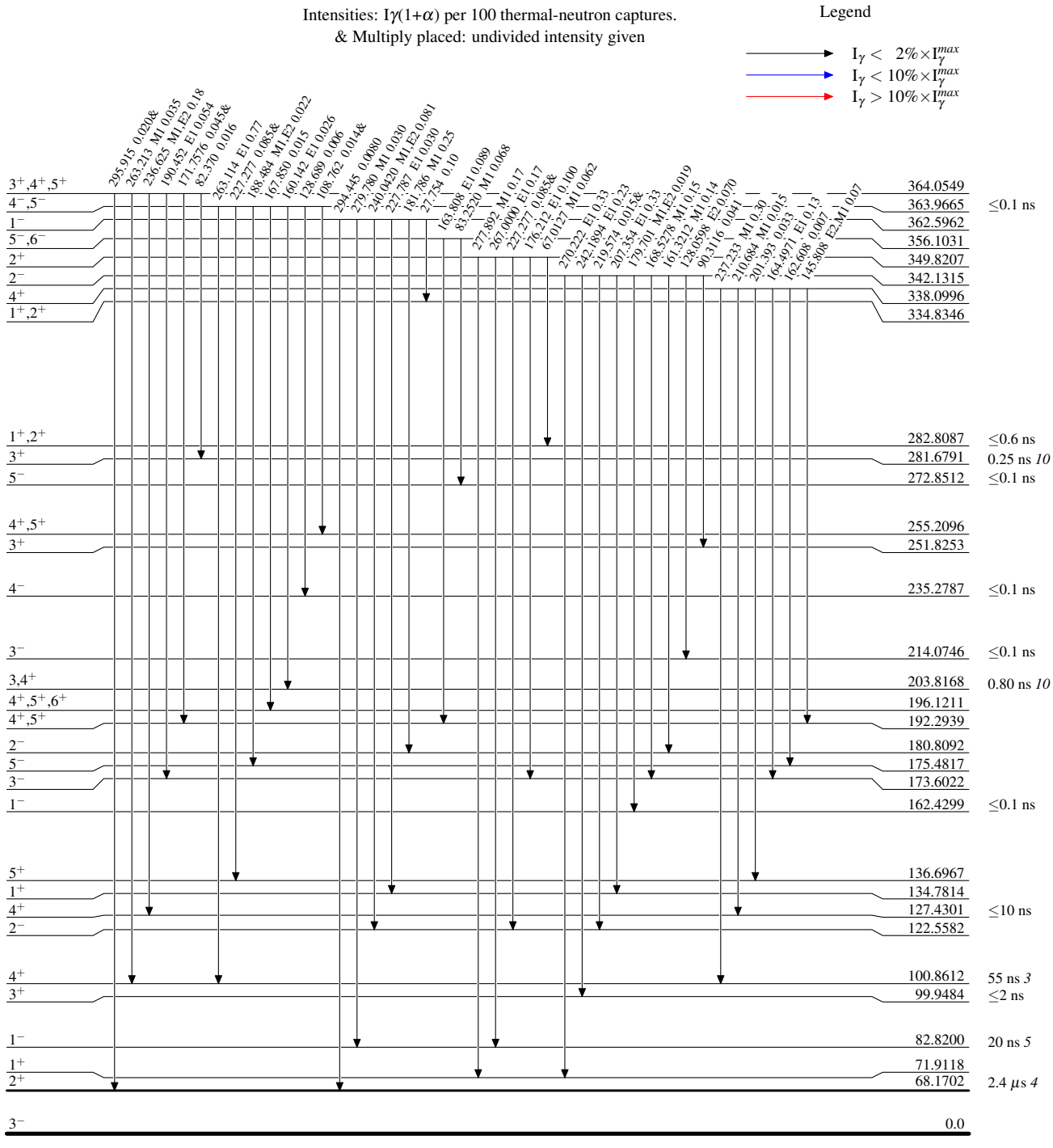


$^{154}_{63}Eu_{91}$

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06

Level Scheme (continued)

Intensities: Iγ(1+α) per 100 thermal-neutron captures.
& Multiply placed: undivided intensity given



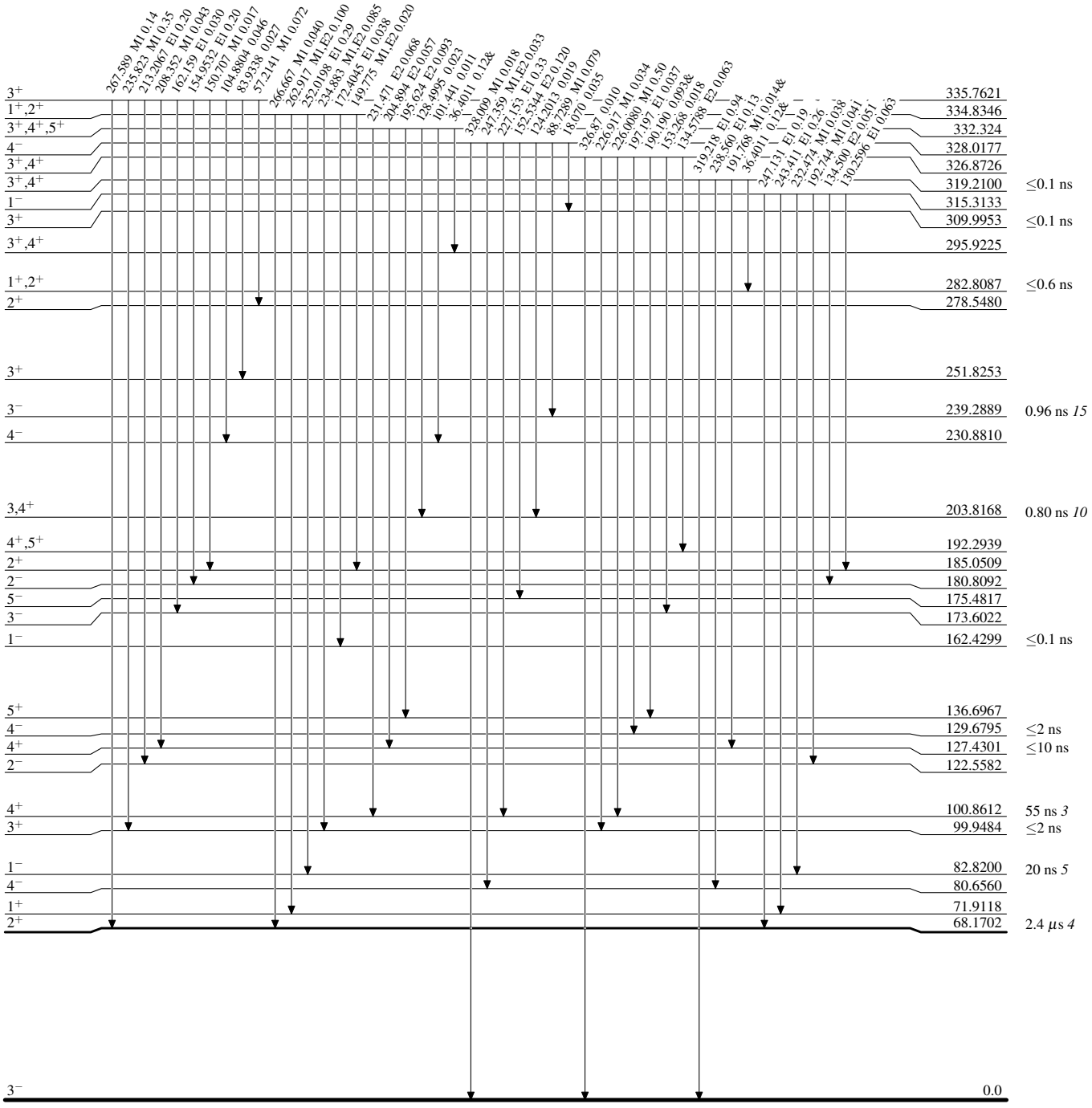
$^{154}_{63}Eu_{91}$

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06

Level Scheme (continued)

Intensities: Iγ(1+α) per 100 thermal-neutron captures.
& Multiply placed: undivided intensity given

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



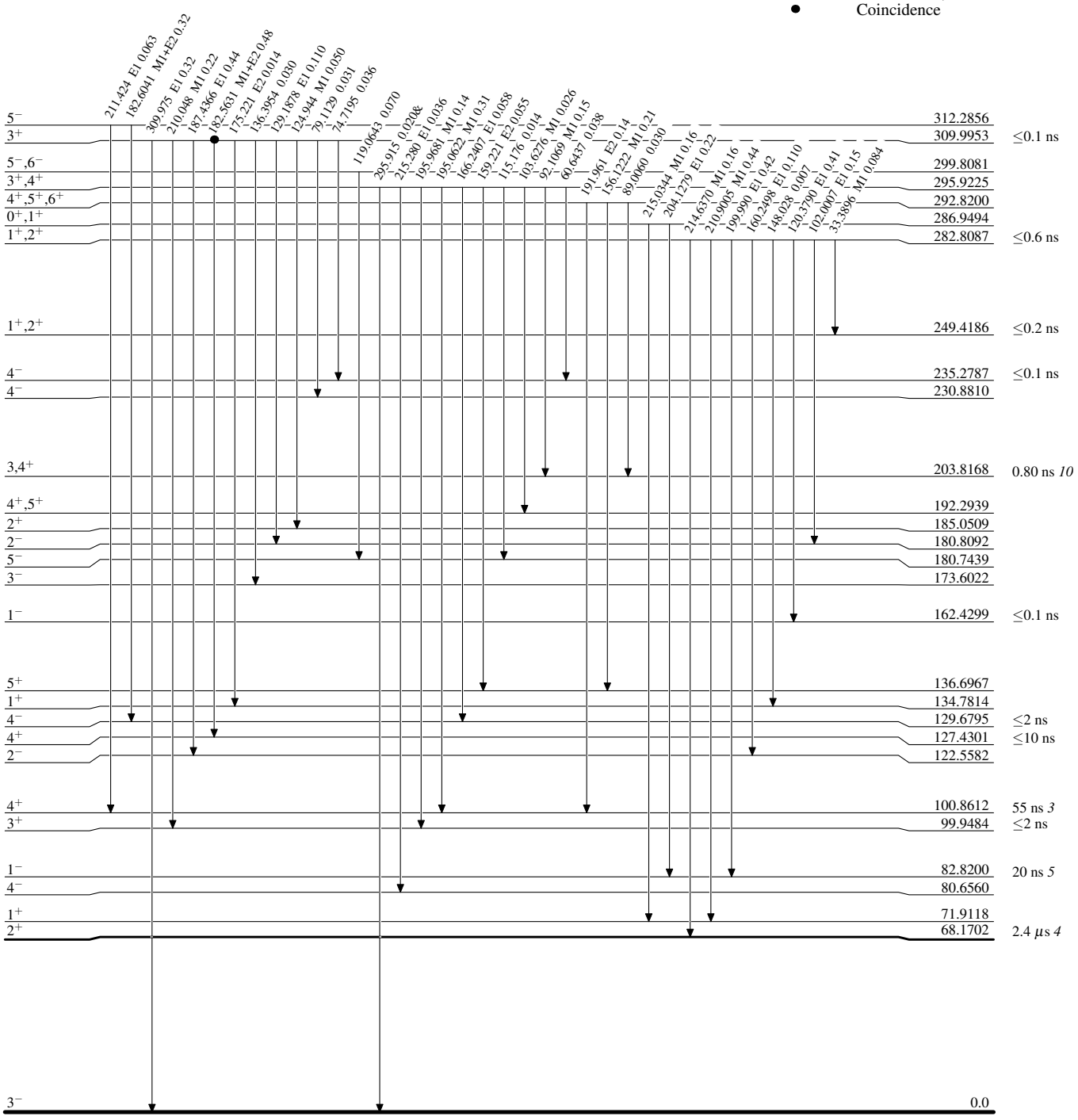
$^{154}_{63}Eu_{91}$

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06

Level Scheme (continued)

Intensities: Iγ(1+α) per 100 thermal-neutron captures.
& Multiply placed: undivided intensity given

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



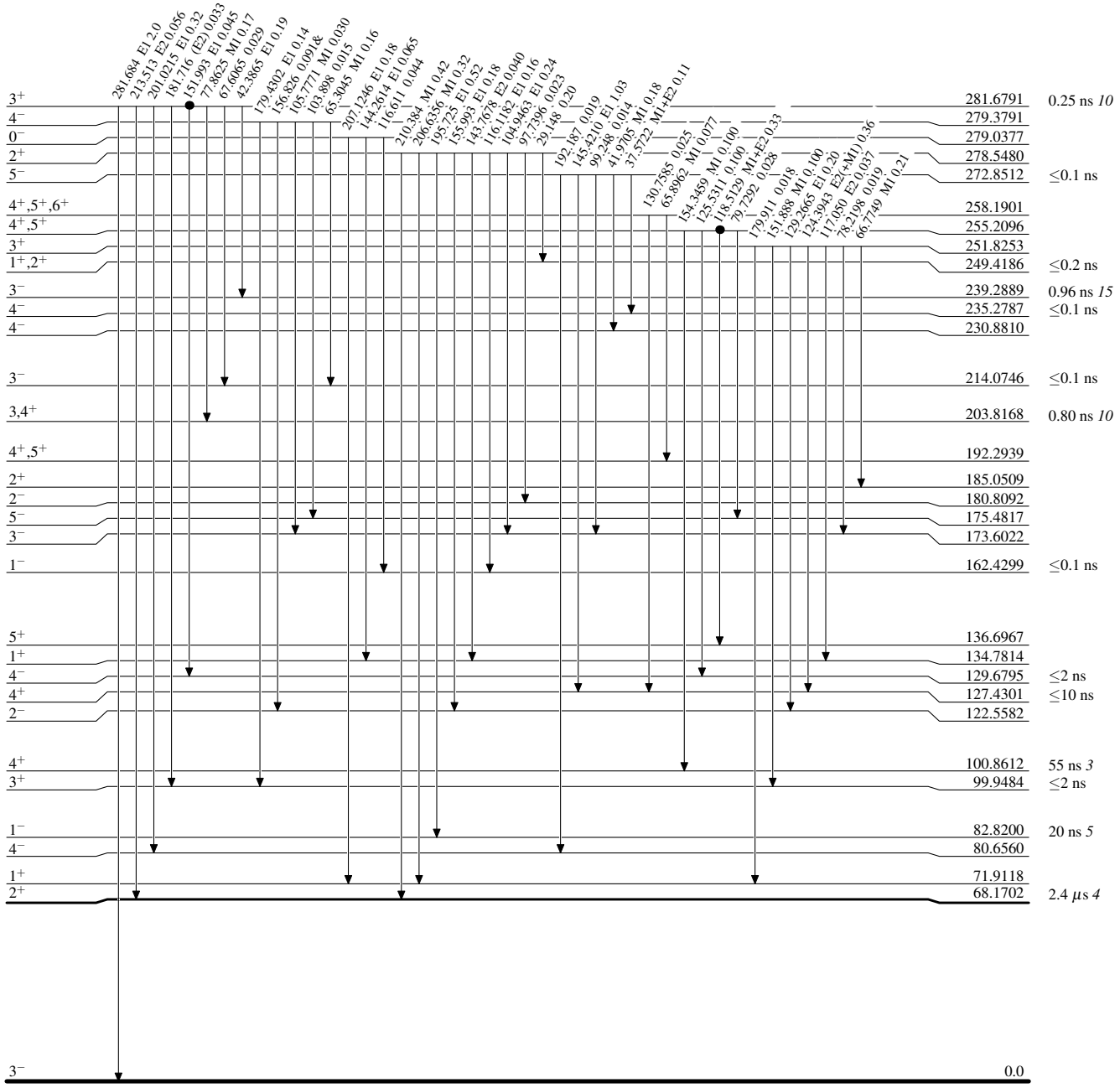
$^{154}_{63}Eu_{91}$

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06

Level Scheme (continued)

Intensities: Iγ(1+α) per 100 thermal-neutron captures.
& Multiply placed: undivided intensity given

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



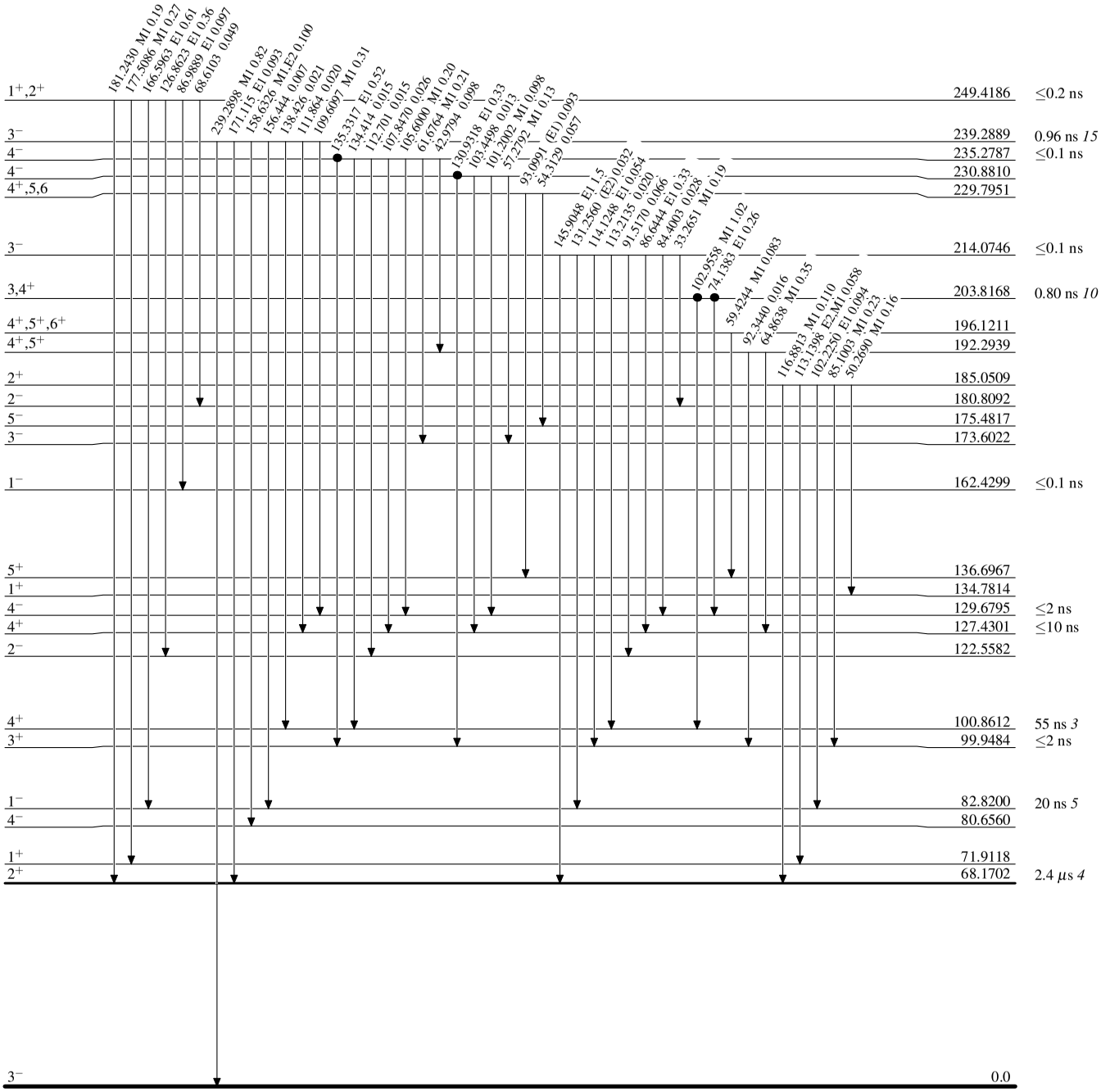
$^{154}_{63}Eu_{91}$

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06

Level Scheme (continued)

Intensities: Iγ(1+α) per 100 thermal-neutron captures.
& Multiply placed: undivided intensity given

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



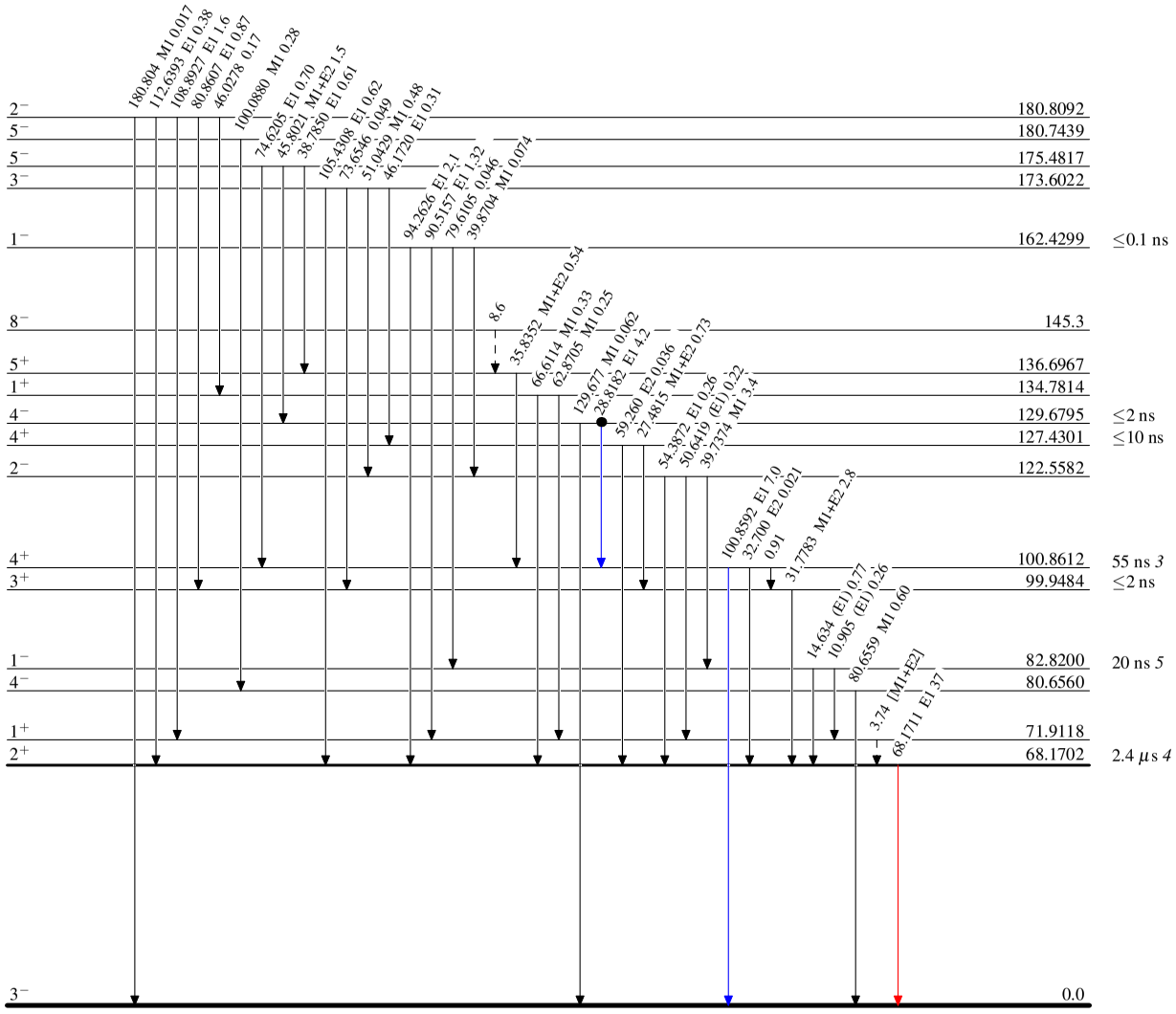
$^{154}_{63}Eu_{91}$

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06

Level Scheme (continued)

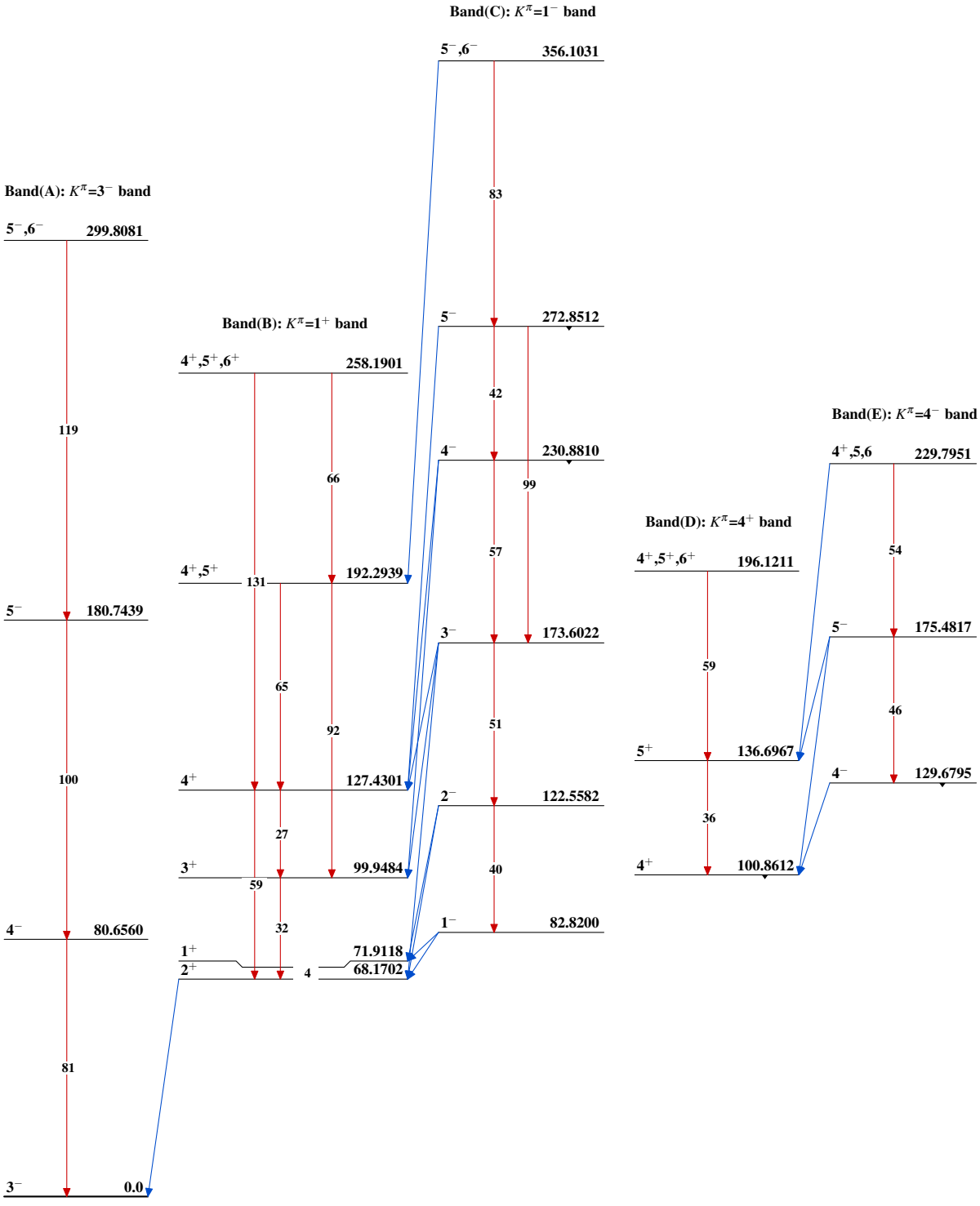
Intensities: Iγ(1+α) per 100 thermal-neutron captures.
& Multiply placed: undivided intensity given

Legend
- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$
- γ Decay (Uncertain)
- Coincidence



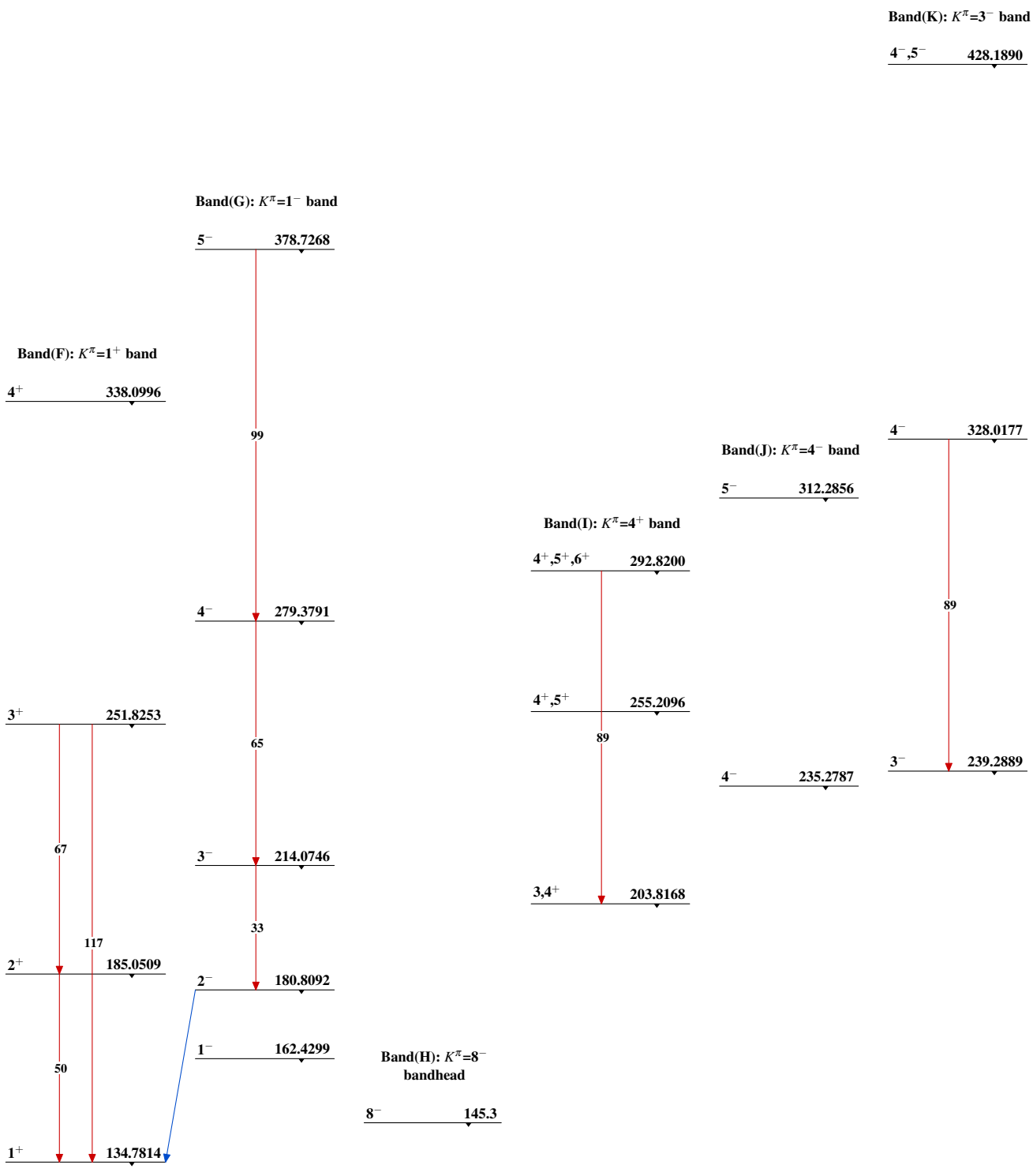
$^{154}_{63}Eu_{91}$

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06



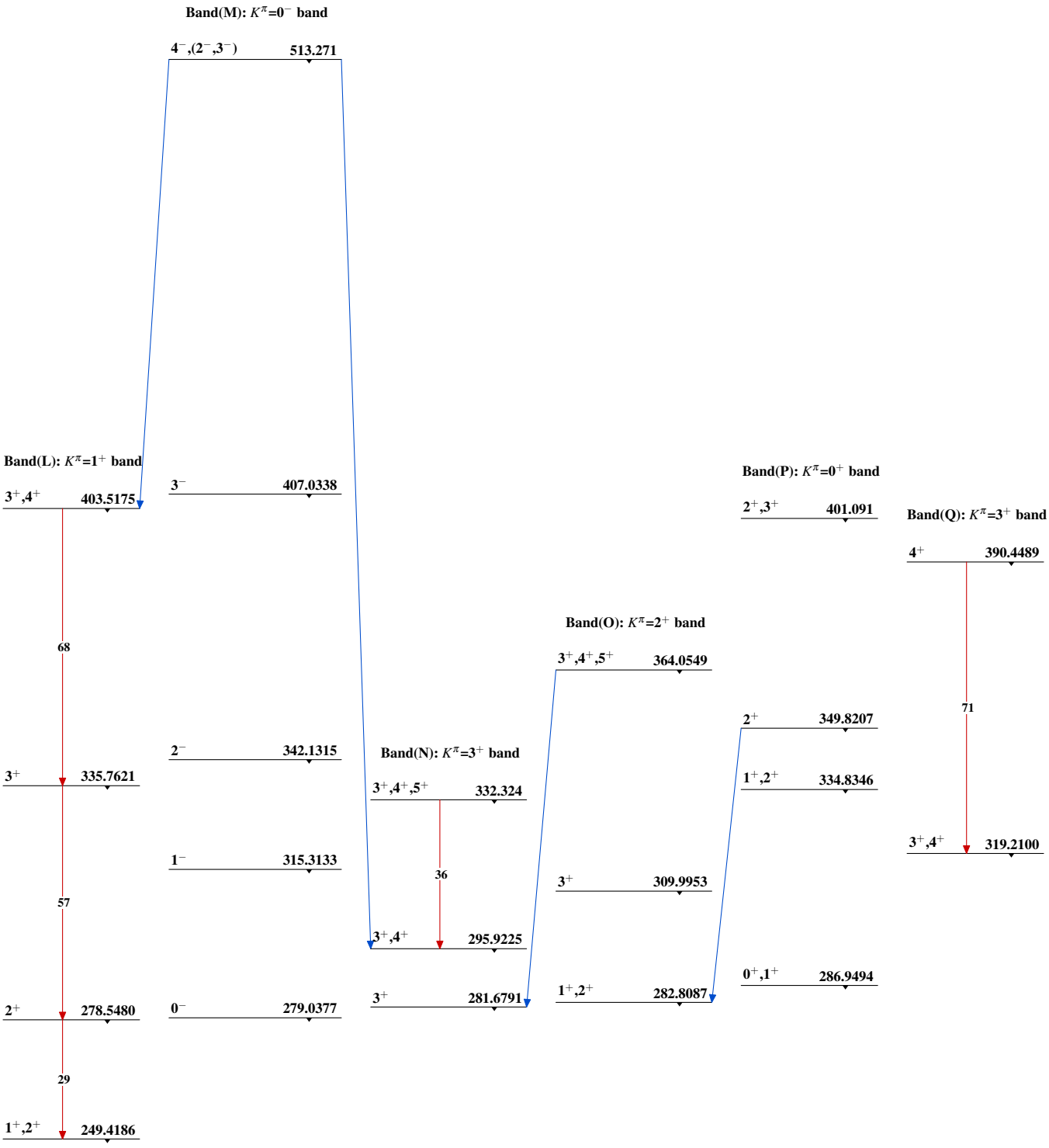
$^{154}_{63}Eu_{91}$

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06 (continued)



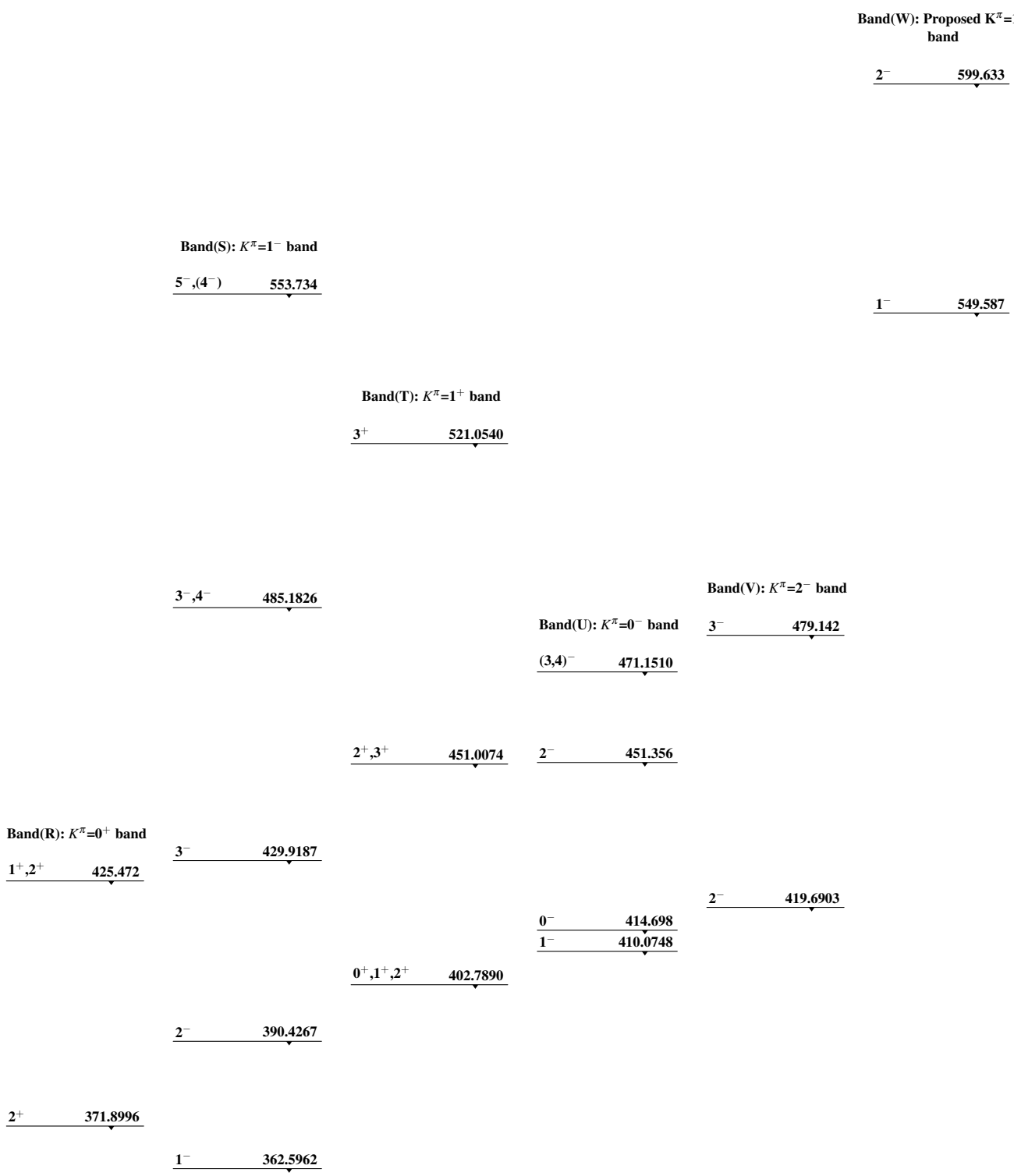
$^{154}_{63}Eu_{91}$

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06 (continued)



$^{154}_{63}Eu_{91}$

^{153}Eu(n,γ) E=th 1987Ba52,1978PrZY,1984Ro06 (continued)



$^{154}_{63}Eu_{91}$