^{167}Lu ε decay (51.46 min) 1976Me06,1976Gr06,1981Kr08

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen	NDS 191,1 (2023)	22-Aug-2023

Parent: ^{167}Lu: E=0.0; J$^{\pi}$=7/2^{+}; T$_{1/2}$=51.46 min *15*; Q(ε)=3060 *40*; %ε+%β^{+} decay=100

^{167}Lu-J$^{\pi}$,T$_{1/2}$: From Adopted Levels of ^{167}Lu.

^{167}Lu-Q(ε): From 2021Wa16.

1976Me06: ^{167}Lu from ^{169}Tm(^{3}He,5n),E(^{3}He)=45 MeV, and ^{170}Yb(p,4n),E(p)=45 MeV, Yb oxide targets enriched to 67% in ^{170}Yb. Measured Eγ, Iγ, prompt and delayed $\gamma\gamma$-coin using Ge(Li)-NaI(Tl) Compton-suppression spectrometer, and Ge(Li) surface barrier detector. Authors state that below 300 keV, Eγ values were taken from 1971Ab04 as these values were more precise in this earlier work. Note that 1971Ab04 and later papers 1976Gr06 and 1975VyZY are from the same experimental group.

1976Gr06, 1975VyZY (also 1987BaZB, 1977Gr21, 1965Gr20): ^{167}Lu from spallation of tantalum by 660-MeV protons, followed by chemical and electromagnetic isotope separations. Measured Eγ, Iγ, E(ce), I(ceK), Ice(L1), Ice(L2), Ice(L3), prompt and delayed $\gamma\gamma$-coin with 20-30 ns resolving time using Ge(Li) and Si(Li) detectors, and a magnetic spectrograph with a resolution of 0.05%. Detailed tabular data for Eγ, Iγ, Ice(K), Ice(L1), Ice(L2), Ice(L3), multipolarity assignments, and mixing ratios are given in 1975VyZY. See also 1975VaYV from the same group for lifetime measurements of excited states. In earlier work in 1971Ab04, Eγ, Iγ, E(ce), I(ce) for 80 γ rays were measured using Ge(Li), Si(Li) and a magnetic spectrographs with a uniform-field and 0.05% resolution. These transitions were placed amongst 22 levels.

1981Kr08: ^{167}Lu from spallation of tantalum by 660-MeV protons, followed by chemical and mass separations. Measured $\gamma(\theta)$ from oriented nuclei at low temperature using a Ge(Li) detector.

Others:

1969Ar23: measured Eγ, Iγ.

1960Ba32: measured positron spectrum, deduced two branches with end-point energies of 1530 *200* and 1100 *100* with equal relative intensities of one unit each. A third branch of 600 *50* keV with relative intensity of 5 units was assigned to the decay of ^{167}Yb.

1960Ba32: measured conversion electron spectrum.

1960Bu27: ^{167}Lu activity produced and half-life measured.

1959Ha09: measured conversion electron spectrum.

1959Ka08: ^{167}Lu activity produced.

Theory for the decay of ^{167}Lu: 1979Mi17.

The decay scheme is from 1976Me06 and 1976Gr06 (with detailed data provided in 1975VyZY), which is considered incomplete by evaluators, as about 15% of the transition intensity remains unplaced, and multipolarities and mixing ratios of some of the low-energy transitions are not well established thus their transition intensities are only crude estimates. Additionally, several γ rays are multiply placed without intensity division. Angular distributions for a large number of γ transitions were measured by 1981Kr08 using low-temperature nuclear orientation method, but it still seems difficult to assign definite spin-parity assignments for many levels and well-defined mixing ratios for many transitions, as in general these cover a large range of values.

^{167}Yb Levels

E(level)[†]	J$^{\pi}$[‡]	T$_{1/2}$	Comments
0.0[#]	5/2^{-}	17.5 min *2*	
29.656[@] *8*	5/2^{+}	<14 ns	T$_{1/2}$: $\gamma\gamma$(t) (1976Me06); other values: ≤20 ns ($\gamma\gamma$(t), 1975VyZY), ≈400 ns ($\gamma\gamma$(t), 1975Bu10).
33.916[@] *8*	7/2^{+}	<16 ns	T$_{1/2}$: $\gamma\gamma$(t) (1976Me06).
58.539[@] *9*	9/2^{+}		
78.679[#] *10*	7/2^{-}	0.84 ns *4*	T$_{1/2}$: ceγ(t) (1975VaYV).
125.918[@] *21*	11/2^{+}		
178.863[#] *13*	9/2^{-}	≤0.23 ns	T$_{1/2}$: ceγ(t) (1975VaYV).
179.750[a] *21*	(3/2^{-})		Level proposed only by 1976Me06. 1976Gr06 placed 179.69γ from the 258 level.
185.94[@] *6*	13/2^{+}		
188.704[&] *21*	1/2^{-}	≈23 ns	T$_{1/2}$: $\gamma\gamma$(t) (1975VyZY). Apparent 1.6% *3* ε branch to this level presumably results from incompleteness of the

Continued on next page (footnotes at end of table)

^{167}Lu ε decay (51.46 min) 1976Me06,1976Gr06,1981Kr08 (continued)

^{167}Yb Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$	Comments
			decay scheme.
213.167 *16*	(5/2)⁻		
239.163[a] *13*	(5/2)⁻		Jπ: 5/2⁻ assigned in 1981Kr08.
258.525[&] *18*	3/2⁻		Jπ: 3/2⁻ assigned in 1981Kr08.
278.210[&] *19*	5/2⁻		Jπ: 5/2⁻ assigned in 1981Kr08.
301.48[#] *3*	11/2⁻		Jπ: 11/2⁻ assigned in 1981Kr08.
308.401 *14*	(7/2)⁻		Jπ: 7/2⁻ assigned in 1981Kr08.
317.488[a] *17*	(7/2)⁻		Jπ: 7/2⁻ assigned in 1981Kr08.
410.979 *17*	7/2⁻		1976Gr06 placed 352.6γ from this level, but 1976Me06 assigned 352.03γ from 430 level. Jπ: 7/2⁻ assigned in 1981Kr08.
419.540[a] *17*	(9/2)⁻		Jπ: 9/2⁻ assigned in 1981Kr08.
430.87 *5*	7/2⁺		Jπ: 7/2⁺ assigned in 1981Kr08.
440.676[&] *15*	7/2⁻		Jπ: 7/2⁻ assigned in 1981Kr08.
477.43[&] *3*	9/2⁻		Jπ: 9/2⁻ assigned in 1981Kr08.
553.38 *3*	9/2⁻		Jπ: 9/2⁻ from γ(θ) in 1981Kr08 as 236γ(θ) and 427γ(θ) exclude J(553)=11/2.
569.39 *10*	(7/2)⁺		Level from 1976Me06 and 1977Gr21. Jπ: 3/2⁺,5/2⁺,7/2⁺ assigned in 1981Kr08 from γ(θ,temp) data.
571.489[b] *19*	(11/2)⁻	≈180 ns	$T_{1/2}$: γγ(t) (1975VyZY). Placement of 332.36γ from 411 or 571 levels in 1976Me06, whereas 1976Gr06 placed this γ only from 411 level. Jπ: 11/2⁻ assigned in 1981Kr08 from γ(θ,temp) data.
628.62 *6*	7/2⁺		Jπ: 7/2⁺ assigned in 1981Kr08 from γ(θ,temp) data.
677.18 *6*	(5/2,7/2)⁻		Level from 1976Me06 and 1977Gr21.
719.61 *9*	(7/2)⁻		Jπ: 5/2⁻,7/2⁻ assigned in 1981Kr08.
788.36 *6*	(9/2)⁻		Jπ: 9/2⁻ assigned in 1981Kr08 from γ(θ,temp) data.
1022.27 *7*	(5/2,9/2)⁺		Jπ: 9/2⁺ assigned in 1981Kr08, while eliminating 7/2 based on comparison of δ from 591γ(θ) and that from α(K)exp. Placement of 833.61γ in 1976Me06 only from 1022 to 188, 1/2⁻ level is rejected due to ΔJπ and dominant M1 multipolarity of this γ.
1267.24 *6*	5/2⁺		Jπ: 5/2⁺ assigned in 1981Kr08 from γ(θ,temp) data.
1305.53 *7*	(7/2⁻)		Level from 1976Me06 and 1977Gr21. Alternative placement of 1275γ from the 1305 level suggested by 1976Me06 and 1976Gr06 rejected by 1981Kr08 based on inconsistent δ value from γ(θ) data. Jπ: 7/2⁻ assigned in 1981Kr08 from γ(θ,temp) data.
1356.32 *8*	(9/2⁺,11/2⁺)		Jπ: 7/2⁻,9/2⁻ assigned in 1981Kr08.
1947.48 *6*	(9/2)⁺		Jπ: 9/2⁻ assigned in 1981Kr08 as for 7/2, δ(O/Q)>0.19 for 1376γ; and for 11/2, δ(O/Q)>0.30 for 1507γ, both from γ(θ,temp) data.
1951.10 *6*	(9/2)		Jπ: 9/2⁻ assigned in 1981Kr08 from γ(θ,temp) data.
1952.66 *6*	(7/2)⁺		Jπ: 7/2⁺ assigned in 1981Kr08 from γ(θ,temp) data.
1973.96 *9*	5/2,7/2		Level from 1976Me06 and 1977Gr21. Jπ: 5/2⁻,7/2⁻ assigned in 1981Kr08 from γ(θ,temp) data.
1975.17 *8*	(9/2)⁺		Level from 1976Me06 and 1977Gr21. Jπ: 9/2⁺ assigned in 1981Kr08 from γ(θ,temp) data.
1979.49 *8*	(7/2⁻)		Level from 1976Me06 and 1977Gr21. Jπ: 7/2⁻ assigned in 1981Kr08 from γ(θ,temp) data.
1995.32 *10*	(9/2⁻)		Jπ: 9/2⁻ assigned in 1981Kr08, while 7/2 is rejected based on δ(Q/D)=0.47 *+5−10* for 1961γ.
1998.42 *6*	(9/2)⁺		Jπ: 9/2⁻ assigned in 1981Kr08 from γ(θ,temp) data.
2012.32 *12*	(7/2,9/2⁻)		Level from 1976Me06 and 1977Gr21. Jπ: 7/2 or 9/2⁻ assigned in 1981Kr08 from γ(θ,temp) data.
2013.04 *13*	(7/2⁻)		Level from 1976Me06 and 1977Gr21. Jπ: 7/2⁻ assigned in 1981Kr08 from γ(θ,temp) data.
2052.79 *11*	9/2⁽⁻⁾		Level from 1976Me06 and 1977Gr21.

Continued on next page (footnotes at end of table)

^{167}Lu ε decay (51.46 min) 1976Me06,1976Gr06,1981Kr08 (continued)

^{167}Yb Levels (continued)

E(level)[†]	Jπ[‡]	Comments
		Jπ: 9/2− assigned in 1981Kr08 from γ(θ,temp) data.
2330.38 *7*	9/2+	Level from 1976Me06 and 1977Gr21. Jπ: 9/2+ assigned in 1981Kr08, while 2204γ(θ) and 2272γ(θ) do not permit 7/2.

[†] From a least-squares fit of Eγ data, including all the doubly-placed γ rays. Reduced χ^2=1.54 is only slightly larger than critical χ^2=1.25, with only five Eγ values somewhat poorly fitted out of a total of 230 γ rays.
[‡] From the Adopted Levels.
[#] Band(A): ν5/2[523].
[@] Band(B): ν5/2[642].
[&] Band(C): ν1/2[521].
[a] Band(D): ν3/2[521].
[b] Band(E): ν11/2[505].

ε,β+ radiations

ε+β+ feedings are from intensity imbalance at each level, with the given normalization factor from 1976Me06. Note that results are in severe disagreement with the measured positron and intensity of the annihilation radiation, the latter in 1976Me06.

1976Me06 quote measured β end-point of 2060 keV, with 0.05% *2*, and a second branch with an end-point energy of 1400 keV *100*, with an an intensity of 0.07% *2* from V.A Ageev et al. Report, 14th Ann. Conf. on nuclear spectroscopy, Tbilisi, 1964. Total value of I(β+)=0.12% *3* is 15 times lower than the measured intensity of annihilation radiation=38 *4*, equivalent to 3.64% *20* or I(β+)=1.82% *10* (1976Me06), with the conclusion by 1976Me06 that discrepancy between the measured intensities of the positrons and that of the annihilation radiation remains. Evaluators find even more discrepant results from the total I(β+) in the present level scheme based on ε/β+ ratios from the LOGFT code.

E(decay)	E(level)	Iβ+ [#]	Iε[#]	Log ft[‡]	I(ε+β+)[†#]	Comments
(7.3×10^2 *4*)	2330.38		4.0 *6*	5.76 *9*		εK=0.8132 *17*; εL=0.1411 *12*; εM+=0.04561 *42*
(1.01×10^3 *4*)	2052.79		2.4 *9*	6.28 *17*		εK=0.8197 *10*; εL=0.1365 *6*; εM+=0.04383 *27*
(1.05×10^3 *4*)	2013.04		2.3 *3*	6.33 *7*	2.3 *3*	εK=0.8203 *9*; εL=0.1360 *6*; εM+=0.04365 *24*
(1.05×10^3 *4*)	2012.32		2.0 *4*	6.39 *10*	2.0 *4*	εK=0.8203 *9*; εL=0.1360 *6*; εM+=0.04365 *24*
(1.06×10^3 *4*)	1998.42	1.8×10^{-8} *18*	5.2 *6*	5.99 *6*	5.2 *6*	av Eβ=17 *28*; εK=0.8205 *9*; εL=0.1359 *6*; εM+=0.04359 *24*
(1.07×10^3 *4*)	1995.32	1.7×10^{-8} *16*	3.0 *4*	6.23 *7*	3.0 *4*	av Eβ=19 *27*; εK=0.8206 *9*; εL=0.1359 *6*; εM+=0.04358 *24*
(1.08×10^3 *4*)	1979.49		3.3 *4*	6.21 *7*	3.3 *4*	εK=0.8208 *9*; εL=0.1357 *6*; εM+=0.04352 *23*
(1.09×10^3 *4*)	1975.17	2.3×10^{-7} *23*	3.9 *5*	6.14 *7*	3.9 *5*	av Eβ=36 *22*; εK=0.8209 *9*; εL=0.1356 *6*; εM+=0.04350 *23*
(1.09×10^3 *4*)	1973.96		3.7 *10*	6.16 *12*	3.7 *10*	εK=0.8209 *9*; εL=0.1356 *6*; εM+=0.04350 *23*
(1.11×10^3 *4*)	1952.66		6.3 *8*	5.95 *7*	6.3 *8*	εK=0.8212 *9*; εL=0.1354 *6*; εM+=0.04341 *23*
(1.11×10^3 *4*)	1951.10		7.0 *7*	5.90 *6*	7.0 *7*	εK=0.8212 *9*; εL=0.1354 *5*; εM+=0.04341 *23*
(1.11×10^3 *4*)	1947.48		7.7 *7*	5.86 *6*	7.7 *7*	εK=0.8212 *9*; εL=0.1354 *5*; εM+=0.04340 *23*
(1.70×10^3 *4*)	1356.32	0.0045 *25*	0.8 *4*	7.24 *22*	0.8 *4*	av Eβ=321 *18*; εK=0.8216 *13*; εL=0.13105 *36*; εM+=0.04179 *16*
(1.75×10^3 *4*)	1305.53	0.012 *4*	1.6 *4*	6.96 *11*	1.6 *4*	av Eβ=342 *18*; εK=0.8204 *15*; εL=0.13063 *37*; εM+=0.04165 *16*
(1.79×10^3 *4*)	1267.24	0.054 *13*	6.1 *6*	6.39 *5*	6.2 *6*	av Eβ=359 *18*; εK=0.8194 *17*; εL=0.13030 *39*; εM+=0.04153 *16*
(2.04×10^3 *4*)	1022.27	0.058 *12*	2.44 *30*	6.91 *6*	2.5 *3*	av Eβ=467 *17*; εK=0.8084 *31*; εL=0.1277 *5*; εM+=0.04065 *18*
(2.27×10^3 *4*)	788.36	0.065 *24*	1.3 *5*	7.27 *16*	1.4 *5*	av Eβ=569 *18*; εK=0.7902 *46*; εL=0.1241 *8*;

Continued on next page (footnotes at end of table)

^{167}Lu ε decay (51.46 min) 1976Me06,1976Gr06,1981Kr08 (continued)

ϵ,β^+ radiations (continued)

E(decay)	E(level)	Iβ^+ #	Iε#	Log *ft*‡	I(ε+β^+)†#	Comments
						εM+=0.03950 *22*
(2.43×10^3 *4*)	628.62	0.07 *4*	0.9 *6*	7.5 *3*	1.0 *6*	av Eβ=639 *18*; εK=0.773 *6*; εL=0.1211 *9*; εM+=0.03851 *25*
(2.49×10^3 *4*)	571.489	0.026 *18*	1.2 *8*	8.76^{1u} *29*	1.2 *8*	av Eβ=673 *17*; εK=0.8046 *22*; εL=0.13163 *46*; εM+=0.04213 *18*
(2.49×10^3 *4*)	569.39	0.053 *16*	0.65 *20*	7.67 *13*	0.7 *2*	av Eβ=665 *18*; εK=0.766 *6*; εL=0.1198 *10*; εM+=0.03811 *27*
(2.51×10^3 *4*)	553.38	0.055 *24*	0.64 *30*	7.67 *19*	0.7 *3*	av Eβ=672 *18*; εK=0.764 *6*; εL=0.1195 *10*; εM+=0.03799 *27*
(2.58×10^3 *4*)	477.43	≈0.21	≈2.1	≈7.2	≈2.3	av Eβ=706 *18*; εK=0.753 *7*; εL=0.1177 *11*; εM+=0.03742 *29*
(2.63×10^3 *4*)	430.87	0.27 *5*	2.4 *4*	7.14 *7*	2.7 *4*	av Eβ=726 *18*; εK=0.747 *7*; εL=0.1166 *11*; εM+=0.03706 *30*
(2.65×10^3 *4*)	410.979	0.32 *9*	2.8 *8*	7.09 *11*	3.1 *8*	av Eβ=735 *18*; εK=0.744 *7*; εL=0.1161 *11*; εM+=0.03690 *30*
(2.75×10^3 *4*)	308.401	0.12 *10*	0.9 *8*	7.6 *+7−3*	1.0 *8*	av Eβ=780 *18*; εK=0.728 *8*; εL=0.1135 *12*; εM+=0.03605 *32*
(2.76×10^3 *4*)	301.48	0.055 *13*	1.34 *30*	8.89^{1u} *10*	1.4 *3*	av Eβ=788 *17*; εK=0.7911 *31*; εL=0.1283 *6*; εM+=0.04102 *19*
(2.78×10^3 *4*)	278.210	0.12 *12*	0.8 *8*	>7.3	0.9 *9*	av Eβ=793 *18*; εK=0.723 *8*; εL=0.1127 *13*; εM+=0.03579 *33*
(2.82×10^3 *4*)	239.163	0.53 *30*	3.4 *22*	7.06 *25*	3.9 *22*	av Eβ=811 *18*; εK=0.716 *8*; εL=0.1116 *13*; εM+=0.03545 *34*
(2.85×10^3 *4*)	213.167	0.27 *13*	1.6 *9*	7.39 *21*	1.9 *9*	av Eβ=822 *18*; εK=0.712 *8*; εL=0.1109 *13*; εM+=0.03521 *34*
(2.88×10^3 *4*)	178.863	0.34 *11*	2.0 *7*	7.32 *13*	2.3 *7*	av Eβ=837 *18*; εK=0.706 *9*; εL=0.1099 *13*; εM+=0.03490 *35*
(2.93×10^3@ *4*)	125.918					Apparent 4.5% *9* ε feeding inconsistent with assigned ΔJ^π.
(2.98×10^3 *4*)	78.679	0.70 *41*	3.4 *24*	7.11 *25*	4.1 *24*	av Eβ=882 *18*; εK=0.688 *9*; εL=0.1069 *14*; εM+=0.03395 *37*
(3.00×10^3 *4*)	58.539	0.9 *7*	4.1 *39*	7.0 *+7−3*	5 *4*	av Eβ=891 *18*; εK=0.684 *9*; εL=0.1063 *14*; εM+=0.03377 *37*
(3.03×10^3 *4*)	33.916	0.9 *9*	4.1 *41*	>6.6	5 *5*	av Eβ=902 *18*; εK=0.679 *9*; εL=0.1056 *15*; εM+=0.03352 *37*
(3.03×10^3 *4*)	29.656	0.9 *9*	4.1 *41*	>6.6	5 *5*	av Eβ=903 *18*; εK=0.679 *9*; εL=0.1054 *15*; εM+=0.03348 *37*
(3.06×10^3@ *4*)	0.0					

† From transition intensity balances, unless otherwise noted. All feedings should be treated as approximate as there are many unsettled issues about the decay scheme.
‡ All values should be treated as approximate due to incomplete decay scheme.
# Absolute intensity per 100 decays.
@ Existence of this branch is questionable.

γ(^{167}Yb)

Iγ normalization: A value of 0.043 *4* follows from Iγ(239.2γ)=8.6% *6* (1976Me06), deduced by authors from measured ratio: Iγ(239.22γ from ^{167}Lu decay)/Iγ(176.2γ from ^{167}Yb decay) for an equilibrium decay of ^{167}Lu → ^{167}Yb → ^{167}Tm. Summed transition intensity equated to 100, with assumed no $\varepsilon+\beta^+$ feeding to the ground state of ^{167}Yb gives γ-normalization factor of 0.0388 *18*, in agreement with the adopted value of 0.0434 *38*, but it should be noted that many γ rays remain unplaced in the decay scheme.

All the A_2 values are from $\gamma(\theta$,temp), nuclear orientation data in 1981Kr08. All the α(K)exp values are deduced by evaluators from Ice(K) data in 1975VyZY and Iγ in this dataset, both the intensities are normalized to the same scale.

For detailed $\gamma\gamma$-coin data, see Table 2 in 1976Me06 and also Table 2 in 1975VyZY.

E_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ[@]	α[g]	$I_{(\gamma+ce)}$[f]	Comments
(4.251)	33.916	7/2$^+$	29.656	5/2$^+$				6.9×10^2 *12*	E_γ: from energy difference between 29.7 and 33.9 levels. Transition unobserved, but existence confirmed in $\gamma\gamma$-coin (1976Me06). $I_{(\gamma+ce)}$: ≥568 *81* and ≤813 *102* based on I(γ+ce) balance at 34 and 30 levels, respectively.
19.4[d] *1*	258.525	3/2$^-$	239.163	(5/2)$^-$	[M1,E2]		3.3×10^3 *32*	≈30[a]	ce(L)/(γ+ce)=0.8 *5*; ce(M)/(γ+ce)=0.19 *23* ce(N)/(γ+ce)=0.04 *6*; ce(O)/(γ+ce)=0.005 *7*; ce(P)/(γ+ce)=5.E−6 *5* α(L)=2.5×10^3 *25*; α(M)=6×10^2 *6* α(N)=1.4×10^2 *14*; α(O)=15 *15*; α(P)=0.017 *4* L1:L2=≈14.0:≤5.0 (1975VyZY).
19.68[c] *2*	278.210	5/2$^-$	258.525	3/2$^-$	[M1,E2]		3.0×10^3 *30*	20 *18*	ce(L)/(γ+ce)=0.8 *5*; ce(M)/(γ+ce)=0.19 *23* ce(N)/(γ+ce)=0.04 *6*; ce(O)/(γ+ce)=0.005 *7*; ce(P)/(γ+ce)=5.E−6 *5* α(L)=2.3×10^3 *23*; α(M)=6×10^2 *6* α(N)=1.3×10^2 *13*; α(O)=14 *14*; α(P)=0.016 *4* Eγ=19.68 *2* (1975VyZY). Ice(M1)=0.23 (1971Ab04). Iγ<4, scaled to <9 (1976Me06). $I_{(\gamma+ce)}$: >2 from Ice(L1)≈1.5 (1975VyZY), ≤37 from intensity balance at 259 level.
20.19[d] *3*	78.679	7/2$^-$	58.539	9/2$^+$	E1		4.99 *7*	≈10[a]	α(L)=3.88 *6*; α(M)=0.896 *13* α(N)=0.1976 *29*; α(O)=0.02086 *30*; α(P)=0.000485 *7* ce(L)/(γ+ce)=0.647 *6*; ce(M)/(γ+ce)=0.1495 *26* ce(N)/(γ+ce)=0.0330 *6*; ce(O)/(γ+ce)=0.00348 *7*; ce(P)/(γ+ce)=8.09×10^{-5} *15* L1:L2:L3=3.9:≈2.6:<2.6 (1975VyZY).
21.16[d] *3*	440.676	7/2$^-$	419.540	(9/2)$^-$	M1+E2	0.10 *2*	94 *18*	≈12	ce(L)/(γ+ce)=0.77 *10*; ce(M)/(γ+ce)=0.18 *4* ce(N)/(γ+ce)=0.041 *11*; ce(O)/(γ+ce)=0.0053 *13*; ce(P)/(γ+ce)=0.000172 *32*

γ(^{167}Yb) (continued)

E_γ[†]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	δ[@]	α[g]	$I_{(\gamma+ce)}$[f]	Comments
									α(L)=73 *14*; α(M)=16.9 *33* α(N)=3.9 *8*; α(O)=0.50 *8*; α(P)=0.01640 *24* $I_{(\gamma+ce)}$: Ice(L1+L2)=6.7 and adopted mult; Iγ≈0.12 from I(γ+ce). L1:L2:L3=4.6:2.1:<2.0 (1975VyZY).
24.63[c] *1*	58.539	9/2⁺	33.916	7/2⁺	M1+E2	0.150 *10*	77 *6*	385[a]	ce(L)/(γ+ce)=0.76 *4*; ce(M)/(γ+ce)=0.179 *18* ce(N)/(γ+ce)=0.041 *4*; ce(O)/(γ+ce)=0.0051 *5*; ce(P)/(γ+ce)=0.000134 *10* α(L)=59 *4*; α(M)=13.9 *11* α(N)=3.19 *25*; α(O)=0.399 *28*; α(P)=0.01035 *15* Eγ=24.63 *1* (1975VyZY). Iγ<1.6, scaled to <3.5 (1976Me06). L1:L2:L3=111:90:103 (1975VyZY). L1:L2:L3=1.00:0.70 *3*:0.78 *4* (1987BaZB). L1:L2:L3:M2:M3:N=2.3:1.5:1.5:0.57:0.57:0.52 (1971Ab04). Iγ in 1976Me06 implies α(L)exp>87. δ: from L-subshell ratios (1987BaZB). Other: 0.157 *+19−22* (1975VyZY, L-subshell ratios).
25.98[d] *2*	239.163	(5/2)⁻	213.167	(5/2)⁻	M1+E2	0.190 *+32−23*	81 *18*	16[a]	ce(L)/(γ+ce)=0.76 *12*; ce(M)/(γ+ce)=0.18 *5* ce(N)/(γ+ce)=0.041 *13*; ce(O)/(γ+ce)=0.0051 *15*; ce(P)/(γ+ce)=0.000107 *24* α(L)=62 *14*; α(M)=14.7 *34* α(N)=3.4 *8*; α(O)=0.41 *9*; α(P)=0.00875 *14* L1:L2:L3=6:5.4:≈3 (1975VyZY).
[x]26.23[c] *1*					M1+E2	0.078 *+12−15*	36.7 *30*	52[a]	α(L)exp>5.3 ce(N)/(γ+ce)=0.040 *5*; ce(O)/(γ+ce)=0.0054 *6*; ce(P)/(γ+ce)=0.000230 *19* α(L)=28.5 *23*; α(M)=6.5 *6* α(N)=1.51 *13*; α(O)=0.205 *14*; α(P)=0.00868 *12* ce(L)/(γ+ce)=0.75 *4*; ce(M)/(γ+ce)=0.173 *18* Eγ=26.23 *1*, Iγ<8 (1975VyZY). Iγ<1.2 (1976Me06). L1:L2:L3=31:7.7:3.8 (1975VyZY). L1:L2:L3:M1=0.91:0.19:0.09:0.23 (1971Ab04).
28.88[c] *1*	58.539	9/2⁺	29.656	5/2⁺	E2		893 *13*	85[a]	α(L)=684 *10*; α(M)=167.1 *24* α(N)=37.9 *5*; α(O)=4.25 *6*; α(P)=0.001646 *23* ce(L)/(γ+ce)=0.765 *7*; ce(M)/(γ+ce)=0.1870 *34* ce(N)/(γ+ce)=0.0424 *8*; ce(O)/(γ+ce)=0.00475 *9*; ce(P)/(γ+ce)=1.84×10^{-6} *4* Eγ=28.88 *1* (1975VyZY).

From ENSDF

$^{167}_{70}Yb_{97}$-6

γ(^{167}Yb) (continued)

Eγ[†]	Iγ[‡f]	Ei(level)	J^π_i	E_f	J^π_f	Mult.[#]	δ[@]	α[g]	$I_{(\gamma+ce)}$[f]	Comments
										Iγ<20, scaled to <44 (1976Me06). L1:L2:L3=0.5:34:34 (1975VyZY). L1:L2:L3:M2=LT 0.12:1.15:1.37:0.46 (1971Ab04).
29.66[c] *1*	420 *36*	29.656	5/2$^+$	0.0	5/2$^-$	E1		1.737 *24*		%Iγ=18.2 *23* α(L)exp=0.8 α(L)=1.352 *19*; α(M)=0.308 *4* α(N)=0.0690 *10*; α(O)=0.00788 *11*; α(P)=0.0002134 *30* Eγ=29.66 *1*, Iγ=420 *36* (1975VyZY). Iγ=170 *20*, scaled to 374 *44* (1976Me06). L1:L2:L3=1.00:0.71 *5*:1.02 *6* (1987BaZB). L1:L2:L3=124:93:129 (1975VyZY). L1:L2:L3:M1:M2:M3:N=5.25:3.52:4.40:1.55:0.97:1.37:0.91 (1971Ab04).
^{x}33.50[d] *3*	[d]					M1+E2	0.25 *+12−11*	38 *26*	15[a]	ce(L)/(γ+ce)=0.75 *34*; ce(M)/(γ+ce)=0.18 *15* ce(N)/(γ+ce)=0.04 *4*; ce(O)/(γ+ce)=0.005 *4*; ce(P)/(γ+ce)=1.0×10^{-4} *7* α(L)=29 *20*; α(M)=7 *5* α(N)=1.6 *11*; α(O)=0.20 *12*; α(P)=0.00402 *22* L1:L2:L3=3.1:6.5:2.6 (1975VyZY).
33.91[c] *1*	81 *8*	33.916	7/2$^+$	0.0	5/2$^-$	E1		1.200 *17*		%Iγ=3.5 *5* α(L)exp=1.25 α(L)=0.934 *13*; α(M)=0.2122 *30* α(N)=0.0477 *7*; α(O)=0.00557 *8*; α(P)=0.0001588 *22* Eγ=33.91 *1*, Iγ=81 *8* (1975VyZY). Iγ=35 *4* (1976Me06). L1:L2:L3=1.00:0.69 *3*:1.01 *5* (1987BaZB). L1:L2:L3=36:26:39 (1975VyZY). L1:L2:L3:M1:M2:M3:N=1.65:1.03:1.82:0.38:0.21:0.34:0.21 (1971Ab04).
36.79[d] *3*	≈0.23[d]	477.43	9/2$^-$	440.676	7/2$^-$	M1+E2	0.10 *+4−6*	12.9 *24*	≈3.2	%Iγ≈0.010 α(L)exp≥2 α(L)=10.0 *19*; α(M)=2.3 *5* α(N)=0.53 *10*; α(O)=0.073 *12*; α(P)=0.00318 *5* $I_{(\gamma+ce)}$: from Ice(L1)=1.8 and adopted mult. I_γ: ≈0.23 from I(γ+ce), adopted mult and δ. Other: ≤1.3 (1975VyZY). L1:L2:L3=1.8:≈0.4:≈0.4 (1975VyZY).
^{x}37.70[d] *3*	≤0.8[d]					E2		238.8 *35*		%Iγ≤0.035 α(L)exp≥34 α(L)=182.6 *27*; α(M)=44.9 *7* α(N)=10.19 *15*; α(O)=1.144 *17*; α(P)=0.000493 *7* L1:L2:L3=<0.8:13:13 (1975VyZY).

$^{167}_{70}$Yb$_{97}$-7

γ(^{167}Yb) (continued)

Eγ[†]	Iγ[‡f]	Ei(level)	J^π_i	Ef	J^π_f	Mult.[#]	δ[@]	α[g]	I(γ+ce)[f]	Comments
39.33[d] 4	[d]	317.488	(7/2)⁻	278.210	5/2⁻	[M1,E2]		1.0×10^2 9	≈2[a]	ce(L)/(γ+ce)=0.8 5; ce(M)/(γ+ce)=0.19 22 ce(N)/(γ+ce)=0.04 5; ce(O)/(γ+ce)=0.005 6; ce(P)/(γ+ce)=1.5×10^{-5} 17 α(L)=8.E1 7; α(M)=19 17 α(N)=4 4; α(O)=0.5 4; α(P)=0.0015 11 I$_{(γ+ce)}$,Mult.: Ice(L1)=1.5, Iγ≤0.8 (1975VyZY), so α(L1)exp≥1.9, consistent with M1(+E2), with E1 ruled out. I(γ+ce)<3 if M1, ≈440 if E2.
44.77[c] 2	29 7	78.679	7/2⁻	33.916	7/2⁺	E1		0.556 8		%Iγ=1.3 3 α(L)exp=0.47 α(L)=0.433 6; α(M)=0.0978 14 α(N)=0.02215 31; α(O)=0.00269 4; α(P)=8.47×10^{-5} 12 Eγ=44.77 2, Iγ<80 (1975VyZY). Iγ=13 3, scaled to 29 7 (1976Me06). I$_γ$: from 1976Me06. L1:L2:L3=7.7:3.1:4.6 (1975VyZY).
45.35[d] 10		258.525	3/2⁻	213.167	(5/2)⁻	[M1]		5.58 9	≈15[a]	L1:L2=10:1.6 (1975VyZY) α(L)=4.34 7; α(M)=0.973 15 α(N)=0.2284 35; α(O)=0.0326 5; α(P)=0.001729 27 ce(L)/(γ+ce)=0.660 6; ce(M)/(γ+ce)=0.1479 27 ce(N)/(γ+ce)=0.0347 7; ce(O)/(γ+ce)=0.00495 10; ce(P)/(γ+ce)=0.000263 5 L1/L2 consistent with M1, not with E1 or E2.
49.02[c] 2		78.679	7/2⁻	29.656	5/2⁺	E1		0.432 6	13[a]	α(L)=0.337 5; α(M)=0.0759 11 α(N)=0.01724 24; α(O)=0.002119 30; α(P)=6.87×10^{-5} 10 ce(L)/(γ+ce)=0.2351 26; ce(M)/(γ+ce)=0.0530 7 ce(N)/(γ+ce)=0.01204 17; ce(O)/(γ+ce)=0.001480 22; ce(P)/(γ+ce)=4.80×10^{-5} 7 Eγ=49.02 2 (1975VyZY). L1:L2:L3=4.6:2.6:3.1 (1975VyZY).
57.60[ci] 2		477.43	9/2⁻	419.540	(9/2)⁻	[M1,E2]		16 14	≈23	α(L)=13 10; α(M)=3.1 26 α(N)=0.7 6; α(O)=0.08 6; α(P)=5.E−4 4 Eγ=57.60 2 (1975VyZY). I$_{(γ+ce)}$: from Ice(L)≈18 and assumed mult. L1:L2:L3=9.0:≤4:≈7 (1975VyZY). 1975VyZY suggest mult=(E1) is inconsistent with this placement; note also that Eγ fits poorly, with level-energy difference=57.89. Evaluators show tentative placement.
[x]57.78[d] 2	[d]					M1+E2	0.32 +14−8	5.2 22	28[a]	ce(L)/(γ+ce)=0.65 18; ce(M)/(γ+ce)=0.15 8

From ENSDF

γ(^{167}Yb) (continued)

E_γ[†]	I_γ[‡f]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ[@]	α[g]	$I_{(\gamma+ce)}$[f]	Comments
										ce(N)/(γ+ce)=0.035 *19*; ce(O)/(γ+ce)=0.0045 *23*; ce(P)/(γ+ce)=1.3×10^{-4} *5* α(L)=4.0 *17*; α(M)=1.0 *4* α(N)=0.22 *9*; α(O)=0.028 *10*; α(P)=0.00078 *6* L1:L2:L3=9.3:8.2:3.9 (1975VyZY).
59.40[c] *2*		239.163	(5/2)$^-$	179.750	(3/2$^-$)	(M1)		2.525 *35*	3.8[a]	ce(L)/(γ+ce)=0.558 *5*; ce(M)/(γ+ce)=0.1249 *20* ce(N)/(γ+ce)=0.0293 *5*; ce(O)/(γ+ce)=0.00419 *7*; ce(P)/(γ+ce)=0.000222 *4* α(L)=1.966 *28*; α(M)=0.440 *6* α(N)=0.1034 *15*; α(O)=0.01475 *21*; α(P)=0.000783 *11* Placement from 1976Me06. Eγ=59.40 *2* (1975VyZY). L1:L2=2.0:≤0.4 (1975VyZY).
(60.1 *2*)		185.94	13/2$^+$	125.918	11/2$^+$	[M1]		2.44 *4*		α(L)=1.899 *32*; α(M)=0.425 *7* α(N)=0.0999 *17*; α(O)=0.01426 *24*; α(P)=0.000757 *13* E$_\gamma$: from the Adopted Gammas. This γ reported in all the three in-beam γ-ray reaction studies. I$_\gamma$: from (^{17}O,4nγ),(^{18}O,5nγ) (1982Ro08), expected Iγ=8.7 *12* if M1, but no such transition has been reported in ε decay.
[x]60.98[d] *2*	[d]					(E2)		22.81 *32*	0.3[a]	ce(L)/(γ+ce)=0.732 *7*; ce(M)/(γ+ce)=0.1806 *32* ce(N)/(γ+ce)=0.0411 *8*; ce(O)/(γ+ce)=0.00465 *9*; ce(P)/(γ+ce)=5.35×10^{-6} *10* α(L)=17.42 *25*; α(M)=4.30 *6* α(N)=0.979 *14*; α(O)=0.1107 *16*; α(P)=0.0001274 *18* L1:L2:L3=≤0.02:0.12:0.12 (1975VyZY).
67.37[c] *2*	11.9 *14*	125.918	11/2$^+$	58.539	9/2$^+$	M1+E2	0.30 +*8*−*10*	10.95 *28*		%Iγ=0.52 *8* α(L)exp=2.6 α(K)=8.18 *33*; α(L)=2.1 *4*; α(M)=0.50 *10* α(N)=0.116 *24*; α(O)=0.0150 *26*; α(P)=0.000506 *21* Eγ=67.37 *2*, Iγ=11.9 *14* (1975VyZY). Iγ=6 *1* (1976Me06). L1:L2:L3=17:5.9:8.5 (1975VyZY). L1:L2:L3:M1:M2:M3=0.63:0.23:0.27:0.17:0.068:0.12 (1971Ab04).
69.83[c] *2*	≤0.8	258.525	3/2$^-$	188.704	1/2$^-$	M1+E2	1.9 +*6*−*3*	12.7 *4*		%Iγ<0.035 α(L)exp≥19 α(K)=3.0 *5*; α(L)=7.4 *6*; α(M)=1.82 *16* α(N)=0.41 *4*; α(O)=0.047 *4*; α(P)=0.000181 *31*

γ(^{167}Yb) (continued)

E_γ [†]	I_γ [‡f]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [#]	δ [@]	α [g]	Comments
									Eγ=69.83 *2*, Iγ≤0.8 (1975VyZY). Iγ<2, scaled to <4.4 (1976Me06). L1:L2:L3=0.77:7.7:6.5 (1975VyZY). L1:L2:L3:M2=<0.057:0.21:<0.12:0.057 (1971Ab04).
78.33[c] *2*	13 *4*	317.488	(7/2)$^-$	239.163	(5/2)$^-$	M1+E2	0.15	6.86 *10*	%Iγ=0.57 *18* α(K)exp=7 *3* α(K)=5.60 *8*; α(L)=0.973 *14*; α(M)=0.2206 *31* α(N)=0.0516 *7*; α(O)=0.00718 *10*; α(P)=0.000344 *5* Eγ=78.33 *2*, Iγ=52.5 *25* for 78.33γ+78.67γ (1975VyZY). Iγ=6 *2*, scaled to 13 *4* (1976Me06). I_γ: from 1976Me06. K:L1:L2:L3=88 *25*:26:4.3:2.1 (1975VyZY). K:L1:L2:L3:M1:M2=5.25:0.63:0.12:<0.06:0.12:<0.02 (1971Ab04).
78.67[c] *2*	35 *4*	78.679	7/2$^-$	0.0	5/2$^-$	E2(+M1)	≥4.6	8.25 *12*	%Iγ=1.52 *22* α(K)exp=1.9 *6* α(K)=1.64 *9*; α(L)=5.05 *12*; α(M)=1.247 *30* α(N)=0.284 *7*; α(O)=0.0324 *8*; α(P)=8.0×10^{-5} *6* Eγ=78.67 *2*, Iγ=52.5 *25* for 78.33γ + 78.67γ (1975VyZY). Iγ=16 *2*, scaled to 35 *4* (1976Me06). I_γ: from 1976Me06. K:L1:L2:L3=65 *18*:8.8:129:129 (1975VyZY).
89.49[c] *2*	3 *1*	278.210	5/2$^-$	188.704	1/2$^-$	E2		4.94 *7*	%Iγ=0.13 *5* α(K)exp=1.4 *6* α(K)=1.271 *18*; α(L)=2.80 *4*; α(M)=0.692 *10* α(N)=0.1578 *22*; α(O)=0.01805 *25*; α(P)=5.57×10^{-5} *8* Eγ=89.49 *2*, Iγ=3 *1* (1975VyZY). Iγ=1.0 *3* (1976Me06). K:L1:L2:L3=4.1 *10*:≈0.26:3.1:2.6 (1975VyZY). K:L1:L2:L3:M2:M3:N=0.25:≈0.02:0.17:0.17:≈0.03:≈0.03 (1971Ab04).
92.05[d] *7*	5.0[d] *15*	125.918	11/2$^+$	33.916	7/2$^+$	[E2]		4.43 *6*	%Iγ=0.22 *7* α(K)=1.206 *17*; α(L)=2.46 *4*; α(M)=0.606 *9* α(N)=0.1383 *20*; α(O)=0.01583 *23*; α(P)=5.23×10^{-5} *7*
95.27[c] *2*	6.2 *12*	308.401	(7/2)$^-$	213.167	(5/2)$^-$	M1+E2	0.16	3.88 *5*	%Iγ=0.27 *6* α(K)exp=6.1 *20* α(K)=3.19 *4*; α(L)=0.537 *8*; α(M)=0.1214 *17* α(N)=0.0284 *4*; α(O)=0.00398 *6*; α(P)=0.0001948 *27* Eγ=95.27 *2*, Iγ=6.2 *12* (1975VyZY). Iγ=3.0 *6* (1976Me06). K:L1:L2:L3=38 *10*:3.4:0.52:0.13 (1975VyZY). K:L1:L2=1.25:0.13:<0.02 (1971Ab04).

γ(^{167}Yb) (continued)

Eγ[†]	Iγ[‡f]	Ei(level)	J^{π}_i	Ef	J^{π}_f	Mult.[#]	δ[@]	α[g]	I(γ+ce)[f]	Comments
100.22[c] *2*	8.4 *12*	178.863	9/2⁻	78.679	7/2⁻	M1+E2	4.9 +*21*−*9*	3.19 *4*		%Iγ=0.37 *6* α(K)exp=1.2 *4* α(K)=1.09 *4*; α(L)=1.607 *33*; α(M)=0.396 *8* α(N)=0.0903 *19*; α(O)=0.01040 *21*; α(P)=4.82×10^{-5} *27* Eγ=100.22 *2*, Iγ=8.4 *12* (1975VyZY). Iγ=4.8 *16* (1976Me06). K:L1:L2:L3=10 *3*:1.0:9.0:7.7 (1975VyZY). L1:L2:L3:M2:M3=0.05:0.32:0.30:0.08:0.08 (1971Ab04).
[x]100.70[d] *3*	2.8[d] *9*					(M1)		3.31 *5*		%Iγ=0.12 *4* α(K)exp=3.6 *16* α(K)=2.77 *4*; α(L)=0.423 *6*; α(M)=0.0948 *13* α(N)=0.02226 *31*; α(O)=0.00318 *4*; α(P)=0.0001692 *24* Ice(K)=10 *3* (1975VyZY). K:L1=10 *3*:1.0 (1975VyZY).
102.08[c] *2*	11.0 *22*	419.540	(9/2)⁻	317.488	(7/2)⁻	M1+E2	0.17 +*5*−*6*	3.18 *4*		%Iγ=0.48 *11* α(K)exp=2.5 *8* α(K)=2.61 *5*; α(L)=0.438 *21*; α(M)=0.099 *5* α(N)=0.0232 *12*; α(O)=0.00325 *13*; α(P)=0.0001593 *31* Eγ=102.08 *2*, Iγ=16.5 *30* for 102.08γ+102.56γ (1975VyZY). Iγ=5.0 *10* (1976Me06). $I_γ$: from 1976Me06. K:L1:L2=28 *7*:5.2:0.77 (1975VyZY). K:L1:L2:M1=1.37:0.17:<0.02:0.05 (1971Ab04).
102.56[c] *2*	6.6 *15*	410.979	7/2⁻	308.401	(7/2)⁻	M1+E2	0.22 *5*	3.13 *4*		%Iγ=0.29 *7* α(K)exp=3.6 *13* α(K)=2.55 *5*; α(L)=0.452 *25*; α(M)=0.103 *6* α(N)=0.0240 *14*; α(O)=0.00332 *15*; α(P)=0.0001550 *34* Eγ=102.56 *2*, Iγ=16.5 *30* for 102.56γ+102.08γ (1975VyZY). Iγ=2.0 *7*, scaled to 6.6 *15* (1976Me06). $I_γ$: from 1976Me06. K:L1:L2=24 *7*:4.1:0.77 (1975VyZY). K:L1:L2:L3:M1=1.25:0.14:0.02:0.011:0.34 (1971Ab04).
111.10[d] *5*	<2[d]	419.540	(9/2)⁻	308.401	(7/2)⁻	[M1,E2]		2.32 *18*	<7	%Iγ<0.087 α(K)exp>0.7

$^{167}_{70}$Yb$_{97}$-11

γ(^{167}Yb) (continued)

E_γ[†]	I_γ[‡f]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	δ[@]	α[g]	$I_{(\gamma+ce)}$[f]	Comments
										ce(K)/(γ+ce)=0.43 *12*; ce(L)/(γ+ce)=0.20 *9*; ce(M)/(γ+ce)=0.049 *26* ce(N)/(γ+ce)=0.011 *6*; ce(O)/(γ+ce)=0.0014 *6*; ce(P)/(γ+ce)=2.4×10^{-5} *14* α(K)=1.4 *6*; α(L)=0.7 *4*; α(M)=0.16 *9* α(N)=0.037 *21*; α(O)=0.0045 *21*; α(P)=8.E−5 *5* $I_{(\gamma+ce)}$: based on Ice(K)=1.8 *4* (1975VyZY). Ice(K)=5.0 *11* if E2, 2.2 *5* if M1 (Rosel α(K)). Mult.: α(K)exp rules out E1.
120.31[c] *3*	24.7 *14*	178.863	9/2$^-$	58.539	9/2$^+$	E1		0.2101 *29*		%Iγ=1.07 *11* α(K)exp=0.13 *3*; α(K)exp=0.23 *7* α(K)=0.1743 *24*; α(L)=0.0279 *4*; α(M)=0.00624 *9* α(N)=0.001439 *20*; α(O)=0.0001913 *27*; α(P)=7.89×10^{-6} *11* Eγ=120.31 *3*, Iγ=24.7 *14* (1975VyZY). Iγ=6.0 *10*, scaled to 13.2 *22* (1976Me06). K:L1:L2:L3=3.1 *7*:0.5:≤0.13:≤0.10 (1975VyZY). First α(K)exp from Iγ in 1975VyZY, second in 1976Me06.
122.63[d] *4*	<2.6[d]	301.48	11/2$^-$	178.863	9/2$^-$	(M1,E2)		1.69 *20*	≈7.0[a]	α(K)=1.1 *5*; α(L)=0.45 *21*; α(M)=0.11 *5* α(N)=0.025 *12*; α(O)=0.0030 *12*; α(P)=6.1×10^{-5} *35* %Iγ<0.113 $I_{(\gamma+ce)}$: Iγ<2.6, Ice(K)=1.0 *3* (1975VyZY), so α(K)exp>0.26, favoring M1,E2 multipolarity.
123.19[c] *3*	13.1 *13*	440.676	7/2$^-$	317.488	(7/2)$^-$	M1+E2	0.7[&] *5*	1.73 *12*		%Iγ=0.57 *8* α(K)exp=1.1 *3* α(K)=1.25 *27*; α(L)=0.37 *12*; α(M)=0.088 *31* α(N)=0.020 *7*; α(O)=0.0026 *7*; α(P)=7.2×10^{-5} *20* Eγ=123.19 *3*, Iγ=13.1 *13* (1975VyZY). Iγ=7.0 *10* (1976Me06). K:L1:L2=15 *4*:2.6:≤0.26 (1975VyZY). K:L1:L2:L3=0.57:0.1:≈0.021:0.008 (1971Ab04).
127.40 *7*	10.0 *11*	185.94	13/2$^+$	58.539	9/2$^+$	(E2)		1.296 *18*		α(K)=0.570 *8*; α(L)=0.555 *8*; α(M)=0.1362 *19* α(N)=0.0311 *4*; α(O)=0.00362 *5*; α(P)=2.431×10^{-5} *34* %Iγ=0.43 *6* E_γ: weighted average of the two values. Eγ=127.42 *7*, Iγ=10.0 *11* (1975VyZY). Iγ=4.0 *15* (1976Me06, unplaced). Mult.: from the Adopted Gammas.
132.28[d] *4*		440.676	7/2$^-$	308.401	(7/2)$^-$	[M1,E2]		1.32 *20*	≈3.0	ce(K)/(γ+ce)=0.38 *10*; ce(L)/(γ+ce)=0.14 *5*; ce(M)/(γ+ce)=0.034 *15*

$^{167}_{70}$Yb$_{97}$-12

γ(^{167}Yb) (continued)

Eγ[†]	Iγ[‡f]	Ei(level)	J^π_i	Ef	J^π_f	Mult.[#]	δ[@]	α[g]	Comments
									ce(N)/(γ+ce)=0.0078 *35*; ce(O)/(γ+ce)=1.0×10^{-3} *4*; ce(P)/(γ+ce)=2.1×10^{-5} *12* α(K)=0.9 *4*; α(L)=0.33 *14*; α(M)=0.08 *4* α(N)=0.018 *8*; α(O)=0.0023 *8*; α(P)=5.0×10^{-5} *28* $I_{(\gamma+ce)}$: based on Ice(K)=1.0 *3* (1975VyZY) assuming mult=M1,E2.
133.84 *3*	10.5 *15*	553.38	9/2$^-$	419.540	(9/2)$^-$	M1(+E2)	<0.09[&]	1.468 *21*	%Iγ=0.46 *8* α(K)exp=0.86 *23* α(K)=1.226 *17*; α(L)=0.1883 *28*; α(M)=0.0422 *7* α(N)=0.00991 *15*; α(O)=0.001413 *21*; α(P)=7.47×10^{-5} *11* Eγ=133.84 *3*, Iγ=10.5 *15* (1975VyZY). Iγ=5.0 *5* (1976Me06). K:L2:L3=9 2:≈0.08: <0.08 (1975VyZY).
138.7 *2*	4.4 *15*	317.488	(7/2)$^-$	178.863	9/2$^-$	[M1,E2]		1.14 *19*	%Iγ=0.19 *7* α(K)=0.78 *33*; α(L)=0.27 *11*; α(M)=0.065 *28* α(N)=0.015 *6*; α(O)=0.0019 *6*; α(P)=4.4×10^{-5} *24* Placement from 1976Me06. Eγ=138.7 *2*, Iγ≈5 (1975VyZY). Iγ=2.0 *7*, scaled to 4.4 *15* (1976Me06). I_γ: from 1976Me06.
[x]139.68 *3*	≈2.3					(M1)		1.302 *18*	α(K)exp≈0.9 α(K)=1.089 *15*; α(L)=0.1658 *23*; α(M)=0.0371 *5* α(N)=0.00872 *12*; α(O)=0.001246 *17*; α(P)=6.64×10^{-5} *9* %Iγ≈0.0999 Eγ=139.68 *3*, Iγ≈2.3, Ice(K)=2.0 *4* (1975VyZY). Iγ<1 (1976Me06).
144.97[c] *3*	43 *2*	178.863	9/2$^-$	33.916	7/2$^+$	E1		0.1285 *18*	%Iγ=1.87 *19* α(K)exp=0.084 *19* α(K)=0.1070 *15*; α(L)=0.01674 *23*; α(M)=0.00374 *5* α(N)=0.000865 *12*; α(O)=0.0001162 *16*; α(P)=4.98×10^{-6} *7* Eγ=144.97 *3*, Iγ=43 *2* (1975VyZY). Iγ=24 *2* (1976Me06). K:L1:L2=3.6 *8*:0.26:<0.13 (1975VyZY).
151.96 *2*	5.8 *17*	571.489	(11/2)$^-$	419.540	(9/2)$^-$	M1(+E2)	<1.6[&]	0.90 *12*	%Iγ=0.25 *8* α(K)exp=0.67 *24* α(K)=0.68 *18*; α(L)=0.18 *4*; α(M)=0.041 *12* α(N)=0.0095 *27*; α(O)=0.00123 *25*; α(P)=3.9×10^{-5} *13* Eγ=151.96 *2*, Iγ=5.8 *17* (1975VyZY). Iγ=2.4 *2*, scaled to 5.3 *4* (1976Me06). K:L1=3.9 *8*:0.54 (1975VyZY). K:L1:L3=0.14:0.02:0.006 (1971Ab04).

$^{167}_{70}Yb_{97}$-13

γ(^{167}Yb) (continued)

E_γ[†]	I_γ[‡f]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	α[g]	Comments
[x]158.15[d] *2*	≈0.8[d]					(M1)	0.917 *13*	%Iγ≈0.035 α(K)exp≈0.6 α(K)=0.767 *11*; α(L)=0.1166 *16*; α(M)=0.0261 *4* α(N)=0.00613 *9*; α(O)=0.000877 *12*; α(P)=4.67×10^{-5} *7* Ice(K)=0.5 *1* (1975VyZY).
160.49[hc] *2*	7.3[h] *16*	239.163	(5/2)$^-$	78.679	7/2$^-$	(M1,E2)	0.72 *16*	%Iγ=0.32 *8* α(K)exp=0.49 *16* α(K)=0.52 *21*; α(L)=0.16 *4*; α(M)=0.037 *12* α(N)=0.0086 *27*; α(O)=0.00108 *24*; α(P)=2.9×10^{-5} *16* Eγ=160.49 *2*, Iγ=7.3 *16*, Ice(K)=3.6 *8* (1975VyZY). Iγ=2.7 *2*, scaled to 5.9 *4* (1976Me06). Mult.: E2(+M1) for doubly placed γ.
160.49[h] *2*	7.3[h] *16*	571.489	(11/2)$^-$	410.979	7/2$^-$	[E2]	0.569 *8*	α(K)=0.306 *4*; α(L)=0.2010 *28*; α(M)=0.0490 *7* α(N)=0.01122 *16*; α(O)=0.001327 *19*; α(P)=1.362×10^{-5} *19* %Iγ=0.32 *8* Mult.: ΔJ=2 from level scheme.
162.42[c] *4*	1.0 *3*	440.676	7/2$^-$	278.210	5/2$^-$	M1	0.851 *12*	%Iγ=0.043 *14* α(K)exp=1.3 *5* α(K)=0.712 *10*; α(L)=0.1082 *15*; α(M)=0.02421 *34* α(N)=0.00569 *8*; α(O)=0.000813 *11*; α(P)=4.34×10^{-5} *6* Eγ=162.42 *4*, Iγ=1.0 *3* (1975VyZY). Iγ<1 (1976Me06). K:L2:L3=1.3 *3*:0.08:≤0.08 (1975VyZY).
[x]169.25[e] *25*	4.4[e] *11*							%Iγ=0.19 *5* Iγ=2.0 *5* (1976Me06).
178.87[c] *4*	64 *7*	178.863	9/2$^-$	0.0	5/2$^-$	E2	0.391 *5*	%Iγ=2.8 *4* α(K)exp=0.18 *4* α(K)=0.2263 *32*; α(L)=0.1265 *18*; α(M)=0.0307 *4* α(N)=0.00705 *10*; α(O)=0.000841 *12*; α(P)=1.031×10^{-5} *14* I_γ: from 1976Me06. Eγ=178.87 *4*, Iγ=59.0 *36* for 178.87γ+179.69γ (1975VyZY). Iγ=29 *3*, scaled to 64 *7* (1976Me06). K:L1:L2:L3=11.3 *20*:1.0:1.65:1.78 (1975VyZY). K:L1:L2:L3=0.43:≈0.05:0.08:0.06 (1971Ab04).
179.69[hc] *4*	<6.6[h]	179.750	(3/2$^-$)	0.0	5/2$^-$	[M1,E2]	0.51 *13*	%Iγ<0.29 α(K)exp>0.27 α(K)=0.38 *16*; α(L)=0.103 *21*; α(M)=0.024 *6* α(N)=0.0056 *13*; α(O)=0.00072 *11*; α(P)=2.1×10^{-5} *11* Eγ=179.69 *4*, Iγ=59.0 *36* for 178.87γ+179.69γ, Ice(K)=2.3 *5* (1975VyZY). Iγ<3, scaled to <6.6 (1976Me06, placed only from 179.8 level). α(K)exp for doubly-placed γ.

γ(^{167}Yb) (continued)

E_γ [†]	I_γ [‡f]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [#]	α [g]	Comments
179.69[h] *4*	<6.6[h]	258.525	3/2⁻	78.679	7/2⁻	[E2]	0.385 *5*	%Iγ<0.29 α(K)=0.2234 *31*; α(L)=0.1241 *17*; α(M)=0.0301 *4* α(N)=0.00691 *10*; α(O)=0.000825 *12*; α(P)=1.018×10^{-5} *14* E_γ: placement from 258.6 level only in 1976Gr06. Somewhat poor fit in this location with level-energy difference=179.85.
180.34[d] *4*	10[d] *3*	419.540	(9/2)⁻	239.163	(5/2)⁻	E2	0.381 *5*	α(K)=0.2211 *31*; α(L)=0.1223 *17*; α(M)=0.0297 *4* α(N)=0.00681 *10*; α(O)=0.000813 *11*; α(P)=1.009×10^{-5} *14* %Iγ=0.43 *14* α(K)exp=0.23 *9* K:L2:L3=2.3 *5*:0.3:0.3 (1975VyZY).
182.07[c] *4*	44.0 *22*	440.676	7/2⁻	258.525	3/2⁻	E2	0.369 *5*	%Iγ=1.91 *20* α(K)exp=0.18 *4* α(K)=0.2152 *30*; α(L)=0.1174 *16*; α(M)=0.0285 *4* α(N)=0.00654 *9*; α(O)=0.000781 *11*; α(P)=9.84×10^{-6} *14* Eγ=182.07 *4*, Iγ=41.0 *28* (1975VyZY); evaluators assume that uncertainty of 28 in 1975VyZY is a misprint. Iγ=20 *1*, scaled to 44.0 *22* (1976Me06). I_γ: from 1976Me06. K:L1:L2:L3=8.8 *20*:0.77:1.42:1.3 (1975VyZY). K:L1:L2:L3=0.34:0.05:0.075:0.05 (1971Ab04).
183.61[c] *5*	≈4	213.167	(5/2)⁻	29.656	5/2⁺	E1	0.0692 *10*	%Iγ≈0.17 α(K)exp≈0.063 α(K)=0.0578 *8*; α(L)=0.00885 *12*; α(M)=0.001974 *28* α(N)=0.000458 *6*; α(O)=6.22×10^{-5} *9*; α(P)=2.78×10^{-6} *4* Eγ=183.61 *5*, Iγ≈4, Ice(K)≈0.25 (1975VyZY). Iγ≈3, scaled to ≈6.6 (1976Me06). K:L1=0.08:0.02 (1971Ab04).
188.66[c] *5*	48.0 *24*	188.704	1/2⁻	0.0	5/2⁻	E2	0.327 *5*	%Iγ=2.09 *21* α(K)exp=0.21 *4* α(K)=0.1947 *27*; α(L)=0.1012 *14*; α(M)=0.02453 *34* α(N)=0.00563 *8*; α(O)=0.000674 *9*; α(P)=8.98×10^{-6} *13* Eγ=188.66 *5*, Iγ=48.0 *24* (1975VyZY). Iγ=22 *1* (1976Me06). K:L1:L2:L3=10 *2*:0.72:1.23:1.6 (1975VyZY). K:L1:L2:L3=0.4:≤0.04:0.07:0.06 (1971Ab04).
[x]194.60[c] *4*	2.2 *7*					(M1)	0.514 *7*	%Iγ=0.10 *3* α(K)exp=0.40 *18* α(K)=0.430 *6*; α(L)=0.0651 *9*; α(M)=0.01458 *20* α(N)=0.00342 *5*; α(O)=0.000490 *7*; α(P)=2.61×10^{-5} *4*

γ(^{167}Yb) (continued)

Eγ[†]	Iγ[‡f]	Ei(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[g]	Comments
								Eγ=194.60 *4*, Iγ≈4, Ice(K)=1.0 *3* (1975VyZY). Iγ=1.0 *3* (1976Me06). I_γ: from 1976Me06.
197.80[hd] *5*	≈5[hd]	410.979	7/2⁻	213.167	(5/2)⁻	(E2)	0.279 *4*	%Iγ≈0.217 α(K)exp≈0.20 α(K)=0.1702 *24*; α(L)=0.0832 *12*; α(M)=0.02012 *28* α(N)=0.00462 *6*; α(O)=0.000556 *8*; α(P)=7.94×10^{-6} *11* Ice(K)=1.0 *3* (1975VyZY). α(K)exp for doubly-placed γ.
197.80[h] *5*	≈5[h]	628.62	7/2⁺	430.87	7/2⁺	(E2)	0.279 *4*	α(K)=0.1702 *24*; α(L)=0.0832 *12*; α(M)=0.02012 *28* α(N)=0.00462 *6*; α(O)=0.000556 *8*; α(P)=7.94×10^{-6} *11* %Iγ≈0.217
199.12[c] *5*	23 *3*	477.43	9/2⁻	278.210	5/2⁻	E2	0.273 *4*	%Iγ=1.00 *16* α(K)exp=0.13 *4* α(K)=0.1670 *23*; α(L)=0.0809 *11*; α(M)=0.01957 *27* α(N)=0.00449 *6*; α(O)=0.000541 *8*; α(P)=7.80×10^{-6} *11* Eγ=199.12 *5*, Iγ=23.0 *34* (1975VyZY). Iγ=12 *2* (1976Me06). K:L1:L2:L3=3.0 *8*:0.31:0.52:0.44 (1975VyZY). K:L1:L2:L3=0.14:0.02:0.03:0.02 (1971Ab04).
201.56[c] *5*	2.2 *7*	440.676	7/2⁻	239.163	(5/2)⁻	(E2)	0.262 *4*	%Iγ=0.10 *3* α(K)exp=0.20 *10*; α(K)exp=0.10 *6* α(K)=0.1614 *23*; α(L)=0.0769 *11*; α(M)=0.01860 *26* α(N)=0.00427 *6*; α(O)=0.000515 *7*; α(P)=7.56×10^{-6} *11* Eγ=201.56 *5*, Iγ=5 *2*, Ice(K)=0.5 *2* (1975VyZY). Iγ=1.0 *3*, scaled to 2.2 *7* (1976Me06). I_γ: from 1976Me06. First α(K)exp from Iγ in 1976Me06, second in 1975VyZY.
[x]202.9[d] *5*	3.0[d] *15*					E1,E2	0.16 *11*	%Iγ=0.13 *7* α(K)exp≤0.16 Ice(K)≤0.5 (1975VyZY).
205.40 *10*	11.5 *15*	239.163	(5/2)⁻	33.916	7/2⁺	[E1]	0.0517 *7*	α(K)=0.0433 *6*; α(L)=0.00656 *9*; α(M)=0.001464 *21* α(N)=0.000340 *5*; α(O)=4.64×10^{-5} *7*; α(P)=2.108×10^{-6} *30* %Iγ=0.50 *8* E_γ: weighted average of the two values. Eγ=205.45 *10*, Iγ=11.5 *15* (1975VyZY). Iγ=3.5 *7*, scaled to 7.7 *15* (1976Me06).
[x]206.4[d] *1*								Ice(K)=0.1 *3* (1975VyZY) seems a misprint.
209.58 *10*	20 *3*	239.163	(5/2)⁻	29.656	5/2⁺	[E1]	0.0491 *7*	%Iγ=0.87 *15* α(K)=0.0411 *6*; α(L)=0.00622 *9*; α(M)=0.001388 *20* α(N)=0.000322 *5*; α(O)=4.40×10^{-5} *6*; α(P)=2.007×10^{-6} *28*

γ(^{167}Yb) (continued)

Eγ[†]	Iγ[‡f]	Ei(level)	J^{π}_{i}	E_f	J^{π}_{f}	Mult.[#]	δ[@]	α[g]	Comments
									Eγ: weighted average of the two values. Eγ=209.56 *10*, Iγ=20 *3* (1975VyZY). Iγ=8.4 *7* (1976Me06).
213.19[c] *4*	86 *5*	213.167	(5/2)$^-$	0.0	5/2$^-$	M1		0.399 *6*	%Iγ=3.7 *4* α(K)exp=0.36 *7* α(K)=0.334 *5*; α(L)=0.0505 *7*; α(M)=0.01130 *16* α(N)=0.00265 *4*; α(O)=0.000380 *5*; α(P)=2.030×10^{-5} *28* Eγ=213.19 *4*, Iγ=86 *5* (1975VyZY). Iγ=39 *2* (1976Me06). K:L1:L2:L3=31 *6*:4.13:0.41:≤0.1 (1975VyZY). K:L1:L2:L3=1.23:0.16:≈0.02:<0.01 (1971Ab04). δ: ≤0.18 in 1975VyZY.
222.79[c] *4*	27.1 *15*	301.48	11/2$^-$	78.679	7/2$^-$	E2		0.1882 *26*	%Iγ=1.18 *12* α(K)exp=0.103 *19*; A_2=−0.72 *27* α(K)=0.1214 *17*; α(L)=0.0512 *7*; α(M)=0.01234 *17* α(N)=0.00283 *4*; α(O)=0.000345 *5*; α(P)=5.82×10^{-6} *8* Eγ=222.79 *4*, Iγ=27.1 *15* (1975VyZY). Iγ=13.0 *10* (1976Me06). K:L1:L2:L3=2.8 *5*:0.68:1.1:0.69 (1975VyZY). K:L1:L2:L3=0.13:0.02:0.03:0.02 (1971Ab04). δ(O/Q)=+0.30 *+59−31* (1981Kr08).
229.78[c] *4*	26.5 *15*	308.401	(7/2)$^-$	78.679	7/2$^-$	M1+E2[b]	−0.39 *+20−24*	0.304 *24*	%Iγ=1.15 *12* α(K)exp=0.25 *5*; A_2=−0.09 *19* α(K)=0.251 *25*; α(L)=0.0416 *9*; α(M)=0.00941 *29* α(N)=0.00220 *6*; α(O)=0.000308 *4*; α(P)=1.50×10^{-5} *17* Eγ=229.78 *4*, Iγ=26.5 *15* (1975VyZY). Iγ=11.6 *10* (1976Me06). K:L1:L2=6.5 *13*:0.91:<0.15 (1975VyZY). K:L1:L2=0.31:0.05:<0.009 (1971Ab04).
232.12[c] *4*	4.6 *4*	410.979	7/2$^-$	178.863	9/2$^-$	M1(+E2)[b]	−1.4 *16*	0.22 *9*	%Iγ=0.200 *25* α(K)exp=0.17 *4*; A_2=−0.66 *50* α(K)=0.16 *10*; α(L)=0.0423 *23*; α(M)=0.0099 *10* α(N)=0.00230 *19*; α(O)=0.000296 *6*; α(P)=9.E−6 *7* Eγ=232.12 *4*, Iγ=5.3 *13* (1975VyZY). Iγ=2.1 *2*, scaled to 4.6 *4* (1976Me06). Iγ: from 1976Me06. K:L1:L2=0.76 *15*:0.16:<0.16 (1975VyZY). δ: −3.0≤δ≤+0.2 from γ(θ) (1981Kr08).
235.9[c] *4*	22.7 *30*	553.38	9/2$^-$	317.488	(7/2)$^-$	M1+E2[b]	−2.7 *+11−25*	0.174 *23*	%Iγ=0.99 *16* α(K)exp=0.088 *21*; A_2=+0.62 *29* α(K)=0.121 *24*; α(L)=0.0405 *8*; α(M)=0.00965 *25*

$^{167}_{70}$Yb$_{97}$-17

^{167}Lu ε decay (51.46 min) 1976Me06,1976Gr06,1981Kr08 (continued)

$\gamma(^{167}Yb)$ (continued)

E_γ[†]	I_γ[‡f]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	δ[@]	α[g]	Comments
									α(N)=0.00222 *5*; α(O)=0.000277 *5*; α(P)=6.3×10^{-6} *17* Eγ=235.9 *4*, Iγ=22.7 *30* (1975VyZY). Iγ=9.2 *10* (1976Me06). K:L1:L2:L3=2.0 *4*:0.43:0.46:0.4 (1975VyZY). K:L1:L2:L3=0.086:0.017:0.018:0.015 (1971Ab04).
239.0[c] *1*	22 *11*	317.488	(7/2)$^-$	78.679	7/2$^-$	M1		0.292 *4*	%Iγ=1.0 *5* α(K)exp=0.25 *13* α(K)=0.2442 *34*; α(L)=0.0368 *5*; α(M)=0.00824 *12* α(N)=0.001935 *27*; α(O)=0.000277 *4*; α(P)=1.481×10^{-5} *21* Eγ=239.0 *1*, Iγ=237 *10* for 239.0γ+239.22γ (1975VyZY). Iγ=10 *5*, scaled to 22 *11* (1976Me06). I_γ: from 1976Me06. K:L1:L2:L3=5.4 *10*:0.77:0.21:<0.08 (1975VyZY). K:L1:L2=0.23:0.034:<0.011 (1971Ab04).
239.22[c] *4*	198 *11*	239.163	(5/2)$^-$	0.0	5/2$^-$	M1+E2[b]	+2.9 *+15−9*	0.165 *13*	%Iγ=8.6 *6* α(K)exp=0.29 *5*; A_2=−0.19 *14* α(K)=0.115 *14*; α(L)=0.0384 *6*; α(M)=0.00916 *16* α(N)=0.002110 *35*; α(O)=0.000263 *4*; α(P)=5.9×10^{-6} *9* Eγ=239.22 *4*, Iγ=237 *10* for 239.0γ+239.22γ (1975VyZY). Iγ=90 *5*, scaled to 198 *11* (1976Me06). I_γ: from 1976Me06. K:L1:L2:L3=57 *10*:8.44:0.8:<0.1 (1975VyZY). K:L1:L2:L3=1.86:0.28:0.034:<0.01 (1971Ab04). M1 from ce data; M1+E2 with δ=+2.9 *+15−9* from $\gamma(\theta)$, where measurement affected by the presence of 239.0γ, but Iγ(239.2γ)/Iγ(239.0γ)=9.0.
240.8[c] *2*	5 *2*	419.540	(9/2)$^-$	178.863	9/2$^-$	M1		0.286 *4*	%Iγ=0.22 *9* α(K)exp=0.26 *12* α(K)=0.2393 *34*; α(L)=0.0361 *5*; α(M)=0.00807 *11* α(N)=0.001895 *27*; α(O)=0.000271 *4*; α(P)=1.451×10^{-5} *21* Eγ=240.8 *2*, Iγ=5 *2*, Ice(K)=1.3 *3* (1975VyZY). Iγ<3 (1976Me06).
[x]242.8[d] *2*	14[d] *2*								%Iγ=0.61 *10*
243.13 *15*	6 *2*	301.48	11/2$^-$	58.539	9/2$^+$	E1+M2	≈+0.06	≈0.0382	%Iγ=0.26 *9* A_2=−0.15 *20*; α(K)exp=0.022 *10* α(K)≈0.0318; α(L)≈0.00497; α(M)≈0.001116 α(N)≈0.000260; α(O)≈3.58×10^{-5}; α(P)≈1.685×10^{-6} E_γ: weighted average of the two values. Eγ=243.5 *5*, Iγ=6 *2*, Ice(K)=0.13 *4* (1975VyZY). Iγ=9.0 *15*, scaled to 20 *3* probably for 242.8γ+243.5γ doublet

From ENSDF

γ(^{167}Yb) (continued)

E_γ[†]	I_γ[‡f]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	δ[@]	α[g]	Comments
									(1976Me06). E_γ: from 1975VyZY. Other: 243.4 *1* (1971Ab04) probably for 242.8γ+243.5γ doublet. α(K)exp implies $\delta\leq$0.06; $\gamma(\theta)$ gives δ=+0.20 *14* (1981Kr08).
248.64 *7*	23 *3*	278.210	5/2$^-$	29.656	5/2$^+$	E1(+M2)	<0.10	0.038 *6*	%Iγ=1.00 *16* A_2=−0.70 *31*; α(K)exp=0.026 *9* α(K)=0.031 *5*; α(L)=0.0049 *10*; α(M)=0.00111 *22* α(N)=0.00026 *5*; α(O)=3.6×10^{-5} *7*; α(P)=1.7×10^{-6} *4* Eγ=248.64 *7*, Iγ=23 *3*, Ice(K)=0.6 *2* (1975VyZY). Iγ=8.0 *15* (1976Me06). δ: <0.10 from α(K)exp; +0.45 *+11−48* from $\gamma(\theta)$ (1981Kr08).
254.0[d] *2*	7.5[d] *20*	571.489	(11/2)$^-$	317.488	(7/2)$^-$	[E2]		0.1236 *18*	%Iγ=0.33 *9* α(K)exp=0.16 *3* α(K)=0.0838 *12*; α(L)=0.0306 *4*; α(M)=0.00731 *10* α(N)=0.001683 *24*; α(O)=0.0002077 *30*; α(P)=4.14×10^{-6} *6* K:L1=1.2 *2*:0.1 (1975VyZY). M1(+E2) from α(K)exp, but placement disallows M1.
258.54[c] *4*	36 *2*	258.525	3/2$^-$	0.0	5/2$^-$	M1(+E2)[b]	−1.2 *14*	0.17 *7*	%Iγ=1.56 *17* A_2=−0.31 *23* α(K)exp=0.23 *4* α(K)=0.13 *6*; α(L)=0.0290 *7*; α(M)=0.00675 *14* α(N)=0.001566 *23*; α(O)=0.000206 *16*; α(P)=7.E−6 *4* Eγ=258.54 *4*, Iγ=36 *2* (1975VyZY). Iγ=15.0 *10* (1976Me06). K:L1:L2:L3=8.3 *15*:1.1:0.13:0.15 (1975VyZY). K:L1:L2=0.32:0.043:≈0.005 (1971Ab04). δ: −2.6≤δ≤+0.2 (1981Kr08).
261.85[c] *2*	28.0 *15*	440.676	7/2$^-$	178.863	9/2$^-$	M1(+E2)[b]	−0.06 *10*	0.227 *4*	%Iγ=1.22 *13* α(K)exp=0.19 *4*; A_2=+0.06 *15* α(K)=0.190 *4*; α(L)=0.0287 *4*; α(M)=0.00641 *9* α(N)=0.001505 *21*; α(O)=0.0002153 *31*; α(P)=1.151×10^{-5} *23* Eγ=261.85 *2*, Iγ=28.0 *15* (1975VyZY). Iγ=14.0 *10*, scaled to 30.8 *22* (1976Me06), which may be for 261.85γ+263.5γ doublet in 1975VyZY. K:L1:L2=5.4 *10*:0.91:<0.1 (1975VyZY). K:L1:L2=0.21:0.034:≈0.005 (1971Ab04).
[x]263.5[d] *2*	7[d] *2*								%Iγ=0.30 *9*
270.00 *10*	2.20 *22*	571.489	(11/2)$^-$	301.48	11/2$^-$	[M1,E2]		0.16 *5*	α(K)=0.12 *5*; α(L)=0.0253 *11*; α(M)=0.00583 *10* α(N)=0.001356 *34*; α(O)=0.000182 *17*; α(P)=7.1×10^{-6} *35*

γ(^{167}Yb) (continued)

E_γ[†]	I_γ[‡f]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[g]	Comments
								%Iγ=0.096 *13* Eγ=270.0 *2*, Iγ≈2 (1975VyZY). Iγ=1.0 *1*, scaled to 2.20 *22* (1976Me06). I_γ: from 1976Me06.
274.41[c] *2*	6 *1*	308.401	(7/2)$^-$	33.916	7/2$^+$	(E1)	0.02482 *35*	%Iγ=0.26 *5* α(K)exp=0.043 *15* α(K)=0.02086 *29*; α(L)=0.00309 *4*; α(M)=0.000689 *10* α(N)=0.0001602 *22*; α(O)=2.213×10^{-5} *31*; α(P)=1.048×10^{-6} *15* Eγ=274.41 *2*, Iγ=6 *1*, Ice(K)=0.26 *8* (1975VyZY). Iγ=2.2 *2*, scaled to 4.8 *4* (1976Me06, unplaced). E_γ: unweighted average of the two values. Somewhat poor fit in the decay scheme as level-energy difference=274.49.
278.2[c] *1*	22 *7*	278.210	5/2$^-$	0.0	5/2$^-$	(M1,E2)	0.14 *5*	%Iγ=1.0 *3* α(K)exp=0.30 *11* α(K)=0.11 *5*; α(L)=0.0229 *14*; α(M)=0.00529 *16* α(N)=0.00123 *5*; α(O)=0.000165 *18*; α(P)=6.5×10^{-6} *33* Eγ=278.2 *1*, Iγ=107 *10* for 278.2γ+278.9γ (1975VyZY). Iγ=10 *3*, scaled to 22 *7* (1976Me06). I_γ: from 1976Me06; deduced from γγ-coin data for 278.22γ, 278.5γ and 278.92γ (unresolved) triplet. K:L1:L2:L3=6.6 *13*:1.2:0.5:≈0.08 (1975VyZY). K:L1:L2=0.27:0.05:<0.009 (1971Ab04). δ(E2/M1)=1.1 *+5−3* (1975VyZY) from subshell data; but α(K)exp exceeds α(K) for M1, assuming that Ice(K for 278.2γ) in 1975VyZY includes no contribution from the 278.5γ.
278.5[e]	24[e] *7*	719.61	(7/2)$^-$	440.676	7/2$^-$	(E2)	0.0927 *13*	α(K)=0.0648 *9*; α(L)=0.02150 *30*; α(M)=0.00512 *7* α(N)=0.001180 *17*; α(O)=0.0001471 *21*; α(P)=3.26×10^{-6} *5* %Iγ=1.0 *3* I_γ: from γγ coin (1976Me06) for components of 278γ triplet. Mult.: see comment for 278.9γ.
278.9[c] *1*	46 *9*	308.401	(7/2)$^-$	29.656	5/2$^+$	[E1]	0.02384 *33*	%Iγ=2.0 *4* α(K)exp=0.054 *15* α(K)=0.02004 *28*; α(L)=0.00297 *4*; α(M)=0.000661 *9* α(N)=0.0001538 *22*; α(O)=2.124×10^{-5} *30*; α(P)=1.008×10^{-6} *14* Eγ=278.9 *1*, Iγ=107 *10* for 278.2γ+278.9γ (1975VyZY). Iγ=21 *4*, scaled to 46 *9* (1976Me06). I_γ: from 1976Me06, deduced from γγ-coin from 278.22γ, 278.5γ, 178.92γ (unresolved) triplet. K:L1=2.5 *5*:0.18 (1975VyZY). K:L1=0.057:0.007 (1971Ab04).

$^{167}_{70}$Yb$_{97}$-20

γ(^{167}Yb) (continued)

E_γ[†]	I_γ[‡f]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	δ[@]	α[g]	Comments
									Ice(K) in 1975VyZY may include contribution from the 278.5γ established by 1976Me06 using γγ-coin. If the 278.9γ is E1 (as required by the level scheme), Ice(K)=1.6 *6* and α(K)exp=0.07 *3* for the 278.5γ component, consistent with E2 multipolarity.
[x]282.3 *3*	2.9 *8*					E2(+M1)	>1.3[&]	0.107 *18*	%Iγ=0.13 *4* α(K)exp=0.07 *3* α(K)=0.080 *17*; α(L)=0.0210 *6*; α(M)=0.00493 *10* α(N)=0.001140 *26*; α(O)=0.000147 *7*; α(P)=4.3×10^{-6} *12* Eγ=282.3 *3*, Iγ=2.9 *8*, Ice(K)=0.20 *5* (1975VyZY). Iγ=1.2 *2* (1976Me06).
298.6[c] *1*	9.0 *22*	477.43	9/2$^-$	178.863	9/2$^-$	M1(+E2)[b]	+0.4 *5*	0.15 *3*	%Iγ=0.39 *10* α(K)exp=0.070 *22*; A_2=−0.87 *47* α(K)=0.123 *25*; α(L)=0.0196 *11*; α(M)=0.00440 *18* α(N)=0.00103 *5*; α(O)=0.000146 *12*; α(P)=7.3×10^{-6} *17* Eγ=298.6 *1*, Iγ=9.0 *22* (1975VyZY). Iγ=3.0 *6*, scaled to 6.6 *13* (1976Me06). K:L1=0.63 *12*:0.1 (1975VyZY). δ: −0.1≤δ≤+0.9 (1981Kr08); α(K)exp inconsistent with pure M1 or pure E2.
308.47[c] *8*	8.7 *9*	308.401	(7/2)$^-$	0.0	5/2$^-$	M1		0.1460 *20*	%Iγ=0.38 *5* α(K)exp=0.15 *4*; A_2=−0.46 *71* α(K)=0.1225 *17*; α(L)=0.01835 *26*; α(M)=0.00410 *6* α(N)=0.000963 *13*; α(O)=0.0001379 *19*; α(P)=7.40×10^{-6} *10* Eγ=308.47 *8*, Iγ=8.7 *9* (1975VyZY). Eγ=308.47 *9*, Iγ=3.4 *3* (1976Me06). K:L1:L2=1.3 *3*:0.21:<0.05 (1975VyZY). δ: +0.04≤δ≤+4.53 or ≤−5.7 from γ(θ) (1981Kr08).
317.55[c] *10*	46.8 *30*	317.488	(7/2)$^-$	0.0	5/2$^-$	M1(+E2)[b]	−0.05 *13*	0.1349 *28*	%Iγ=2.03 *22* α(K)exp=0.092 *18*; A_2=+0.43 *23* α(K)=0.1132 *25*; α(L)=0.01695 *26*; α(M)=0.00379 *6* α(N)=0.000890 *13*; α(O)=0.0001274 *21*; α(P)=6.83×10^{-6} *16* E_γ: from 1975VyZY. 1976Me06 quote the same value as in 1971Ab04. Eγ=317.55 *10*, Iγ=46.8 *30* (1975VyZY). Eγ=317.65 *10*, Iγ=17.0 *12* (1976Me06). K:L1:L2=4.3 *8*:1.08:<0.08 (1975VyZY). K:L1:L2=0.19:0.033:<0.011 (1971Ab04).
330.32 *20*	2.2 *6*	569.39	(7/2)$^+$	239.163	(5/2)$^-$	[E1]		0.01576 *22*	%Iγ=0.10 *3* α(K)=0.01327 *19*; α(L)=0.001944 *27*; α(M)=0.000432 *6* α(N)=0.0001007 *14*; α(O)=1.399×10^{-5} *20*; α(P)=6.78×10^{-7} *10*

$^{167}_{70}$Yb$_{97}$-21

γ(^{167}Yb) (continued)

E_γ[†]	I_γ[‡f]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ[@]	α[g]	Comments
									Eγ=330.2 *2*, Iγ=4.0 *12* (1975VyZY). Eγ=330.58 *30*, Iγ=0.8 *2*, scaled to 2.2 *6* (1976Me06). I_γ: from 1976Me06.
332.36 *10*	4.5 *12*	410.979	7/2$^-$	78.679	7/2$^-$	M1(+E2)	<1.5[&]	0.097 *23*	%Iγ=0.20 *6* α(K)exp=0.09 *3* α(K)=0.079 *21*; α(L)=0.0137 *13*; α(M)=0.00311 *24* α(N)=0.00073 *6*; α(O)=0.000101 *12*; α(P)=4.7×10^{-6} *14* Eγ=332.3 *1*, Iγ=4.5 *12*, Ice(K)=0.4 *1* (1975VyZY). Eγ=332.48 *15*, Iγ=1.3 *2*, scaled to 3.6 *6* (1976Me06). Placement of 332.36γ from 411 or 571 levels in 1976Me06, whereas 1976Gr06 suggested placement only from 411 level.
^{x}339.0 *2*	3.0 *10*								%Iγ=0.13 *5* α(K)exp=0.027 *11* Eγ=339.0 *2*, Iγ=3 *1*, Ice(K)=0.08 *2* (1975VyZY). Iγ=1.3 *3* (1976Me06).
340.90 *15*	10.5 *15*	419.540	(9/2)$^-$	78.679	7/2$^-$	M1(+E2)	<0.7[&]	0.102 *10*	%Iγ=0.46 *8* α(K)exp=0.105 *24* α(K)=0.085 *9*; α(L)=0.0134 *6*; α(M)=0.00302 *12* α(N)=0.000707 *30*; α(O)=0.000100 *6*; α(P)=5.0×10^{-6} *6* E_γ: from 1975VyZY. 1976Me06 quote the same value as in 1971Ab04. Eγ=340.90 *15*, Iγ=10.5 *15* (1975VyZY). Uncertainty in 1975VyZY is assumed to be 0.15 keV as in 1971Ab04, rather than 1.5 keV. Eγ=340.91 *15*, Iγ=4.2 *4* (1976Me06). K:L1:L2=1.1 *2*:0.1:<0.05 (1975VyZY).
^{x}344.8[d] *4*	3.4[d] *8*					E1		0.01422	%Iγ=0.15 *4* α(K)exp≤0.015 *4* α(K)=0.01198 *17*; α(L)=0.001749 *25*; α(M)=0.000389 *6* α(N)=9.07×10^{-5} *13*; α(O)=1.261×10^{-5} *18*; α(P)=6.14×10^{-7} *9* Ice(K)≤0.05 (1975VyZY).
^{x}350.5 *2*	4.8 *4*					(E1)		0.01368 *19*	α(K)=0.01152 *16*; α(L)=0.001681 *24*; α(M)=0.000374 *5* α(N)=8.71×10^{-5} *12*; α(O)=1.212×10^{-5} *17*; α(P)=5.92×10^{-7} *8* %Iγ=0.21 *3* Eγ=350.5 *2*, Iγ=9.8 *25* (for 350.5γ+352.3γ), Ice(K)=0.06 *2* (1975VyZY). I_γ,Mult.: see comment for 352.03γ from 430 level.
352.3 *2*	4.8 *4*	430.87	7/2$^+$	78.679	7/2$^-$	(E1)		0.01351 *19*	%Iγ=0.21 *3* A_2=−0.28 *65* α(K)=0.01138 *16*; α(L)=0.001660 *23*; α(M)=0.000369 *5* α(N)=8.60×10^{-5} *12*; α(O)=1.198×10^{-5} *17*; α(P)=5.85×10^{-7} *8*

γ(^{167}Yb) (continued)

E_γ[†]	I_γ[‡f]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	δ[@]	α[g]	Comments
									Placement from 1976Me06. Eγ=352.3 *2*, Iγ=9.8 *25* for 352.3γ+350.5γ, Ice(K)=0.06 *2* (1975VyZY). Eγ=352.03 *10*, Iγ=3.4 *3*, scaled to 9.5 *8* (1976Me06), probably for 350.5+352.3 doublet as in 1975VyZY. I_γ,Mult.: Iγ=9.5 *8* (1976Me06), presumably for 350.5γ+352.3γ doublet since, otherwise, α(K)exp=0.007 *2* for this doublet in 1975VyZY, too low to be consistent with E1. Ice(K)=0.06 *2* for each component (1975VyZY) favors E1 for each, therefore, evaluators assign Iγ=4.8 *4* for each γ. δ(Q/D)=−0.26 *+70−90* from γ(θ) (1981Kr08); anisotropy excludes J(431)=5/2 based on magnitude of δ required if ΔJ=2 (1981Kr08). α(K)exp=0.007 *2* for doubly-placed γ.
356.23 *15*	7.9 *15*	569.39	(7/2)$^+$	213.167	(5/2)$^-$	E1		0.01316 *18*	%Iγ=0.34 *7* α(K)exp=0.010 *3*; α(K)exp=0.015 *4* α(K)=0.01109 *16*; α(L)=0.001616 *23*; α(M)=0.000359 *5* α(N)=8.37×10^{-5} *12*; α(O)=1.166×10^{-5} *16*; α(P)=5.70×10^{-7} *8* Eγ=356.36 *17*, Iγ=7.9 *15*, Ice(K)=0.08 *2* (1975VyZY). Eγ=356.12 *15*, Iγ=2.1 *3*, scaled to 5.9 *8* (1976Me06). Mult.: first α(K)exp from Iγ in 1975VyZY, second in 1976Me06.
^{x}360.7[d] *2*									Ice(K)=0.08 *2* (1975VyZY).
361.82 *25*	11.2 *15*	440.676	7/2$^-$	78.679	7/2$^-$	M1(+E2)[b]	+1.6 *+21−6*	0.057 *12*	%Iγ=0.49 *8* A_2=−0.62 *62*; α(K)exp=0.046 *11* α(K)=0.045 *11*; α(L)=0.0094 *8*; α(M)=0.00216 *16* α(N)=0.00050 *4*; α(O)=6.7×10^{-5} *7*; α(P)=2.6×10^{-6} *7* Eγ=362.0 *2*, Iγ=11.2 *15*, Ice(K)=0.52 *10* (1975VyZY). Eγ=361.53 *25*, Iγ=3.3 *3* (1976Me06). δ: −0.5≤δ≤+3.6 from γ(θ) (1981Kr08), 1.6 *+24−6* from α(K)exp.
368.80[h] *10*	5.6[h] *8*	677.18	(5/2,7/2)$^-$	308.401	(7/2)$^-$	[M1,E2]		0.066 *25*	%Iγ=0.24 *4* α(K)exp=0.042 *16* α(K)=0.053 *23*; α(L)=0.0096 *18*; α(M)=0.00219 *35* α(N)=0.00051 *9*; α(O)=7.0×10^{-5} *15*; α(P)=3.1×10^{-6} *15* Eγ=368.85 *10*, Iγ=6.2 *20* (1975VyZY). Eγ=368.61 *20*, Iγ=2.0 *3*, scaled to 5.6 *8* (1976Me06). I_γ: from 1976Me06. Mult.: E2(+M1) for doubly−placed γ.
368.80[h] *10*	5.6[h] *8*	788.36	(9/2)$^-$	419.540	(9/2)$^-$	[M1,E2]		0.066 *25*	α(K)=0.053 *23*; α(L)=0.0096 *18*; α(M)=0.00219 *35*

$^{167}_{70}$Yb$_{97}$-23

γ(^{167}Yb) (continued)

E_γ[†]	I_γ[‡f]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	δ[@]	α[g]	Comments
									α(N)=0.00051 9; α(O)=7.0×10^{-5} 15; α(P)=3.1×10^{-6} 15
									%Iγ=0.24 4 Mult.: E2(+M1) for doubly−placed γ.
372.5[c] 1	8.4 8	430.87	7/2$^+$	58.539	9/2$^+$	M1		0.0884 12	%Iγ=0.37 5 α(K)exp=0.09 3 α(K)=0.0742 10; α(L)=0.01105 15; α(M)=0.002468 35 α(N)=0.000580 8; α(O)=8.31×10^{-5} 12; α(P)=4.47×10^{-6} 6 E_γ: from 1975VyZY. 1976Me06 quote the same value as in 1971Ab04. Eγ=372.5 1, Iγ=8.8 20, Ice(K)=0.8 2 (1975VyZY). Eγ=372.38 15, Iγ=3.0 3, scaled to 8.4 8 (1976Me06, unplaced). I_γ: from 1976Me06. K:L1:L2=0.049:0.009:<0.002 (1971Ab04).
374.5[c] 2	4.2 14	553.38	9/2$^-$	178.863	9/2$^-$	M1,E2		0.063 24	%Iγ=0.18 6 α(K)exp=0.062 25; α(K)exp=0.033 14 α(K)=0.051 22; α(L)=0.0092 17; α(M)=0.00209 35 α(N)=0.00049 8; α(O)=6.7×10^{-5} 15; α(P)=3.0×10^{-6} 14 Eγ=374.5 2, Iγ=8 3, Ice(K)=0.26 6 (1975VyZY). Eγ=374.90 20, Iγ=1.5 5, scaled to 4.2 14 (1976Me06). I_γ: from 1976Me06; 8 3 in 1975VyZY. First α(K)exp from Iγ in 1976Me06, second in 1975VyZY.
377.03 9	24.9 20	410.979	7/2$^-$	33.916	7/2$^+$	E1+M2	≈+0.08	≈0.01339	%Iγ=1.08 13 α(K)exp=0.0092 21; A_2=−0.92 42 α(K)≈0.01122; α(L)≈0.001693; α(M)≈0.000379 α(N)≈8.84×10^{-5}; α(O)≈1.237×10^{-5}; α(P)≈6.12×10^{-7} Eγ=377.00 9, Iγ=24.9 20, Ice(K)=0.23 5 (1975VyZY). Eγ=377.08 11, Iγ=7.0 10 (1976Me06). δ: ≤0.08 from α(K)exp; +0.08≤δ≤+0.90 from γ(θ) (1981Kr08).
381.43 15	16.8 17	410.979	7/2$^-$	29.656	5/2$^+$	E1		0.01120 16	%Iγ=0.73 10 α(K)exp=0.011 3 α(K)=0.00945 13; α(L)=0.001370 19; α(M)=0.000305 4 α(N)=7.10×10^{-5} 10; α(O)=9.91×10^{-6} 14; α(P)=4.88×10^{-7} 7 Eγ=381.50 15, Iγ=19.1 25 for 381.50γ+382.00γ, Ice(K)=0.18 4 (1975VyZY). Eγ=381.35 15, Iγ=6.0 6, scaled to 16.8 17 (1976Me06). I_γ: from 1976Me06.
[x]382.00 15	≈2.3								%Iγ≈0.10 Eγ=382.00 15, Iγ=19.1 25 for 381.50γ+382.00γ, Ice(K)=0.08 2 (1975VyZY). 1976Me06 report only 381.35γ with Iγ=6.0 6, scaled to 16.8 17, implying Iγ≈2.3 for 382.0γ.
385.55[h] 12	18.9[h] 20	419.540	(9/2)$^-$	33.916	7/2$^+$	(E1)		0.01092 15	%Iγ=0.82 11

γ(^{167}Yb) (continued)

E_γ[†]	I_γ[‡f]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ[@]	α[g]	Comments
									α(K)exp=0.0127 *25* α(K)=0.00921 *13*; α(L)=0.001335 *19*; α(M)=0.000297 *4* α(N)=6.92×10^{-5} *10*; α(O)=9.66×10^{-6} *14*; α(P)=4.77×10^{-7} *7* Placement from 1976Me06. Eγ=385.68 *15*, Iγ=18.9 *20*, Ice(K)=0.24 *4* (1975VyZY). Eγ=385.46 *12*, Iγ=6.0 *8* (1976Me06). Mult.: α(K)exp gives E1 for doubly-placed γ.
385.55[h] *12*	18.9[h] *20*	571.489	(11/2)$^-$	185.94	13/2$^+$	(E1)		0.01092 *15*	α(K)=0.00921 *13*; α(L)=0.001335 *19*; α(M)=0.000297 *4* α(N)=6.92×10^{-5} *10*; α(O)=9.66×10^{-6} *14*; α(P)=4.77×10^{-7} *7* %Iγ=0.82 *11* Mult.: E1 for doubly-placed γ. Placement from 1976Gr06 only.
392.61 *10*	19.7 *20*	571.489	(11/2)$^-$	178.863	9/2$^-$	M1+E2[b]	+0.31 *+17−13*	0.073 *4*	%Iγ=0.86 *12* α(K)exp=0.069 *12*; A_2=−0.26 *22* α(K)=0.061 *4*; α(L)=0.00932 *35*; α(M)=0.00209 *7* α(N)=0.000490 *17*; α(O)=6.98×10^{-5} *29*; α(P)=3.66×10^{-6} *26* Eγ=392.75 *15*, Iγ=19.7 *20* (1975VyZY). Eγ=392.55 *10*, Iγ=6.0 *6* (1976Me06). K:L1:L2=1.35 *20*:0.34:<0.05 (1975VyZY). K:L1=0.031:0.0057 (1971Ab04).
396.94 *10*	21.6 *21*	430.87	7/2$^+$	33.916	7/2$^+$	M1+E2[b]	−0.41 *+20−31*	0.069 *8*	%Iγ=0.94 *12* α(K)exp=0.042 *12*; A_2=−0.09 *21* α(K)=0.057 *8*; α(L)=0.0089 *6*; α(M)=0.00199 *13* α(N)=0.000467 *32*; α(O)=6.6×10^{-5} *5*; α(P)=3.4×10^{-6} *5* Eγ=396.83 *15*, Iγ=21.6 *21* (1975VyZY). Eγ=396.99 *10*, Iγ=8.0 *6* (1976Me06). K:L1:L2=0.9 *2*:0.077:<0.05 (1975VyZY).
398.83[h] *15*	11.2[h] *12*	477.43	9/2$^-$	78.679	7/2$^-$	[M1,E2]		0.053 *21*	%Iγ=0.49 *7* α(K)exp=0.046 *10* α(K)=0.043 *19*; α(L)=0.0076 *16*; α(M)=0.00173 *33* α(N)=0.00040 *8*; α(O)=5.6×10^{-5} *14*; α(P)=2.5×10^{-6} *12* Eγ=398.80 *15*, Iγ=11.2 *12* (1975VyZY). Eγ=398.94 *30*, Iγ=3.0 *5* (1976Me06, placed only from 677 level). K:L1:L2=0.51 *10*:0.08:<0.06 (1975VyZY). K:L1=0.023:0.0034 (1971Ab04). Mult.: (M1+E2) for doubly−placed γ.
398.83[h] *13*	11.2[h] *12*	677.18	(5/2,7/2)$^-$	278.210	5/2$^-$	[M1,E2]		0.053 *21*	α(K)=0.043 *19*; α(L)=0.0076 *16*; α(M)=0.00173 *33*

γ(^{167}Yb) (continued)

E_γ[†]	I_γ[‡f]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	δ[@]	α[g]	Comments
									α(N)=0.00040 *8*; α(O)=5.6×10^{-5} *14*; α(P)=2.5×10^{-6} *12* %Iγ=0.49 *7* Mult.: M1+E2 for doubly−placed γ.
401.15 *10*	82.0 *41*	430.87	7/2$^+$	29.656	5/2$^+$	M1(+E2)[b]	−0.02 *9*	0.0727 *11*	%Iγ=3.6 *4* A_2=+0.36 *18* α(K)=0.0610 *10*; α(L)=0.00907 *13*; α(M)=0.002026 *29* α(N)=0.000476 *7*; α(O)=6.82×10^{-5} *10*; α(P)=3.67×10^{-6} *6* E_γ: unweighted average of the two values. Eγ=401.25 *6*, Iγ=82.0 *41* (1975VyZY). Eγ=401.05 *7*, Iγ=28.0 *15* (1976Me06). K:L1:L2=5.16:0.75:<0.10 (1975VyZY). K:L1:L2=0.193:0.033:<0.008 (1971Ab04). δ: −0.02 *9* from $\gamma(\theta)$ (1981Kr08).
406.72 *10*	15.7 *19*	440.676	7/2$^-$	33.916	7/2$^+$	E1(+M2)	≤0.11	0.0110 *14*	%Iγ=0.68 *10* A_2=−0.46 *28*; α(K)exp=0.0083 *22* α(K)=0.0093 *11*; α(L)=0.00138 *21*; α(M)=0.00031 *5* α(N)=7.2×10^{-5} *11*; α(O)=1.01×10^{-5} *16*; α(P)=5.0×10^{-7} *8* Eγ=406.73 *11*, Iγ=15.7 *19*, Ice(K)=0.13 *3* (1975VyZY). Eγ=406.71 *15*, Iγ=5.2 *8* (1976Me06). δ: −0.3≤δ≤+2.1 from $\gamma(\theta)$ (1981Kr08); ≤0.11 from α(K)exp.
410.96 *10*	19.9 *24*	410.979	7/2$^-$	0.0	5/2$^-$	M1+E2[b]	−3.1 *+14−49*	0.034 *6*	%Iγ=0.86 *13* A_2=+0.51 *35*; α(K)exp=0.025 *6* α(K)=0.026 *6*; α(L)=0.0057 *5*; α(M)=0.00133 *10* α(N)=0.000309 *25*; α(O)=4.1×10^{-5} *4*; α(P)=1.4×10^{-6} *4* Eγ=411.06 *10*, Iγ=19.9 *24*, Ice(K)=0.05 *1* (1975VyZY). Eγ=410.86 *10*, Iγ=6.3 *5* (1976Me06).
^{x}415.4[d] *3*	3.7[d] *8*					E1		0.00919 *13*	%Iγ=0.16 *4* α(K)exp≤0.014 *3* α(K)=0.00776 *11*; α(L)=0.001119 *16*; α(M)=0.0002487 *35* α(N)=5.80×10^{-5} *8*; α(O)=8.11×10^{-6} *11*; α(P)=4.03×10^{-7} *6* Ice(K)≤0.05 (1975VyZY).
^{x}417.76 *11*	15.0 *15*					M1		0.0653 *9*	%Iγ=0.65 *9* α(K)exp=0.041 *9* α(K)=0.0549 *8*; α(L)=0.00815 *11*; α(M)=0.001819 *26* α(N)=0.000427 *6*; α(O)=6.12×10^{-5} *9*; α(P)=3.30×10^{-6} *5* Eγ=417.79 *13*, Iγ=15.0 *15*, Ice(K)=0.62 *12* (1975VyZY). Eγ=417.74 *11*, Iγ=4.6 *5*, scaled to 12.9 *14* (1976Me06).
^{x}420.0[d] *2*	5.3[d] *8*								%Iγ=0.23 *4* α(K)exp=0.013 *4* Ice(K)=0.07 *2* (1975VyZY).

$^{167}_{70}$Yb$_{97}$-26

γ(^{167}Yb) (continued)

E_γ[†]	I_γ[‡f]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	δ[@]	α[g]	Comments
427.46 *18*	5.7 *11*	553.38	9/2⁻	125.918	11/2⁺	(E1(+M2))[b]	+0.15 *23*	0.013 *21*	%Iγ=0.25 *5* A_2=+0.69 *64*; α(K)exp=0.028 *9* α(K)=0.011 *17*; α(L)=0.0017 *31*; α(M)=4.E−4 *7* α(N)=9.E−5 *17*; α(O)=1.3×10^{-5} *23*; α(P)=6.E−7 *12* Eγ=427.7 *2*, Iγ=5.7 *11*, Ice(K)=0.16 *4* (1975VyZY). Eγ=427.32 *15*, Iγ=1.6 *2* (1976Me06). δ: −0.08≤δ(Q/D)≤+0.38 from γ(θ) (1981Kr08). Other: δ=0.38 +*9*−*10* from α(K)exp. Δπ=yes from level scheme.
[x]435.3 *2*	2.6 *10*					M1		0.0587 *8*	%Iγ=0.11 *5* α(K)exp=0.050 *22* α(K)=0.0493 *7*; α(L)=0.00731 *10*; α(M)=0.001632 *23* α(N)=0.000383 *5*; α(O)=5.49×10^{-5} *8*; α(P)=2.96×10^{-6} *4* Eγ=435.3 *1*, Iγ=2.6 *10*, Ice(K)=0.13 *3* (1975VyZY). Eγ=436.20 *50*, Iγ=0.7 *2* (1976Me06).
437.75 *22*	3.0 *9*	677.18	(5/2,7/2)⁻	239.163	(5/2)⁻	M1		0.0578 *8*	%Iγ=0.13 *4* α(K)exp=0.043 *16* α(K)=0.0486 *7*; α(L)=0.00720 *10*; α(M)=0.001608 *23* α(N)=0.000378 *5*; α(O)=5.41×10^{-5} *8*; α(P)=2.92×10^{-6} *4* Eγ=437.2 *5*, Iγ=3.0 *9*, Ice(K)=0.13 *3* (1975VyZY). Eγ=437.84 *20*, Iγ=0.7 *2* (1976Me06).
[x]439.9[d] *5*	2.0[d] *8*					M1,E2		0.041 *16*	%Iγ=0.09 *4* α(K)exp=0.040 *19* α(K)=0.034 *14*; α(L)=0.0057 *14*; α(M)=0.00130 *28* α(N)=0.00030 *7*; α(O)=4.2×10^{-5} *11*; α(P)=2.0×10^{-6} *9* Ice(K)=0.08 *2* (1975VyZY).
443.0[he] *9*	4.2[he] *17*	477.43	9/2⁻	33.916	7/2⁺	[E1]		0.00794 *12*	%Iγ=0.18 *8* α(K)=0.00671 *10*; α(L)=0.000963 *14*; α(M)=0.0002140 *32* α(N)=4.99×10^{-5} *7*; α(O)=7.00×10^{-6} *10*; α(P)=3.50×10^{-7} *5* Iγ=1.5 *6* (1976Me06) scaled to 4.2 *17*. E_γ: 1976Me06 proposed alternative placement of 443.0γ from 569.4 level, which would be consistent only with mult(443.0γ)=E2 and J^π(569.4 level)=7/2⁺.
443.0[h] *9*	4.2[h] *17*	569.39	(7/2)⁺	125.918	11/2⁺	[E2]		0.0244 *4*	%Iγ=0.18 *8* α(K)=0.01889 *28*; α(L)=0.00428 *7*; α(M)=0.000997 *15*

$^{167}_{70}$Yb$_{97}$-27

γ(^{167}Yb) (continued)

E_γ [†]	I_γ [‡f]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [#]	δ [@]	α [g]	Comments
									α(N)=0.000231 *4*; α(O)=3.03×10^{-5} *5*; α(P)=1.024×10^{-6} *15*
445.56 *12*	33 *2*	571.489	(11/2)⁻	125.918	11/2⁺	E1(+M2)	≤0.11	0.0089 *11*	%Iγ=1.43 *16* A_2=−0.69 *26*; α(K)exp=0.0073 *10* α(K)=0.0075 *9*; α(L)=0.00110 *15*; α(M)=0.000246 *35* α(N)=5.8×10^{-5} *8*; α(O)=8.1×10^{-6} *12*; α(P)=4.1×10^{-7} *6* Eγ=445.65 *8*, Iγ=33 *2*, Ice(K)=0.24 *3* (1975VyZY). Eγ=445.41 *10*, Iγ=10.5 *17* (1976Me06). δ: −0.01≤δ≤+0.70 from γ(θ) (1981Kr08); ≤0.11 from α(K)exp.
464.32 *20*	4.8 *8*	677.18	(5/2,7/2)⁻	213.167	(5/2)⁻	E2		0.02159 *30*	%Iγ=0.21 *4* α(K)exp=0.021 *7* α(K)=0.01681 *24*; α(L)=0.00370 *5*; α(M)=0.000858 *12* α(N)=0.0001991 *28*; α(O)=2.62×10^{-5} *4*; α(P)=9.15×10^{-7} *13* Eγ=464.4 *2*, Iγ=4.8 *8*, Ice(K)=0.10 *3* (1975VyZY). Eγ=464.23 *20*, Iγ=1.9 *3* (1976Me06).
[x]467.13 *30*	2.2 *7*					(E2)		0.02125 *30*	α(K)exp=0.023 *9* %Iγ=0.10 *3* α(K)exp=0.025 *10* α(K)=0.01656 *23*; α(L)=0.00363 *5*; α(M)=0.000842 *12* α(N)=0.0001953 *28*; α(O)=2.57×10^{-5} *4*; α(P)=9.02×10^{-7} *13* Eγ=466.9 *5*, Iγ=2.2 *7*, Ice(K)=0.05 *1* (1975VyZY). Eγ=467.21 *30*, Iγ=1.0 *4* (1976Me06).
470.70 *20*	11.0 *10*	788.36	(9/2)⁻	317.488	(7/2)⁻	M1+E2	≈+0.3	≈0.0456	%Iγ=0.48 *6* A_2=−0.59 *40*; α(K)exp=0.049 *10* α(K)≈0.0383; α(L)≈0.00575; α(M)≈0.001286 α(N)≈0.000302; α(O)≈4.31×10^{-5}; α(P)≈2.286×10^{-6} Eγ=470.8 *2*, Iγ=11 *1*, Ice(K)=0.54 *10* (1975VyZY). Eγ=470.55 *25*, Iγ=3.2 *5* (1976Me06). δ: +0.3≤δ≤+10.8 from γ(θ) (1981Kr08); ≤0.31 from α(K)exp.
[x]474.08 *20*	3.0 *8*								%Iγ=0.13 *4* Eγ=474.3 *5*, Iγ=3.0 *8* (1975VyZY). Eγ=474.05 *20*, Iγ=1.3 *3* (1976Me06).
477.32[e] *35*	2.0[e] *6*	477.43	9/2⁻	0.0	5/2⁻	[E2]		0.02009 *28*	%Iγ=0.09 *3* α(K)=0.01570 *22*; α(L)=0.00339 *5*; α(M)=0.000787 *11* α(N)=0.0001826 *26*; α(O)=2.412×10^{-5} *34*; α(P)=8.58×10^{-7} *12* Iγ=0.7 *2* (1976Me06) scaled to 2.0 *6*.
479.88[h] *30*	3.0[h] *10*	719.61	(7/2)⁻	239.163	(5/2)⁻	M1,E2		0.033 *13*	%Iγ=0.13 *5* α(K)exp≈0.023 α(K)=0.027 *11*; α(L)=0.0045 *12*; α(M)=0.00102 *24*

$^{167}_{70}Yb_{97}$-28

γ(^{167}Yb) (continued)

Eγ[†]	Iγ[‡f]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	δ[@]	α[g]	Comments
									α(N)=0.00024 *6*; α(O)=3.3×10^{-5} *9*; α(P)=1.6×10^{-6} *7* Eγ=479.4 *7*, Iγ=3 *1*, Ice(K)≈0.068 (1975VyZY). Eγ=479.97 *30*, Iγ=0.7 *2* (1976Me06). Placement of 479.88γ from 719 or 788 level in 1976Me06, whereas in 1976Gr06, only placed from 788 level.
479.88[h] *30*	3.0[h] *10*	788.36	(9/2)$^-$	308.401	(7/2)$^-$	M1,E2		0.033 *13*	α(K)=0.027 *11*; α(L)=0.0045 *12*; α(M)=0.00102 *24* α(N)=0.00024 *6*; α(O)=3.3×10^{-5} *9*; α(P)=1.6×10^{-6} *7* %Iγ=0.13 *5*
[x]485.16[e] *20*	4.2[e] *8*								%Iγ=0.18 *4* Iγ=1.5 *3* (1976Me06).
[x]487.57 *20*	7.2 *15*					E1,E2		0.013 *7*	%Iγ=0.31 *7* α(K)exp=0.010 *3* Eγ=487.6 *2*, Iγ=7.2 *15*, Ice(K)=0.07 *2* (1975VyZY). Eγ=487.53 *20*, Iγ=2.0 *3*, scaled to 5.6 *8* (1976Me06).
494.60 *18*	7.2 *15*	553.38	9/2$^-$	58.539	9/2$^+$	[E1]		0.00621 *9*	%Iγ=0.31 *7* α(K)exp=0.010 *3* α(K)=0.00525 *7*; α(L)=0.000749 *11*; α(M)=0.0001662 *23* α(N)=3.88×10^{-5} *5*; α(O)=5.45×10^{-6} *8*; α(P)=2.76×10^{-7} *4* Eγ=494.8 *2*, Iγ=7.2 *15*, Ice(K)=0.07 *2* (1975VyZY). Eγ=494.44 *18*, Iγ=1.7 *3*, scaled to 4.8 *14* (1976Me06, unplaced). Mult.: E1 or E2 from α(K)exp; Δπ=yes from level scheme.
[x]504.9[d] *4*	6.5[d] *15*					E1,E2		0.012 *6*	%Iγ=0.28 *7* α(K)exp<0.011 *3* Ice(K)<0.07 (1975VyZY).
[x]507.2 *2*	12 *2*					E2(+M1)	>0.9[&]	0.023 *6*	%Iγ=0.52 *10* α(K)exp=0.019 *5* α(K)=0.019 *5*; α(L)=0.0034 *6*; α(M)=0.00077 *12* α(N)=0.000181 *29*; α(O)=2.5×10^{-5} *5*; α(P)=1.09×10^{-6} *34* Eγ=507.2 *2*, Iγ=12 *2*, Ice(K)=0.23 *5* (1975VyZY).
[x]510.3[d] *7*	43[d] *10*					(E2)		0.01694 *24*	%Iγ=1.9 *5* α(K)exp=0.016 *4* α(K)=0.01336 *19*; α(L)=0.00277 *4*; α(M)=0.000641 *9* α(N)=0.0001488 *22*; α(O)=1.979×10^{-5} *29*; α(P)=7.34×10^{-7} *11* Ice(K)=0.7 *1* (1975VyZY). Evaluators note: this line may be mixed with the annihilation radiation.
513.1 *1*	50 *10*	571.489	(11/2)$^-$	58.539	9/2$^+$	(E1)		0.00573 *8*	%Iγ=2.2 *5* α(K)exp=0.0076 *25* α(K)=0.00484 *7*; α(L)=0.000690 *10*; α(M)=0.0001530 *21* α(N)=3.57×10^{-5} *5*; α(O)=5.03×10^{-6} *7*; α(P)=2.55×10^{-7} *4*

$^{167}_{70}$Yb$_{97}$-29

γ(^{167}Yb) (continued)

E_γ[†]	I_γ[‡f]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	δ[@]	α[g]	$I_{(\gamma+ce)}$[f]	Comments
										Eγ=513.1 *1*, Iγ=50 *10*, Ice(K)=0.38 *10* (1975VyZY). Eγ=513.30 *80*, Iγ=12.0 *40* (1976Me06).
[x]515.3[d] *2*	7[d] *2*					E1		0.00567 *8*		%Iγ=0.30 *9* α(K)exp≈0.003 α(K)=0.00480 *7*; α(L)=0.000683 *10*; α(M)=0.0001516 *21* α(N)=3.54×10^{-5} *5*; α(O)=4.98×10^{-6} *7*; α(P)=2.528×10^{-7} *35* Ice(K)≈0.02 (1975VyZY).
[x]528.17[e] *30*	2.8[e] *6*									%Iγ=0.12 *3* Iγ=1.0 *2* (1976Me06).
[x]534.60 *20*	6.9 *14*					M1		0.0345 *5*		%Iγ=0.30 *7* α(K)exp=0.029 *9* α(K)=0.0290 *4*; α(L)=0.00427 *6*; α(M)=0.000952 *13* α(N)=0.0002236 *31*; α(O)=3.21×10^{-5} *5*; α(P)=1.733×10^{-6} *24* Eγ=534.85 *15*, Iγ=6.9 *14*, Ice(K)=0.20 *5* (1975VyZY). Eγ=534.44 *12*, Iγ=2.5 *4* (1976Me06).
539.66[h] *20*	5.8[h] *15*	569.39	(7/2)$^+$	29.656	5/2$^+$	[M1,E2]		0.024 *9*		%Iγ=0.25 *7* A_2=+0.77 *70*; A_2=+0.71 *65*; A_2=+0.94 *86*; α(K)exp=0.029 *10* α(K)=0.020 *8*; α(L)=0.0033 *9*; α(M)=7.4×10^{-4} *19* α(N)=1.7×10^{-4} *5*; α(O)=2.4×10^{-5} *7*; α(P)=1.2×10^{-6} *5* Eγ=539.7 *2*, Iγ=5.8 *15*, Ice(K)=0.17 *4* (1975VyZY). Eγ=539.50 *40*, Iγ=2.2 *3* (1976Me06). δ: −13.3≤δ(Q/D)≤+0.2 for first A_2 if J(569)=7/2; -∞≤δ(Q/D)≤−0.5 for second A_2 if J(569)=5/2; −4.16≤δ(Q/D)≤−0.02 for third A_2 if J(569)=3/2 (1981Kr08). M1(+E2) from α(K)exp for doubly-placed γ. Double placement suggested in 1981Kr08 only.
539.66[h] *20*	5.8[h] *15*	719.61	(7/2)$^-$	179.750	(3/2$^-$)	[E2]		0.01473 *21*		%Iγ=0.25 *7* α(K)=0.01169 *16*; α(L)=0.002351 *33*; α(M)=0.000542 *8* α(N)=0.0001259 *18*; α(O)=1.683×10^{-5} *24*; α(P)=6.45×10^{-7} *9* Mult.: M1(+E2) for doubly−placed γ. Placement from 1981Kr08 only. 1976Me06 and 1977Gr21 placed 539.66γ from 569 level only.
[x]545.4[d] *5*	4.5[d] *10*					E2		0.01435 *20*		%Iγ=0.20 *5* α(K)exp=0.011 *3*

γ(^{167}Yb) (continued)

E_γ [†]	I_γ [‡f]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [#]	δ [@]	α [g]	Comments
									α(K)=0.01140 *16*; α(L)=0.002280 *32*; α(M)=0.000525 *7* α(N)=0.0001221 *17*; α(O)=1.634×10^{-5} *23*; α(P)=6.30×10^{-7} *9* Ice(K)=0.05 *1* (1975VyZY).
549.00 *30*	5.6 *15*	788.36	(9/2)$^-$	239.163	(5/2)$^-$	E2(+M3)	+0.1 *+4−3*	0.02 *4*	%Iγ=0.24 *7* A_2=−0.53 *32*; α(K)exp=0.020 *6* α(K)=0.013 *35*; α(L)=0.003 *7*; α(M)=6.E−4 *18* α(N)=1.E−4 *4*; α(O)=2.E−5 *6*; α(P)=8.E−7 *28* Eγ=549.0 *5*, Iγ=5.6 *15*, Ice(K)=0.11 *2* (1975VyZY). Eγ=549.00 *30*, Iγ=1.0 *3*, scaled to 2.8 *8* (1976Me06).
^{x}561.2[d] *7*	3.4[d] *15*								%Iγ=0.15 *7*
^{x}567.0[d] *7*	4.1[d] *20*					M1		0.0296 *4*	%Iγ=0.18 *9* α(K)exp=0.037 *19* α(K)=0.0249 *4*; α(L)=0.00366 *5*; α(M)=0.000817 *12* α(N)=0.0001919 *28*; α(O)=2.75×10^{-5} *4*; α(P)=1.489×10^{-6} *21* Ice(K)=0.15 *3* (1975VyZY).
570.0 *2*	14 *6*	628.62	7/2$^+$	58.539	9/2$^+$	M1(+E2)[b]	−0.3 *10*	0.028 *9*	%Iγ=0.6 *3* A_2=−0.69 *20*; α(K)exp≥0.015 *4* α(K)=0.023 *8*; α(L)=0.0035 *9*; α(M)=0.00078 *19* α(N)=0.00018 *4*; α(O)=2.6×10^{-5} *7*; α(P)=1.4×10^{-6} *5* E_γ: from 1975VyZY; Eγ=569.86 *13* in 1976Me06 is possibly for a doublet. I_γ: Iγ=16.9 *30* for 570.0γ+570.7γ in 1975VyZY; 5.0 *4* scaled to 14.0 *11* in 1976Me06. From Ice(K)(570.0γ), α(K)exp(570.0γ) (ruling out E1), and Iγ(570.0)≥10 *2* assuming α(K)exp≤α(K) (M1 theory), evaluators adopt Iγ=14 *6* for this component of the doublet, leaving Iγ=3 *7* for the 570.7γ. Alternatively, from Ice(K)(570.7γ), Iγ(570.7)≤13 *3* and ≥2, respectively, assuming α(K)exp≥α(K)(E1) and ≤α(K)(M1). δ: −1.2≤δ(Q/D)≤+0.7 from γ(θ).
^{x}570.7 *3*									Eγ=570.7 *3*, Iγ=16.9 *30* for 570.0γ+570.7γ, Ice(K)=0.05 *1* (1975VyZY). Possible values of Iγ=3 *7*, ≤13 *3* or ≥2 are discussed in comment for 570.0γ from 628 level. In 1976Me06, only the 569.86 *13* γ placed from 628 level is reported, suggesting that only a small component may belong to 570.7γ.
^{x}574.3 *3*	9 *2*					M1		0.0287 *4*	%Iγ=0.39 *9* α(K)exp=0.019 *6* α(K)=0.02414 *34*; α(L)=0.00355 *5*; α(M)=0.000791 *11* α(N)=0.0001857 *26*; α(O)=2.66×10^{-5} *4*; α(P)=1.441×10^{-6} *20* Eγ=574.8 *3*, Iγ=9 *2*, Ice(K)=0.17 *4* (1975VyZY). Eγ=574.10 *17*, Iγ=1.8 *3*, scaled to 5.0 *8* (1976Me06).

γ(^{167}Yb) (continued)

E_γ[†]	I_γ[‡f]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ[@]	α[g]	Comments
[x]580.0[d] 5	3[d] 1					(E2)		0.01235 17	%Iγ=0.13 5 α(K)exp≈0.013 4 α(K)=0.00988 14; α(L)=0.001913 27; α(M)=0.000439 6 α(N)=0.0001022 15; α(O)=1.375×10^{-5} 20; α(P)=5.48×10^{-7} 8 Ice(K)≈0.04 (1975VyZY).
[x]583.0[d] 5	3[d] 1								%Iγ=0.13 5
[x]588.18 30	2.8 10					M1		0.0270 4	%Iγ=0.12 5 α(K)exp=0.029 12 α(K)=0.02272 32; α(L)=0.00333 5; α(M)=0.000743 10 α(N)=0.0001746 25; α(O)=2.505×10^{-5} 35; α(P)=1.355×10^{-6} 19 Eγ=588.4 5, Iγ=2.8 10, Ice(K)=0.08 2 (1975VyZY). Eγ=588.10 30, Iγ=1.3 4 (1976Me06).
591.32 10	22 1	1022.27	(5/2,9/2)$^+$	430.87	7/2$^+$	M1+E2[b]	+3.0 +21−12	0.0133 20	%Iγ=0.96 10 A_2=−0.55 19; α(K)exp=0.0114 23 α(K)=0.0107 18; α(L)=0.00196 20; α(M)=0.00045 4 α(N)=0.000104 10; α(O)=1.42×10^{-5} 16; α(P)=6.1×10^{-7} 11 Eγ=591.4 1, Iγ=22 1, Ice(K)=0.25 5 (1975VyZY). Eγ=591.19 13, Iγ=8.6 10 (1976Me06). δ: other: 2.5 +∞−10 from α(K)exp.
594.51[h] 20	8.5[h] 15	628.62	7/2$^+$	33.916	7/2$^+$	[M1,E2]		0.019 7	%Iγ=0.37 7 A_2=+0.8 6; α(K)exp=0.020 6 α(K)=0.016 6; α(L)=0.0025 7; α(M)=5.7×10^{-4} 16 α(N)=1.3×10^{-4} 4; α(O)=1.9×10^{-5} 6; α(P)=9.E−7 4 Eγ=594.6 2, Iγ=8.5 15, Ice(K)=0.17 4 (1975VyZY). Eγ=594.30 30, Iγ=3.2 5 (1976Me06). Mult.: M1(+E2) for doubly−placed γ.
594.51[h] 17	8.5[h] 15	1951.10	(9/2)	1356.32	(9/2$^+$,11/2$^+$)				%Iγ=0.37 7 δ: −12.6≤δ(Q/D)≤+0.1 if 9/2 to 7/2; or -∞≤δ≤−0.8 if 9/2 to 9/2 (1981Kr08).

$^{167}_{70}$Yb$_{97}$-32

γ(^{167}Yb) (continued)

E_γ[†]	I_γ[‡f]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	δ[@]	α[g]	Comments
									%Iγ=0.37 *7* δ: −12.6≤δ(Q/D)≤+0.1 if 9/2 to 7/2; or −∞≤δ≤−0.8 if 9/2 to 9/2 (1981Kr08). This placement affirmed by γγ-coin (1975VyZY).
597.4[d] *6*	4[d] *3*	1952.66	(7/2)$^+$	1356.32	(9/2$^+$,11/2$^+$)	[M1,E2]		0.019 *7*	%Iγ=0.17 *13* α(K)=0.016 *6*; α(L)=0.0025 *7*; α(M)=5.6×10^{-4} *16* α(N)=1.3×10^{-4} *4*; α(O)=1.8×10^{-5} *6*; α(P)=9.E−7 *4*
599.35 *35*	16.2 *17*	628.62	7/2$^+$	29.656	5/2$^+$	M1+E2[b]	+0.14 *12*	0.0255 *7*	%Iγ=0.70 *10* A_2=+0.07 *22*; α(K)exp=0.022 *4* α(K)=0.0214 *6*; α(L)=0.00315 *8*; α(M)=0.000702 *17* α(N)=0.000165 *4*; α(O)=2.36×10^{-5} *6*; α(P)=1.28×10^{-6} *4* E_γ: unweighted average of the two values. Eγ=599.7 *2*, Iγ=16.0 *27*, Ice(K)=0.36 *6* (1975VyZY). Eγ=599.00 *20*, Iγ=5.8 *6*, scaled to 16.2 *17* (1976Me06). I_γ: from 1976Me06.
^{x}602.16 *17*	19.5 *20*					M1		0.0254 *4*	%Iγ=0.85 *12* α(K)exp=0.023 *5* α(K)=0.02140 *30*; α(L)=0.00314 *4*; α(M)=0.000700 *10* α(N)=0.0001643 *23*; α(O)=2.357×10^{-5} *33*; α(P)=1.276×10^{-6} *18* Eγ=602.5 *2*, Iγ=19.5 *20*, Ice(K)=0.45 *8* (1975VyZY). Eγ=602.07 *10*, Iγ=7.0 *7* (1976Me06).
^{x}604.7[d] *3*	8.8[d] *18*					E1,E2		0.008 *4*	%Iγ=0.38 *9* α(K)exp≤0.017 *3* Ice(K)≤0.15 (1975VyZY).
609.41 *16*	10.5 *15*	788.36	(9/2)$^-$	178.863	9/2$^-$	E2(+M1)	≥1.2	0.0138 *28*	%Iγ=0.46 *8* A_2=+0.17 *24*; α(K)exp=0.0114 *25* α(K)=0.0113 *25*; α(L)=0.00195 *28*; α(M)=0.00044 *6* α(N)=0.000103 *15*; α(O)=1.42×10^{-5} *22*; α(P)=6.4×10^{-7} *15* Eγ=609.5 *2*, Iγ=10.5 *15*, Ice(K)=0.12 *2* (1975VyZY). Eγ=609.35 *16*, Iγ=3.0 *5* (1976Me06). δ: -∞<δ≤−0.4 or +2.1≤δ≤+∞ from γ(θ) (1981Kr08); ≥1.2 from α(K)exp.
^{x}618.7[d] *2*	3.0[d] *5*								%Iγ=0.130 *25*
^{x}626.4[d] *5*	3.1[d] *10*					E1		0.00375 *5*	%Iγ=0.14 *5* α(K)exp<0.0065 *21*

$^{167}_{70}Yb_{97}$-33

γ(^{167}Yb) (continued)

E_γ[†]	I_γ[‡f]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[g]	Comments
								α(K)=0.00317 *4*; α(L)=0.000446 *6*; α(M)=9.89×10^{-5} *14* α(N)=2.311×10^{-5} *33*; α(O)=3.27×10^{-6} *5*; α(P)=1.687×10^{-7} *24* Ice(K)<0.02 (1975VyZY).
^{x}630.8[d] *6*	4.4[d] *20*					M1,E2	0.016 *6*	%Iγ=0.19 *9* α(K)exp=0.016 *8* α(K)=0.014 *5*; α(L)=0.0022 *6*; α(M)=4.8×10^{-4} *14* α(N)=1.13×10^{-4} *33*; α(O)=1.6×10^{-5} *5*; α(P)=7.9×10^{-7} *34* Ice(K)=0.07 *1* (1975VyZY).
^{x}633.32 *20*	15.6 *30*					M1,E2	0.016 *6*	%Iγ=0.68 *14* α(K)exp=0.012 *3* α(K)=0.013 *5*; α(L)=0.0021 *6*; α(M)=4.8×10^{-4} *14* α(N)=1.12×10^{-4} *32*; α(O)=1.6×10^{-5} *5*; α(P)=7.9×10^{-7} *34* Eγ=633.3 *2*, Iγ=15.6 *30*, Ice(K)=0.18 *3* (1975VyZY). Eγ=633.34 *20*, Iγ=3.5 *5*, scaled to 9.8 *14* (1976Me06).
^{x}635.0[d] *4*	8.3[d] *32*							%Iγ=0.36 *14*
640[hd] *1*	2.0[hd] *10*	719.61	(7/2)$^-$	78.679	7/2$^-$	(M1(+E2))	0.016 *6*	%Iγ=0.09 *5* α(K)exp=0.020 *11* α(K)=0.013 *5*; α(L)=0.0021 *6*; α(M)=4.7×10^{-4} *13* α(N)=1.09×10^{-4} *31*; α(O)=1.5×10^{-5} *5*; α(P)=7.7×10^{-7} *33* I(ceK)=0.04 *1* (1975VyZY). Mult.: M1(+E2) for doubly−placed γ.
640[h] *1*	2.0[h] *10*	1995.32	(9/2$^-$)	1356.32	(9/2$^+$,11/2$^+$)	[E1+M2]	0.0042 *6*	%Iγ=0.09 *5* α(K)=0.0035 *5*; α(L)=0.00051 *8*; α(M)=0.000113 *18* α(N)=2.6×10^{-5} *4*; α(O)=3.7×10^{-6} *6*; α(P)=1.93×10^{-7} *32* Mult.: M1(+E2) for the doublet; but level scheme require Δπ=yes.
642.11[h] *15*	7.0[h] *8*	1947.48	(9/2)$^+$	1305.53	(7/2$^-$)	(E1(+M2))	0.0041 *6*	%Iγ=0.30 *5* A_2=−0.55 *34*; α(K)exp=0.019 *4* α(K)=0.0035 *5*; α(L)=0.00050 *8*; α(M)=0.000112 *18* α(N)=2.6×10^{-5} *4*; α(O)=3.7×10^{-6} *6*; α(P)=1.92×10^{-7} *32* Eγ=642.2 *2*, Iγ=7.5 *20*, Ice(K)=0.13 *2* (1975VyZY). Eγ=642.06 *15*, Iγ=2.5 *3*, scaled to 7.0 *8* (1976Me06). I_γ: from 1976Me06. δ: +0.3≤δ(Q/D)≤+9.4 from γ(θ) (1981Kr08); M1(+E2) from α(K)exp for doubly-placed line, but level scheme requires Δπ=yes.
642.11[h] *15*	7.0[h] *8*	1998.42	(9/2)$^+$	1356.32	(9/2$^+$,11/2$^+$)	(M1(+E2))	0.016 *6*	α(K)=0.013 *5*; α(L)=0.0021 *6*; α(M)=4.6×10^{-4} *13*

35

γ(^{167}Yb) (continued)

E_{γ}[†]	I_{γ}[‡f]	E_i(level)	J_i^{π}	E_f	J_f^{π}	Mult.[#]	α[g]	Comments
								α(N)=1.08×10^{-4} *31*; α(O)=1.5×10^{-5} *5*; α(P)=7.6×10^{-7} *32* %Iγ=0.30 *5* δ: −0.3≤δ≤+9.8 if J(1356)=7/2; −0.3≤δ≤+1.6 if J(1356)=9/2 (1981Kr08); α(K)exp gives M1(+E2); multiply−placed γ.
[x]646.18 *21*	2.5 *8*					M1	0.02126 *30*	%Iγ=0.11 *4* α(K)exp=0.036 *14* α(K)=0.01790 *25*; α(L)=0.00262 *4*; α(M)=0.000584 *8* α(N)=0.0001370 *19*; α(O)=1.967×10^{-5} *28*; α(P)=1.066×10^{-6} *15* Eγ=646.6 *4*, Iγ=2.5 *8*, Ice(K)=0.09 *2* (1975VyZY). Eγ=646.08 *20*, Iγ=1.6 *2*, scaled to 4.5 *6* (1976Me06).
[x]652.1 *5*	4.8 *6*					M1	0.02077 *29*	α(K)exp=0.025 *5* %Iγ=0.21 *3* α(K)=0.01749 *25*; α(L)=0.00256 *4*; α(M)=0.000570 *8* α(N)=0.0001339 *19*; α(O)=1.921×10^{-5} *27*; α(P)=1.041×10^{-6} *15* E_{γ}: unweighted average of the two values. It is possible that one of the values is a misprint. Eγ=652.6 *2*, Iγ=4.8 *6*, Ice(K)=0.12 *2* (1975VyZY). Eγ=651.64 *25*, Iγ=1.2 *2*, scaled to 3.4 *6* (1976Me06).
[x]660.5[d] *2*	10.5[d] *10*					E1	0.00336 *5*	%Iγ=0.46 *6* α(K)exp=0.0038 *10* α(K)=0.00285 *4*; α(L)=0.000399 *6*; α(M)=8.84×10^{-5} *12* α(N)=2.066×10^{-5} *29*; α(O)=2.92×10^{-6} *4*; α(P)=1.516×10^{-7} *21* Ice(K)=0.04 *1* (1975VyZY).
[x]663.75 *20*	4.8 *5*					E1,E2		%Iγ=0.21 *3* α(K)exp=0.0042 *21* Eγ=663.8 *2*, Iγ=4.8 *5*, Ice(K)=0.02 *1* (1975VyZY). Eγ=663.64 *30*, Iγ=1.4 *2* (1976Me06).
[x]671.12 *35*	2.8 *13*					E1	0.00325 *5*	%Iγ=0.12 *6* α(K)exp<0.0036 α(K)=0.00276 *4*; α(L)=0.000386 *5*; α(M)=8.55×10^{-5} *12* α(N)=1.998×10^{-5} *28*; α(O)=2.83×10^{-6} *4*; α(P)=1.468×10^{-7} *21* Eγ=671.4 *6*, Iγ=2.8 *13*, Ice(K)<0.01 (1975VyZY). Eγ=671.02 *35*, Iγ=1.3 *2* (1976Me06).
673.89 *25*	6.7 *14*	1979.49	(7/2^{-})	1305.53	(7/2^{-})	[E2]	0.00868 *12*	%Iγ=0.29 *7* α(K)exp=0.006 *3* α(K)=0.00704 *10*; α(L)=0.001270 *18*; α(M)=0.000290 *4* α(N)=6.75×10^{-5} *9*; α(O)=9.20×10^{-6} *13*; α(P)=3.93×10^{-7} *6* Eγ=673.9 *4*, Iγ=6.7 *14*, Ice(K)=0.04 *2* (1975VyZY). Eγ=673.88 *25*, Iγ=2.0 *3* (1976Me06). α(K)exp consistent with E2(+M1) or E1.
677.23[h] *15*	13[h] *2*	677.18	(5/2,7/2)$^{-}$	0.0	5/2^{-}	[M1,E2]	0.014 *5*	%Iγ=0.57 *10*

γ(^{167}Yb) (continued)

E_γ [†]	I_γ [‡f]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [#]	α [g]	Comments
								α(K)exp=0.0031 *16*; α(K)exp=0.0048 *24* α(K)=0.011 *4*; α(L)=0.0018 *5*; α(M)=4.0×10^{-4} *12* α(N)=9.4×10^{-5} *27*; α(O)=1.3×10^{-5} *4*; α(P)=6.7×10^{-7} *28* Eγ=677.4 *2*, Iγ=13 *2*, Ice(K)=0.04 *2* (1975VyZY). Eγ=677.14 *15*, Iγ=3.0 *4*, scaled to 8.4 *11* (1976Me06). First α(K)exp from Iγ in 1975VyZY, second in 1976Me06, respectively. This γ placed by 1976Me06, 1977Gr21 (and 1981Kr08) from 677 and/or 1305 level(s); level scheme requires mult=M1,E2 for placement from 677 level and E1 from 1305 level.
677.23[h] *15*	13[h] *2*	1305.53	(7/2$^-$)	628.62	7/2$^+$	[E1]	0.00319 *4*	α(K)=0.00270 *4*; α(L)=0.000379 *5*; α(M)=8.39×10^{-5} *12* α(N)=1.960×10^{-5} *27*; α(O)=2.77×10^{-6} *4*; α(P)=1.442×10^{-7} *20* %Iγ=0.57 *10*
^{x}679.92 *19*	5.0 *15*					(M1,E2)	0.014 *5*	%Iγ=0.22 *7* α(K)exp≈0.008 α(K)=0.011 *4*; α(L)=0.0018 *5*; α(M)=4.0×10^{-4} *11* α(N)=9.3×10^{-5} *27*; α(O)=1.3×10^{-5} *4*; α(P)=6.6×10^{-7} *28* Eγ=680.0 *3*, Iγ=5.0 *15*, Ice(K)≈0.04 (1975VyZY). Eγ=679.86 *25*, Iγ=1.5 *2*, scaled to 4.2 *6* (1976Me06).
685.3[d] *5*	4.7[d] *25*	719.61	(7/2)$^-$	33.916	7/2$^+$	[E1]	0.00311 *4*	%Iγ=0.20 *11* α(K)exp≤0.014 α(K)=0.00264 *4*; α(L)=0.000369 *5*; α(M)=8.18×10^{-5} *12* α(N)=1.913×10^{-5} *27*; α(O)=2.71×10^{-6} *4*; α(P)=1.409×10^{-7} *20* I(ceK)≤0.03 (1975VyZY). Mult.: E1 or E2 from α(K)exp; Δπ=yes from level scheme.
689.7 *3*	7.7 *21*	719.61	(7/2)$^-$	29.656	5/2$^+$	[E1]	0.00307 *4*	%Iγ=0.33 *10* α(K)exp≤0.0054; α(K)exp≤0.016 α(K)=0.00261 *4*; α(L)=0.000365 *5*; α(M)=8.07×10^{-5} *11* α(N)=1.887×10^{-5} *26*; α(O)=2.67×10^{-6} *4*; α(P)=1.391×10^{-7} *20* Eγ=689.8 *2*, Iγ=7.7 *21*, Ice(K)≤0.03 (1975VyZY). Eγ=688.85 *50*, Iγ=0.8 *1*, scaled to 2.2 *3* (1976Me06). First α(K)exp from Iγ in 1975VyZY, second in 1976Me06.
^{x}695.93 *22*	8.3 *17*							%Iγ=0.36 *8* α(K)exp≤0.0048; α(K)exp≤0.0111 Eγ=695.8 *2*, Iγ=8.3 *17*, Ice(K)≤0.04 (1975VyZY). Eγ=696.32 *35*, Iγ=1.3 *2*, scaled to 3.6 *6* (1976Me06). First α(K)exp from Iγ in 1975VyZY, second in 1976Me06.
^{x}702.6[d] *7*	2.7[d] *16*							%Iγ=0.12 *7* α(K)exp=0.015 *11* Ice(K)=0.04 *2* (1975VyZY).
705.3[d] *5*	2.8[d] *14*	1022.27	(5/2,9/2)$^+$	317.488	(7/2)$^-$	[E1]	0.00294 *4*	%Iγ=0.12 *6* α(K)=0.002492 *35*; α(L)=0.000348 *5*; α(M)=7.71×10^{-5} *11* α(N)=1.802×10^{-5} *25*; α(O)=2.55×10^{-6} *4*; α(P)=1.331×10^{-7} *19*

$^{167}_{70}$Yb$_{97}$-36

γ(^{167}Yb) (continued)

E_γ [†]	I_γ [‡f]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [#]	δ [@]	α [g]	Comments
709.79 *15*	13.0 *12*	788.36	(9/2)$^-$	78.679	7/2$^-$	E2(+M1)	≥1.8	0.0088 *11*	%Iγ=0.57 *7* A_2=−0.24 *49*; α(K)exp=0.0058 *16* α(K)=0.0072 *9*; α(L)=0.00122 *11*; α(M)=0.000277 *25* α(N)=6.5×10^{-5} *6*; α(O)=8.9×10^{-6} *9*; α(P)=4.1×10^{-7} *6* Eγ=709.9 *2*, Iγ=13.0 *12*, Ice(K)=0.075 *20* (1975VyZY). Eγ=709.73 *15*, Iγ=3.6 *5*, scaled to 10.1 *14* (1976Me06). δ: δ(Q/D)=+0.30 *+50−27* or ≥1.8 (magnitude of δ) from γ(θ) (1981Kr08); smaller δ not consistent with α(K)exp.
^{x}715.89 *12*	16.0 *12*					M1		0.01642 *23*	%Iγ=0.70 *8* α(K)exp=0.011 *3* α(K)=0.01383 *19*; α(L)=0.002016 *28*; α(M)=0.000449 *6* α(N)=0.0001055 *15*; α(O)=1.514×10^{-5} *21*; α(P)=8.22×10^{-7} *12* Eγ=715.9 *2*, Iγ=16.0 *12*, Ice(K)=0.18 *4* (1975VyZY). Eγ=715.88 *12*, Iγ=4.6 *7*, scaled to 12.9 *20* (1976Me06).
719.81 *25*	6.8 *6*	719.61	(7/2)$^-$	0.0	5/2$^-$	E2(+M1)	>1.0[&]	0.0097 *22*	%Iγ=0.30 *4* α(K)exp=0.007 *3* α(K)=0.0080 *19*; α(L)=0.00130 *23*; α(M)=0.00029 *5* α(N)=6.9×10^{-5} *12*; α(O)=9.6×10^{-6} *18*; α(P)=4.6×10^{-7} *12* Eγ=719.9 *3*, Iγ=6.8 *6*, Ice(K)=0.05 *2* (1975VyZY). Eγ=719.74 *25*, Iγ=1.8 *3* (1976Me06, unplaced).
^{x}726.4[d] *4*	2.5[d] *8*								%Iγ=0.11 *4* α(K)exp<0.012 Ice(K)<0.03 (1975VyZY).
^{x}730.32 *15*	8.8 *7*					M1		0.01562 *22*	%Iγ=0.38 *5* α(K)exp=0.015 *3* α(K)=0.01316 *18*; α(L)=0.001916 *27*; α(M)=0.000427 *6* α(N)=0.0001002 *14*; α(O)=1.440×10^{-5} *20*; α(P)=7.82×10^{-7} *11* Eγ=730.4 *2*, Iγ=8.8 *7*, Ice(K)=0.13 *2* (1975VyZY). Eγ=730.27 *15*, Iγ=3.0 *5* (1976Me06).
^{x}734.57 *14*	8.4 *6*					M1		0.01539 *22*	%Iγ=0.37 *4* α(K)exp=0.0119 *25* α(K)=0.01297 *18*; α(L)=0.001888 *26*; α(M)=0.000421 *6* α(N)=9.88×10^{-5} *14*; α(O)=1.419×10^{-5} *20*; α(P)=7.70×10^{-7} *11* Eγ=734.6 *2*, Iγ=8.4 *6*, Ice(K)=0.10 *2* (1975VyZY). Eγ=734.54 *20*, Iγ=2.9 *4* (1976Me06).
^{x}740.1[d] *2*	10.0[d] *6*					M1+E2	0.8[&] *+7−5*	0.0120 *25*	%Iγ=0.43 *5* α(K)exp=0.0100 *21* α(K)=0.0100 *22*; α(L)=0.00152 *26*; α(M)=0.00034 *6* α(N)=8.0×10^{-5} *14*; α(O)=1.13×10^{-5} *21*; α(P)=5.9×10^{-7} *13* Ice(K)=0.10 *2* (1975VyZY). Mult.: M1 in 1975VyZY.

γ(^{167}Yb) (continued)

Eγ[†]	Iγ[‡f]	Ei(level)	J^π_i	Ef	J^π_f	Mult.[#]	δ[@]	α[g]	Comments
^{x}745.2[d] *5*	2.2[d] *8*								%Iγ=0.10 *4* α(K)exp<0.009 Ice(K)<0.02 (1975VyZY).
^{x}753.0[d] *7*	3.1[d] *5*					M1+E2	1.0[&] *+17−6*	0.0106 *29*	%Iγ=0.135 *25* α(K)exp=0.0087 *24* α(K)=0.0089 *25*; α(L)=0.00136 *31*; α(M)=0.00031 *7* α(N)=7.2×10^{-5} *16*; α(O)=1.01×10^{-5} *24*; α(P)=5.2×10^{-7} *16* Ice(K)=0.027 *6* (1975VyZY).
^{x}763.6 *4*	20.0 *14*					M1,E2		0.010 *4*	%Iγ=0.87 *10* α(K)exp=0.0080 *16*; α(K)exp=0.016 *4* α(K)=0.0086 *32*; α(L)=0.0013 *4*; α(M)=3.0×10^{-4} *9* α(N)=6.9×10^{-5} *20*; α(O)=9.8×10^{-6} *31*; α(P)=5.0×10^{-7} *20* Eγ=763.9 *2*, Iγ=20.0 *14*, Ice(K)=0.16 *3* (1975VyZY). Eγ=763.18 *32*, Iγ=4.0 *6*, scaled to 11.2 *17* (1976Me06). First α(K)exp from Iγ in 1975VyZY, second in 1976Me06.
^{x}769.6[d] *4*	2.6[d] *6*								%Iγ=0.11 *3*
^{x}779.74 *14*	5.4 *5*					E2(+M1)	1.5[&] *+32−6*	0.0084 *19*	%Iγ=0.24 *3* α(K)exp=0.0070 *16* α(K)=0.0070 *16*; α(L)=0.00111 *20*; α(M)=0.00025 *4* α(N)=5.8×10^{-5} *10*; α(O)=8.2×10^{-6} *15*; α(P)=4.0×10^{-7} *10* Eγ=779.8 *2*, Iγ=5.4 *5*, Ice(K)=0.038 *8* (1975VyZY). Eγ=779.68 *20*, Iγ=3.0 *6* (1976Me06).
784.82 *10*	20.0 *10*	1356.32	(9/2$^+$,11/2$^+$)	571.489	(11/2)$^-$	(E1)		2.38×10^{-3} *3*	α(K)=0.002017 *28*; α(L)=0.000280 *4*; α(M)=6.20×10^{-5} *9* α(N)=1.449×10^{-5} *20*; α(O)=2.057×10^{-6} *29*; α(P)=1.081×10^{-7} *15* %Iγ=0.87 *9* Eγ=784.8 *2*, Iγ=20 *1*, Ice(K)=0.047 *10* (1975VyZY).

$^{167}_{70}$Yb$_{97}$-38

γ(^{167}Yb) (continued)

E_γ[†]	I_γ[‡f]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	δ[@]	α[g]	Comments
									Eγ=784.82 *10*, Iγ=7.0 *10* (1976Me06, unplaced). α(K)exp=0.0024 *5* implies mult=E1 and, hence, π=+ for 1356 level. However, π=− is favored by nuclear orientation for doubly-placed 595γ from 1951 level assuming it has π=−.
788.44 *20*	5.4 *6*	788.36	(9/2)$^-$	0.0	5/2$^-$	E2		0.00612 *9*	%Iγ=0.24 *3* A_2=−0.17 *54*; α(K)exp=0.0056 *20* α(K)=0.00502 *7*; α(L)=0.000851 *12*; α(M)=0.0001929 *27* α(N)=4.50×10^{-5} *6*; α(O)=6.21×10^{-6} *9*; α(P)=2.82×10^{-7} *4* Eγ=788.5 *2*, Iγ=5.4 *6*, Ice(K)=0.03 *1* (1975VyZY). Eγ=788.38 *20*, Iγ=2.0 *5* (1976Me06). δ(O/Q)=−0.25 *+53−75* from γ(θ) (1981Kr08).
^{x}792.5[d] *4*	2.0[d] *5*								%Iγ=0.087 *23*
^{x}803.82 *20*	5.4 *7*					M1		0.01229	%Iγ=0.24 *4* α(K)exp=0.0087 *22* α(K)=0.01036 *15*; α(L)=0.001504 *21*; α(M)=0.000335 *5* α(N)=7.86×10^{-5} *11*; α(O)=1.130×10^{-5} *16*; α(P)=6.14×10^{-7} *9* Eγ=803.8 *2*, Iγ=5.4 *7*, Ice(K)=0.047 *10* (1975VyZY). Eγ=803.89 *40*, Iγ=1.5 *2* (1976Me06).
^{x}808.66 *20*	10.3 *12*					M1+E2	1.3[&] *+12−5*	0.0081 *15*	%Iγ=0.45 *7* α(K)exp=0.0068 *13* α(K)=0.0068 *13*; α(L)=0.00105 *16*; α(M)=0.00024 *4* α(N)=5.5×10^{-5} *8*; α(O)=7.8×10^{-6} *13*; α(P)=3.9×10^{-7} *8* Eγ=808.7 *2*, Iγ=10.3 *12*, Ice(K)=0.07 *1* (1975VyZY). Eγ=808.62 *20*, Iγ=3.1 *5* (1976Me06).
^{x}814.9 *4*	4.4 *12*								%Iγ=0.19 *6* Eγ=814.3 *5*, Iγ=4.4 *12* (1975VyZY). Eγ=815.15 *30*, Iγ=1.7 *3* (1976Me06).
^{x}817.3[d] *5*	<4.4[d]								%Iγ<0.191
^{x}826.5[d] *2*	2.4[d] *4*								%Iγ=0.104 *20*
^{x}830.64 *16*	8.5 *7*					M1		0.01132 *16*	%Iγ=0.37 *5* α(K)exp=0.0094 *25* α(K)=0.00955 *13*; α(L)=0.001384 *19*; α(M)=0.000308 *4* α(N)=7.24×10^{-5} *10*; α(O)=1.040×10^{-5} *15*; α(P)=5.66×10^{-7} *8* Eγ=830.5 *2*, Iγ=8.5 *7*, Ice(K)=0.08 *2* (1975VyZY). Eγ=830.73 *16*, Iγ=3.0 *5* (1976Me06).
^{x}833.61 *15*	8.9 *7*					M1(+E2)	<0.8[&]	0.0101 *11*	%Iγ=0.39 *5* α(K)exp=0.0079 *13*; α(K)exp=0.014 *3* α(K)=0.0085 *10*; α(L)=0.00125 *12*; α(M)=0.000279 *27* α(N)=6.5×10^{-5} *6*; α(O)=9.4×10^{-6} *10*; α(P)=5.0×10^{-7} *6* Eγ=833.5 *2*, Iγ=8.9 *7*, Ice(K)=0.07 *1* (1975VyZY). Eγ=833.76 *24*, Iγ=2.0 *3*, scaled to 5.6 *8* (1976Me06).

$^{167}_{70}Yb_{97}$-39

γ(^{167}Yb) (continued)

E_γ[†]	I_γ[‡f]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[g]	Comments
								First α(K)exp from Iγ in 1975VyZY, second in 1976Me06. Proposed placement by 1976Me06 only from 1022 to 188 level is inconsistent with (5/2,9/2)$^+$ for 1022 level and 1/2$^-$ for 188 level, and dominant mult=M1 for 83.6γ, thus evaluators reject this placement.
^{x}847.05 *21*	4.6 *9*							%Iγ=0.20 *4* α(K)exp≤0.0057 Eγ=846.7 *3*, Iγ=4.6 *9*, Ice(K)≤0.026 (1975VyZY). Eγ=847.18 *18*, Iγ=1.5 *5* (1976Me06).
855.8 *4*	5.4 *11*	1267.24	5/2$^+$	410.979	7/2$^-$	[E1]	2.01×10^{-3} *3*	%Iγ=0.24 *5* α(K)exp≈0.0063 α(K)=0.001706 *24*; α(L)=0.0002358 *33*; α(M)=5.22×10^{-5} *7* α(N)=1.220×10^{-5} *17*; α(O)=1.734×10^{-6} *24*; α(P)=9.16×10^{-8} *13* Eγ=855.9 *4*, Iγ=5.4 *11*, Ice(K)≈0.034 (1975VyZY). Eγ=855.70 *40*, Iγ=2.0 *7* (1976Me06). Mult.: M1,E2 from α(K)exp is inconsistent with Δπ=yes.
^{x}858.5 *5*	3.7 *7*					M1	0.01043 *15*	%Iγ=0.16 *3* α(K)exp≈0.0092 α(K)=0.00880 *12*; α(L)=0.001274 *18*; α(M)=0.000284 *4* α(N)=6.66×10^{-5} *9*; α(O)=9.57×10^{-6} *13*; α(P)=5.21×10^{-7} *7* Eγ=858.5 *5*, Iγ=3.7 *7*, Ice(K)≈0.034 (1975VyZY). Eγ=858.40 *60*, Iγ=1.0 *2* (1976Me06).
^{x}867.91 *20*	7.9 *9*					M1	0.01016 *14*	%Iγ=0.34 *5* α(K)exp=0.0081 *16*; α(K)exp=0.017 *3* α(K)=0.00856 *12*; α(L)=0.001240 *17*; α(M)=0.000276 *4* α(N)=6.48×10^{-5} *9*; α(O)=9.31×10^{-6} *13*; α(P)=5.07×10^{-7} *7* Eγ=868.0 *2*, Iγ=7.9 *9*, Ice(K)=0.064 *10* (1975VyZY). Eγ=867.78 *24*, Iγ=1.5 *2*, scaled to 4.2 *6* (1976Me06). First α(K)exp from Iγ in 1975VyZY, second in 1976Me06.
^{x}873.87 *19*	8.1 *8*							%Iγ=0.35 *5* α(K)exp≤0.0028; α(K)exp≤0.0051 Eγ=873.8 *2*, Iγ=8.1 *8*, Ice(K)≤0.023 (1975VyZY). Eγ=873.94 *19*, Iγ=1.8 *3*, scaled to 5.6 *14* (1976Me06). First α(K)exp from Iγ in 1975VyZY, second in 1976Me06.
^{x}883.50 *20*	8.6 *7*					M1	0.00972 *14*	%Iγ=0.37 *5* α(K)exp=0.0080 *13*; α(K)exp=0.014 *4* α(K)=0.00820 *11*; α(L)=0.001186 *17*; α(M)=0.000264 *4* α(N)=6.20×10^{-5} *9*; α(O)=8.91×10^{-6} *12*; α(P)=4.85×10^{-7} *7* Eγ=883.5 *2*, Iγ=8.6 *7*, Ice(K)=0.069 *10* (1975VyZY). Eγ=883.50 *90*, Iγ=2.0 *5*, scaled to 5.6 *14* (1976Me06). First α(K)exp from Iγ in 1975VyZY, second in 1976Me06.
^{x}887.6[d] *2*	7.7[d] *7*					E2	0.00475 *7*	%Iγ=0.33 *4*

$^{167}_{70}$Yb$_{97}$-40

γ(^{167}Yb) (continued)

E_γ[†]	I_γ[‡f]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	δ[@]	α[g]	Comments
									α(K)exp≈0.0039 α(K)=0.00392 *5*; α(L)=0.000640 *9*; α(M)=0.0001444 *20* α(N)=3.37×10^{-5} *5*; α(O)=4.69×10^{-6} *7*; α(P)=2.206×10^{-7} *31* Ice(K)≈0.030 (1975VyZY).
^{x}893.0[d] *2*	6.2[d] *5*					M1(+E2)	<1.5[&]	0.0078 *17*	%Iγ=0.27 *3* α(K)exp=0.0068 *17* α(K)=0.0066 *14*; α(L)=0.00097 *18*; α(M)=0.00022 *4* α(N)=5.1×10^{-5} *9*; α(O)=7.3×10^{-6} *14*; α(P)=3.8×10^{-7} *9* Ice(K)=0.042 *10* (1975VyZY).
^{x}898.8[d] *2*	5.0[d] *5*					M1		0.00931 *13*	%Iγ=0.22 *3* α(K)exp=0.0084 *22* α(K)=0.00786 *11*; α(L)=0.001136 *16*; α(M)=0.0002529 *35* α(N)=5.94×10^{-5} *8*; α(O)=8.53×10^{-6} *12*; α(P)=4.65×10^{-7} *7* Ice(K)=0.042 *10* (1975VyZY).
^{x}903.2[d] *3*	3.8[d] *4*								%Iγ=0.165 *23*
^{x}908.66 *30*	4.8 *5*								%Iγ=0.21 *3* α(K)exp<0.0042 Eγ=908.8 *3*, Iγ=4.8 *5*, Ice(K)<0.02 (1975VyZY). Eγ=908.42 *40*, Iγ=1.6 *2* (1976Me06).
^{x}919.97[e] *15*	7.3[e] *11*								%Iγ=0.32 *6* Iγ=2.6 *4* (1976Me06).
925.29 *30*	2.3 *6*	1947.48	$(9/2)^+$	1022.27	$(5/2,9/2)^+$				%Iγ=0.10 *3* Eγ=925.4 *3*, Iγ=1.8 *6* (1975VyZY). Eγ=925.15 *35*, Iγ=1.0 *2*, scaled to 2.8 *6* (1976Me06). I_γ: weighted average of the two values.
936.0[d] *6*	2.3[d] *11*	1356.32	$(9/2^+,11/2^+)$	419.540	$(9/2)^-$				%Iγ=0.10 *5*
^{x}951.7[d] *3*	2.5[d] *7*								%Iγ=0.11 *3*
^{x}961.4[d] *2*	6.3[d] *6*								%Iγ=0.27 *4*
963.75 *19*	11.5 *10*	1022.27	$(5/2,9/2)^+$	58.539	$9/2^+$	(E2)		0.00400 *6*	%Iγ=0.50 *6* α(K)exp≈0.0020 α(K)=0.00332 *5*; α(L)=0.000529 *7*; α(M)=0.0001190 *17*

From ENSDF

γ(^{167}Yb) (continued)

E_γ[†]	I_γ[‡f]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ[@]	α[g]	Comments
									α(N)=2.78×10^{-5} *4*; α(O)=3.88×10^{-6} *5*; α(P)=1.868×10^{-7} *26*
									Eγ=964.0 *2*, Iγ=11.5 *10*, Ice(K)≈0.023 (1975VyZY).
									Eγ=963.61 *15*, Iγ=3.6 *5* (1976Me06).
									Mult.: E1 or E2 from α(K)exp; Δπ=no from level scheme.
[x]967.29[e] *35*	3.1[e] *6*								%Iγ=0.14 *3*
									Iγ=1.1 *2* (1976Me06).
[x]973.0[d] *7*	0.65[d] *35*								%Iγ=0.028 *16*
975.9[d] *3*	1.4[d] *3*	1998.42	(9/2)$^+$	1022.27	(5/2,9/2)$^+$				%Iγ=0.061 *14*
[x]980.0[d] *4*	1.1[d] *4*								%Iγ=0.048 *18*
[x]985.8[d] *3*	3.5[d] *5*								%Iγ=0.15 *3*
988.40 *10*	27.4 *17*	1022.27	(5/2,9/2)$^+$	33.916	7/2$^+$	(M1+E2)[b]	+6.4 *61*	0.0039 *32*	%Iγ=1.19 *13*
									A_2=−0.57 *41*
									α(K)=0.0032 *27*; α(L)=5.E−4 *4*; α(M)=1.1×10^{-4} *8*
									α(N)=2.7×10^{-5} *18*; α(O)=3.7×10^{-6} *27*; α(P)=1.8×10^{-7} *17*
									Eγ=988.4 *2*, Iγ=27.4 *17* (1975VyZY).
									Eγ=988.40 *10*, Iγ=9.2 *5* (1976Me06).
									δ: +0.3≤δ(Q/D)≤+12.5 from γ(θ) (1981Kr08), Δπ=no from level scheme.
991.00[e] *60*	2.8[e] *8*	2013.04	(7/2$^-$)	1022.27	(5/2,9/2)$^+$				%Iγ=0.12 *4*
									Iγ=1.0 *3* (1976Me06), scaled to 2.8 *8*.
[x]999.6[d] *5*	1.8[d] *5*								%Iγ=0.078 *23*
[x]1009.7[d] *3*	5.2[d] *6*								%Iγ=0.23 *3*
									α(K)exp≈0.0019
									Ice(K)≈0.01 (1975VyZY).
[x]1013.4[d] *4*	2.9[d] *5*								%Iγ=0.126 *25*
[x]1016.66 *20*	6.7 *7*					E1		1.45×10^{-3} *2*	%Iγ=0.29 *4*
									α(K)exp≈0.0015
									α(K)=0.001236 *17*; α(L)=0.0001693 *24*; α(M)=3.74×10^{-5} *5*
									α(N)=8.75×10^{-6} *12*; α(O)=1.248×10^{-6} *17*; α(P)=6.66×10^{-8} *9*
									Eγ=1016.8 *2*, Iγ=6.7 *7*, Ice(K)≈0.01 (1975VyZY).
									Eγ=1016.51 *20*, Iγ=2.4 *4* (1976Me06).
[x]1023.1[d] *3*	3.3[d] *6*								%Iγ=0.14 *3*

$^{167}_{70}$Yb$_{97}$-42

γ(^{167}Yb) (continued)

E_γ[†]	I_γ[‡f]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[g]	Comments
[x]1034.0[d] *3*	3.7[d] *4*							%Iγ=0.161 *23*
[x]1040.9[d] *3*	4.9[d] *8*					E1	1.39×10^{-3}	%Iγ=0.21 *4* α(K)exp<0.0020 α(K)=0.001183 *17*; α(L)=0.0001620 *23*; α(M)=3.58×10^{-5} *5* α(N)=8.37×10^{-6} *12*; α(O)=1.194×10^{-6} *17*; α(P)=6.38×10^{-8} *9* Ice(K)<0.01 (1975VyZY).
[x]1043.4[d] *6*	2.3[d] *7*							%Iγ=0.10 *3*
[x]1049.7 *4*	1.0 *5*							%Iγ=0.043 *22* Eγ=1049.5 *5*, Iγ=1.0 *5* (1975VyZY). Eγ=1049.80 *40*, Iγ=1.0 *2*, scaled to 2.8 *6* (1976Me06).
1054.3[d] *5*	1.0[d] *5*	1356.32	(9/2$^+$,11/2$^+$)	301.48	11/2$^-$			%Iγ=0.043 *22*
[x]1058.9[d] *2*	3.4[d] *5*							%Iγ=0.15 *3*
[x]1068.1 *4*	6.5 *12*					M1	0.00609 *9*	%Iγ=0.28 *6* α(K)exp=0.0077 *21* α(K)=0.00515 *7*; α(L)=0.000740 *10*; α(M)=0.0001646 *23* α(N)=3.86×10^{-5} *5*; α(O)=5.56×10^{-6} *8*; α(P)=3.04×10^{-7} *4* Eγ=1068.5 *4*, Iγ=6.5 *12*, Ice(K)=0.05 *1* (1975VyZY). Eγ=1067.70 *40*, Iγ=1.5 *3*, scaled to 4.2 *6* (1976Me06).
[x]1070.3 *7*	6.1 *12*					M1	0.00606 *9*	%Iγ=0.27 *6* α(K)exp=0.0082 *23* α(K)=0.00512 *7*; α(L)=0.000736 *10*; α(M)=0.0001637 *23* α(N)=3.84×10^{-5} *5*; α(O)=5.53×10^{-6} *8*; α(P)=3.02×10^{-7} *4* E_γ: unweighted average of the two values. Eγ=1071.0 *4*, Iγ=6.1 *12*, Ice(K)=0.05 *1* (1975VyZY). Eγ=1069.70 *30*, Iγ=2.0 *3* (1976Me06).
[x]1076[d] *2*	≈3[d]							%Iγ≈0.13
[x]1083.0[d] *3*	8.5[d] *12*					(E2)	0.00316 *4*	%Iγ=0.37 *6* α(K)exp≈0.0035 α(K)=0.00263 *4*; α(L)=0.000407 *6*; α(M)=9.13×10^{-5} *13* α(N)=2.136×10^{-5} *30*; α(O)=3.00×10^{-6} *4*; α(P)=1.483×10^{-7} *21* Ice(K)≈0.03 (1975VyZY).
[x]1085.27 *17*	15.9 *16*							%Iγ=0.69 *9* α(K)exp≈0.0019 Eγ=1085.5 *3*, Iγ=15.9 *16*, Ice(K)≈0.03 (1975VyZY). Eγ=1085.19 *17*, Iγ=5.2 *7* (1976Me06).
1092.3 *5*	3.2 *8*	1305.53	(7/2$^-$)	213.167	(5/2)$^-$			%Iγ=0.14 *4* Eγ=1092.5 *5*, Iγ=3.2 *8* (1975VyZY). Eγ=1092.10 *50*, Iγ=1.2 *2* (1976Me06).
[x]1108.96 *20*	6.4 *23*							%Iγ=0.28 *10*

γ(^{167}Yb) (continued)

E_γ[†]	I_γ[‡f]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ[@]	α[g]	Comments
									α(K)exp=0.0031 *15* Eγ=1108.9 *5*, Iγ=6.4 *23*, Ice(K)=0.020 *6* (1975VyZY). Eγ=1108.97 *20*, Iγ=2.6 *4* (1976Me06).
[x]1112.1[d] *13*	3.0[d] *12*								%Iγ=0.13 *5*
[x]1120.4[d] *6*	≈1.8[d]								%Iγ≈0.078
[x]1123.1[d] *4*	3.1[d] *10*								%Iγ=0.14 *5*
1126.62 *12*	16.2 *13*	1305.53	(7/2$^-$)	178.863	9/2$^-$	(M1(+E2))[b]	+0.06 *24*	0.00534 *21*	%Iγ=0.70 *9* A_2=+0.23 *24*; α(K)exp=0.0010 *3* α(K)=0.00451 *18*; α(L)=0.000648 *24*; α(M)=0.000144 *5* α(N)=3.38×10^{-5} *12*; α(O)=4.86×10^{-6} *18*; α(P)=2.66×10^{-7} *11*; α(IPF)=8.40×10^{-7} *19* Eγ=1126.8 *2*, Iγ=16.2 *13*, Ice(K)=0.016 *4* (1975VyZY). Eγ=1126.56 *12*, Iγ=5.6 *5* (1976Me06). ΔJ=2 ruled out by γ(θ) which implies unrealistic 4.4% M3 admixture for ΔJ=2, E2+M3 (1981Kr08); E1 from α(K)exp inconsistent with Δπ.
[x]1132.2[d] *3*	≈3.8[d]								%Iγ≈0.17
[x]1137.0[d] *4*	≈4.3[d]								%Iγ≈0.187 α(K)exp<0.0023 Ice(K)<0.01 (1975VyZY).
[x]1146.0[d] *15*	1.8[d] *8*								%Iγ=0.08 *4*
[x]1153.3[d] *10*	1.2[d] *6*								%Iγ=0.05 *3*
[x]1161.41 *13*	15.8 *15*					E1		1.15×10^{-3} *2*	%Iγ=0.69 *9* α(K)exp≤0.0013 α(K)=0.000971 *14*; α(L)=0.0001322 *19*; α(M)=2.92×10^{-5} *4* α(N)=6.84×10^{-6} *10*; α(O)=9.76×10^{-7} *14*; α(P)=5.25×10^{-8} *7*; α(IPF)=9.46×10^{-6} *14* Eγ=1161.4 *2*, Iγ=15.8 *15*, Ice(K)≤0.02 (1975VyZY). Eγ=1161.41 *17*, Iγ=5.2 *5* (1976Me06).
1164.20 *20*	10.2 *10*	1952.66	(7/2)$^+$	788.36	(9/2)$^-$	E1(+M2)	≤0.4	0.0019 *7*	%Iγ=0.44 *6* A_2=+1.02 *75*; α(K)exp≤0.0020 α(K)=0.0016 *6*; α(L)=2.3×10^{-4} *10*; α(M)=5.1×10^{-5} *22*

γ(^{167}Yb) (continued)

E_γ [†]	I_γ [‡f]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [#]	δ [@]	α [g]	Comments
									%Iγ=0.44 *6* A_2=+1.02 *75*; α(K)exp≤0.0020 α(K)=0.0016 *6*; α(L)=2.3×10^{-4} *10*; α(M)=5.1×10^{-5} *22* α(N)=1.2×10^{-5} *5*; α(O)=1.7×10^{-6} *7*; α(P)=9.E−8 *4*; α(IPF)=9.5×10^{-6} *7* Eγ=1164.3 *3*, Iγ=10.2 *10*, Ice(K)≤0.02 (1975VyZY). Eγ=1164.16 *20*, Iγ=3.1 *5* (1976Me06). δ: −0.1≤δ≤+48.2 from γ(θ) (1981Kr08), with 7/2 to 7/2 transition ruled out; ≤0.4 from α(K)exp.
[x]1167.9[d] *5*	3.7[d] *13*								%Iγ=0.16 *6*
[x]1173.5[d] *9*	6.7[d] *12*								%Iγ=0.29 *6*
1175.5[d] *10*	6.5[d] *18*	1356.32	(9/2$^+$,11/2$^+$)	178.863	9/2$^-$				%Iγ=0.28 *8*
1188.54 *10*	37.3 *19*	1267.24	5/2$^+$	78.679	7/2$^-$	E1(+M2)[b]	−0.06 *+21−24*	0.0011 *8*	%Iγ=1.62 *17* A_2=+0.06 *28*; α(K)exp=0.0009 *3* α(K)=1.0×10^{-3} *7*; α(L)=1.3×10^{-4} *10*; α(M)=2.9×10^{-5} *24* α(N)=7.E−6 *6*; α(O)=1.0×10^{-6} *8*; α(P)=5.E−8 *4*; α(IPF)=1.72×10^{-5} *13* Eγ=1188.6 *1*, Iγ=37.3 *19*, Ice(K)=0.035 *10* (1975VyZY). Eγ=1188.48 *10*, Iγ=12.9 *6* (1976Me06).
[x]1196.59 *20*	7.3 *7*					(E2)		0.00259 *4*	%Iγ=0.32 *4* α(K)exp=0.0026 *9* α(K)=0.002168 *30*; α(L)=0.000328 *5*; α(M)=7.34×10^{-5} *10* α(N)=1.718×10^{-5} *24*; α(O)=2.422×10^{-6} *34*; α(P)=1.221×10^{-7} *17*; α(IPF)=4.61×10^{-6} *7* Eγ=1196.6 *2*, Iγ=7.3 *7*, Ice(K)=0.019 *6* (1975VyZY). Eγ=1196.57 *28*, Iγ=3.6 *4* (1976Me06).
[x]1199.9[d] *2*	8.1[d] *8*								%Iγ=0.35 *5*
[x]1208.2[d] *5*	3.9[d] *11*					M1,E2		0.0035 *10*	%Iγ=0.17 *5* α(K)exp=0.0036 *16* α(K)=0.0030 *8*; α(L)=4.3×10^{-4} *11*; α(M)=9.7×10^{-5} *25* α(N)=2.3×10^{-5} *6*; α(O)=3.2×10^{-6} *9*; α(P)=1.7×10^{-7} *5*; α(IPF)=6.5×10^{-6} *8* Ice(K)=0.014 *5* (1975VyZY).

From ENSDF

^{167}Lu ε decay (51.46 min) 1976Me06,1976Gr06,1981Kr08 (continued)

$\gamma(^{167}$Yb) (continued)

E_γ [†]	I_γ [‡f]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [#]	δ [@]	α [g]	Comments
[x]1212.8[d] *4*	5.5[d] *11*								%Iγ=0.24 *5* α(K)exp≤0.0018 Ice(K)≤0.01 (1975VyZY).
[x]1217.3[d] *9*	3.2[d] *11*								%Iγ=0.14 *5*
1227.31 *20*	37.5 *20*	1947.48	(9/2)$^+$	719.61	(7/2)$^-$	E1+M2[b]	+0.39 *+11−9*	0.0023 *6*	%Iγ=1.63 *17* A_2=−0.38 *14*; α(K)exp=0.00053 *14* α(K)=0.0019 *5*; α(L)=2.8×10^{-4} *8*; α(M)=6.2×10^{-5} *19* α(N)=1.5×10^{-5} *4*; α(O)=2.1×10^{-6} *6*; α(P)=1.13×10^{-7} *34*; α(IPF)=2.82×10^{-5} *21* Eγ=1227.4 *2*, Iγ=37.5 *20*, Ice(K)=0.020 *5* (1975VyZY). Eγ=1227.22 *20*, Iγ=13.0 *13* (1976Me06). δ(Q/D) (1981Kr08) favors Δπ=no; but E1 from α(K)exp.
[x]1234.0[d] *2*	10.5[d] *12*								%Iγ=0.46 *7*
1255.50 *20*	8.2 *9*	1975.17	(9/2)$^+$	719.61	(7/2)$^-$	E1+M2[b]	+0.20 *+18−16*	0.0014 *8*	α(K)=0.0011 *6*; α(L)=1.59×10^{-4} *99*; α(M)=3.5×10^{-5} *22* α(N)=8.E−6 *5*; α(O)=1.2×10^{-6} *8*; α(P)=6.E−8 *4*; α(IPF)=4.3×10^{-5} *4* %Iγ=0.36 *5* Eγ=1255.8 *3*, Iγ=8.2 *9*, Ice(K)≤0.01 (1975VyZY). Eγ=1255.37 *20*, Iγ=3.3 *5* (1976Me06). Placed by 1981Kr08 from 1974 level also, but Eγ does not fit that placement. A2=−0.08 28 $ EKC LE 0.00135.
[x]1259.3[d] *3*	5.7[d] *7*								%Iγ=0.25 *4*
1267.26 *8*	100 *3*	1267.24	5/2$^+$	0.0	5/2$^-$	E1		1.03×10^{-3} *1*	%Iγ=4.3 *4* α(K)exp=0.00093 *20* α(K)=0.000832 *12*; α(L)=0.0001129 *16*; α(M)=2.492×10^{-5} *35* α(N)=5.84×10^{-6} *8*; α(O)=8.34×10^{-7} *12*; α(P)=4.50×10^{-8} *6*; α(IPF)=4.97×10^{-5} *7* Eγ=1267.4 *2*, Iγ=100 *3*, Ice(K)=0.093 *20* (1975VyZY). Eγ=1267.24 *8*, Iγ=36.1 *25* (1976Me06).
1275.38 *20*	18.8 *15*	1952.66	(7/2)$^+$	677.18	(5/2,7/2)$^-$	E1(+M2)	≤0.1	0.00106 *4*	%Iγ=0.82 *10* A_2=−0.47 *16*; α(K)exp=0.00064 *22* α(K)=0.00086 *4*; α(L)=0.000117 *6*;

From ENSDF

$^{167}_{70}Yb_{97}$-46

γ(^{167}Yb) (continued)

Eγ[†]	Iγ[‡f]	Ei(level)	J^{π}_i	Ef	J^{π}_f	Mult.[#]	α[g]	Comments
								α(M)=2.59×10^{-5} *13* α(N)=6.05×10^{-6} *30*; α(O)=8.7×10^{-7} *4*; α(P)=4.67×10^{-8} *23*; α(IPF)=5.31×10^{-5} *8* Eγ=1275.4 *2*, Iγ=18.8 *15*, Ice(K)=0.012 *4* (1975VyZY). Eγ=1275.35 *30*, Iγ=6.0 *9* (1976Me06). δ: −0.2≤δ≤+1.5 from γ(θ) (1981Kr08), while excluding 7/2 to 5/2 or 3/2; ≤0.1 from α(K)exp. An alternative 7/2$^-$ to 5/2$^+$ placement from the 1306 level is rejected by 1981Kr08 because, for that, δ=0.47 *+4−2*.
[x]1280.3[d] *3*	10.9[d] *10*							%Iγ=0.47 *6*
[x]1284.4[d] *3*	8[d] *1*							%Iγ=0.35 *5*
[x]1289.4[d] *7*	3.8[d] *16*							%Iγ=0.17 *7*
[x]1296.0[d] *5*	2.0[d] *9*							%Iγ=0.09 *4*
[x]1301.06 *20*	8.0 *8*							%Iγ=0.35 *5* α(K)exp≤0.0013 Eγ=1301.1 *2*, Iγ=8.0 *8*, Ice(K)≤0.01 (1975VyZY). Eγ=1300.90 *40*, Iγ=2.0 *6* (1976Me06).
1305.46 *12*	20.6 *16*	1305.53	(7/2$^-$)	0.0	5/2$^-$	(M1+E2)	0.0030 *8*	%Iγ=0.90 *11* A_2=−0.36 *15*; α(K)exp=0.00058 *20* α(K)=0.0025 *7*; α(L)=0.00036 *9*; α(M)=8.1×10^{-5} *20* α(N)=1.9×10^{-5} *5*; α(O)=2.7×10^{-6} *7*; α(P)=1.4×10^{-7} *4*; α(IPF)=2.20×10^{-5} *26* Eγ=1305.4 *2*, Iγ=20.6 *16*, Ice(K)=0.012 *4* (1975VyZY). Eγ=1305.48 *12*, Iγ=7.4 *11* (1976Me06). δ(Q/D)=+0.38 *+12−9* or +6.4 *+81−25* from γ(θ) (1981Kr08); magnitude of δ favors Δπ=no. E1 from α(K)exp inconsistent with level scheme.
[x]1308.3[d] *5*	3.4[d] *7*							%Iγ=0.15 *3*
[x]1314.5[d] *6*	2.3[d] *9*							%Iγ=0.10 *4*
[x]1319.76 *28*	8.8 *8*							%Iγ=0.38 *5* α(K)exp≤0.0011 Eγ=1319.9 *3*, Iγ=8.8 *8*, Ice(K)≤0.01 (1975VyZY). Eγ=1319.64 *28*, Iγ=2.1 *3*, scaled to 5.9 *8* (1976Me06).
1323.2[d] *5*	1.9[d] *6*	1356.32	(9/2$^+$,11/2$^+$)	33.916	7/2$^+$			%Iγ=0.08 *3*
[x]1327.6[d] *4*	4.5[d] *6*							%Iγ=0.20 *3* Ice(K)=0.19 *3* (1975VyZY), could be a misprint as α(K)exp=0.042 *9* is too large to be consistent with M1 in 1975VyZY.
[x]1338.1[d] *6*	5.5[d] *15*							%Iγ=0.24 *7*
[x]1343.8[d] *5*	5.5[d] *15*							%Iγ=0.24 *7*

From ENSDF

γ(^{167}Yb) (continued)

E_γ[†]	I_γ[‡f]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	δ[@]	α[g]	$I_{(\gamma+ce)}$[f]	Comments
[x]1348.8[d] *10*	2.5[d] *13*									%Iγ=0.11 *6*
[x]1357[d] *2*	4[d] *2*									%Iγ=0.17 *9*
[x]1362[d] *2*	3.3[d] *16*									%Iγ=0.14 *7*
1375.99 *12*	19.1 *11*	1947.48	(9/2)$^+$	571.489	(11/2)$^-$	(E1+M2)[b]	−1.2 *8*	0.0050 *31*		%Iγ=0.83 *9* A_2=−0.53 *16*; α(K)exp≈0.00052 α(K)=0.0041 *26*; α(L)=6.E−4 *4*; α(M)=1.4×10^{-4} *9* α(N)=3.3×10^{-5} *21*; α(O)=4.7×10^{-6} *30*; α(P)=2.5×10^{-7} *16*; α(IPF)=5.E−5 *4* Eγ=1376.1 *2*, Iγ=19.1 *11*, Ice(K)≈0.010 (1975VyZY). Eγ=1375.95 *12*, Iγ=7.0 *10* (1976Me06). δ: −2.0≤δ≤−0.4 from γ(θ), rules out ΔJ=1, dipole transition (1981Kr08); magnitude of δ favors Δπ=no; E1 from α(K)exp.
1379.5[d] *2*	18.9[d] *11*	1951.10	(9/2)	571.489	(11/2)$^-$					%Iγ=0.82 *9* α(K)exp=0.0013 Ice(K)=0.025 (1975VyZY). Mult.: E1 or E2 from α(K)exp.
1384.2[d] *3*	4.1[d] *7*	2012.32	(7/2,9/2$^-$)	628.62	7/2$^+$					%Iγ=0.18 *4*
[x]1387.8[d] *3*	4.0[d] *7*									%Iγ=0.17 *4*
1394.07 *17*	15.5 *11*	1947.48	(9/2)$^+$	553.38	9/2$^-$	E1(+M2)[b]	+0.5 *6*	0.0023 *23*		%Iγ=0.67 *8* A_2=−0.55 *19*; α(K)exp≤0.0010 α(K)=0.0018 *19*; α(L)=2.7×10^{-4} *30*; α(M)=6.E−5 *7* α(N)=1.4×10^{-5} *16*; α(O)=2.0×10^{-6} *22*; α(P)=1.1×10^{-7} *12*; α(IPF)=1.0×10^{-4} *4* Eγ=1394.1 *2*, Iγ=15.5 *11*, Ice(K)≤0.015 (1975VyZY). Eγ=1394.04 *17*, Iγ=5.0 *8* (1976Me06). δ: −0.1≤δ≤+1.1 from γ(θ) (1981Kr08); E1 from α(K)exp.
1397.60 *10*	30.0 *16*	1951.10	(9/2)	553.38	9/2$^-$	Q(+D)				%Iγ=1.30 *14* A_2=+0.33 *21*; α(K)exp≤0.0050 Eγ=1397.7 *2*, Iγ=30.0 *16*, Ice(K)≤0.015 (1975VyZY). Eγ=1397.57 *10*, Iγ=10.5 *10* (1976Me06). δ: −9.8≤δ(Q/D)≤−0.8 or ≥4.6 (1981Kr08); magnitude of δ favors Δπ=no. However, E1 is favored from α(K)exp.

$^{167}_{70}$Yb$_{97}$-48

γ(^{167}Yb) (continued)

E_γ[†]	I_γ[‡f]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	δ[@]	α[g]	Comments
1403.66 *14*	20.2 *12*	1975.17	(9/2)$^+$	571.489	(11/2)$^-$	D(+Q)[b]	−0.04 +*25*−*11*		%Iγ=0.88 *10* A_2=+0.22 *27* Eγ=1403.6 *2*, Iγ=20.2 *12* (1975VyZY). Eγ=1403.69 *14*, Iγ=6.0 *9* (1976Me06).
^{x}1414.1 *3*	2.7 *4*								%Iγ=0.117 *20* Eγ=1414.1 *3*, Iγ=2.7 *4* (1975VyZY). Eγ=1414.09 *60*, Iγ=0.9 *2* (1976Me06).
^{x}1420.6[d] *4*	2.9[d] *4*								%Iγ=0.126 *21*
1423.65 *20*	8.1 *6*	1995.32	(9/2$^-$)	571.489	(11/2)$^-$				%Iγ=0.35 *4* Eγ=1423.7 *2*, Iγ=8.1 *6* (1975VyZY). Eγ=1423.50 *36*, Iγ=2.5 *4* (1976Me06).
1426.84 *12*	25.4 *10*	1998.42	(9/2)$^+$	571.489	(11/2)$^-$	E1+M2	−0.25 +*12*−*15*	0.00100 *6*	%Iγ=1.10 *11* A_2=−0.19 *16*; α(K)exp=0.00059 *20* α(K)=0.00073 *5*; α(L)=0.000100 *8*; α(M)=2.20×10^{-5} *18* α(N)=5.1×10^{-6} *4*; α(O)=7.4×10^{-7} *6*; α(P)=4.00×10^{-8} *33*; α(IPF)=0.0001417 *23* Eγ=1426.8 *2*, Iγ=25.4 *10*, Ice(K)=0.015 *5* (1975VyZY). Eγ=1426.82 *12*, Iγ=8.0 *12* (1976Me06). δ(Q/D)=−0.25 +*12*−*15* or −3.0 +*10*−*19* (1981Kr08), α(K)exp implies E1(+M2); lower δ preferred by evaluators.
^{x}1439.0[d] *13*	2.3[d] *11*								%Iγ=0.10 *5*
1444.91 *27*	8.3 *12*	1998.42	(9/2)$^+$	553.38	9/2$^-$	D(+Q)[b]	+0.7 *10*		%Iγ=0.36 *6* A_2=+0.50 *68*; α(K)exp<0.0021 Eγ=1445.0 *4*, Iγ=8.3 *12*, Ice(K)≤0.015 (1975VyZY). Eγ=1444.87 *27*, Iγ=2.4 *4* (1976Me06). δ: −0.3≤δ≤+1.7 (1981Kr08).
^{x}1451.7[d] *8*	2.8[d] *12*								%Iγ=0.12 *5*
1469.98 *20*	9.9 *8*	1947.48	(9/2)$^+$	477.43	9/2$^-$				%Iγ=0.43 *5* α(K)exp≤0.0016; α(K)exp≤0.0037 Eγ=1470.0 *2*, Iγ=9.9 *8*, Ice(K)≤0.015 (1975VyZY). Eγ=1469.89 *43*, Iγ=1.7 *3*, scaled to 4.8 *8* (1976Me06). First α(K)exp from Iγ in 1975VyZY, second in 1976Me06.
1474.3[d] *7*	4.5[d] *8*	1951.10	(9/2)	477.43	9/2$^-$				%Iγ=0.20 *4*
^{x}1500.4[d] *5*	6.3[d] *13*								%Iγ=0.27 *6*
1506.84 *8*	78 *5*	1947.48	(9/2)$^+$	440.676	7/2$^-$	E1+M2[b]	+0.18 *7*	0.00109 *15*	%Iγ=3.4 *4*

$^{167}_{70}$Yb$_{97}$-49

γ(^{167}Yb) (continued)

E_γ[†]	I_γ[‡f]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ[@]	α[g]	Comments
									A_2=−0.04 *12*; α(K)exp=0.00051 *13* α(K)=0.00076 *13*; α(L)=0.000105 *19*; α(M)=2.3×10^{-5} *4* α(N)=5.4×10^{-6} *10*; α(O)=7.8×10^{-7} *14*; α(P)=4.2×10^{-8} *8*; α(IPF)=0.000193 *5* Eγ=1506.9 *2*, Iγ=78.3 *45*, Ice(K)=0.04 *1* (1975VyZY). Eγ=1506.83 *8*, Iγ=27.0 *20* (1976Me06). Mult.,δ: δ(Q/D)=+0.18 *7* or ≥12.8 (magnitude of δ) from $\gamma(\theta)$ (1981Kr08); E1 from α(K)exp.
1510.39 *15*	21.5 *24*	1951.10	(9/2)	440.676	7/2⁻	D+Q	≥+0.3		%Iγ=0.93 *13* A_2=−0.48 *20*; α(K)exp=0.00060 *20* Eγ=1510.4 *5*, Iγ=21.5 *24*, Ice(K)=0.013 *4* (1975VyZY). Eγ=1510.39 *15*, Iγ=7.4 *11* (1976Me06). δ: +0.47 *+22−14* or +3.6 *+15−33* (1981Kr08); δ favors $\Delta\pi$=no. However, E1 from α(K)exp.
[x]1515.8 *5*	5.3 *8*								%Iγ=0.23 *4* α(K)exp≤0.0028 Eγ=1515.8 *7*, Iγ=8.5 *27*, Ice(K)≤0.015 (1975VyZY). Eγ=1515.79 *47*, Iγ=1.9 *3*, scaled to 5.3 *8* (1976Me06); Iγ adopted from 1976Me06. α(K)exp using Iγ from 1976Me06.
1521.52 *23*	9.5 *14*	1998.42	(9/2)⁺	477.43	9/2⁻	(E1+M2)[b]	+0.4 *1*	0.00163 *32*	%Iγ=0.41 *7* A_2=−0.88 *33*; α(K)exp≤0.00123 α(K)=0.00122 *28*; α(L)=0.00018 *4*; α(M)=3.9×10^{-5} *9* α(N)=9.1×10^{-6} *22*; α(O)=1.31×10^{-6} *32*; α(P)=7.1×10^{-8} *17*; α(IPF)=0.000185 *11* Eγ=1521.7 *3*, Iγ=12.0 *34*, Ice(K)≤0.01 (1975VyZY). Eγ=1521.41 *23*, Iγ=3.4 *5*, scaled to 9.5 *14* (1976Me06). I_γ: from 1976Me06. δ: +0.3≤δ≤+0.5 from $\gamma(\theta)$ (1981Kr08); magnitude of δ in favors $\Delta\pi$=no but α(K)exp and level scheme favor $\Delta\pi$=yes.
1531.63 *27*	9.1 *23*	1951.10	(9/2)	419.540	(9/2)⁻				%Iγ=0.40 *11* Eγ=1531.7 *3*, Iγ=9.1 *23* (1975VyZY). Eγ=1531.58 *27*, Iγ=3.5 *5* (1976Me06).
1534.66[h] *21*	13[h] *1*	1975.17	(9/2)⁺	440.676	7/2⁻				%Iγ=0.57 *7* A_2=−0.20 *29* Eγ=1534.8 *3*, Iγ=13 *1* (1975VyZY). Eγ=1534.59 *21*, Iγ=4.8 *7* (1976Me06). δ(Q/D)=+0.25 *+21−18* if 9/2 to 7/2 transition for a doubly-placed γ (1981Kr08).
1534.66[h] *21*	13[h] *1*	2012.32	(7/2,9/2⁻)	477.43	9/2⁻				%Iγ=0.57 *7*

γ(^{167}Yb) (continued)

E_γ[†]	I_γ[‡f]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	Comments
							δ(Q/D)=−0.32 *40* or +1.6 *+24−9* for first A_2 if J(2012)=9/2; −0.28 *+25−35* or −2.6 *+14−52* if J(2012)=7/2 for second A_2; doubly-placed γ (1981Kr08).
1541.94[h] *15*	19.0[h] *15*	1952.66	(7/2)$^+$	410.979	7/2$^-$		%Iγ=0.83 *10* A_2=−0.13 *32*; α(K)exp=0.00053 *16* Eγ=1541.9 *2*, Iγ=19.0 *15*, Ice(K)=0.010 *3* (1975VyZY). Eγ=1541.96 *15*, Iγ=6.1 *6* (1976Me06). δ(Q/D)=−0.34 *+37−44* from γ(θ) (1981Kr08); E1 from α(K)exp for doubly-placed γ.
1541.94[h] *15*	19.0[h] *15*	2330.38	9/2$^+$	788.36	(9/2)$^-$		%Iγ=0.83 *10* δ(Q/D)=−0.42 *+36−44* from γ(θ) for doubly-placed line (1981Kr08).
1548.43 *15*	18.0 *19*	1979.49	(7/2$^-$)	430.87	7/2$^+$	D(+Q)	%Iγ=0.78 *11* A_2=−0.19 *35*; α(K)exp=0.0011 *4* Eγ=1548.4 *2*, Iγ=18.0 *19*, Ice(K)=0.020 *6* (1975VyZY). Eγ=1548.44 *15*, Iγ=6.8 *7* (1976Me06). δ(Q/D)=−0.28 *44* (1981Kr08); α(K)exp favors E2 over E1, contrary to Δπ=(yes) from level scheme.
1554.70[h] *35*	5.2[h] *12*	1973.96	5/2,7/2	419.540	(9/2)$^-$		%Iγ=0.23 *6* A_2=−0.53 *49*; A_2=−0.49 *45* Eγ=1555.3 *6*, Iγ=5.2 *12* (1975VyZY). Eγ=1554.50 *35*, Iγ=2.0 *3* (1976Me06). δ: −4.2≤δ(Q/D)≤+0.2 for first A_2 if J(1974)=7/2 or −2.5≤δ(O/Q)≤+0.1 for second A_2 if J(1974)=5/2 (1981Kr08); doubly-placed line.
1554.70[h] *35*	5.2[h] *12*	1975.17	(9/2)$^+$	419.540	(9/2)$^-$		%Iγ=0.23 *6* δ(Q/D)=+43 *43* for doubly-placed line (1981Kr08).
1554.70[h] *35*	5.2[h] *12*	1995.32	(9/2$^-$)	440.676	7/2$^-$		%Iγ=0.23 *6* δ: +0.2≤δ≤+85.2 from γ(θ) for a doubly-placed line(1981Kr08).
1558.10 *32*	5.2 *12*	1998.42	(9/2)$^+$	440.676	7/2$^-$		%Iγ=0.23 *6* Eγ=1558.1 *6*, Iγ=5.2 *12* (1975VyZY). Eγ=1558.10 *32*, Iγ=2.5 *4* (1976Me06).
1562.89 *47*	4.3 *11*	1973.96	5/2,7/2	410.979	7/2$^-$		%Iγ=0.19 *5* Eγ=1563.2 *6*, Iγ=4.3 *11* (1975VyZY). Eγ=1562.70 *47*, Iγ=1.7 *3* (1976Me06).
1578.80 *15*	13.6 *10*	1998.42	(9/2)$^+$	419.540	(9/2)$^-$		%Iγ=0.59 *7* α(K)exp=0.00074 *23*; α(K)exp=0.0010 *3* Eγ=1578.7 *2*, Iγ=13.6 *10*, Ice(K)=0.010 *3* (1975VyZY). Eγ=1578.86 *15*, Iγ=3.9 *6* (1976Me06). First α(K)exp from Iγ in 1975VyZY, second in 1976Me06; implied mult=E1 or E2.
1582.0[d] *13*	6.2[d] *21*	2012.32	(7/2,9/2$^-$)	430.87	7/2$^+$		%Iγ=0.27 *10*
1584.9[d] *9*	4.2[d] *21*	1995.32	(9/2$^-$)	410.979	7/2$^-$		%Iγ=0.18 *9*
1588.2[d] *20*	1.6[d] *8*	1998.42	(9/2)$^+$	410.979	7/2$^-$		%Iγ=0.07 *4*
[x]1594.7[d] *4*	3.2[d] *12*						%Iγ=0.14 *5*

From ENSDF

^{167}Lu ε decay (51.46 min) 1976Me06,1976Gr06,1981Kr08 (continued)

$\gamma(^{167}Yb)$ (continued)

E_γ [†]	I_γ [‡f]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [#]	δ [@]	α [g]	Comments
[x]1601.0[d] *15*	1.8[d] *4*								%Iγ=0.078 *19*
[x]1607.52 *27*	7.5 *11*								%Iγ=0.33 *6* Eγ=1607.7 *4*, Iγ=7.5 *11* (1975VyZY). Eγ=1607.44 *27*, Iγ=2.9 *4* (1976Me06).
[x]1610.97 *32*	6.5 *8*								%Iγ=0.28 *4* Eγ=1611.2 *4*, Iγ=6.5 *8* (1975VyZY). Eγ=1610.83 *32*, Iγ=2.8 *4* (1976Me06).
[x]1621.0[d] *5*	6.2[d] *26*								%Iγ=0.27 *12*
[x]1624.7[d] *6*	7.3[d] *26*								%Iγ=0.32 *12*
1629.7 *5*	10.0 *14*	1947.48	(9/2)$^+$	317.488	(7/2)$^-$	D(+Q)[b]	−2.4 *23*		%Iγ=0.43 *7* A_2=+1.03 *64*; α(K)exp≤0.0012; α(K)exp≤0.0025 Eγ=1629.7 *5*, Iγ=10.0 *14*, Ice(K)≤0.01 (1975VyZY). Eγ=1629.70 *70*, Iγ=1.7 *3*, scaled to 4.8 *8* (1976Me06). δ: −4.6≤δ(Q/D)≤−0.1 from γ(θ) (1981Kr08). First α(K) exp from Iγ in 1975VyZY, second in 1976Me06.
1633.69 *15*	36 *3*	1951.10	(9/2)	317.488	(7/2)$^-$	D(+Q)[b]			%Iγ=1.56 *19* A_2=+0.22 *22*; α(K)exp=0.00042 *15*; α(K)exp=0.00057 *20* Eγ=1633.9 *3*, Iγ=35.5 *32*, Ice(K)=0.015 *5* (1975VyZY). Eγ=1633.64 *15*, Iγ=10.5 *10*, scaled to 29.4 *28* (1976Me06). First α(K)exp from Iγ in 1975VyZY, second in 1976Me06. δ: +0.04 *12* or +7.9 *+39−872* (1981Kr08); E1 from α(K)exp.
1644.49 *11*	45 *3*	1952.66	(7/2)$^+$	308.401	(7/2)$^-$	E1		0.000925 *13*	%Iγ=1.96 *22* A_2=−0.24 *18*; α(K)exp=0.00040 *11* α(K)=0.000534 *7*; α(L)=7.18×10^{-5} *10*; α(M)=1.582×10^{-5} *22* α(N)=3.71×10^{-6} *5*; α(O)=5.31×10^{-7} *7*; α(P)=2.90×10^{-8} *4*; α(IPF)=0.000299 *4* Eγ=1644.3 *3*, Iγ=45.4 *28*, Ice(K)=0.018 *5* (1975VyZY). Eγ=1644.51 *11*, Iγ=13.6 *13*, scaled to 38.1 *37* (1976Me06). δ(Q/D)=−0.23 *20* (1981Kr08), ruling out ΔJ=1, dipole. α(K)exp consistent with E1.
[x]1653.9 *5*	4.2 *6*								%Iγ=0.18 *3* Eγ=1653.5 *7*, Iγ=4.0 *15* (1975VyZY). Eγ=1654.13 *50*, Iγ=1.5 *2*, scaled to 4.2 *6* (1976Me06); Iγ adopted from 1976Me06.
1656.22 *24*	10.8 *15*	1973.96	5/2,7/2	317.488	(7/2)$^-$				%Iγ=0.47 *8* Eγ=1656.1 *4*, Iγ=10.8 *15* (1975VyZY). Eγ=1656.26 *24*, Iγ=3.7 *6* (1976Me06).
1665.48 *20*	20.9 *14*	1973.96	5/2,7/2	308.401	(7/2)$^-$	D(+Q)[b]			%Iγ=0.91 *10* A_2=+0.12 *26*; A_2=+0.13 *28*; α(K)exp=0.00048 *15*; α(K)exp=0.0009 *3*

γ(^{167}Yb) (continued)

E_γ [†]	I_γ [‡f]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [#]	δ [@]	α [g]	Comments
									Eγ=1665.2 *3*, Iγ=20.9 *14*, Ice(K)=0.010 *3* (1975VyZY). Eγ=1665.60 *20*, Iγ=4.5 *7*, scaled to 12.6 *20* (1976Me06). First α(K)exp from Iγ in 1975VyZY, second in 1976Me06. δ(Q/D)=−0.01 *+26−20* for first A_2 if J(1974)=5/2; δ(Q/D)=+0.7 *+4−12* for second A_2 if J(1974)=7/2 (1981Kr08); E1 or E2 from α(K)exp.
[x]1671.9 [d] *9*	4.5 [d] *15*								%Iγ=0.20 *7*
1675.6 *4*	14.0 *12*	1952.66	(7/2)$^+$	278.210	5/2$^-$	(E1)		0.000928 *13*	%Iγ=0.61 *8* α(K)exp≤0.00077; α(K)exp≤0.0013 α(K)=0.000518 *7*; α(L)=6.95×10^{-5} *10*; α(M)=1.532×10^{-5} *21* α(N)=3.59×10^{-6} *5*; α(O)=5.15×10^{-7} *7*; α(P)=2.81×10^{-8} *4*; α(IPF)=0.000322 *5* Eγ=1675.8 *4*, Iγ=14.0 *12*, Ice(K)≤0.01 (1975VyZY). Eγ=1675.35 *40*, Iγ=3.3 *6*, scaled to 9.2 *17* (1976Me06). First α(K)exp from Iγ in 1975VyZY, second in 1976Me06.
1678.00 [e] *70*	8.4 [e] *14*	1995.32	(9/2$^-$)	317.488	(7/2)$^-$				%Iγ=0.37 *7* Iγ=3.0 *5* (1976Me06), scaled to 8.4 *14*.
1680.81 *25*	20.8 *14*	1998.42	(9/2)$^+$	317.488	(7/2)$^-$				%Iγ=0.90 *10* α(K)exp≤0.00089 Eγ=1680.8 *3*, Iγ=20.8 *14*, Ice(K)≤0.01 (1975VyZY). Eγ=1680.81 *25*, Iγ=4.0 *6*, scaled to 11.2 *17* (1976Me06). Mult.: E1 or E2 from α(K)exp.
[x]1694.8 [d] *7*	7.6 [d] *28*								%Iγ=0.33 *13*
1696.29 *39*	8.4 *14*	1973.96	5/2,7/2	278.210	5/2$^-$	D(+Q)			%Iγ=0.37 *7* A_2=−0.35 *27*; A_2=−0.38 *29* Eγ=1697.1 *7*, Iγ=7.6 *28* (1975VyZY). Eγ=1696.10 *34*, Iγ=3.0 *5*, scaled to 8.4 *14* (1976Me06). E_γ: alternative placements from 2013 level (in 1976Me06) and from 1998 level (in 1976Gr06) are ruled out by γγ-coin and γ(θ) data in 1981Kr08; consequently, all I(1696γ) is assigned from 1974 level. I_γ: from 1976Me06. δ(Q/D)=−0.07 *+51−38* or +1.9 *+20−11* for first A_2 if J(1974)=5/2; δ(Q/D)=+0.40 *+26−18* or +5.8 *+119−33* for second A_2 if J(1974)=7/2 (1981Kr08).
1701.8 *4*	5.1 *8*	2330.38	9/2$^+$	628.62	7/2$^+$	D+Q [b]	+4.9 *46*		%Iγ=0.22 *4* A_2=−0.54 *33* Eγ=1701.8 *4*, Iγ=5.1 *8* (1975VyZY). Eγ=1701.80 *50*, Iγ=1.5 *3* (1976Me06). +0.3≤δ≤+9.6 from γ(θ) (1981Kr08).
[x]1704.5 [d] *5*	4.9 [d] *5*								%Iγ=0.21 *3*

From ENSDF

γ(^{167}Yb) (continued)

Eγ[†]	Iγ[‡f]	Ei(level)	J_i^π	Ef	J_f^π	Mult.[#]	δ[@]	α[g]	Comments
1713.62 *15*	24.6 *12*	1952.66	(7/2)$^+$	239.163	(5/2)$^-$	E1		0.000934 *13*	%Iγ=1.07 *11* α(K)exp≤0.00043 α(K)=0.000499 *7*; α(L)=6.69×10^{-5} *9*; α(M)=1.475×10^{-5} *21* α(N)=3.46×10^{-6} *5*; α(O)=4.96×10^{-7} *7*; α(P)=2.71×10^{-8} *4*; α(IPF)=0.000350 *5* Eγ=1713.6 *3*, Iγ=24.6 *12*, Ice(K)≤0.01 (1975VyZY). Eγ=1713.62 *15*, Iγ=7.2 *9* (1976Me06).
1720.1 *4*	4.7 *6*	1998.42	(9/2)$^+$	278.210	5/2$^-$				%Iγ=0.20 *3* Eγ=1720.2 *4*, Iγ=4.7 *6* (1975VyZY). Eγ=1719.76 *70*, Iγ=1.0 *2*, scaled to 2.8 *6* (1976Me06).
^{x}1730.92 *30*	8.8 *7*								%Iγ=0.38 *5* Eγ=1731.1 *3*, Iγ=8.8 *7* (1975VyZY). Eγ=1730.74 *30*, Iγ=2.0 *3*, scaled to 5.6 *8* (1976Me06).
1735.31 *25*	19.2 *13*	2052.79	9/2$^{(-)}$	317.488	(7/2)$^-$	(M1+E2)[b]	+2.2 *18*	0.0016 *5*	%Iγ=0.83 *9* A_2=−0.88 *44*; α(K)exp≤0.00052; α(K)exp≤0.00078 α(K)=0.0012 *4*; α(L)=1.7×10^{-4} *5*; α(M)=3.7×10^{-5} *11* α(N)=8.7×10^{-6} *27*; α(O)=1.2×10^{-6} *4*; α(P)=6.6×10^{-8} *23*; α(IPF)=0.000168 *30* Eγ=1735.3 *3*, Iγ=19.2 *13*, Ice(K)≤0.01 (1975VyZY). Eγ=1735.31*25*, Iγ=4.6 *7*, scaled to 12.9 *20* (1976Me06). First α(K)exp from Iγ in 1975VyZY, second in 1976Me06, favoring E1 in the first case and E2 in the second, but Δπ=(no) from level scheme. δ: +0.4≤δ≤+4.1 from γ(θ) (1981Kr08).
1740.50 *27*	9.5 *17*	1979.49	(7/2$^-$)	239.163	(5/2)$^-$	D+Q[b]	+2.5 *20*		%Iγ=0.41 *8* A_2=−1.13 *67*; α(K)exp≤0.00119; α(K)exp≤0.00128 Eγ=1740.7 *3*, Iγ=12.9 *45*, Ice(K)≤0.01 (1975VyZY). Eγ=1740.33 *27*, Iγ=3.4 *6*, scaled to 9.5 *17* (1976Me06). I_γ: from 1976Me06. First α(K)exp from Iγ in 1975VyZY, second in 1976Me06. δ: +0.5≤δ≤+4.5 from γ(θ) (1981Kr08). α(K)exp based on Iγ from 1976Me06 allows E1 or E2.
^{x}1747.50 *30*	10.5 *8*								%Iγ=0.46 *5* α(K)exp≤0.0010; α(K)exp≤0.0020 Eγ=1747.5 *3*, Iγ=10.5 *8*, Ice(K)≤0.01 (1975VyZY). Eγ=1747.49 *35*, Iγ=1.8 *3*, scaled to 5.0 *8* (1976Me06). First α(K)exp from Iγ in 1975VyZY, second from Iγ in 1976Me06.
1752.7 *3*	5.4 *15*	2052.79	9/2$^{(-)}$	301.48	11/2$^-$				%Iγ=0.24 *7* Eγ=1752.8 *3*, Iγ=5.4 *15* (1975VyZY).

$^{167}_{70}$Yb$_{97}$-54

$\gamma(^{167}$Yb) (continued)

E_γ [†]	I_γ [‡f]	E_i(level)	J^π_i	E_f	J^π_f	Comments
						Eγ=1752.30 *70*, Iγ=0.8 *2*, scaled to 2.2 *6* (1976Me06). E_γ: poor fit in the decay scheme, with level-energy difference=1751.3.
1758.97[h] *33*	10.8[h] *8*	1998.42	(9/2)$^+$	239.163	(5/2)$^-$	%Iγ=0.47 *6* A_2=−0.84 *40*; α(K)exp≤0.00161 Eγ=1758.8 *2*, Iγ=10.8 *8*, Ice(K)≤0.01 (1975VyZY). Eγ=1759.59 *38*, Iγ=2.2 *3*, scaled to 6.2 *8* (1976Me06). δ: 0.0≤δ=+47.0 (1981Kr08) for doubly−placed γ.
1758.97[h] *33*	10.8[h] *8*	2330.38	9/2$^+$	571.489	(11/2)$^-$	%Iγ=0.47 *6* δ(Q/D)=+24 *24* for doubly-placed line (1981Kr08).
[x]1770.7 *5*	8.7 *9*					%Iγ=0.38 *5* Eγ=1770.2 *3*, Iγ=8.7 *9* (1975VyZY). Eγ=1771.11 *24*, Iγ=2.3 *3*, scaled to 6.4 *8* (1976Me06). E_γ: unweighted average of the two values. γ placed in 1976Me06 from the 1951, 9/2 level to 180, (3/2$^-$) or the 179, 9/2$^-$ in 1981Kr08, but evaluators reject both placements based on poor energy fits.
[x]1778.9[d] *3*	9.7[d] *6*					%Iγ=0.42 *5* α(K)exp≤0.0010 Ice(K)≤0.01 (1975VyZY).
[x]1785.4[d] *12*	2.2[d] *18*					%Iγ=0.10 *8*
[x]1788.3[d] *15*	2.3[d] *18*					%Iγ=0.10 *8*
1801.0 *3*	2.6 *8*	1979.49	(7/2$^-$)	178.863	9/2$^-$	%Iγ=0.11 *4* Eγ=1800.8 *3*, Iγ=3.5 *4* (1975VyZY). Eγ=1801.41 *43*, Iγ=1.3 *2* (1976Me06).
[x]1808.8[d] *3*	3.5[d] *4*					%Iγ=0.152 *22*
1819.23 *30*	6.2 *5*	1998.42	(9/2)$^+$	178.863	9/2$^-$	%Iγ=0.27 *3* Eγ=1819.0 *3*, Iγ=6.2 *5* (1975VyZY). Eγ=1819.50 *32*, Iγ=2.3 *2* (1976Me06).
1824.8 *4*	2.1 *7*	1951.10	(9/2)	125.918	11/2$^+$	%Iγ=0.09 *3* Eγ=1824.8 *4*, Iγ=2.1 *7* (1975VyZY). Eγ=1824.74 *80*, Iγ=0.7 *2* (1976Me06).
1833.30 *28*	10.5 *8*	2012.32	(7/2,9/2$^-$)	178.863	9/2$^-$	%Iγ=0.46 *5* A_2=−0.22 *23*; A_2=−0.25 *26* Eγ=1833.2 *3*, Iγ=10.5 *8* (1975VyZY). Eγ=1833.38 *28*, Iγ=2.9 *4* (1976Me06). δ(Q/D)=−0.30 *+32−29* or +1.5 *+13−7* for first A_2 if J(2012)=9/2; −0.31 *+22−46* or −2.4 *+13−26* for second A_2 if J(2012)=7/2 (1981Kr08).
[x]1838.4[d] *10*	3.1[d] *5*					%Iγ=0.135 *25*
[x]1843.9[d] *10*	3.7[d] *5*					%Iγ=0.16 *3*
1849.2 *4*	5.5 *5*	1975.17	(9/2)$^+$	125.918	11/2$^+$	%Iγ=0.24 *3* Eγ=1849.0 *4*, Iγ=5.5 *5* (1975VyZY). Eγ=1849.63 *57*, Iγ=1.5 *2* (1976Me06).

$^{167}_{70}$Yb$_{97}$-55

γ(^{167}Yb) (continued)

E_γ[†]	I_γ[‡f]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	α[g]	Comments
[x]1855[d] *2*	1.5[d] *6*							%Iγ=0.07 *3*
[x]1863[d] *2*	1.0[d] *6*							%Iγ=0.04 *3*
[x]1868.30 *20*	15.5 *11*							%Iγ=0.67 *8* Eγ=1868.2 *3*, Iγ=15.5 *11* (1975VyZY). Eγ=1868.34 *20*, Iγ=5.4 *6* (1976Me06).
1873.02 *20*	10.5 *8*	1952.66	(7/2)$^+$	78.679	7/2$^-$	(E1)	0.000973 *14*	%Iγ=0.46 *5* A_2=−0.73 *35*; α(K)exp≤0.00072; α(K)exp≤0.0013 α(K)=0.000431 *6*; α(L)=5.77×10^{-5} *8*; α(M)=1.271×10^{-5} *18* α(N)=2.98×10^{-6} *4*; α(O)=4.27×10^{-7} *6*; α(P)=2.341×10^{-8} *33*; α(IPF)=0.000468 *7* Eγ=1873.0 *2*, Iγ=10.5 *8*, Ice(K)≤0.007 (1975VyZY). Eγ=1873.15 *46*, Iγ=2.3 *4*, scaled to 6.4 *11* (1976Me06). K:L1:L2:L3:M1:M2:M3=≈4:0.34:4.56:4.7:0.09:1.37:1.48 (1971Ab04). First α(K)exp from Iγ in 1975VyZY, second in 1976Me06. δ: −0.1≤δ(Q/D)≤+1.3 from γ(θ) (1981Kr08). E_γ: poor fit in the decay scheme, with level-energy difference=1873.97.
[x]1879.28 *20*	9.5 *7*							%Iγ=0.41 *5* Eγ=1879.3 *2*, Iγ=9.5 *7* (1975VyZY). Eγ=1879.12 *56*, Iγ=1.5 *5*, scaled to 4.2 *14* (1976Me06).
[x]1884.7[d] *3*	7.3[d] *6*							%Iγ=0.32 *4*
1889.87 *20*	14.3 *8*	2330.38	9/2$^+$	440.676	7/2$^-$			%Iγ=0.62 *7* A_2=+0.35 *41* Eγ=1889.9 *2*, Iγ=14.3 *8* (1975VyZY). Eγ=1889.79 *35*, Iγ=2.0 *5*, scaled to 5.6 *14* (1976Me06). δ: δ(Q/D)=−0.25 *25* or ≥2.1 (1981Kr08). Designation as M1+E2 transition in 1981Kr08 seems a misprint.
1893.30 *20*	8.4 *28*	1952.66	(7/2)$^+$	58.539	9/2$^+$			%Iγ=0.37 *13* E_γ,I_γ: from 1976Me06. 1894.4γ in 1975VyZY with Iγ=35.7 *14* and Ice(K)≈0.01 is most likely a doublet corresponding to 1893.30γ and 1895.38γ in 1976Me06. Iγ=3.0 *10*, scaled to 8.4 *28* (1976Me06). E_γ: poor fit in the decay scheme, with level-energy difference=1894.11.
1895.38 *20*	16.8 *28*	1973.96	5/2,7/2	78.679	7/2$^-$	D(+Q)[b]		%Iγ=0.73 *14* A_2=−0.47 *18*; A_2=−0.50 *19* E_γ,I_γ: from 1976Me06. 1894.4γ in 1975VyZY with Iγ=35.7 *14* and Ice(K)≈0.01 is most likely a doublet corresponding to 1893.30γ and 1895.38γ in 1976Me06. Iγ=6.0 *10* scaled to 16.8 *28* (1976Me06). δ: −1.9≤δ(Q/D)≤+0.4 for first A_2 if J(1974)=5/2; −0.2≤δ(Q/D)≤+1.5 for second A_2 if J(1974)=7/2 (1981Kr08).
1899.68 *22*	14.3 *9*	2330.38	9/2$^+$	430.87	7/2$^+$			%Iγ=0.62 *7*

$\gamma(^{167}$Yb) (continued)

E_γ[†]	I_γ[‡f]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	δ[@]	α[g]	$I_{(\gamma+ce)}$[f]	Comments
										Eγ=1899.5 *2*, Iγ=14.3 *19* (1975VyZY). Eγ=1899.95 *25*, Iγ=3.0 *5*, scaled to 8.4 *14* (1976Me06).
1910.78 *20*	7.7 *8*	2330.38	$9/2^+$	419.540	$(9/2)^-$					%Iγ=0.33 *5* Eγ=1910.8 *2*, Iγ=7.7 *8* (1975VyZY). Eγ=1910.76 *25*, Iγ=2.1 *3* (1976Me06).
1917.60 *20*	18.9 *15*	1951.10	(9/2)	33.916	$7/2^+$	D(+Q)[b]	−0.18 *+18−16*			%Iγ=0.82 *10* A_2=−0.03 *30* Eγ=1917.4 *2*, Iγ=18.9 *15* (1975VyZY). Eγ=1917.79 *20*, Iγ=5.9 *9* (1976Me06).
1920.9[d] *2*	7.8[d] *8*	1979.49	$(7/2^-)$	58.539	$9/2^+$					%Iγ=0.34 *5*
1926.5 *3*	9.7 *9*	2052.79	$9/2^{(-)}$	125.918	$11/2^+$	D(+Q)[b]	−2.2 *21*			%Iγ=0.42 *6* A_2=−0.06 *53* Eγ=1926.2 *2*, Iγ=9.7 *9* (1975VyZY). Eγ=1926.76 *18*, Iγ=2.9 *4* (1976Me06). δ: −4.4≤δ≤−0.1 from γ(θ) (1981Kr08).
1933.63 *23*	15.0 *30*	2012.32	$(7/2,9/2^-)$	78.679	$7/2^-$	(D+Q)				%Iγ=0.65 *14* A_2=−0.70 *38*; A_2=−0.80 *44*; α(K)exp≤0.0013 Eγ=1933.5 *3*, Iγ=15.0 *30*, Ice(K)=0.018 *6* for 1933.5γ+1936.5γ (1975VyZY). Eγ=1933.70 *23*, Iγ=5.0 *8* (1976Me06). δ: +0.4≤δ≤+5.9 for first A_2, Δπ=(no) if J(2012)=9/2; −0.09≤δ(Q/D)=+1.33 for second A_2 if J(2012)=7/2 (1981Kr08). ΔJ≠2 from level scheme.
1936.76 *20*	15.7 *22*	1995.32	$(9/2^-)$	58.539	$9/2^+$					%Iγ=0.68 *11* Eγ=1936.5 *3*, Iγ=17 *5*, Ice(K)=0.018 *6* for 1933.5γ+1936.5γ (1975VyZY). Eγ=1936.88 *20*, Iγ=5.6 *8*, scaled to 15.7 *22* (1976Me06). I_γ: from 1976Me06.
1941.32 *13*	44.5 *32*	1975.17	$(9/2)^+$	33.916	$7/2^+$	(M1,E2)		0.00153 *24*		%Iγ=1.93 *22* A_2=+0.15 *29*; α(K)exp=0.0008 *4* α(K)=0.00106 *18*; α(L)=0.000149 *25*; α(M)=3.3×10^{-5} *6* α(N)=7.8×10^{-6} *13*; α(O)=1.11×10^{-6} *19*; α(P)=6.1×10^{-8} *11*; α(IPF)=0.000286 *34* Eγ=1941.1 *2*, Iγ=44.5 *32*, Ice(K)=0.036 *19* (1975VyZY). Eγ=1941.40 *12*, Iγ=14.7 *15* (1976Me06). δ(Q/D)=+0.08 *16* or ≥4.0 (magnitude of δ) (1981Kr08).

$^{167}_{70}$Yb$_{97}$-57

γ(^{167}Yb) (continued)

$E_γ$[†]	$I_γ$[‡f]	E_i(level)	$J^π_i$	E_f	$J^π_f$	Mult.[#]	δ[@]	α[g]	Comments
1945.68[he] *50*	3.1[he] *6*	1975.17	(9/2)$^+$	29.656	5/2$^+$				%Iγ=0.14 *3* Iγ=1.1 *2* (1976Me06), scaled to 3.1 *6*.
1945.68[he] *50*	3.1[he] *6*	1979.49	(7/2$^-$)	33.916	7/2$^+$				%Iγ=0.14 *3*
1951.48 *20*	15.0 *12*	1951.10	(9/2)	0.0	5/2$^-$				%Iγ=0.65 *8* A_2=+0.37 *80*; α(K)exp=0.0007 *3* Eγ=1951.6 *2*, Iγ=15.0 *12*, Ice(K)=0.010 *4* (1975VyZY). Eγ=1951.36 *20*, Iγ=5.0 *8* (1976Me06). δ: −0.6≤δ(O/Q)≤+6.6 (1981Kr08). E1 or E2 from α(K)exp=0.0007 *3*.
1954.2[he] *6*	4.2[he] *6*	2012.32	(7/2,9/2$^-$)	58.539	9/2$^+$				%Iγ=0.18 *3* Iγ=1.5 *2*, scaled to 4.2 *6* (1976Me06).
1954.2[he] *6*	4.2[he] *6*	2013.04	(7/2$^-$)	58.539	9/2$^+$				%Iγ=0.18 *3*
1961.42 *15*	25.5 *15*	1995.32	(9/2$^-$)	33.916	7/2$^+$	D+Q[b]	+0.17 *9*		%Iγ=1.11 *12* A_2=−0.02 *16*; α(K)exp=0.00071 *24* Eγ=1961.4 *2*, Iγ=25.5 *15*, Ice(K)=0.018 *6* (1975VyZY). Eγ=1961.43 *15*, Iγ=8.5 *12* (1976Me06). δ: α(K)exp implies E1,E2.
1964.75 *20*	12 *1*	1998.42	(9/2)$^+$	33.916	7/2$^+$	D(+Q)[b]	−1.2 *14*		%Iγ=0.52 *6* A_2=+1.08 *43* (1981Kr08); α(K)exp=0.0011 *4* Eγ=1964.7 *2*, Iγ=12 *1*, Ice(K)=0.013 *5* (1975VyZY). Eγ=1664.81 *23*, Iγ=4.2 *6* (1976Me06). δ: −2.6≤δ≤+0.2 from γ(θ) (1981Kr08); D or E2 from α(K) exp.
1973.91[h] *14*	38.5[h] *17*	1973.96	5/2,7/2	0.0	5/2$^-$				%Iγ=1.67 *17* A_2=−0.41 *12*; A_2=−0.44 *13*; α(K)exp=0.00026 *10* Eγ=1973.8 *2*, Iγ=38.5 *17*, Ice(K)=0.010 *4* (1975VyZY). Eγ=1973.96 *14*, Iγ=13.4 *13* (1976Me06). δ(Q/D)=−0.02 *13* or +1.7 *+6−4* for first A_2 if J(1974)=5/2; δ(Q/D)=+0.45 *12* or +4.7 *+34−15* for second A_2 if J(1974)=7/2; doubly-placed line.
1973.91[h] *14*	38.5[h] *17*	2052.79	9/2$^{(-)}$	78.679	7/2$^-$				%Iγ=1.67 *17* δ(Q/D)=+0.40 *8* or +4.7 *+24−14* (1981Kr08) for a doubly-placed γ; α(K)exp giving E1 is inconsistent with this placement.
1979.55 *15*	28.3 *14*	1979.49	(7/2$^-$)	0.0	5/2$^-$	(M1+E2)		0.00150 *23*	%Iγ=1.23 *13* A_2=−0.62 *16*; α(K)exp=0.00046 *18* α(K)=0.00101 *17*; α(L)=0.000143 *23*; α(M)=3.2×10^{-5} *5* α(N)=7.4×10^{-6} *12*; α(O)=1.07×10^{-6} *18*; α(P)=5.8×10^{-8} *11*; α(IPF)=0.00031 *4* Eγ=1979.5 *2*, Iγ=28.3 *14*, Ice(K)=0.013 *5* (1975VyZY). Eγ=1979.58 *15*, Iγ=10.4 *10* (1976Me06).

$^{167}_{70}$Yb$_{97}$-58

γ(^{167}Yb) (continued)

E_γ[†]	I_γ[‡f]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	δ[@]	α[g]	Comments
									E_γ,I_γ: alternative placement from 2013 to 7/2$^+$ 33 level, proposed by 1976Me06, is ruled out by coincidence and nuclear orientation data (1981Kr08); hence, all I(1980γ) is assigned to the 1980-level placement. δ(Q/D)=+0.60 *+25−15* or +2.9 *+16−11* (1981Kr08), favors Δπ=no, as required by level scheme; however, α(K)exp favors E1.
1983.34 *32*	7.5 *8*	2013.04	(7/2$^-$)	29.656	5/2$^+$	D(+Q)[b]	−3.3 *34*		%Iγ=0.33 *5* A_2=+0.78 *58* Eγ=1983.2 *10*, Iγ=7.5 *8* (1975VyZY). Eγ=1983.35 *32*, Iγ=2.6 *4* (1976Me06). δ: −6.8≤δ≤+0.1 (1981Kr08); ΔJ=1 transition if Δπ=yes.
[x]1989.41 *15*	23.0 *12*								%Iγ=1.00 *10* Eγ=1989.3 *2*, Iγ=23.0 *12* (1975VyZY). Eγ=1989.47 *15*, Iγ=8.5 *8* (1976Me06).
1995.6 *7*	2.2 *10*	1995.32	(9/2$^-$)	0.0	5/2$^-$				%Iγ=0.10 *5* Eγ=1995.5 *8*, Iγ=2.2 *10* (1975VyZY). Eγ=1995.69 *70*, Iγ=0.9 *2* (1976Me06).
[x]2000.6 *33*	6.7 *7*								%Iγ=0.29 *4* Eγ=2000.4 *5*, Iγ=6.7 *7* (1975VyZY). Eγ=2000.73 *33*, Iγ=2.6 *4* (1976Me06).
[x]2003.2[d] *15*	1.1[d] *7*								%Iγ=0.05 *3*
2013.04 *15*	39.0 *18*	2013.04	(7/2$^-$)	0.0	5/2$^-$	(M1+E2)		0.00148 *22*	%Iγ=1.69 *17* A_2=−0.27 *13* α(K)=0.00098 *16*; α(L)=0.000138 *22*; α(M)=3.1×10^{-5} *5* α(N)=7.2×10^{-6} *12*; α(O)=1.03×10^{-6} *17*; α(P)=5.62×10^{-8} *99*; α(IPF)=0.00032 *4* Eγ=2012.9 *2*, Iγ=39.0 *18* (1975VyZY). Eγ=2013.12 *15*, Iγ=13.4 *13* (1976Me06). δ(Q/D)=+0.32 *9* or +9.6 *+225−42* (1981Kr08); favors Δπ=no.
[x]2026.0 *5*	1.8 *3*								%Iγ=0.078 *15* Eγ=2026.0 *5*, Iγ=1.8 *3* (1975VyZY). Eγ=2025.9 *14*, Iγ=0.6 *2* (1976Me06).
[x]2031.9[d] *3*	3.1[d] *3*								%Iγ=0.135 *18*
[x]2042.2[d] *11*	0.7[d] *4*								%Iγ=0.030 *18*
[x]2047.8 *3*	3.9 *4*								%Iγ=0.169 *23* Eγ=2047.8 *3*, Iγ=3.9 *4* (1975VyZY). Eγ=2047.77 *60*, Iγ=1.2 *2* (1976Me06).
2052.1[d] *6*	1.6[d] *2*	2052.79	9/2$^{(-)}$	0.0	5/2$^-$				%Iγ=0.070 *11*
[x]2062.6 *7*	2.0 *8*								%Iγ=0.09 *4* Eγ=2063.4 *2*, Iγ=5.0 *4* (1975VyZY).

$^{167}_{70}Yb_{97}$-59

γ(^{167}Yb) (continued)

E_γ [†]	I_γ [‡f]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [#]	δ [@]	Comments
								Eγ=2062.6 *7*, Iγ=0.7 *3* (1976Me06). E_γ,I_γ: from 1976Me06, as in 1975VyZY 2063.4 seems composite of 2062.6γ and 2064.6γ in 1976Me06.
[x]2064.6 *7*	2.0 *8*							%Iγ=0.09 *4* E_γ,I_γ: from 1976Me06. See comment for 2062.6γ for data in 1975VyZY.
[x]2075.0[d] *10*	0.8[d] *4*							%Iγ=0.035 *18*
[x]2080.5[d] *4*	2.5[d] *8*							%Iγ=0.11 *4*
[x]2085[d] *1*	0.8[d] *5*							%Iγ=0.035 *22*
[x]2091.3[d] *20*	0.8[d] *5*							%Iγ=0.035 *22*
[x]2095.4[d] *20*	0.8[d] *5*							%Iγ=0.035 *22*
[x]2103.3[d] *7*	0.4[d] *2*							%Iγ=0.017 *9*
[x]2107.4[d] *16*	1.2[d] *8*							%Iγ=0.05 *4*
[x]2110.3[d] *25*	0.8[d] *6*							%Iγ=0.04 *3*
[x]2121.5[d] *5*	0.6[d] *2*							%Iγ=0.026 *9*
[x]2126.9[d] *4*	0.55[d] *20*							%Iγ=0.024 *9*
[x]2132[d] *2*	0.2[d] *1*							%Iγ=0.009 *5*
[x]2139.5[d] *5*	0.5[d] *2*							%Iγ=0.022 *9*
[x]2145.9[d] *6*	0.9[d] *5*							%Iγ=0.039 *22*
[x]2148.5 *4*	3.8 *5*							%Iγ=0.17 *3* Eγ=2148.3 *4*, Iγ=3.8 *5* (1975VyZY). Eγ=2148.77 *40*, Iγ=1.2 *2* (1976Me06).
2151.8[d] *6*	0.9[d] *2*	2330.38	9/2$^+$	178.863	9/2$^-$			%Iγ=0.039 *9*
[x]2170.1[d] *5*	0.8[d] *2*							%Iγ=0.035 *9*
[x]2173.7[d] *6*	0.7[d] *2*							%Iγ=0.030 *9*
[x]2177.6[d] *12*	0.25[d] *12*							%Iγ=0.011 *5*
[x]2190.2[d] *3*	2.4[d] *3*							%Iγ=0.104 *16*
[x]2198.40 *20*	11.6 *8*							%Iγ=0.50 *6* Eγ=2198.3 *2*, Iγ=11.6 *8* (1975VyZY). Eγ=2198.59 *27*, Iγ=3.0 *5*, scaled to 8.4 *4* (1976Me06).
2204.34 *20*	7.3 *5*	2330.38	9/2$^+$	125.918	11/2$^+$	D+Q[b]	+5.7 *55*	%Iγ=0.32 *4* A_2=+0.95 *54* Eγ=2204.3 *2*, Iγ=7.3 *5* (1975VyZY). Eγ=2204.43 *30*, Iγ=1.8 *3*, scaled to 5.0 *8* (1976Me06). δ: +0.2≤δ≤+11.1 from γ(θ) (1981Kr08).
[x]2211.1[d] *4*	2.9[d] *3*							%Iγ=0.126 *17*
[x]2215.9[d] *20*	1.0[d] *5*							%Iγ=0.043 *22*
[x]2218.9[d] *7*	1.2[d] *5*							%Iγ=0.052 *22*

$^{167}_{70}$Yb$_{97}$-60

γ(^{167}Yb) (continued)

E_γ[†]	I_γ[‡f]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	δ[@]	α[g]	Comments
^{x}2225.2[d] *4*	1.1[d] *3*								%Iγ=0.048 *14*
^{x}2228.6[d] *5*	1.1[d] *3*								%Iγ=0.048 *14*
^{x}2231.4[d] *6*	0.65[d] *22*								%Iγ=0.028 *10*
^{x}2235.2[d] *8*	0.53[d] *27*								%Iγ=0.023 *12*
^{x}2237.8[d] *7*	0.74[d] *25*								%Iγ=0.032 *11*
^{x}2244[d] *1*	1.6[d] *5*								%Iγ=0.070 *23*
^{x}2247.58 *20*	6.0 *6*								%Iγ=0.26 *4* Eγ=2247.6 *2*, Iγ=6.0 *6* (1975VyZY). Eγ=2247.49 *40*, Iγ=1.8 *3* (1976Me06).
^{x}2253.7[d] *5*	1.0[d] *3*								%Iγ=0.043 *14*
^{x}2257.9 *3*	2.6 *3*								%Iγ=0.113 *17* Eγ=2258.0 *3*, Iγ=2.6 *3* (1975VyZY). Eγ=2257.17 *70*, Iγ=0.6 *1* (1976Me06).
^{x}2266.0 *4*	15.6 *10*								%Iγ=0.68 *8* Eγ=2266.0 *8*, Iγ=15.6 *10* (1975VyZY). Eγ=2266.00 *50*, Iγ=4.3 *4*, scaled to 12.0 *12* (1976Me06).
^{x}2269.8[e] *7*	5.6[e] *8*								%Iγ=0.24 *4* Iγ=2.0 *3* (1976Me06).
2271.81 *20*	24.0 *12*	2330.38	9/2$^+$	58.539	9/2$^+$	(M1+E2)[b]	+0.35 *15*	0.00149 *4*	%Iγ=1.04 *11* A_2=−0.69 *19* α(K)=0.000834 *21*; α(L)=0.0001171 *30*; α(M)=2.60×10^{-5} *7* α(N)=6.10×10^{-6} *16*; α(O)=8.78×10^{-7} *23*; α(P)=4.84×10^{-8} *13*; α(IPF)=0.000504 *12* Eγ=2271.5 *5*, Iγ=24.0 *12* (1975VyZY). Eγ=2271.86 *20*, Iγ=7.2 *7* (1976Me06). δ: +0.2≤δ≤+0.5 from γ(θ) (1981Kr08), magnitude(δ) favors Δπ=no.
^{x}2278.4[d] *4*	1.9[d] *3*								%Iγ=0.083 *15*
^{x}2283.0[d] *5*	0.75[d] *20*								%Iγ=0.033 *9*
^{x}2288.9[d] *6*	0.75[d] *13*								%Iγ=0.033 *6*
^{x}2292.7[d] *4*	2.4[d] *2*								%Iγ=0.104 *13*
2296.2 *3*	2.2 *2*	2330.38	9/2$^+$	33.916	7/2$^+$				%Iγ=0.096 *12*
^{x}2304.7[d] *20*	0.5[d] *3*								%Iγ=0.022 *13*
^{x}2308.6 *6*	1.3 *3*								%Iγ=0.057 *14* Eγ=2308.9 *6*, Iγ=1.3 *3* (1975VyZY). Eγ=2307.7 *10*, Iγ=0.5 *1* (1976Me06).
^{x}2335.0[d] *6*	0.6[d] *2*								%Iγ=0.026 *9*
^{x}2339.3[d] *6*	0.27[d] *13*								%Iγ=0.012 *6*

γ(^{167}Yb) (continued)

E_γ [†]	I_γ [‡f]	E_i(level)	Comments
[x]2367.5[d] *6*	0.5[d] *3*		%Iγ=0.022 *13*
[x]2401.5[d] *10*	0.5[d] *3*		%Iγ=0.022 *13*
[x]2458.1[d] *5*	0.45[d] *11*		%Iγ=0.020 *5*
[x]2467.1[d] *4*	0.92[d] *13*		%Iγ=0.040 *7*
[x]2545.8[d] *4*	1.3[d] *2*		%Iγ=0.057 *10*
[x]2559.0[d] *4*	0.94[d] *12*		%Iγ=0.041 *6*

† Weighted average of values from 1975VyZY and 1976Me06 for Eγ>300 keV. For Eγ<300 keV, values are from 1975VyZY as 1976Me06 stated that they took more precise values from 1971Ab04 (earlier results from the same group as 1975VyZY and 1976Gr06), except when noted otherwise. Some of the Eγ values are slightly different in 1975VyZY and 1971Ab04, evaluators assume that data in 1976Gr06 and 1975VyZY supersede those in their earlier paper 1971Ab04.

‡ From 1975VyZY, except as noted. Data from 1976Me06 are less comprehensive, but are of comparable precision and, in general, are in agreement with those from 1975VyZY. However, data for a few lines in the energy ranges 550-900 keV and 1470-1900 keV are significantly lower in 1976Me06 (by as much as a factor of two). In order to compare data from 1975VyZY and 1976Me06, evaluators scaled data from 1976Me06 by a factor of 2.2 *1* for Eγ<300 and 2.8 *1* for Eγ>300; these factors are the unweighted averages of the nine most precise intensity ratios Iγ(1975VyZY)/Iγ(1976Me06) in each energy range, while the different scaling factors in these energy ranges are not clear. These may be due to detector efficiency calibration issues.

From α(K)exp and/or ce subshell ratios (1975VyZY), except where noted; the photon and ce intensity scales were normalized by 1975VyZY assuming α(K)(M1 theory) for the 401.2γ, and this normalization implies an α(K)exp(213γ) which is consistent with M1 theory (as expected on the basis of subshell ratios for the 213-keV transition).

@ Unless indicated otherwise, δ data given with a sign are from γ-ray anisotropy (nuclear orientation measurements of 1981Kr08) and those without a sign are from conversion electron data in 1975VyZY (authors′ analysis of subshell ratios). Exceptions are noted. 1976Gr06 and 1971Ab04 are from the same group and it is assumed that ce data from 1975VyZY supersede those in 1971Ab04.

& From evaluators′ analysis of ce data given under comments using the BrIccMixing code.

a Deduced from I(ce) data (1975VyZY) and adopted mult.

b From γ(θ,temp), nuclear orientation measurements (1981Kr08). For analysis of γ(θ) data, authors used decay scheme in 1976Me06.

c Gamma-ray energies listed in 1976Me06 and 1971Ab04 are the same. According to the statement in 1976Me06, "Below 300 keV, most transition energies derived by Abdurazakov et al [5] from their conversion electron data are more precise than the present γ-ray results; in those cases, their values were taken", 1976Me06 adopted Eγ from 1971Ab04 (ref. [5] in 1976Me06). Further, evaluators assume that Eγ data in 1971Ab04 are superseded in the later papers 1976Gr06 (and 1975VyZY) from the same group, and adopt values from 1975VyZY.

d γ reported only by 1975VyZY.

e γ reported only by 1976Me06; Iγ scaled as stated in general comment for Iγ.

f For absolute intensity per 100 decays, multiply by 0.0434 *38*.

g Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

h Multiply placed with undivided intensity.

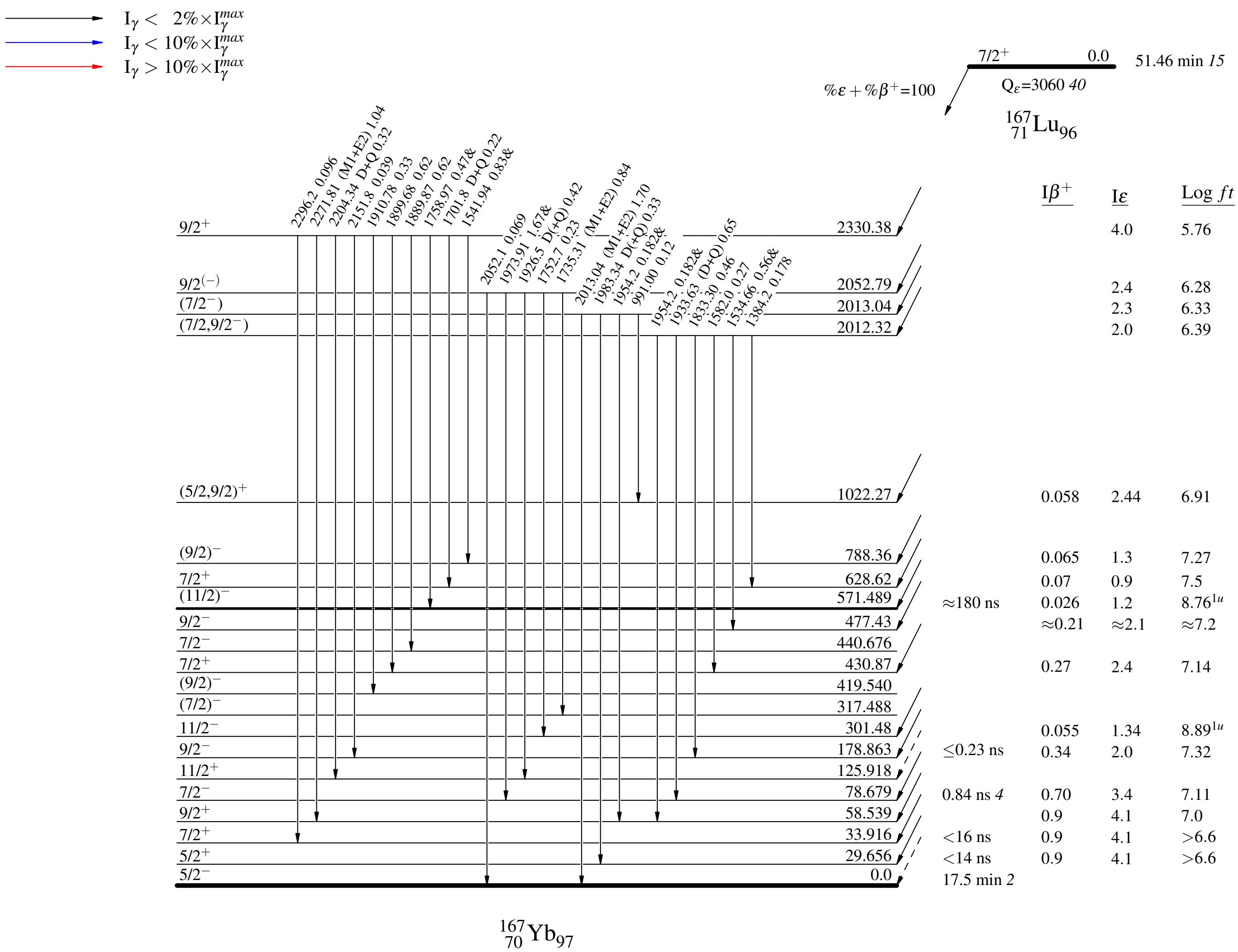
i Placement of transition in the level scheme is uncertain.

x γ ray not placed in level scheme.

^{167}Lu ε decay (51.46 min) 1976Me06,1976Gr06,1981Kr08

Decay Scheme

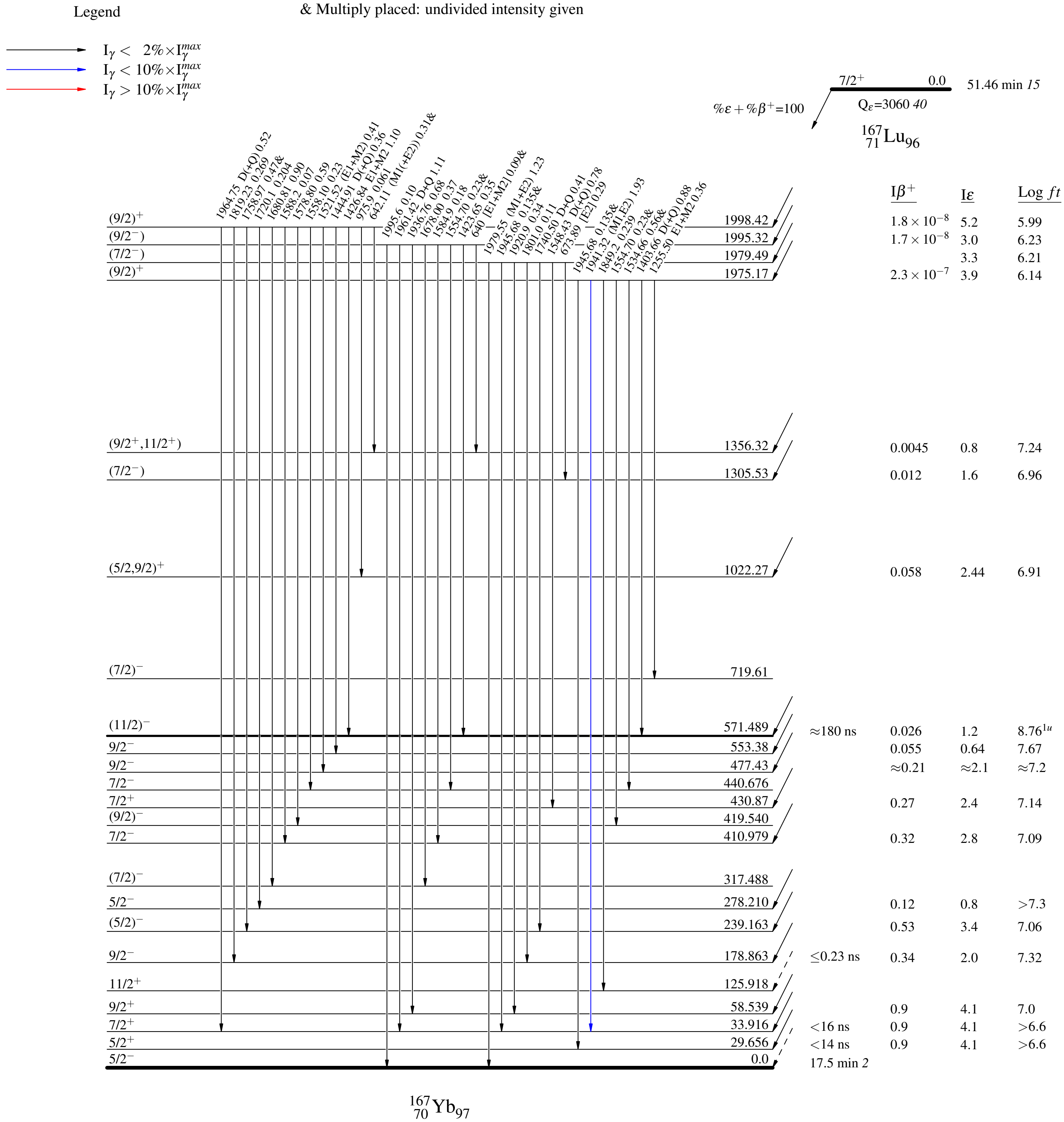
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
& Multiply placed: undivided intensity given



^{167}Lu ε decay (51.46 min) 1976Me06,1976Gr06,1981Kr08

Decay Scheme (continued)

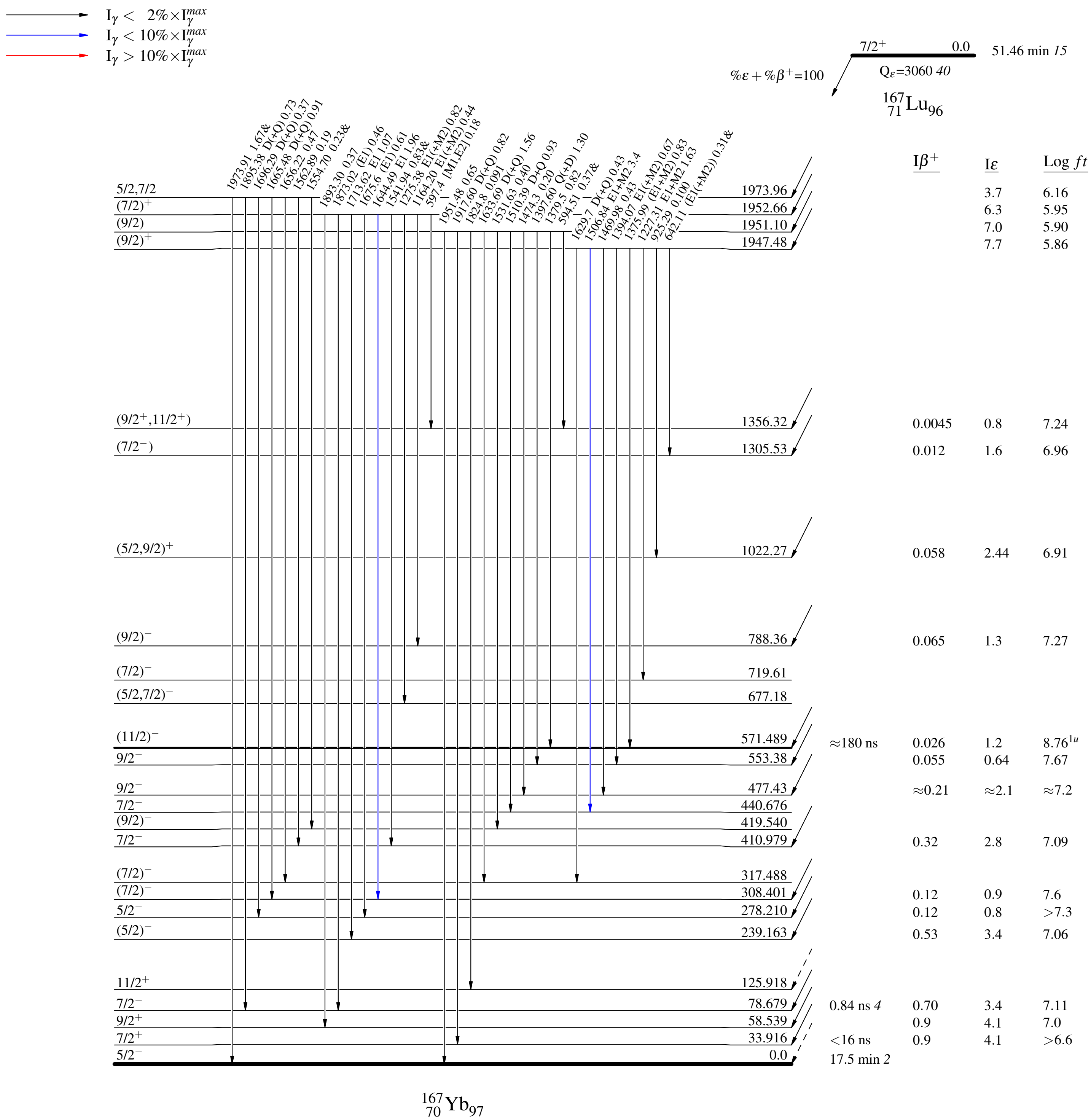
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
& Multiply placed: undivided intensity given



^{167}Lu ε decay (51.46 min) 1976Me06,1976Gr06,1981Kr08

Decay Scheme (continued)

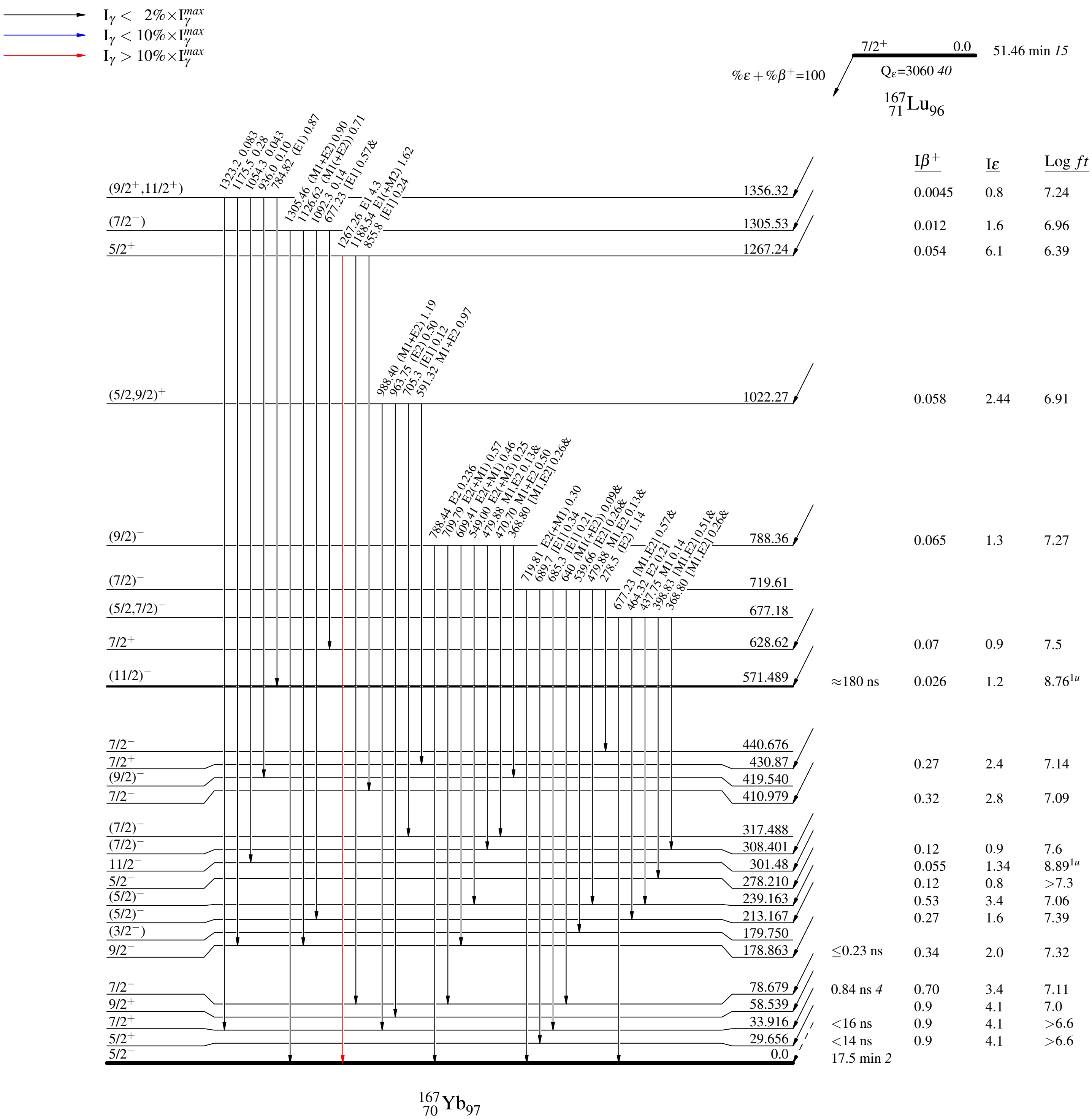
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
& Multiply placed: undivided intensity given



^{167}Lu ε decay (51.46 min) 1976Me06,1976Gr06,1981Kr08

Decay Scheme (continued)

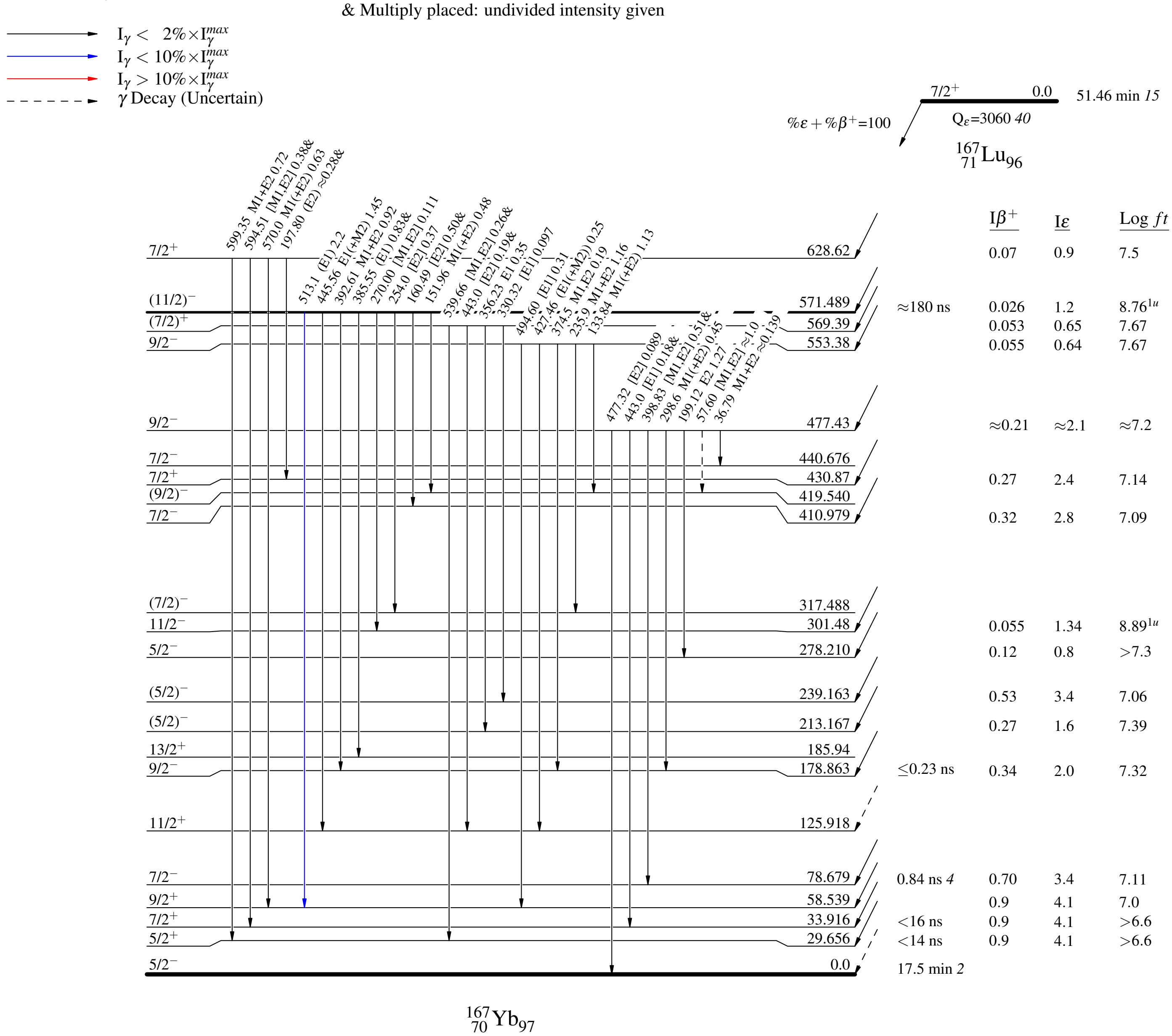
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
& Multiply placed: undivided intensity given



^{167}Lu ε decay (51.46 min) 1976Me06,1976Gr06,1981Kr08

Decay Scheme (continued)

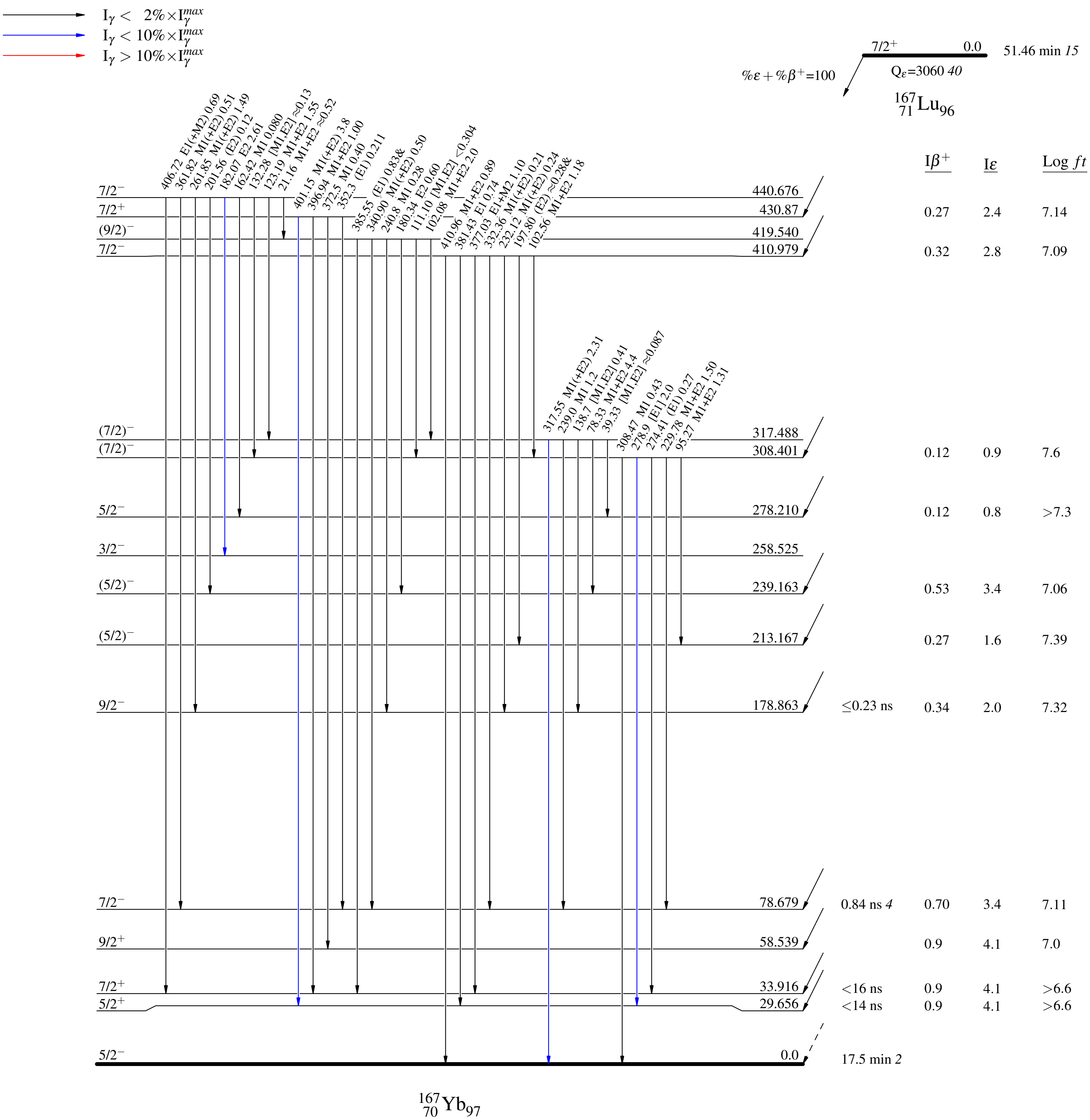
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
& Multiply placed: undivided intensity given



^{167}Lu ε decay (51.46 min) 1976Me06,1976Gr06,1981Kr08

Decay Scheme (continued)

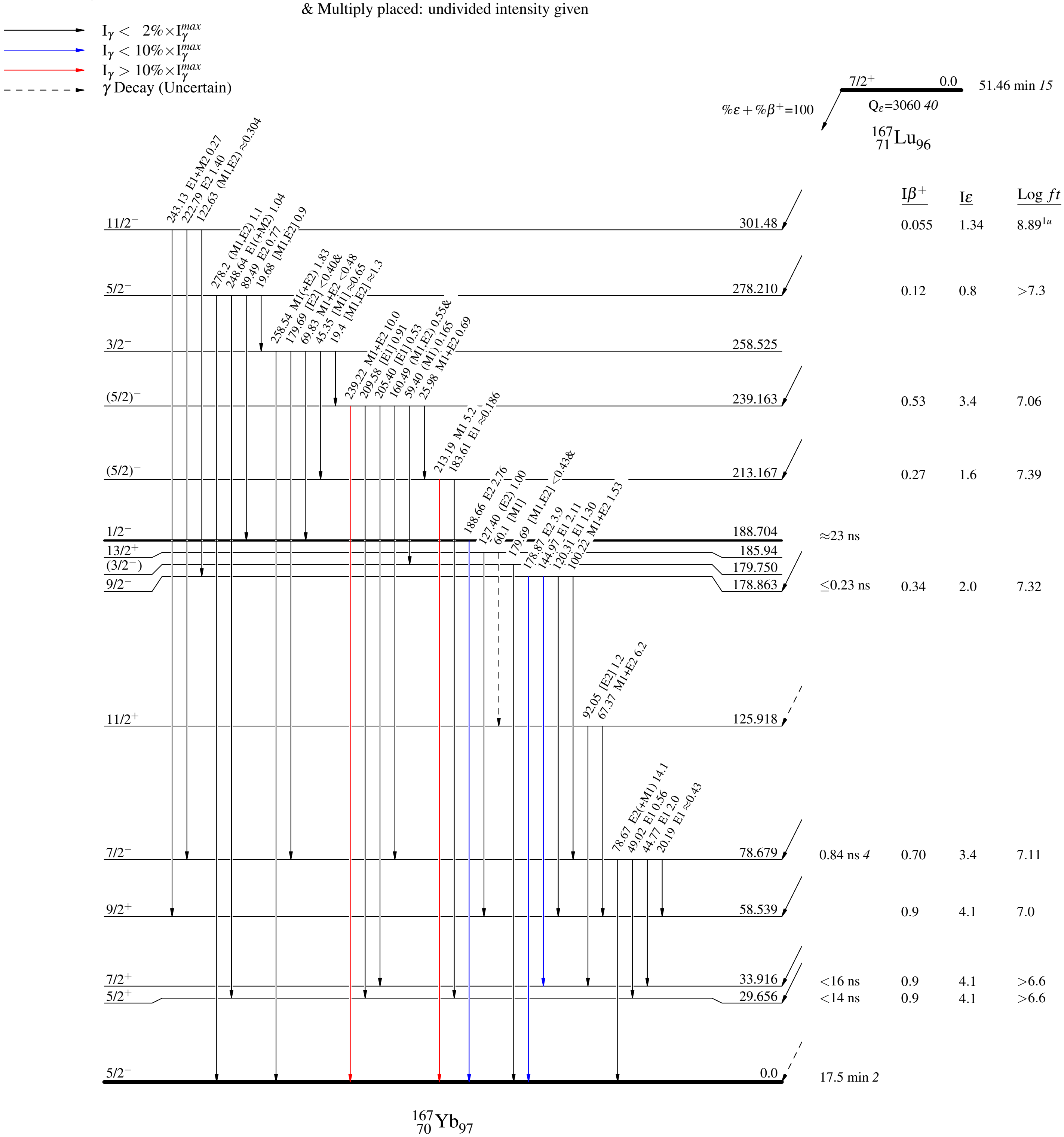
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
& Multiply placed: undivided intensity given



^{167}Lu ε decay (51.46 min) 1976Me06,1976Gr06,1981Kr08

Decay Scheme (continued)

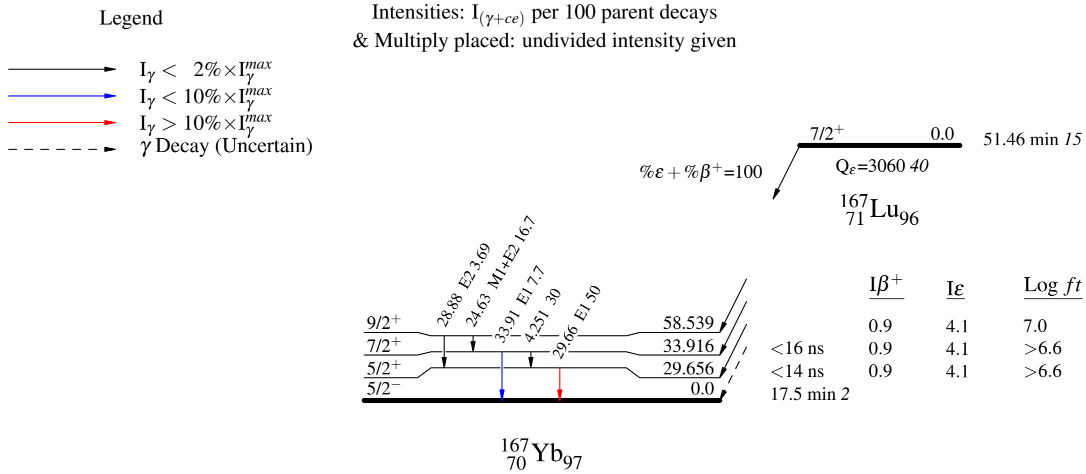
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
& Multiply placed: undivided intensity given



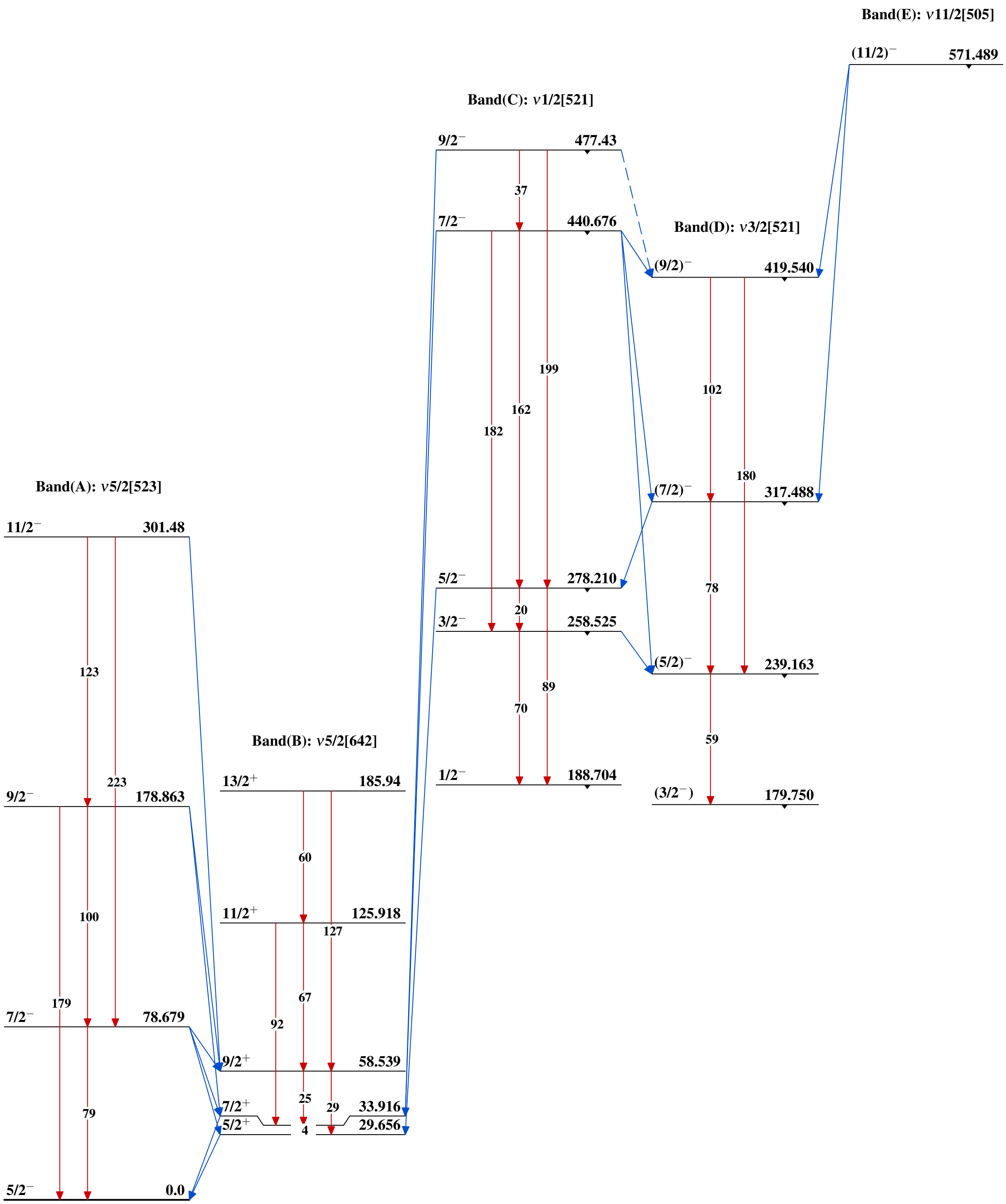
^{167}Lu ε decay (51.46 min) 1976Me06,1976Gr06,1981Kr08

Decay Scheme (continued)

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



^{167}Lu ε decay (51.46 min) 1976Me06,1976Gr06,1981Kr08



$^{167}_{70}Yb_{97}$