^{161}Tm ε decay 1975Ad08,1980Ab18

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	C. W. Reich	NDS 112,2497 (2011)	1-Jun-2011

Parent: ^{161}Tm: E=0; J^π=7/2$^+$; $T_{1/2}$=30.2 min *8*; Q(ε)=3310 *24*; %ε+%β^+ decay=?
^{161}Tm-J^π: J measured (1971Ek01), see ^{161}Tm Adopted Levels.
^{161}Tm-$T_{1/2}$: from ^{161}Tm Adopted Levels.
^{161}Tm-Q(ε): from 2009AuZZ. 2003Au03 report 3310 *29*. 1993Al03 measure 3180 *100*.
Additional information 1.

Data and decay scheme are primarily from 1975Ad08 and secondarily from 1980Ab18. Both produced ^{161}Tm by spallation of Ta target with 660-MeV p and chemical separation; 1980Ab18 also did isotope separation. Both measured γ singles for 73 γ's with Ge detectors and ce's in magnetic spectrographs. 1975Ad08 measured $\gamma\gamma$ coincidences as well as β^+ spectra with a SiLi detector. γ data of 1980Ab18 are the same as those of 1975Ad08.

Other experimental results are: measured ce (1959Ha09,1964Ab11), parent $T_{1/2}$ (1960Bu27,1963Gr14,1963Ra15), level $T_{1/2}$ (1972AnZL,1974BuZM,1975Bu10,1975VaYW,1979AlZU,1980Ab22,1980FrZQ, 1981AbZU,1983Be17), δ (1991AbZZ), total-absorption γ spectra (1982By03,1993Al03). reports by same authors As 1975Ad08 (1974StYR,1975AdZH).

The β^+ end-point is 1800 *100* keV (1975Ad08). It is suggested that these decays are to levels from 143 to 267 keV. This datum gives Q(ε)=3000 *200* keV.

No values are listed for the intensities of the ε transitions, because of the problems in obtaining reliable intensity balances in the decay scheme. From the intensities of the γ's deexciting the 266 and 2004 levels, it seems clear that, at least, these two are directly populated. The large number of unplaced γ's, including 75 above 1 MeV, suggests that most of the ε decay will be to higher lying states than what would be calculated from intensity balances in the current decay scheme. This argument is supported by the beta-strength function measurements of 1982By03, which indicate that≈22% of the decays are to levels below 400 keV, compared to the 61% calculated from the present decay scheme.

^{161}Er Levels

Additional information 2.

E(level)[†]	J^π[‡]	$T_{1/2}$[#]	Comments
0.[@]	3/2$^-$	3.21 h *3*	$T_{1/2}$: from ^{161}Er Adopted Levels.
59.501[@] *24*	5/2$^-$	≤0.15 ns	$T_{1/2}$: from 1983Be17. Other: ≤0.17 ns (1975VaYW,1979AlZU).
143.89[@] *3*	7/2$^-$	≤0.18 ns	$T_{1/2}$: from 1983Be17. Other: ≤0.2 ns (1979AlZU).
172.06[&] *3*	5/2$^-$	0.35 ns *10*	$T_{1/2}$: average of 0.25 ns *4* (1983Be17) and 0.45 ns *5* (1979AlZU).
189.42[a] *3*	9/2$^+$	84 ns *10*	$T_{1/2}$: average of 93 ns *4* (1975Bu10) and 74 ns *3* (1979AlZU).
212.91[a] *3*	5/2$^+$	0.81 ns *6*	$T_{1/2}$: from 1983Be17.
217.34[a] *4*	7/2$^+$	0.55 ns *5*	$T_{1/2}$: from 1983Be17.
249.77[@] *3*	9/2$^-$		
266.44[&] *3*	7/2$^-$	0.21 ns *3*	$T_{1/2}$: from 1983Be17. Other: ≤0.30 ns (1979AlZU).
267.45[a] *4*	13/2$^+$	2.0 ns *2*	$T_{1/2}$: average of 1.9 ns *2* (1983Be17) and 2.2 ns *2* (1979AlZU).
296.69[a] *4*	11/2$^+$		
369.48[b] *5*	3/2$^+$		
388.45[@] *6*	11/2$^-$		
390.20[&] *4*	9/2$^-$		
396.44[c] *4*	11/2$^-$	8 μs	$T_{1/2}$: from 1972AnZL.
463.11[d] *9*	3/2$^+$		
496.28[d] *8*	5/2$^+$		
590.06[d] *12*	7/2$^+$		
724.84[e] *20*	(3/2$^-$)		
843.16[f] *21*	(5/2$^-$)		

Continued on next page (footnotes at end of table)

^{161}Tm ε decay 1975Ad08,1980Ab18 (continued)

^{161}Er Levels (continued)

E(level)†	Jπ‡	Comments
1481.20? *19*	(5/2,7/2$^-$)	
1960.25 *17*	(7/2$^-$)	
2044.6[g] *3*	9/2$^+$	Jπ: Possible Kπ=9/2$^+$ bandhead. Probable conf is π7/2[404]+π7/2[523]-ν5/2[523], from population via an allowed-unhindered ε transition from π7/2[404].
2063.09? *21*	(5/2$^+$,7/2)	
2066.89? *17*	(5/2,7/2$^-$)	

† From least-squares fit to the γ-ray energies.
‡ From ^{161}Er Adopted Levels.
# Values for excited levels are from measurements made following ^{161}Tm ε decay. For other values, see ^{161}Er Adopted Levels.
@ Band(A): 3/2[521] band.
& Band(B): 5/2[523] band.
a Band(C): Mixed positive-parity band.
b Band(D): bandhead of 3/2[651], with an admixture of 3/2[402].
c Band(E): bandhead of 11/2[505].
d Band(F): 3/2(402) band with an admixture of 3/2[651].
e Band(G): bandhead of 3/2[532].
f Band(H): bandhead of 5/2[512].
g Band(I): probable Kπ=9/2$^+$ bandhead.

γ(^{161}Er)

Iγ normalization: From 1975Ad08, computed to give 100% feeding of g.s. Because of the likely incompleteness of the decay scheme, the evaluator regards this normalization is approximate only.

Data and decay scheme are primarily from 1975Ad08 and secondarily from 1980Ab18.

E_γ †	I_γ †‡	E_i(level)	J^π_i	E_f	J^π_f	Mult.	δ#	α@	Comments
16.70 *5*		266.44	7/2⁻	249.77	9/2⁻	M1+E2	0.06	130.3 *24*	ce(L)/(γ+ce)=0.771 *10*; ce(M)/(γ+ce)=0.175 *4*; ce(N+)/(γ+ce)=0.0460 *12* ce(N)/(γ+ce)=0.0404 *10*; ce(O)/(γ+ce)=0.00543 *14*; ce(P)/(γ+ce)=0.000216 *6* Mult.: α(M1)(exp)/α(M2)(exp)=100 *35*/35 *10* (1980Ab18); other: 1975Ad08. δ: from %E2=0.36 (1980Ab18).
23.49 *2*		212.91	5/2⁺	189.42	9/2⁺	E2		2.11×10^3	ce(L)/(γ+ce)=0.768 *8*; ce(M)/(γ+ce)=0.185 *4*; ce(N+)/(γ+ce)=0.0463 *10* ce(N)/(γ+ce)=0.0415 *9*; ce(O)/(γ+ce)=0.00474 *10*; ce(P)/(γ+ce)=1.67×10^{-6} *4* Mult.: α(L2)(exp)/α(L3)(exp)=100 *23*/132 *23* (1989Ab18); other: 1975Ad08.
27.92 *3*		217.34	7/2⁺	189.42	9/2⁺	M1+E2	0.10	28.0	ce(L)/(γ+ce)=0.750 *8*; ce(M)/(γ+ce)=0.171 *4*; ce(N+)/(γ+ce)=0.0449 *9* ce(N)/(γ+ce)=0.0394 *8*; ce(O)/(γ+ce)=0.00530 *11*; ce(P)/(γ+ce)=0.000211 *5* Mult.: α(L1)(exp)/α(L2)(exp)/α(L3)(exp)= 100 *11*/33 *4*/29 *4* (1989Ab18); other: 1975Ad08. δ: from %E2=1.0 6 (1975Ad08) and 1.1 (1980Ab18).
28.18 *3*		172.06	5/2⁻	143.89	7/2⁻	M1+E2	0.08	24.1	ce(L)/(γ+ce)=0.747 *7*; ce(M)/(γ+ce)=0.169 *3*; ce(N+)/(γ+ce)=0.0447 *9* ce(N)/(γ+ce)=0.0391 *8*; ce(O)/(γ+ce)=0.00536 *11*; ce(P)/(γ+ce)=0.000238 *5* Mult.: α(L1)(exp)/α(L2)(exp)/α(L3)(exp)= 100 *10*/25 *4*/18 *4* (1980Ab18); other: 1975Ad08. δ: from %E2=0.7 4 (1975Ad08) and 0.7 (1980Ab18).
29.26 *2*	5.7 *7*	296.69	11/2⁺	267.45	13/2⁺	M1+E2	0.07	20.2	ce(L)/(γ+ce)=0.742 *7*; ce(M)/(γ+ce)=0.167 *3*; ce(N+)/(γ+ce)=0.0443 *9* ce(N)/(γ+ce)=0.0387 *8*; ce(O)/(γ+ce)=0.00538 *11*; ce(P)/(γ+ce)=0.000252 *5* Mult.: α(L1)(exp)/α(L2)(exp)/α(L3)(exp)= 100 *11*/25 *3*/12.7 *13* (1980Ab18); other: 1975Ad08. δ: from %E2=0.5 3 (1975Ad08) and 0.6 (1980Ab18).
40.86 *3*		212.91	5/2⁺	172.06	5/2⁻	E1		0.670	ce(L)/(γ+ce)=0.313 *4*; ce(M)/(γ+ce)=0.0701 *10*; ce(N+)/(γ+ce)=0.0177 *3* ce(N)/(γ+ce)=0.01575 *24*; ce(O)/(γ+ce)=0.00194 *3*; ce(P)/(γ+ce)=6.24×10^{-5} *10* Mult.: α(L1)(exp)/α(L2)(exp)/α(L3)(exp)= 100 *13*/60 *7*/60 *7* (1980Ab18).

From ENSDF

$^{161}_{68}Er_{93}$-3

γ(^{161}Er) (continued)

E_γ †	I_γ †‡	E_i(level)	J^π_i	E_f	J^π_f	Mult.	δ #	α @	Comments
45.54 3	250×10^1 25	189.42	9/2$^+$	143.89	7/2$^-$	E1		0.495	α(L)=0.387 6; α(M)=0.0864 13; α(N+..)=0.0220 4 α(N)=0.0195 3; α(O)=0.00243 4; α(P)=8.11×10^{-5} 12 δ: <0.05 for M2 content.
46.86 5		296.69	11/2$^+$	249.77	9/2$^-$	E1		0.457	ce(L)/(γ+ce)=0.245 3; ce(M)/(γ+ce)=0.0547 8; ce(N+)/(γ+ce)=0.01393 21 ce(N)/(γ+ce)=0.01234 19; ce(O)/(γ+ce)=0.001544 23; ce(P)/(γ+ce)=5.21×10^{-5} 8 Mult.: α(L1)(exp)/α(L2)(exp)= 100 12/36 6 (1980Ab18); other: 1975Ad08.
59.51 3	545 45	59.501	5/2$^-$	0.	3/2$^-$	M1+E2	0.14	12.82	α(K)=10.37 15; α(L)=1.91 3; α(M)=0.431 6; α(N+..)=0.1144 17 α(N)=0.0998 14; α(O)=0.01390 20; α(P)=0.000654 10 Mult.: α(K)(exp)/α(L1)(exp)/α(L2)(exp)/α(L3)(exp)= 750/100 10/21.2 26/22.2 26 (1980Ab18); other: 1975Ad08. δ: from %E2=3 (1964Ab11), 0.4 2 (1975Ad08), and 3.2 (1980Ab18).
^{x}68.10 6	9 4					(E2)		13.40	α(K)=2.04 3; α(L)=8.71 13; α(M)=2.12 4; α(N+..)=0.535 8 α(N)=0.479 7; α(O)=0.0555 9; α(P)=0.0001039 15
69.00 10	35 6	212.91	5/2$^+$	143.89	7/2$^-$	[E1]		0.860	α(K)=0.705 11; α(L)=0.1214 18; α(M)=0.0270 4; α(N+..)=0.00696 11 α(N)=0.00613 9; α(O)=0.000798 12; α(P)=3.03×10^{-5} 5 Mult.: assigned E1 or E2 by 1975Ad08 and 1980Ab18.
73.48 3	15 6	217.34	7/2$^+$	143.89	7/2$^-$	E1		0.731	α(K)=0.601 9; α(L)=0.1018 15; α(M)=0.0226 4; α(N+..)=0.00584 9 α(N)=0.00515 8; α(O)=0.000673 10; α(P)=2.60×10^{-5} 4 Mult.: α(K)(exp)=0.7 4 (1980Ab18).
78.07 4	90	267.45	13/2$^+$	189.42	9/2$^+$	E2		7.69	α(K)=1.758 25; α(L)=4.54 7; α(M)=1.107 16; α(N+..)=0.279 4 α(N)=0.250 4; α(O)=0.0291 5; α(P)=7.80×10^{-5} 11 Mult.: α(K)(exp)=1.8 4 and α(K)(exp)/α(L1)(exp)/α(L2)(exp)/α(L3)(exp)= 1067 200/100 13/1307 133/1353 133 (1980Ab18); other: 1975Ad08.
79.35 4	15 5	296.69	11/2$^+$	217.34	7/2$^+$	E2		7.21	α(K)=1.714 24; α(L)=4.21 6; α(M)=1.025 15; α(N+..)=0.259 4 α(N)=0.232 4; α(O)=0.0270 4; α(P)=7.54×10^{-5} 11 Mult.: α(K)(exp)=1.7 7 and α(K)(exp)/α(L1)(exp)/α(L2)(exp)/α(L3)(exp)= 1040 160/100 12/1240 120/1280 120 (1980Ab18); other: 1975Ad08.
84.40 3	945 90	143.89	7/2$^-$	59.501	5/2$^-$	M1+E2	0.23	4.69	α(K)=3.77 6; α(L)=0.714 10; α(M)=0.1618 23; α(N+..)=0.0428 6 α(N)=0.0375 6; α(O)=0.00517 8; α(P)=0.000232 4 Mult.: α(K)(exp)=3.6 7 and α(K)(exp)/α(L1)(exp)/α(L2)(exp)/α(L3)(exp)= 679 121/100 9/25.0 24/22.8 22 (1980Ab18); other: 1975Ad08. δ: from %E2=2 (1964Ab11), 5 3 (1975Ad08), and 6.4 (1980Ab18).
^{x}87.22 6	15 8					E1		0.467	α(K)=0.386 6; α(L)=0.0631 9; α(M)=0.01400 20; α(N+..)=0.00364 6 α(N)=0.00319 5; α(O)=0.000423 6; α(P)=1.707×10^{-5} 24
94.38 3	124 45	266.44	7/2$^-$	172.06	5/2$^-$	M1+E2	2.5	3.62	α(K)=1.445 21; α(L)=1.669 24; α(M)=0.405 6; α(N+..)=0.1025 15 α(N)=0.0916 13; α(O)=0.01082 16; α(P)=6.81×10^{-5} 10

$^{161}_{68}Er_{93}$-4

γ(^{161}Er) (continued)

E_γ †	I_γ †‡	E_i(level)	J^π_i	E_f	J^π_f	Mult.	δ#	α@	Comments
									Mult.: α(K)(exp)=1.5 *6* and α(K)(exp)/α(L1)(exp)/α(L2)(exp)/α(L3)(exp)= 974 *158*/100 *21*/505 *53*/474 *53* (1980Ab18); other: 1975Ad08. δ: from %M1=13.7 (1980Ab18).
99.76 *4*	237 *25*	396.44	11/2⁻	296.69	11/2⁺	E1		0.327	α(K)=0.272 *4*; α(L)=0.0434 *6*; α(M)=0.00963 *14*; α(N+..)=0.00251 *4* α(N)=0.00220 *3*; α(O)=0.000294 *5*; α(P)=1.224×10^{-5} *18* Mult.: α(K)(exp)=0.38 *9* and α(K)(exp)/α(L1)(exp)/α(L2)(exp)/α(L3)(exp)= 450 *100*/100 *10*/25 *5*/30 *5* (1980Ab18); other: 1975Ad08.
105.88 *2*	340 *30*	249.77	9/2⁻	143.89	7/2⁻	M1+E2	0.23	2.41	α(K)=1.97 *3*; α(L)=0.344 *5*; α(M)=0.0774 *11*; α(N+..)=0.0206 *3* α(N)=0.0180 *3*; α(O)=0.00252 *4*; α(P)=0.0001207 *17* Mult.: α(K)(exp)=2.0 *3* and α(K)(exp)/α(L1)(exp)/α(L2)(exp)/α(L3)(exp)= 739 *108*/100 *11*/16.6 *15*/12.5 *15* (1980Ab18); other: 1975Ad08. δ: from %E2=5.2 (1980Ab18); other: M1 (1975Ad08).
107.22 *5*	51 *7*	296.69	11/2⁺	189.42	9/2⁺	M1+E2	1.2	2.29	α(K)=1.338 *19*; α(L)=0.733 *11*; α(M)=0.1754 *25*; α(N+..)=0.0448 *7* α(N)=0.0399 *6*; α(O)=0.00487 *7*; α(P)=7.18×10^{-5} *10* Mult.: α(K)(exp)=1.36 *19* and α(K)(exp)/α(L1)(exp)/α(L2)(exp)/α(L3)(exp)= 839 *12*/100 *13*/199 *28*/166 *23* (1980Ab18); other: 1975Ad08. δ: from %E2=59.8 (1980Ab18).
112.56 *3*	308 *27*	172.06	5/2⁻	59.501	5/2⁻	M1+E2	0.14	2.03	α(K)=1.684 *24*; α(L)=0.266 *4*; α(M)=0.0593 *9*; α(N+..)=0.01589 *23* α(N)=0.01381 *20*; α(O)=0.00197 *3*; α(P)=0.0001035 *15* Mult.: α(K)(exp)=1.7 *3* and α(K)(exp)/α(L1)(exp)/α(L2)(exp)/α(L3)(exp)= 732 *113*/100 *11*/14.1 *13*/7.0 *7* (1980Ab18); other: 1975Ad08. δ: from %E2=0.5 10 (1975Ad08) and 3.5 (1980Ab18).
122.55 *5*	155 *12*	266.44	7/2⁻	143.89	7/2⁻	M1+E2	0.20	1.584	α(K)=1.309 *19*; α(L)=0.214 *3*; α(M)=0.0479 *7*; α(N+..)=0.01279 *18* α(N)=0.01113 *16*; α(O)=0.001578 *23*; α(P)=8.02×10^{-5} *12* Mult.: α(K)(exp)=1.31 *22* and α(K)(exp)/α(L1)(exp)/α(L2)(exp)/α(L3)(exp)= 725 *107*/100 *11*/16.8 *14*/8.2 *7* (1980Ab18); other: 1975Ad08. δ: from %E2=3 *2* (1975Ad08) and 5.4 (1980Ab18).
123.80 *6*	35 *10*	390.20	9/2⁻	266.44	7/2⁻	M1+E2	0.52	1.501 *22*	α(K)=1.155 *17*; α(L)=0.268 *4*; α(M)=0.0618 *9*; α(N+..)=0.01619 *23* α(N)=0.01423 *20*; α(O)=0.00189 *3*; α(P)=6.86×10^{-5} *10* Mult.: α(K)(exp)=1.2 *5* and α(K)(exp)/α(L1)(exp)/α(L2)(exp)/α(L3)(exp)= 712 *153*/100 *20*/34 *7*/20 *7* (1980Ab18); other: 1975Ad08. δ: from %E2=25 10 (1975Ad08) and 16.6 (1980Ab18).
ˣ125.60 *6*	158 *13*					(E1)		0.1775	α(K)=0.1481 *21*; α(L)=0.0230 *4*; α(M)=0.00508 *8*; α(N+..)=0.001330 *19* α(N)=0.001165 *17*; α(O)=0.0001580 *23*; α(P)=6.90×10^{-6} *10*
128.90 *7*	295 *25*	396.44	11/2⁻	267.45	13/2⁺	E1		0.1657	α(K)=0.1383 *20*; α(L)=0.0214 *3*; α(M)=0.00473 *7*; α(N+..)=0.001239 *18* α(N)=0.001085 *16*; α(O)=0.0001473 *21*; α(P)=6.47×10^{-6} *9*

From ENSDF

γ(^{161}Er) (continued)

E_γ[†]	I_γ[†‡]	E_i(level)	J^π_i	E_f	J^π_f	Mult.	δ[#]	α[@]	Comments
									Mult.: α(K)(exp)=0.15 *4* and α(K)(exp)/α(L1)(exp)/α(L2)(exp)= 643 *129*/100 *14*/≈29 (1980Ab18); other: 1975Ad08.
138.68 *7*	60 *7*	388.45	11/2$^-$	249.77	9/2$^-$	M1+E2	0.23	1.109	α(K)=0.916 *13*; α(L)=0.1498 *22*; α(M)=0.0336 *5*; α(N+..)=0.00896 *13* α(N)=0.00780 *11*; α(O)=0.001105 *16*; α(P)=5.60×10^{-5} *8* Mult.: α(K)(exp)=0.93 *17* and α(K)(exp)/α(L1)(exp)/α(L2)(exp)= 747 *107*/100 *12*/15 *3* (1980Ab18); other: 1975Ad08. δ: from %E2=5 (1980Ab18).
140.40 *7*	42 *6*	390.20	9/2$^-$	249.77	9/2$^-$	M1+E2	0.44	1.044	α(K)=0.833 *12*; α(L)=0.1639 *24*; α(M)=0.0373 *6*; α(N+..)=0.00986 *14* α(N)=0.00863 *13*; α(O)=0.001180 *17*; α(P)=5.00×10^{-5} *7* Mult.: α(K)(exp)=0.87 *17* and α(K)(exp)/α(L1)(exp)/α(L2)(exp)/α(L3)(exp)= 743 *106*/100 *14*/29 *4*/16 *4* (1980Ab18); other: 1975Ad08. δ: from %E2=17 10 (1975Ad08) and 15 (1980Ab18).
143.92 *8*	375	143.89	7/2$^-$	0.	3/2$^-$	E2		0.779	α(K)=0.416 *6*; α(L)=0.278 *4*; α(M)=0.0670 *10*; α(N+..)=0.01706 *25* α(N)=0.01522 *22*; α(O)=0.00183 *3*; α(P)=1.82×10^{-5} *3* Mult.: α(K)(exp)=0.42 *7* and α(K)(exp)/α(L1)(exp)/α(L2)(exp)/α(L3)(exp)= 981 *125*/100 *19*/300 *31*/256 *25* (1980Ab18); other: 1975Ad08 and 1964Ab11.
146.65 *8*	482 *35*	396.44	11/2$^-$	249.77	9/2$^-$	M1+E2	0.23	0.945	α(K)=0.783 *11*; α(L)=0.1267 *18*; α(M)=0.0284 *4*; α(N+..)=0.00758 *11* α(N)=0.00659 *10*; α(O)=0.000936 *14*; α(P)=4.78×10^{-5} *7* Mult.: α(K)(exp)=0.80 *12* and α(K)(exp)/α(L1)(exp)/α(L2)(exp)/α(L3)(exp)= 740 *96*/100 *12*/14.2 *15*/5.8 *6* (1980Ab18); other: 1975Ad08. δ: from %E2=5.1 (1980Ab18).
153.37 *8*	300 *25*	212.91	5/2$^+$	59.501	5/2$^-$	E1		0.1045	α(K)=0.0875 *13*; α(L)=0.01327 *19*; α(M)=0.00293 *5*; α(N+..)=0.000771 *11* α(N)=0.000675 *10*; α(O)=9.24×10^{-5} *13*; α(P)=4.19×10^{-6} *6* Mult.: α(K)(exp)=0.117 *19* and α(K)(exp)/α(L1)(exp)=1167 *167*/100 *13* (1989Ab18). Other: 1975Ad08.
156.52 *8*	71 *7*	369.48	3/2$^+$	212.91	5/2$^+$	M1+E2	0.36	0.772	α(K)=0.630 *9*; α(L)=0.1104 *16*; α(M)=0.0249 *4*; α(N+..)=0.00662 *10* α(N)=0.00578 *9*; α(O)=0.000806 *12*; α(P)=3.81×10^{-5} *6* Mult.: α(K)(exp)=0.69 *7* and α(K)(exp)/α(L1)(exp)/α(L2)(exp)= 754 *98*/100 *11*/20 *3* (1980Ab18); other: 1975Ad08. δ: from %E2=11.7 (1980Ab18).
157.80 *8*	180 *16*	217.34	7/2$^+$	59.501	5/2$^-$	E1		0.0969	α(K)=0.0812 *12*; α(L)=0.01228 *18*; α(M)=0.00271 *4*; α(N+..)=0.000714 *10* α(N)=0.000624 *9*; α(O)=8.56×10^{-5} *12*; α(P)=3.90×10^{-6} *6* Mult.: α(K)(exp)=0.6 *2* (1980Ab18).
172.05 *6*	513 *40*	172.06	5/2$^-$	0.	3/2$^-$	M1+E2	0.18	0.605	α(K)=0.505 *7*; α(L)=0.0780 *11*; α(M)=0.01738 *25*; α(N+..)=0.00466 *7* α(N)=0.00405 *6*; α(O)=0.000580 *9*; α(P)=3.09×10^{-5} *5* Mult.: α(K)(exp)=0.51 *9* and α(K)(exp)/α(L1)(exp)/α(L2)(exp)/α(L3)(exp)= 732 *113*/100 *11*/12.4 *14*/4.2 *6* (1980Ab18); other: 1975Ad08. δ: from %E2=1.5 15 (1975Ad08) and 4.8 (1980Ab18).
172.92 *7*	55 *15*	390.20	9/2$^-$	217.34	7/2$^+$	(E1)		0.0761	α(K)=0.0638 *9*; α(L)=0.00958 *14*; α(M)=0.00212 *3*; α(N+..)=0.000557 *8* α(N)=0.000487 *7*; α(O)=6.71×10^{-5} *10*; α(P)=3.10×10^{-6} *5* Mult.: α(K)(exp)=0.13 *5* and α(K)(exp)/α(L1)(exp)=≈ 467 /100 (1980Ab18); other: 1975Ad08.

From ENSDF

$^{161}_{68}$Er$_{93}$-6

γ(^{161}Er) (continued)

Eγ†	Iγ†‡	Ei(level)	J^π_i	Ef	J^π_f	Mult.	δ#	α@	Comments
x182.00 9	12 3					M1		0.523	α(K)=0.439 7; α(L)=0.0653 10; α(M)=0.01447 21; α(N+..)=0.00389 6 α(N)=0.00337 5; α(O)=0.000488 7; α(P)=2.70×10^{-5} 4
190.24 6	340 30	249.77	9/2$^-$	59.501	5/2$^-$	E2		0.298	α(K)=0.187 3; α(L)=0.0847 12; α(M)=0.0202 3; α(N+..)=0.00518 8 α(N)=0.00460 7; α(O)=0.000565 8; α(P)=8.72×10^{-6} 13 Mult.: α(K)(exp)=0.19 4 and α(K)(exp)/α(L1)(exp)/α(L2)(exp)/α(L3)(exp)= 929 171/100 14/186 29/143 29 (1980Ab18); other: 1975Ad08.
197.38 8	12 6	369.48	3/2$^+$	172.06	5/2$^-$	(E1)		0.0538	α(K)=0.0452 7; α(L)=0.00671 10; α(M)=0.001483 21; α(N+..)=0.000391 6 α(N)=0.000342 5; α(O)=4.73×10^{-5} 7; α(P)=2.23×10^{-6} 4 Mult.: α(K)(exp) ≤0.08 (1980Ab18).
200.75 5	83 18	390.20	9/2$^-$	189.42	9/2$^+$	E1		0.0515	α(K)=0.0433 6; α(L)=0.00641 9; α(M)=0.001417 20; α(N+..)=0.000374 6 α(N)=0.000327 5; α(O)=4.53×10^{-5} 7; α(P)=2.14×10^{-6} 3 Mult.: α(K)(exp)=0.084 25 (1980Ab18).
206.95 5	60 18	266.44	7/2$^-$	59.501	5/2$^-$	M1+E2	≤0.33	0.359 9	α(K)=0.300 9; α(L)=0.0463 10; α(M)=0.0103 3; α(N+..)=0.00277 6 α(N)=0.00240 6; α(O)=0.000344 6; α(P)=1.83×10^{-5} 7 Mult.: α(K)(exp)=0.30 12 and α(K)(exp)/α(L1)(exp)/α(L2)(exp)= 738 221/100 29/≤14 (1980Ab18); other: 1975Ad08. δ: from %E2 ≤ 9.8 (1980Ab18).
207.12 6	237 30	396.44	11/2$^-$	189.42	9/2$^+$	E1		0.0475	α(K)=0.0399 6; α(L)=0.00590 9; α(M)=0.001304 19; α(N+..)=0.000344 5 α(N)=0.000301 5; α(O)=4.17×10^{-5} 6; α(P)=1.98×10^{-6} 3 Mult.: α(K)(exp)=0.038 8 (1980Ab18).
212.88 8	317 27	212.91	5/2$^+$	0.	3/2$^-$	E1		0.0442	α(K)=0.0372 6; α(L)=0.00549 8; α(M)=0.001212 17; α(N+..)=0.000320 5 α(N)=0.000280 4; α(O)=3.88×10^{-5} 6; α(P)=1.85×10^{-6} 3 Mult.: α(K)(exp)=0.038 10 (1980Ab18).
x215.70 6	157 15					M1		0.327	α(K)=0.275 4; α(L)=0.0407 6; α(M)=0.00902 13; α(N+..)=0.00242 4 α(N)=0.00210 3; α(O)=0.000304 5; α(P)=1.683×10^{-5} 24
218.10 6	105 10	390.20	9/2$^-$	172.06	5/2$^-$	E2		0.189	α(K)=0.1260 18; α(L)=0.0486 7; α(M)=0.01152 17; α(N+..)=0.00296 5 α(N)=0.00263 4; α(O)=0.000327 5; α(P)=6.06×10^{-6} 9 Mult.: α(K)(exp)=0.11 3 (1980Ab18).
x220.10 10	30 4					E1		0.0406	α(K)=0.0341 5; α(L)=0.00503 7; α(M)=0.001110 16; α(N+..)=0.000293 5 α(N)=0.000256 4; α(O)=3.56×10^{-5} 5; α(P)=1.708×10^{-6} 24
x241.9 3	10 3					(E2)		0.1352	α(K)=0.0934 14; α(L)=0.0322 5; α(M)=0.00762 12; α(N+..)=0.00196 3 α(N)=0.00174 3; α(O)=0.000219 4; α(P)=4.60×10^{-6} 7
244.57 8	110 11	388.45	11/2$^-$	143.89	7/2$^-$	E2		0.1305	α(K)=0.0905 13; α(L)=0.0309 5; α(M)=0.00729 11; α(N+..)=0.00188 3 α(N)=0.001665 24; α(O)=0.000210 3; α(P)=4.47×10^{-6} 7 Mult.: α(K)(exp)=0.11 3 (1980Ab18).
246.2 3	≤10	390.20	9/2$^-$	143.89	7/2$^-$	(M1)		0.227	α(K)=0.191 3; α(L)=0.0282 4; α(M)=0.00626 9; α(N+..)=0.001683 25 α(N)=0.001460 21; α(O)=0.000211 3; α(P)=1.171×10^{-5} 17 Mult.: α(K)(exp) ≈ 0.2 (1980Ab18).
x248.5 4	10 3					(E2)		0.1241	α(K)=0.0864 13; α(L)=0.0290 5; α(M)=0.00685 11; α(N+..)=0.00177 3 α(N)=0.001565 24; α(O)=0.000197 3; α(P)=4.28×10^{-6} 7
250.2 1	74 8	463.11	3/2$^+$	212.91	5/2$^+$	M1		0.218	α(K)=0.183 3; α(L)=0.0270 4; α(M)=0.00599 9; α(N+..)=0.001610 23

From ENSDF

γ(^{161}Er) (continued)

E_γ[†]	I_γ[†‡]	E_i(level)	J^π_i	E_f	J^π_f	Mult.	δ[#]	α[@]	Comments
									α(N)=0.001397 *20*; α(O)=0.000202 *3*; α(P)=1.121×10^{-5} *16* Mult.: α(K)(exp)=0.24 *6* (1980Ab18).
252.50 *10*	155 *14*	396.44	11/2$^-$	143.89	7/2$^-$	E2		0.1179	α(K)=0.0825 *12*; α(L)=0.0273 *4*; α(M)=0.00644 *9*; α(N+..)=0.001660 *24* α(N)=0.001470 *21*; α(O)=0.000186 *3*; α(P)=4.10×10^{-6} *6* Mult.: α(K)(exp)=0.084 *21* and α(K)(exp)/α(L1)(exp)/α(L2)(exp)/α(L3)(exp)= 867 *200*/100 *10*/113 *3*/80 *7* (1980Ab18); other: 1975Ad08.
^{x}260.9 *1*	37 *4*					M1		0.194	α(K)=0.1634 *23*; α(L)=0.0241 *4*; α(M)=0.00534 *8*; α(N+..)=0.001435 *21* α(N)=0.001245 *18*; α(O)=0.000180 *3*; α(P)=1.000×10^{-5} *14*
^{x}263.9 *1*	50 *6*					(E2)		0.1026	α(K)=0.0727 *11*; α(L)=0.0231 *4*; α(M)=0.00542 *8*; α(N+..)=0.001401 *20* α(N)=0.001240 *18*; α(O)=0.0001572 *23*; α(P)=3.65×10^{-6} *6*
^{x}265.46 *10*	104 *11*					M1		0.185	α(K)=0.1560 *22*; α(L)=0.0230 *4*; α(M)=0.00509 *8*; α(N+..)=0.001369 *20* α(N)=0.001187 *17*; α(O)=0.0001720 *25*; α(P)=9.54×10^{-6} *14*
266.32 *10*	66 *7*	266.44	7/2$^-$	0.	3/2$^-$	E2		0.0997	α(K)=0.0708 *10*; α(L)=0.0223 *4*; α(M)=0.00524 *8*; α(N+..)=0.001353 *19* α(N)=0.001197 *17*; α(O)=0.0001520 *22*; α(P)=3.56×10^{-6} *5* Mult.: α(K)(exp) ≈ 0.09 (1980Ab18); other: 1975Ad08.
^{x}270.2 *1*	17 *4*					M1		0.1767	α(K)=0.1487 *21*; α(L)=0.0219 *3*; α(M)=0.00485 *7*; α(N+..)=0.001304 *19* α(N)=0.001131 *16*; α(O)=0.0001639 *23*; α(P)=9.09×10^{-6} *13*
^{x}272.07 *10*	75 *10*					M1		0.1735	α(K)=0.1459 *21*; α(L)=0.0215 *3*; α(M)=0.00476 *7*; α(N+..)=0.001280 *18* α(N)=0.001110 *16*; α(O)=0.0001609 *23*; α(P)=8.92×10^{-6} *13*
278.90 *10*	81 *10*	496.28	5/2$^+$	217.34	7/2$^+$	M1		0.1622	α(K)=0.1365 *20*; α(L)=0.0201 *3*; α(M)=0.00445 *7*; α(N+..)=0.001196 *17* α(N)=0.001038 *15*; α(O)=0.0001504 *22*; α(P)=8.34×10^{-6} *12* Mult.: α(K)(exp) ≈ 0.12 (1980Ab18).
^{x}281.0 *1*	22 *5*					M1		0.1590	α(K)=0.1338 *19*; α(L)=0.0197 *3*; α(M)=0.00436 *7*; α(N+..)=0.001172 *17* α(N)=0.001017 *15*; α(O)=0.0001473 *21*; α(P)=8.17×10^{-6} *12*
283.4 *1*	83 *10*	496.28	5/2$^+$	212.91	5/2$^+$	M1+E2	0.80	0.1268	α(K)=0.1029 *15*; α(L)=0.0186 *3*; α(M)=0.00421 *6*; α(N+..)=0.001116 *16* α(N)=0.000975 *14*; α(O)=0.0001349 *19*; α(P)=6.05×10^{-6} *9* Mult.: α(K)(exp)=0.13 *3* and α(K)(exp)/α(L1)(exp)/α(L2)(exp)= 707 *133*/100 *13*/27 *4* (1980Ab18); other: 1975Ad08. δ: from %E2=39 (1980Ab18).
310.1 *1*	30 *4*	369.48	3/2$^+$	59.501	5/2$^-$	E1		0.01708	α(K)=0.01442 *21*; α(L)=0.00208 *3*; α(M)=0.000458 *7*; α(N+..)=0.0001215 *17* α(N)=0.0001059 *15*; α(O)=1.489×10^{-5} *21*; α(P)=7.47×10^{-7} *11* Mult.: α(K)(exp) ≈ 0.013 (1980Ab18).
^{x}325.8 *2*	27 *3*					(E1)		0.01513	α(K)=0.01279 *18*; α(L)=0.00184 *3*; α(M)=0.000405 *6*; α(N+..)=0.0001075 *16* α(N)=9.36×10^{-5} *14*; α(O)=1.318×10^{-5} *19*; α(P)=6.65×10^{-7} *10*
^{x}330.6 *1*	64 *7*					E1		0.01461	α(K)=0.01234 *18*; α(L)=0.001770 *25*; α(M)=0.000390 *6*; α(N+..)=0.0001036 *15* α(N)=9.03×10^{-5} *13*; α(O)=1.272×10^{-5} *18*; α(P)=6.43×10^{-7} *9*
^{x}344.9 *1*	63 *8*					(E1)		0.01318	α(K)=0.01115 *16*; α(L)=0.001595 *23*; α(M)=0.000351 *5*; α(N+..)=9.34×10^{-5} *13* α(N)=8.13×10^{-5} *12*; α(O)=1.147×10^{-5} *16*; α(P)=5.83×10^{-7} *9*

$^{161}_{68}Er_{93}$-8

γ(^{161}Er) (continued)

E_γ †	I_γ †‡	E_i(level)	J^π_i	E_f	J^π_f	Mult.	α @	Comments
^{x}349.1 *1*	50 *6*					E1	0.01281	α(K)=0.01083 *16*; α(L)=0.001548 *22*; α(M)=0.000341 *5*; α(N+..)=9.07×10^{-5} *13* α(N)=7.89×10^{-5} *11*; α(O)=1.114×10^{-5} *16*; α(P)=5.66×10^{-7} *8*
^{x}353.8 *2*	130 *12*					M1	0.0859	α(K)=0.0724 *11*; α(L)=0.01059 *15*; α(M)=0.00234 *4*; α(N+..)=0.000630 *9* α(N)=0.000546 *8*; α(O)=7.92×10^{-5} *12*; α(P)=4.41×10^{-6} *7*
369.5 *1*	140 *12*	369.48	3/2$^+$	0.	3/2$^-$	E1	0.01118	α(K)=0.00946 *14*; α(L)=0.001348 *19*; α(M)=0.000297 *5*; α(N+..)=7.89×10^{-5} *11* α(N)=6.87×10^{-5} *10*; α(O)=9.72×10^{-6} *14*; α(P)=4.97×10^{-7} *7* Mult.: α(K)(exp)=0.011 *3* (1980Ab18).
^{x}371.2 *2*	45 *6*							
372.6 *2*	105 *11*	590.06	7/2$^+$	217.34	7/2$^+$	M1	0.0750	α(K)=0.0632 *9*; α(L)=0.00922 *13*; α(M)=0.00204 *3*; α(N+..)=0.000549 *8* α(N)=0.000476 *7*; α(O)=6.90×10^{-5} *10*; α(P)=3.84×10^{-6} *6* Mult.: α(K)(exp)=0.067 *21* (1980Ab18).
377.1 *2*	49 *6*	590.06	7/2$^+$	212.91	5/2$^+$	M1	0.0726	α(K)=0.0612 *9*; α(L)=0.00893 *13*; α(M)=0.00198 *3*; α(N+..)=0.000531 *8* α(N)=0.000461 *7*; α(O)=6.68×10^{-5} *10*; α(P)=3.72×10^{-6} *6* Mult.: α(K)(exp)=0.051 *14* (1980Ab18).
400.8 *2*	71 *8*	590.06	7/2$^+$	189.42	9/2$^+$	M1	0.0619	α(K)=0.0522 *8*; α(L)=0.00760 *11*; α(M)=0.001681 *24*; α(N+..)=0.000452 *7* α(N)=0.000392 *6*; α(O)=5.68×10^{-5} *8*; α(P)=3.17×10^{-6} *5* Mult.: α(K)(exp)=0.056 *15* (1980Ab18).
403.5 *2*	17 *3*	463.11	3/2$^+$	59.501	5/2$^-$	[E1]	0.00909	α(K)=0.00770 *11*; α(L)=0.001091 *16*; α(M)=0.000240 *4*; α(N+..)=6.39×10^{-5} *9* α(N)=5.56×10^{-5} *8*; α(O)=7.88×10^{-6} *11*; α(P)=4.07×10^{-7} *6*
^{x}407.6 *4*	21 *7*							
^{x}419.6 *5*	26 *7*							
^{x}425.6 *5*	23 *5*							
^{x}433.2 *4*	36 *6*							
436.8 *6*	15 *5*	496.28	5/2$^+$	59.501	5/2$^-$	[E1]	0.00757	α(K)=0.00641 *10*; α(L)=0.000905 *13*; α(M)=0.000199 *3*; α(N+..)=5.30×10^{-5} *8* α(N)=4.61×10^{-5} *7*; α(O)=6.55×10^{-6} *10*; α(P)=3.41×10^{-7} *5*
^{x}447.1 *4*	15							
^{x}454.3 *4*	42 *8*					E1	0.00692	α(K)=0.00587 *9*; α(L)=0.000826 *12*; α(M)=0.000182 *3*; α(N+..)=4.84×10^{-5} *7* α(N)=4.21×10^{-5} *6*; α(O)=5.99×10^{-6} *9*; α(P)=3.12×10^{-7} *5*
458.3 *6*	18 *7*	724.84	(3/2$^-$)	266.44	7/2$^-$			
463.6 *4*	41 *5*	463.11	3/2$^+$	0.	3/2$^-$	E1	0.00661	α(K)=0.00561 *8*; α(L)=0.000788 *12*; α(M)=0.0001734 *25*; α(N+..)=4.62×10^{-5} *7* α(N)=4.02×10^{-5} *6*; α(O)=5.71×10^{-6} *8*; α(P)=2.99×10^{-7} *5*
^{x}476.0 *5*	8 *4*							
^{x}483.3 *4*	43 *5*							
^{x}489.5 *5*	61 *6*							
496.3 *5*	10 *4*	496.28	5/2$^+$	0.	3/2$^-$	[E1]	0.00568	α(K)=0.00482 *7*; α(L)=0.000674 *10*; α(M)=0.0001483 *21*; α(N+..)=3.95×10^{-5} *6* α(N)=3.44×10^{-5} *5*; α(O)=4.90×10^{-6} *7*; α(P)=2.58×10^{-7} *4*
^{x}503.8 *4*	38 *6*							
^{x}507.2 *8*	33 *4*							
^{x}523.6 *4*	81 *7*							
^{x}540.0 *5*	24 *5*							
^{x}549.6 *4*	35 *5*							
552.9 *5*	21 *5*	724.84	(3/2$^-$)	172.06	5/2$^-$			
^{x}560.2 *4*	57 *6*							

γ(^{161}Er) (continued)

E$_\gamma$†	I$_\gamma$†‡	E$_i$(level)	J$^\pi_i$	E$_f$	J$^\pi_f$
^{x}574.6 *4*	47 *5*				
577.0 *5*	11 *4*	843.16	(5/2$^-$)	266.44	7/2$^-$
581.0 *5*	15 *5*	724.84	(3/2$^-$)	143.89	7/2$^-$
593.7 *5*	28 *8*	843.16	(5/2$^-$)	249.77	9/2$^-$
^{x}608.9 *4*	27 *8*				
^{x}618.3 *4*	25 *8*				
^{x}622.3 *4*	43 *14*				
^{x}644.7 *4*	28 *9*				
^{x}654.2 *4*	38 *9*				
665.2 *5*	18 *6*	724.84	(3/2$^-$)	59.501	5/2$^-$
670.6 *5*	20 *7*	843.16	(5/2$^-$)	172.06	5/2$^-$
^{x}680.3 *5*	22 *7*				
^{x}696.6 *5*	28 *10*				
699.0 *5*	25 *11*	843.16	(5/2$^-$)	143.89	7/2$^-$
^{x}702.0 *6*	15 *7*				
^{x}712.3 *4*	18 *4*				
^{x}716.8 *4*	22 *4*				
724.8 *5*	57 *7*	724.84	(3/2$^-$)	0.	3/2$^-$
^{x}752.1 *4*	35 *5*				
^{x}762.4 *4*	38 *5*				
^{x}776.0 *4*	35 *5*				
^{x}781.2 *5*	22 *5*				
784.1 *5*	42 *6*	843.16	(5/2$^-$)	59.501	5/2$^-$
^{x}799.0 *5*	≤15				
^{x}812.3 *6*	≤20				
^{x}840.1 *5*	45 *5*				
842.9 *5*	20 *5*	843.16	(5/2$^-$)	0.	3/2$^-$
^{x}858.0 *5*	35 *8*				
^{x}889.6 *5*	33 *8*				
891.0 *5*	16 *7*	1481.20?	(5/2,7/2$^-$)	590.06	7/2$^+$
^{x}901.7 *5*	≤41				
^{x}912.2 *5*	16 *4*				
^{x}916.5 *5*	18 *4*				
^{x}935.8 *5*	22 *5*				
^{x}949.2 *6*	18 *6*				
^{x}964.1 *4*	28 *4*				
^{x}970.4 *5*	26 *4*				
984.5 *5*	29 *7*	1481.20?	(5/2,7/2$^-$)	496.28	5/2$^+$
^{x}997.5 *7*	≤25				
^{x}1003.2 *4*	69 *8*				
^{x}1057.6 *5*	20 *5*				
^{x}1089.1 *4*	35 *4*				
^{x}1098.8 *4*	27 *3*				
^{x}1112.0 *8*	10 *4*				
^{x}1117.5 *7*	15 *6*				
^{x}1156.3 *5*	40 *4*				
^{x}1185.1 *6*	12 *3*				
1215.0 *7*	10 *6*	1481.20?	(5/2,7/2$^-$)	266.44	7/2$^-$
^{x}1223.0 *4*	34 *4*				
1235.7 *4*	40 *4*	1960.25	(7/2$^-$)	724.84	(3/2$^-$)
^{x}1250.1 *5*	≤17				
1268.3 *5*	15 *7*	1481.20?	(5/2,7/2$^-$)	212.91	5/2$^+$
^{x}1271.5 *5*	43 *8*				
^{x}1276.2 *6*	25 *8*				
^{x}1305.3 *6*	≤41				
1308.5 *5*	42 *6*	1481.20?	(5/2,7/2$^-$)	172.06	5/2$^-$
^{x}1317.0 *8*	12 *6*				
^{x}1322.1 *5*	25 *6*				
1337.8 *5*	18 *9*	1481.20?	(5/2,7/2$^-$)	143.89	7/2$^-$
1341.5 *5*	24 *7*	2066.89?	(5/2,7/2$^-$)	724.84	(3/2$^-$)
^{x}1351.5 *6*	≤11				
^{x}1355.1 *5*	27 *6*				
^{x}1384.2 *6*	20 *4*				
1422.1 *5*	≤18	1481.20?	(5/2,7/2$^-$)	59.501	5/2$^-$
^{x}1429.1 *5*	≤8				
^{x}1437.3 *6*	18 *5*				
^{x}1461.1 *5*	55 *6*				
1481.5 *7*	12 *6*	1481.20?	(5/2,7/2$^-$)	0.	3/2$^-$
^{x}1514.6 *4*	72 *7*				
^{x}1519.1 *5*	36 *7*				
^{x}1537.0 *8*	15 *6*				
^{x}1540.0 *8*	15 *6*				
^{x}1552.0 *8*	15 *7*				
^{x}1555.3 *8*	15 *7*				
^{x}1565.8 *8*	15 *5*				
1569.9 *5*	43 *5*	1960.25	(7/2$^-$)	390.20	9/2$^-$
^{x}1578.2 *5*	10 *6*				
^{x}1581.3 *5*	19 *6*				
^{x}1591.2 *8*	8 *4*				
^{x}1597.7 *5*	17 *6*				
^{x}1600.4 *5*	12 *6*				
^{x}1611.4 *4*	46 *6*				
^{x}1628.5 *5*	21 *6*				
^{x}1633.1 *5*	34 *6*				
^{x}1639.5 *8*	10 *4*				
1648.1 *3*	195×10^1 *18*	2044.6	9/2$^+$	396.44	11/2$^-$
^{x}1663.6 *5*	56 *11*				
1693.5 *4*	42 *5*	1960.25	(7/2$^-$)	266.44	7/2$^-$

From ENSDF

γ(^{161}Er) (continued)

E$_γ$†	I$_γ$†‡	E$_i$(level)	J^π_i	E$_f$	J^π_f
^{x}1706.1 *4*	35 *4*				
^{x}1718.0 *8*	≤12				
^{x}1721.6 *5*	15 *4*				
^{x}1735.3 *6*	18 *4*				
1743.8 *5*	17 *5*	1960.25	(7/2$^-$)	217.34	7/2$^+$
1748.0 *5*	21 *6*	1960.25	(7/2$^-$)	212.91	5/2$^+$
^{x}1753.0 *8*	≤8				
^{x}1757.9 *5*	24 *5*				
^{x}1766.1 *5*	21 *6*				
1769.5 *6*	18 *6*	1960.25	(7/2$^-$)	189.42	9/2$^+$
1788.0 *3*	172 *15*	1960.25	(7/2$^-$)	172.06	5/2$^-$
1796.0 *8*	≤5	2063.09?	(5/2$^+$,7/2)	266.44	7/2$^-$
1800.0 *5*	15 *3*	2066.89?	(5/2,7/2$^-$)	266.44	7/2$^-$
^{x}1816.3 *4*	20 *4*				
^{x}1827.2 *4*	77 *8*				
^{x}1830.7 *5*	18 *9*				
^{x}1834.0 *4*	47 *6*				
1845.7 *4*	64 *7*	2063.09?	(5/2$^+$,7/2)	217.34	7/2$^+$
1850.0& *3*	165& *15*	2063.09?	(5/2$^+$,7/2)	212.91	5/2$^+$
1850.0& *3*	165& *15*	2066.89?	(5/2,7/2$^-$)	217.34	7/2$^+$
1854.7 *4*	82 *8*	2066.89?	(5/2,7/2$^-$)	212.91	5/2$^+$
^{x}1861.6 *4*	28 *4*				
^{x}1867.4 *4*	35 *4*				
1873.4 *7*	10 *5*	2063.09?	(5/2$^+$,7/2)	189.42	9/2$^+$
^{x}1875.9 *5*	33 *4*				
^{x}1887.8 *5*	≤12				
1891.9 *5*	40 *10*	2063.09?	(5/2$^+$,7/2)	172.06	5/2$^-$
1894.1 *4*	71 *8*	2066.89?	(5/2,7/2$^-$)	172.06	5/2$^-$
^{x}1900.7 *8*	≤8				
^{x}1902.7 *5*	18 *6*				
^{x}1909.6 *5*	27 *8*				
^{x}1913.0 *7*	≤13				
1922.8 *5*	≤10	2066.89?	(5/2,7/2$^-$)	143.89	7/2$^-$
^{x}1926.5 *6*	≤7				
^{x}1934.9 *7*	8 *3*				
^{x}1941.2 *5*	15 *5*				
^{x}1952.5 *6*	9 *2*				
^{x}1958.2 *5*	11 *4*				
^{x}1984.9 *5*	13 *4*				
2007.1 *6*	11 *4*	2066.89?	(5/2,7/2$^-$)	59.501	5/2$^-$
^{x}2010.7 *5*	19 *5*				
^{x}2043.9 *6*	≤8				
^{x}2062.2 *5*	15 *4*				
2067.1 *9*	≤6	2066.89?	(5/2,7/2$^-$)	0.	3/2$^-$
^{x}2095.2 *4*	20 *6*				
^{x}2115.0 *7*	9 *4*				
^{x}2129.5 *7*	9 *4*				
^{x}2139.0 *9*	≤6				
^{x}2154.4 *4*	23 *5*				
^{x}2174.4 *8*	≤7				
^{x}2190.8 *7*	≤7				
^{x}2223.5 *8*	≤7				
^{x}2374.0 *10*	≤8				

† Values are from 1975Ad08. (Values in 1980Ab18 are identical.).

‡ Values from 1975Ad08 and 1980Ab18 are quoted as photons per 10^4 decays, based on the requirement that the sum of the γ+ce intensities to the g.s. be 100%. Because of the likely incompleteness of the decay scheme, the evaluator regards this normalization is approximate. In any event, the listed values can be regarded as relative ones.

From 1975Ad08 and 1980Ab18 and based on L subshell ratios, K/L ratios, and α(K)exp. Normalization of the ce and γ data is based on α(K)(143)=0.42 for a pure E2 transition.

@ Uncertainties are based on uncertainties in δ estimated by evaluator for the purpose of this calculation. These Δδ are not reported here.

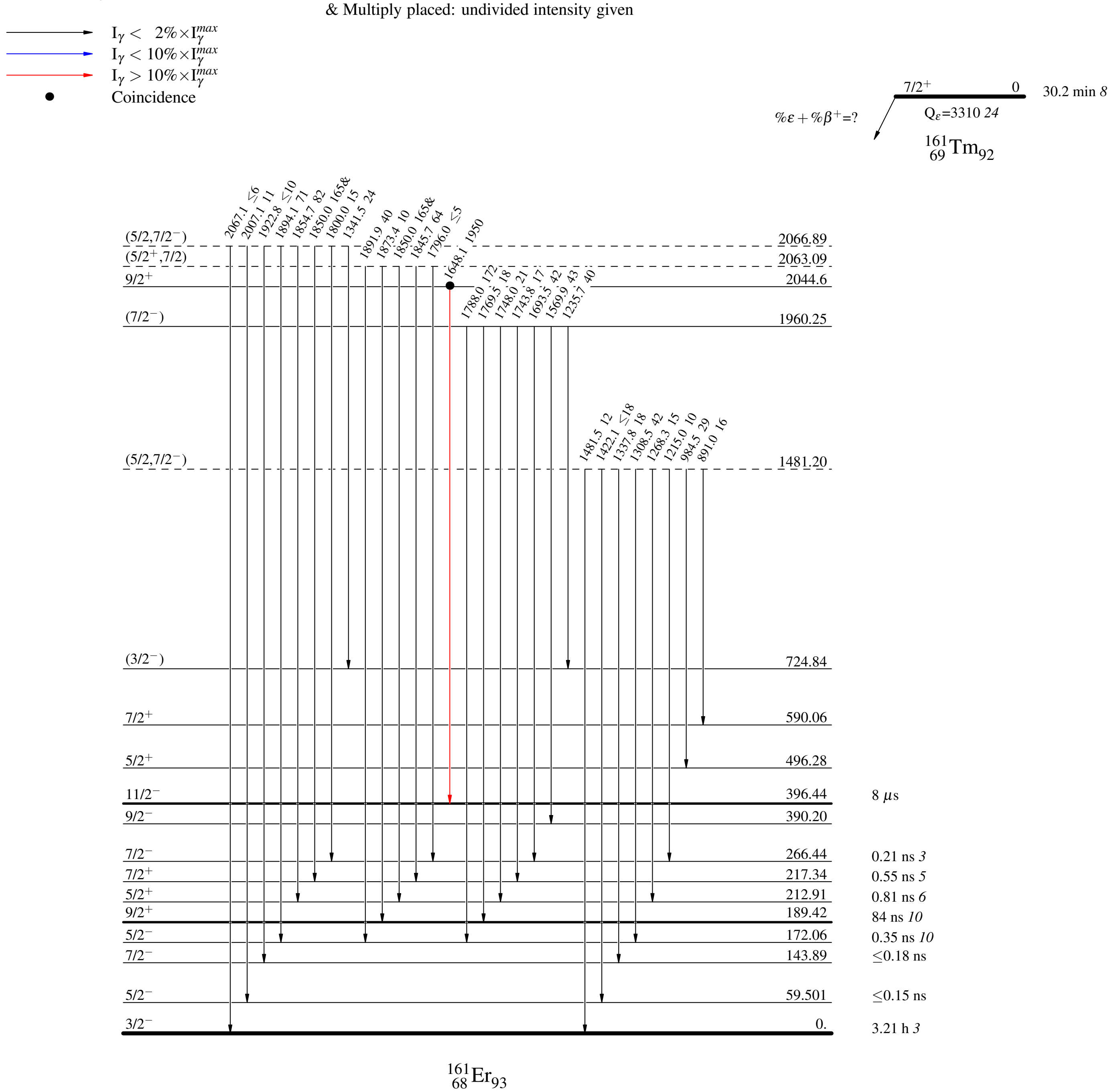
& Multiply placed with undivided intensity.

^{x} γ ray not placed in level scheme.

^{161}Tm ε decay 1975Ad08,1980Ab18

Decay Scheme

Intensities: Relative I_γ
& Multiply placed: undivided intensity given

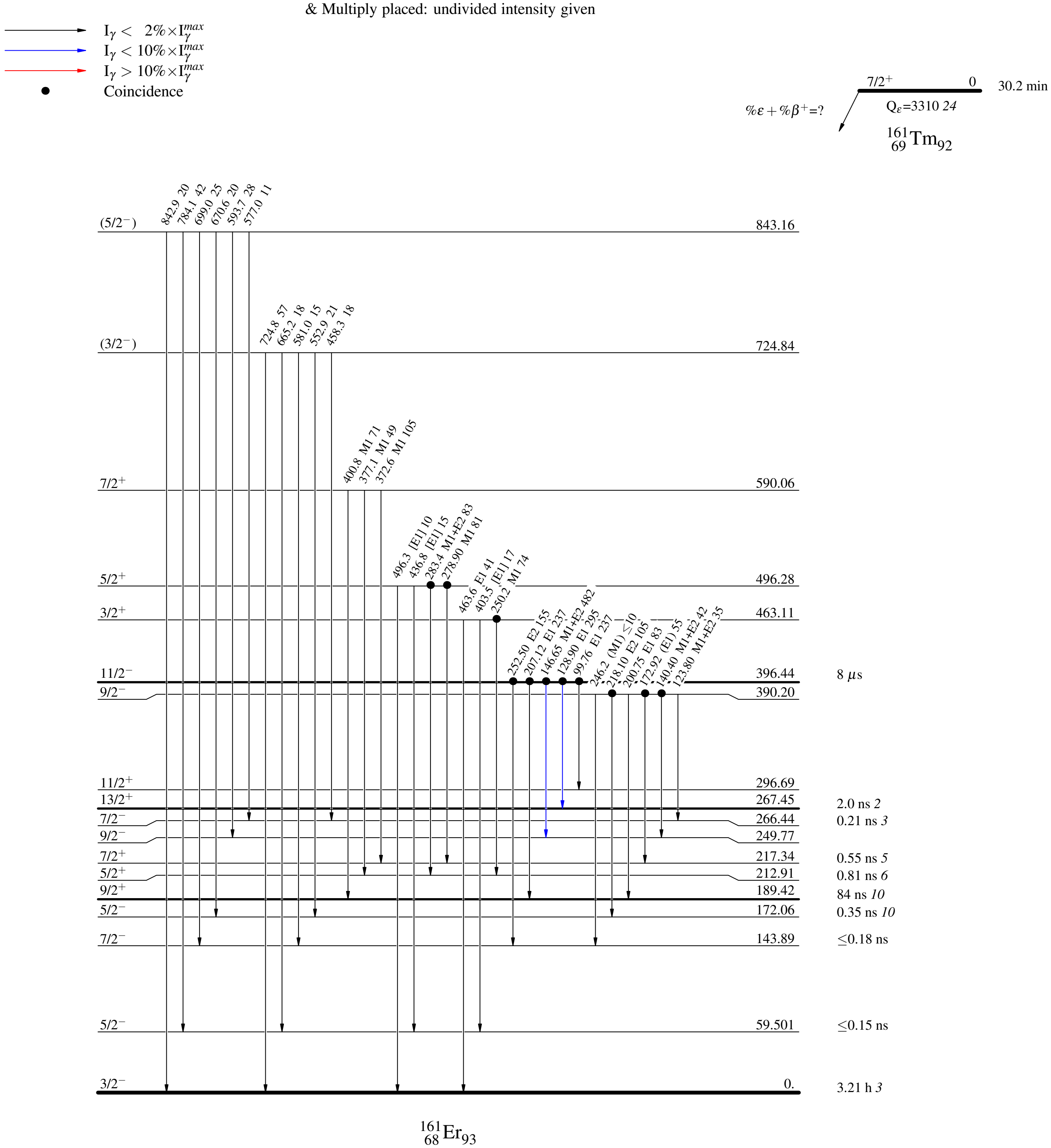


^{161}Tm ε decay 1975Ad08,1980Ab18

Decay Scheme (continued)

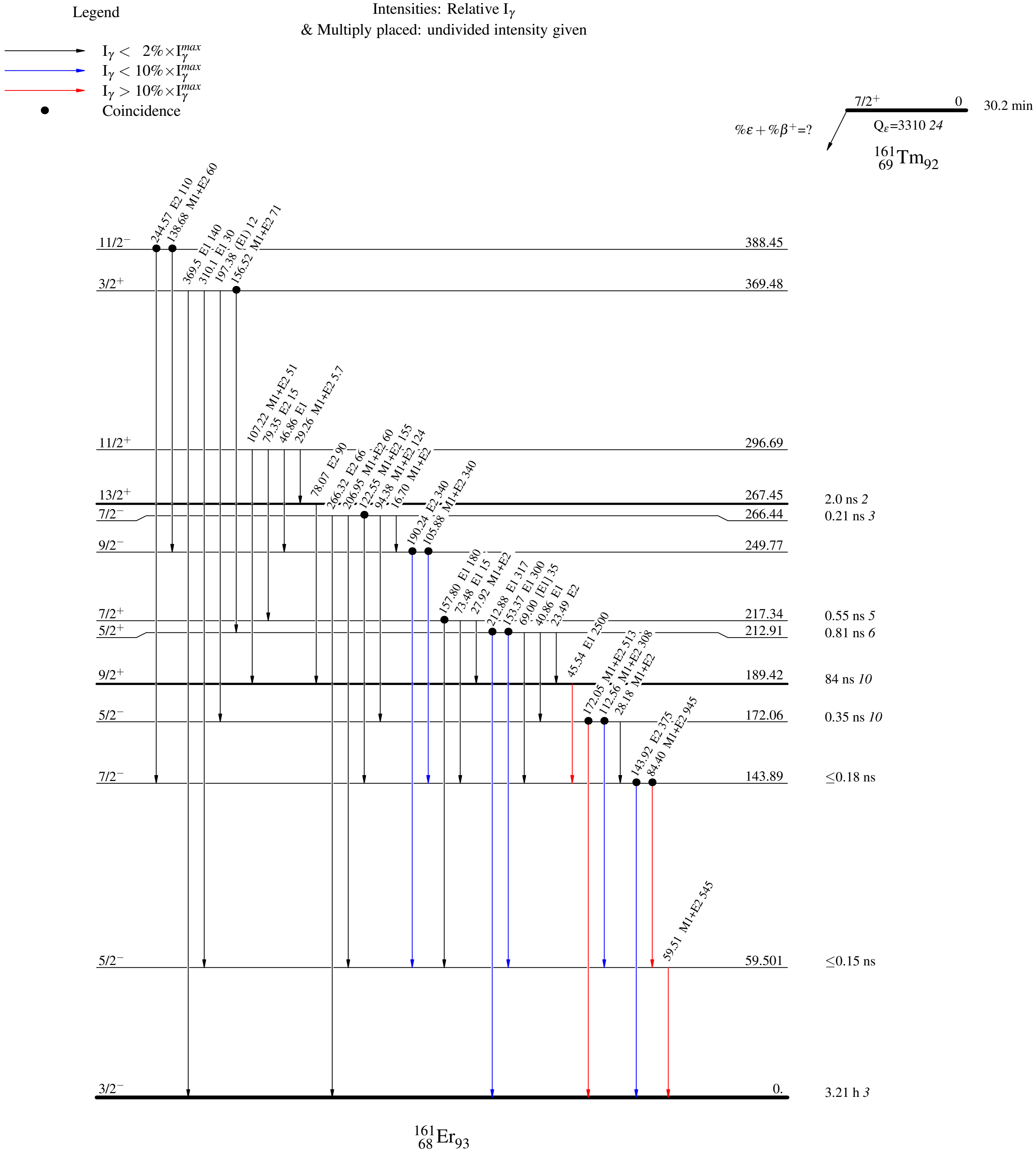
Legend

Intensities: Relative I_γ
& Multiply placed: undivided intensity given

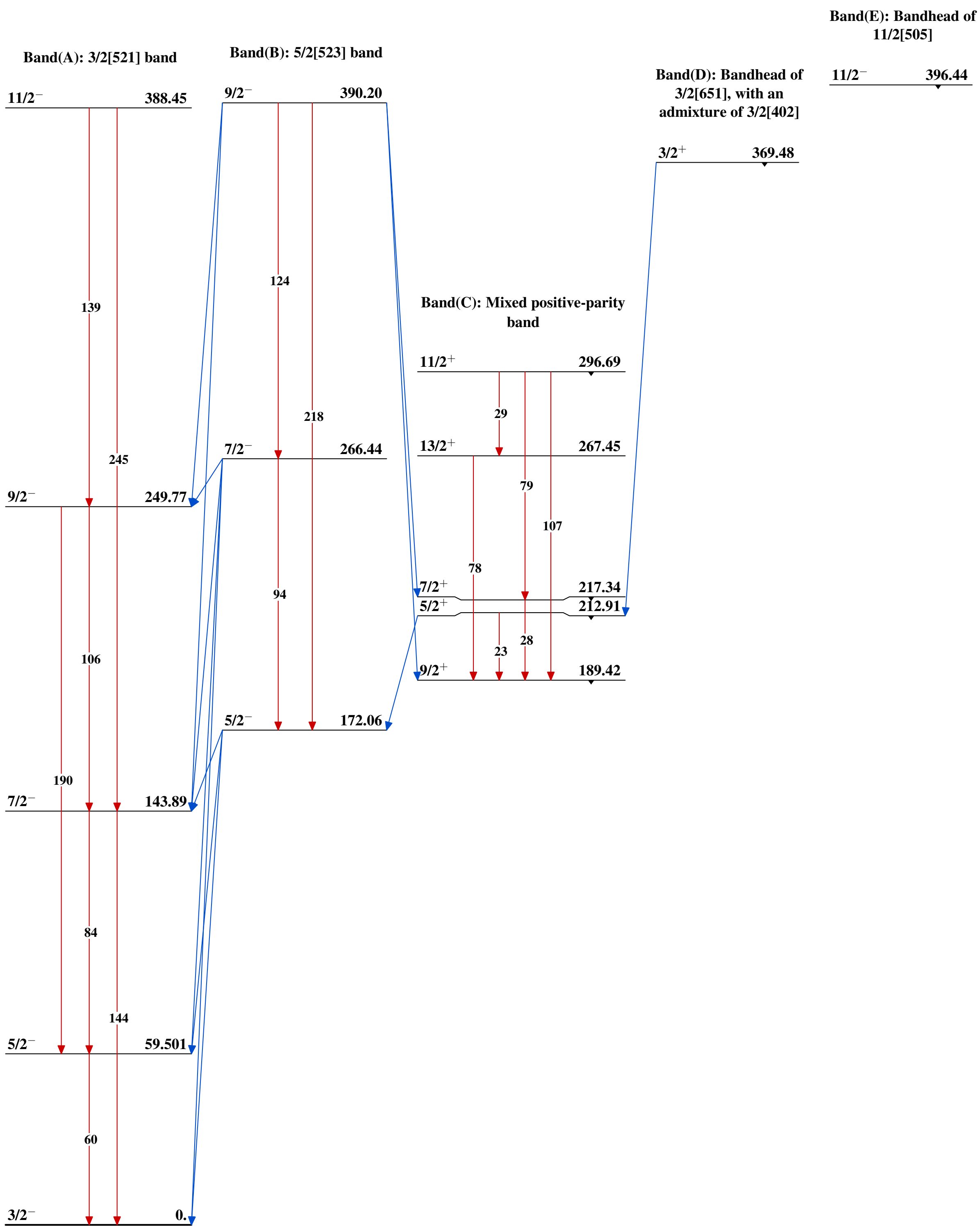


^{161}Tm ε decay 1975Ad08,1980Ab18

Decay Scheme (continued)

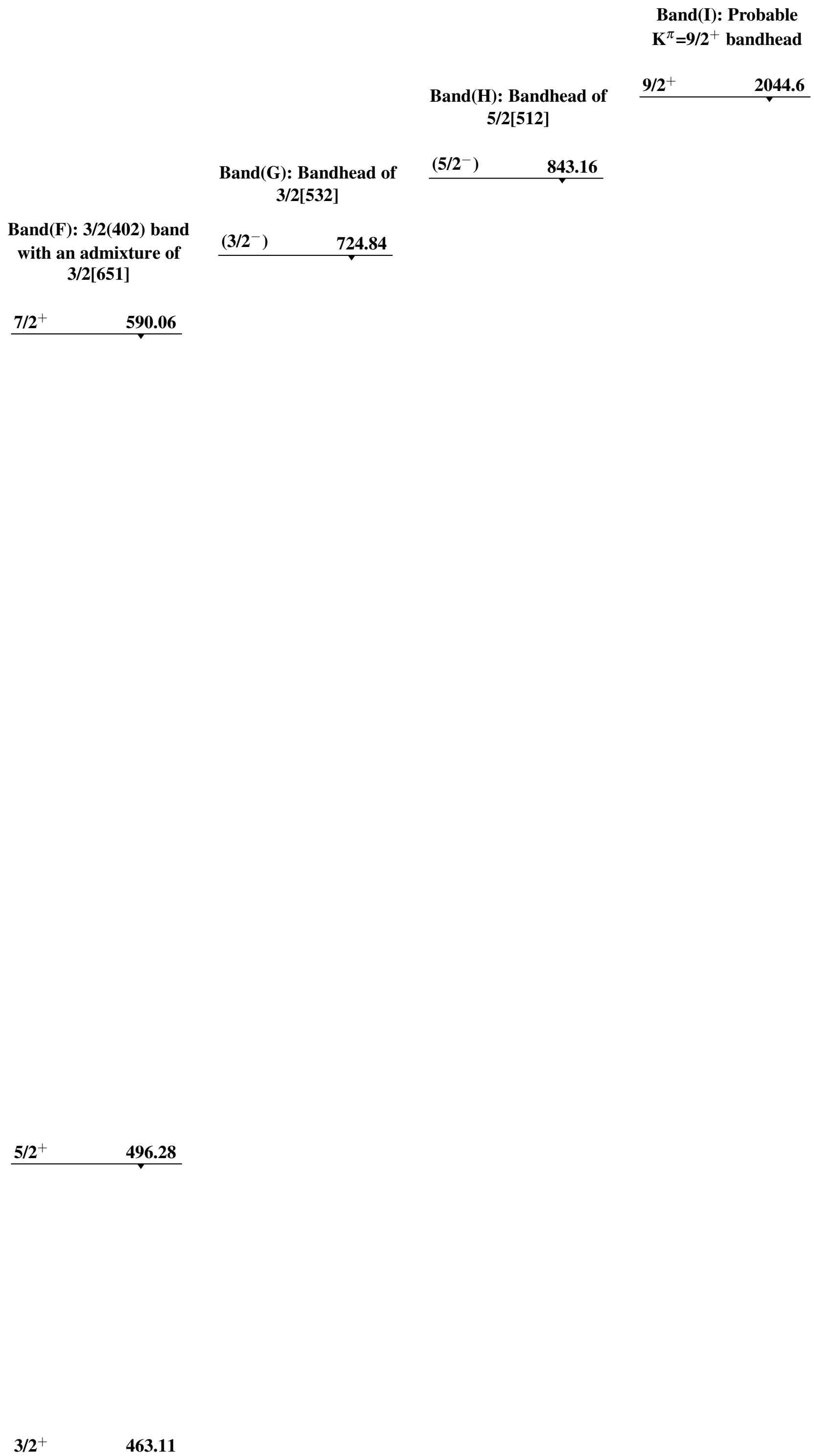


^{161}Tm ε decay 1975Ad08,1980Ab18



$^{161}_{68}Er_{93}$

^{161}Tm ε decay 1975Ad08,1980Ab18 (continued)



$^{161}_{68}Er_{93}$