^{167}Lu ε decay 1976Gr06,1976Me06

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 90, 431 (2000)	5-Jul-2000

Parent: ^{167}Lu: E=0.0; J$^{\pi}$=7/2^{+}; $T_{1/2}$=51.5 min *10*; Q(ε)=3.13×10^{3} *10*; %ε+%β^{+} decay=100.0

Others: 1959Ha09, 1959Ka08, 1960Ba32, 1960Bo29, 1960Bu27, 1965Gr20, 1969Ar23, 1971Ab04, 1975VaYV, 1977Gr21, 1981Kr08, 1987BaZB.

1971Ab04: sources from spallation of tantalum by 680-MeV protons; measured Eγ, Iγ (Ge(Li) spectrometers) and E(ce), Ice (permanent magnet uniform-field 0.05% resolution spectrographs).

1976Gr06: sources from spallation of tantalum by 660-MeV protons, chemical and electromagnetic isotope separations; measured Eγ, Iγ (Ge(Li) (various)), E(ce), Ice (Si(Li) (FWHM=2.8 keV at 401 keV K line), mag spectrograph (resolution=0.05%)), prompt and delayed $\gamma\gamma$ coin (20-30 ns timing resolution).

1976Me06: sources from ^{169}Tm(^{3}He,5n) (E(^{3}He)=45 MeV, Tm foil targets) and ^{170}Yb(p,4n) (E(p)=45 MeV, Yb oxide targets enriched to 67% in ^{170}Yb); measured Eγ, Iγ (Ge(Li)-NaI Compton-suppression spectrometer, Ge(Li) surface barrier detector), prompt and delayed $\gamma\gamma$ coin.

1981Kr08: sources from spallation of tantalum by 660-MeV protons, chemical and mass separations; measured anisotropies of γ rays from oriented nuclei (Ge(Li), FWHM=2.5 keV at 1.33 MeV).

The decay scheme is from 1976Me06, with some additions and changes incorporated from 1975VaYV, 1976Gr06, and 1981Kr08. Knowledge of the scheme is incomplete, with about 15% of the transition intensity unplaced and several transitions multiply placed. Some of the more serious inconsistencies are noted.

^{167}Yb Levels

E(level)[†]	J$^{\pi}$[‡]	$T_{1/2}$	Comments
0.0[#]	5/2^{-}	17.5 min *2*	
29.658[@] *6*	5/2^{+}	<14 ns	$T_{1/2}$: $\gamma\gamma$(t) (1976Me06); other values:≤20 ns ($\gamma\gamma$(t), 1976Gr06),≈400 ns ($\gamma\gamma$(t), 1975Bu10).
33.909[@] *6*	7/2^{+}	<16 ns	$T_{1/2}$: $\gamma\gamma$(t) (1976Me06).
58.538[@] *7*	9/2^{+}		
78.671[#] *8*	7/2^{-}	0.84 ns *4*	$T_{1/2}$: ceγ(t) (1975VaYV).
125.911[@] *11*	11/2^{+}		Apparent 4.2% *8* ε feeding not consistent with assigned J$^{\pi}$.
178.875[#] *10*	9/2^{-}	≤0.23 ns	$T_{1/2}$: ceγ(t) (1975VaYV).
179.790[a] *21*	(3/2^{-})		
185.94[@] *6*	13/2^{+}		
188.754[&] *18*	1/2^{-}	≈23 ns	$T_{1/2}$: $\gamma\gamma$(t) (1976Gr06). Apparent 1.6% *3* ε branch to this level presumably results from incompleteness of the decay scheme.
213.195 *16*	(5/2)$^{-}$		
239.190[a] *16*	(5/2)$^{-}$		
258.582[&] *16*	3/2^{-}		
278.257[&] *17*	5/2^{-}		
301.484[#] *25*	11/2^{-}		
308.456 *15*	(7/2)$^{-}$		
317.523[a] *16*	(7/2)$^{-}$		
411.009 *18*	7/2^{-}		
419.589[a] *17*	(9/2)$^{-}$		
430.92 *5*	7/2^{+}		
440.712[&] *14*	7/2^{-}		
477.45[&] *3*	9/2^{-}		
553.44 *3*	9/2^{-}		J$^{\pi}$: anisotropies for 236γ and 427γ exclude J(553)=11/2 (1981Kr08).
569.45 *10*	(5/2,7/2)$^{+}$		

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^{167}Lu ε decay 1976Gr06,1976Me06 (continued)

^{167}Yb Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$	Comments
571.548[b] *22*	(11/2)⁻	≈180 ns	$T_{1/2}$: γγ(t) (1976Gr06).
628.39 *10*	7/2⁺		
677.39 *10*	(7/2)⁻		
719.89 *10*	(7/2)⁻		
788.39 *6*	(5/2,9/2)⁻		
1022.29 *7*	(5/2,9/2)⁺		Jπ: 7/2 eliminated based on comparison of 591γ anisotropy in 1981Kr08 and δ from α(K)exp.
1267.24 *5*	5/2⁺		
1305.53 *7*	7/2⁻		
1356.33 *9*	(9/2⁺,11/2⁺)		
1947.50 *5*	(9/2⁺)		Jπ: if J=7/2, δ(Q,O)>0.19 for 1376γ; if J=11/2, δ(Q,O)>0.30 for 1507γ (1981Kr08).
1951.19 *6*	(9/2)		
1952.85 *7*	(7/2)⁺		
1973.97 *11*	5/2,7/2		
1975.24 *8*	(9/2)⁺		
1979.50 *7*	(7/2⁻)		
1995.32 *9*	(9/2⁻)		Jπ: 7/2⁻ rejected based on δ(D,Q)=0.47 +*5*−*10* for 1961γ if J(1995)=7/2 (1981Kr08).
1998.47 *6*	(9/2⁺)		
2012.32 *13*	(7/2,9/2⁻)		
2013.05 *11*	(7/2⁻)		
2052.68 *16*	9/2⁽⁻⁾		
2330.40 *8*	9/2⁽⁺⁾		Jπ: 2204γ and 2272γ anisotropies eliminate J=7/2 (1981Kr08).

† From least-squares adjustment of Eγ, omitting uncertainly- or multiply-placed gammas and also 1676γ, 1753γ, 1873γ, 1893γ, each of which fits its placement poorly.
‡ Adopted values.
\# 5/2[523] band member.
@ 5/2[642] band member.
& 1/2[521] band member.
a 3/2[521] band member.
b 11/2[505] band member.

ε,β⁺ radiations

ε+β⁺ feedings are from intensity imbalance at each level, assuming no branch to g.s., consistent with Iγ(239.2γ)=8.6% 6 (1976Me06).
1977Gr21 discuss conclusions of 1976Me06 regarding anomalies in the ε/β⁺ ratios.

E(decay)	E(level)	Iε[†]	Log *ft*	I(ε+β⁺)[†]	Comments
(8.0×10^2 *10*)	2330.40	3.5 *5*	5.85 *14*	3.5 *5*	εK=0.815 *4*; εL=0.1417 *24*; εM+=0.0433 *9*
(1.08×10^3 *10*)	2052.68	2.2 *8*	6.32 *19*	2.2 *8*	εK=0.8205 *16*; εL=0.1377 *12*; εM+=0.0418 *5*
(1.12×10^3 *10*)	2013.05	1.99 *15*	6.40 *10*	1.99 *15*	εK=0.8210 *15*; εL=0.1373 *11*; εM+=0.0417 *4*
(1.12×10^3 *10*)	2012.32	1.7 *4*	6.47 *14*	1.7 *4*	εK=0.8210 *15*; εL=0.1373 *11*; εM+=0.0417 *4*
(1.13×10^3 *10*)	1998.47	4.2 *4*	6.09 *10*	4.2 *4*	εK=0.8212 *15*; εL=0.1371 *11*; εM+=0.0417 *4*
(1.13×10^3 *10*)	1995.32	2.62 *22*	6.29 *10*	2.62 *22*	εK=0.8213 *15*; εL=0.1371 *11*; εM+=0.0416 *4*
(1.15×10^3 *10*)	1979.50	2.88 *20*	6.27 *9*	2.88 *20*	εK=0.8215 *14*; εL=0.1370 *10*; εM+=0.0416 *4*
(1.15×10^3 *10*)	1975.24	3.4 *4*	6.20 *10*	3.4 *4*	εK=0.8215 *14*; εL=0.1369 *10*; εM+=0.0416 *4*
(1.16×10^3 *10*)	1973.97	3.3 *8*	6.21 *14*	3.3 *8*	εK=0.8215 *14*; εL=0.1369 *10*; εM+=0.0416 *4*

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^{167}Lu ε decay 1976Gr06,1976Me06 (continued)

ϵ,β^+ radiations (continued)

E(decay)	E(level)	Iβ^+ †	Iε†	Log *ft*	I($\varepsilon+\beta^+$)†	Comments
(1.18×10^3 *10*)	1952.85		5.6 *5*	6.00 *9*	5.6 *5*	εK=0.8218 *13*; εL=0.1367 *10*; εM+=0.0415 *4*
(1.18×10^3 *10*)	1951.19		6.2 *4*	5.96 *9*	6.2 *4*	εK=0.8218 *13*; εL=0.1367 *10*; εM+=0.0415 *4*
(1.18×10^3 *10*)	1947.50		6.8 *4*	5.92 *9*	6.8 *4*	εK=0.8218 *13*; εL=0.1367 *10*; εM+=0.0415 *4*
(1.77×10^3 *10*)	1356.33	0.006 *4*	0.7 *3*	7.27 *20*	0.7 *3*	av Eβ=352 *44*; εK=0.819 *4*; εL=0.1322 *10*; εM+=0.0400 *4*
(1.82×10^3 *10*)	1305.53	0.018 *9*	1.64 *20*	6.93 *8*	1.66 *20*	av Eβ=375 *44*; εK=0.818 *5*; εL=0.1317 *11*; εM+=0.0398 *4*
(1.86×10^3 *10*)	1267.24	0.07 *3*	5.3 *3*	6.43 *6*	5.4 *3*	av Eβ=391 *44*; εK=0.816 *5*; εL=0.1313 *12*; εM+=0.0397 *4*
(2.11×10^3 *10*)	1022.29	0.068 *24*	2.16 *15*	6.94 *6*	2.23 *15*	av Eβ=499 *44*; εK=0.802 *9*; εL=0.1283 *16*; εM+=0.0387 *5*
(2.34×10^3 *10*)	788.39	0.07 *3*	1.2 *4*	7.28 *15*	1.3 *4*	av Eβ=602 *45*; εK=0.781 *12*; εL=0.1242 *22*; εM+=0.0374 *7*
(2.50×10^3 *10*)	628.39	0.05 *3*	0.6 *4*	7.7 *3*	0.6 *4*	av Eβ=673 *45*; εK=0.761 *15*; εL=0.1207 *25*; εM+=0.0364 *8*
(2.56×10^3 *10*)	571.548	0.02 *2*	0.9 *7*	8.9^{1u} *4*	0.9 *7*	av Eβ=707 *43*; εK=0.800 *6*; εL=0.1324 *13*; εM+=0.0402 *5*
(2.56×10^3 *10*)	569.45	0.047 *15*	0.46 *12*	7.78 *12*	0.51 *13*	av Eβ=699 *45*; εK=0.753 *16*; εL=0.119 *3*; εM+=0.0359 *8*
(2.58×10^3 *10*)	553.44	0.05 *3*	0.52 *23*	7.74 *20*	0.57 *25*	av Eβ=706 *45*; εK=0.750 *16*; εL=0.119 *3*; εM+=0.0358 *8*
(2.65×10^3 *10*)	477.45	0.16 *7*	1.3 *5*	7.35 *18*	1.5 *6*	av Eβ=740 *45*; εK=0.739 *17*; εL=0.117 *3*; εM+=0.0352 *9*
(2.70×10^3 *10*)	430.92	0.27 *6*	2.0 *3*	7.18 *8*	2.3 *3*	av Eβ=760 *45*; εK=0.731 *17*; εL=0.116 *3*; εM+=0.0348 *9*
(2.72×10^3 *10*)	411.009	0.35 *10*	2.5 *5*	7.09 *10*	2.9 *6*	av Eβ=769 *45*; εK=0.728 *18*; εL=0.115 *3*; εM+=0.0347 *9*
(2.82×10^3 *10*)	308.456	0.1 *1*	0.8 *5*	7.6 *3*	0.9 *6*	av Eβ=815 *45*; εK=0.711 *19*; εL=0.112 *3*; εM+=0.0338 *10*
(2.83×10^3 *10*)	301.484	0.061 *14*	1.20 *13*	8.92^{1u} *9*	1.26 *14*	av Eβ=823 *44*; εK=0.784 *8*; εL=0.1287 *16*; εM+=0.0390 *5*
(2.85×10^3 *10*)	278.257	0.1 *1*	0.8 *7*	7.7 *4*	0.9 *8*	av Eβ=828 *45*; εK=0.705 *19*; εL=0.111 *3*; εM+=0.0335 *10*
(2.89×10^3 *10*)	239.190	0.44 *25*	2.4 *13*	7.18 *24*	2.8 *15*	av Eβ=846 *45*; εK=0.698 *19*; εL=0.110 *4*; εM+=0.0331 *10*
(2.92×10^3 *10*)	213.195	0.38 *9*	1.9 *3*	7.27 *9*	2.3 *4*	av Eβ=857 *45*; εK=0.693 *20*; εL=0.109 *4*; εM+=0.0329 *10*
(2.95×10^3 *10*)	178.875	0.45 *12*	2.2 *5*	7.24 *11*	2.6 *6*	av Eβ=873 *45*; εK=0.687 *20*; εL=0.108 *4*; εM+=0.0326 *10*
(3.05×10^3 *10*)	78.671	0.8 *4*	3.2 *15*	7.09 *21*	4.0 *19*	av Eβ=918 *45*; εK=0.667 *21*; εL=0.105 *4*; εM+=0.0316 *10*
(3.07×10^3 *10*)	58.538	0.81 *21*	3.2 *7*	7.10 *11*	4.0 *9*	av Eβ=927 *45*; εK=0.663 *21*; εL=0.104 *4*; εM+=0.0314 *10*
(3.10×10^3 *10*)	33.909	1 *1*	4 *4*	7.0 *5*	5 *5*	av Eβ=938 *45*; εK=0.658 *21*; εL=0.104 *4*; εM+=0.0312 *11*
(3.10×10^3 *10*)	29.658	1 *1*	4 *4*	7.0 *5*	5 *5*	av Eβ=940 *45*; εK=0.657 *21*; εL=0.103 *4*; εM+=0.0311 *11*

† Absolute intensity per 100 decays.

γ(^{167}Yb)

Iγ normalization: a value of 0.043 *4* follows from Iγ(239.2γ)=8.6% 6, deduced from a measurement of Iγ(239.2γ, ^{167}Lu decay)/Iγ(176.2γ, ^{167}Yb decay) for an equilibrium source (1976Me06). This normalization implies %ε+%β^+=−11 *11* to g.s. The evaluator, therefore, assumes there is no g.s. ε branch and normalizes the decay scheme assuming Σ (I(γ+ce) to g.s.)=100%.

E_γ[†]	I_γ[‡h]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	δ[@]	α[i]	$I_{(\gamma+ce)}$[h]	Comments
(4.251 *8*)		33.909	7/2$^+$	29.658	5/2$^+$				6.9×10^2 *14*	E_γ: from energy difference between 29.7 and 33.9 levels. Transition unobserved, but existence confirmed by $\gamma\gamma$ coin (1976Me06). $I_{(\gamma+ce)}$: ≥555 *26* and≤824 *110* based on I(γ+ce) balance at 34 and 30 levels, respectively.
19.4 *1*		258.582	3/2$^-$	239.190	(5/2)$^-$	[M1,E2]			≈30[&]	Mult.: L1:L2=≈14.0:≈5.0 (1976Gr06).
19.680 *14*		278.257	5/2$^-$	258.582	3/2$^-$	[M1,E2]			21 *17*	I_γ: <9 (1976Me06). $I_{(\gamma+ce)}$: >2 from Ice(L1)≈1.5 (1976Gr06),≤38 from intensity balance at 259 level.
20.19 *3*		78.671	7/2$^-$	58.538	9/2$^+$	E1		5.1 *2*	≈10[&]	α(L)=3.94 *2*; α(M)=0.904 *4* Mult.: L1:L2:L3=3.9:≈2.6:<2.6 (1976Gr06).
21.16 *3*		440.712	7/2$^-$	419.589	(9/2)$^-$	M1+E2	0.10 *2*	97 *14*	≈12	α(L)=75 *14*; α(M)=17 *3* $I_{(\gamma+ce)}$: based on Ice(L1+L2)=6.7 and adopted mult; Iγ≈0.12 from I(γ+ce). Mult.: L1:L2:L3=4.6:2.1:<2.0 (1976Gr06).
24.630 *6*		58.538	9/2$^+$	33.909	7/2$^+$	M1+E2	0.150 *10*	79 *5*	385[&]	α(L)=60 *4*; α(M)=14.1 *11* Mult.: L1:L2:L3=111:90:103 (1976Gr06); Iγ<3.5 (1976Me06) implies α(L)exp>87; L1:L2:L3:M2:M3:N=2.3 *7*:1.5 *5*:1.5 *5*:0.57 *19*:0.57 *19*:0.52 *16* (1971Ab04); L1:L2:L2=1.00:0.70 *3*:0.78 *4* (1987BaZB). δ: from 1987BaZB; 0.157 +*19*−*22* from 1976Gr06.
^{x}25.98 *2*						M1+E2	0.190 +*32*−*23*	83 *13*	16[&]	α(L)=63 *13*; α(M)=15 *3* Mult.: L1:L2:L3=6:5.4:≈3 (1976Gr06).
^{x}26.230 *19*	[g]					M1+E2	0.078 +*12*−*15*	37.8 *23*	52[&]	α(L)=29.2 *22*; α(M)=6.6 *5* Mult.: L1:L2:L3=31:7.7:3.8 (1976Gr06); α(L)exp>5.3.
28.880 *8*		58.538	9/2$^+$	29.658	5/2$^+$	E2		910	85[&]	α(L)=692; α(M)=168 I_γ: <44 (1976Me06). Mult.: L1:L2:L3=0.5:34:34 (1976Gr06).
29.660 *7*	420 *36*	29.658	5/2$^+$	0.0	5/2$^-$	E1		1.77		α(L)=1.37; α(M)=0.310 Other Iγ: 374 *44* (1976Me06). Mult.: L1:L2:L3=124:93:129 (1976Gr06); α(L)exp=0.8; L1:L2:L3=1.00:0.71 *5*:1.02 *6* (1987BaZB).

From ENSDF

γ(^{167}Yb) (continued)

E_γ [†]	I_γ [‡h]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [#]	δ [@]	α [i]	$I_{(\gamma+ce)}$ [h]	Comments
[x]33.50 *3*						M1+E2	0.25 *+12−11*	39 *21*	15[&]	α(L)=30 *+20−14*; α(M)=7 *+5−3* Mult.: L1:L2:L3=3.1:6.5:2.6 (1976Gr06).
33.910 *8*	81 *8*	33.909	7/2⁺	0.0	5/2⁻	E1		1.23		α(L)=0.946; α(M)=0.213 Mult.: L1:L2:L3=36:26:39, α(L)exp=1.25 (1976Gr06). L1:L2:L3=1.00:0.69 *3*:1.01 *5* (1987BaZB).
36.79 *3*		477.45	9/2⁻	440.712	7/2⁻	M1+E2	0.10 *+4−6*	13.3 *20*	≈3.2	α(L)=10.3 *19*; α(M)=2.3 *5* $I_{(\gamma+ce)}$: from Ice(L1)=1.8 and adopted mult. I_γ: ≈0.3 from I(γ+ce);≤1.3 in 1976Gr06. Mult.: L1:L2:L3=1.8:≈0.4:≈0.4 (1976Gr06); α(L)exp≥2.
[x]37.70 *3*	≤0.8					E2		243		α(L)=184; α(M)=45 Mult.: L1:L2:L3=<0.8:13:13, α(L)exp≥34 (1976Gr06).
39.33 *4*		317.523	(7/2)⁻	278.257	5/2⁻	[M1,E2]			≈2[&]	$I_{(\gamma+ce)}$,Mult.: Ice(L1)=1.5, Iγ≤0.8 (1976Gr06), so α(L1)exp≥1.9; consistent with M1(+E2) but E1 is ruled out. I(γ+ce)<3 if M1,≈440 if E2.
44.770 *14*	29 *7*	78.671	7/2⁻	33.909	7/2⁺	E1		0.565		α(L)=0.438; α(M)=0.098 I_γ: from 1976Me06; <80 in 1976Gr06. Mult.: L1:L2:L3=7.7:3.1:4.6 (1976Gr06); α(L)exp=0.47.
45.35 *10*		258.582	3/2⁻	213.195	(5/2)⁻	[M1]			≈15[&]	α(L)=4.46 *3*; α(M)=0.997 *7* Mult.: L1:L2=10:1.6 (1976Gr06); consistent with M1 but not E1 or E2.
49.010 *14*		78.671	7/2⁻	29.658	5/2⁺	E1		0.439	13[&]	α(L)=0.340; α(M)=0.076 Mult.: L1:L2:L3=4.6:2.6:3.1 (1976Gr06).
57.600[k] *14*		477.45	9/2⁻	419.589	(9/2)⁻	[M1,E2]		17 *14*	≈23	$I_{(\gamma+ce)}$: from Ice(L)≈18 and assumed mult. Mult.: L1:L2:L3=9.0:≤4:≈7 (1976Gr06). Authors suggest mult=(E1) which is inconsistent with this placement; note also that Eγ fits placement poorly, so evaluator shows placement as tentative.
[x]57.78 *2*						M1+E2	0.32 *+14−8*	8 *4*	28[&]	α(L)=4.1 *+17−13*; α(M)=1.0 *+4−3*; α(N+..)=0.27 *+4−5* Mult.: L1:L2:L3=9.3:8.2:3.9 (1976Gr06).
59.400 *14*		239.190	(5/2)⁻	179.790	(3/2⁻)	(M1)		2.60	3.8[&]	α(L)=2.02; α(M)=0.450; α(N+..)=0.129 Mult.: L1:L2=2.0:≤0.4 (1976Gr06).
[x]60.98 *2*						(E2)		23.1	0.3[&]	α(L)=17.58; α(M)=4.32; α(N+..)=1.18 Mult.: L1:L2:L3=≤0.02:0.12:0.21 *9* (1976Gr06).
67.370 *9*	11.9 *14*	125.911	11/2⁺	58.538	9/2⁺	M1+E2	0.30 *+8−10*	11.3 *2*		α(K)=8.5 *4*; α(L)=2.2 *5*; α(M)=0.51 *11*; α(N+..)=0.14 *3* Mult.: L1:L2:L3=17:5.9:8.5, α(L)exp=2.6 (1976Gr06).

$^{167}_{70}Yb_{97}$-5

γ(^{167}Yb) (continued)

E_γ [†]	I_γ [‡h]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [#]	δ [@]	α [i]	$I_{(\gamma+ce)}$ [h]	Comments
69.830 *14*	≤0.8	258.582	3/2⁻	188.754	1/2⁻	M1+E2	1.9 *+6−3*	12.9 *6*		α(K)=3.1 *6*; α(L)=7.4 *13*; α(M)=1.8 *3*; α(N+..)=0.50 *5* Mult.: L1:L2:L3=0.77:7.7:6.5 (1976Gr06); however, α(L)exp≥19.
78.330 *14*	13 *4*	317.523	(7/2)⁻	239.190	(5/2)⁻	M1+E2	0.15	7.05		α(K)=5.76; α(L)=1.00; α(M)=0.225; α(N+..)=0.0648 I_γ: from 1976Me06; 52.5 *25* in 1976Gr06 for 78.3γ+78.7γ doublet. Mult.: K:L1:L2:L3=88 *25*:26:4.3:2.1 (1976Gr06); α(K)exp=7 *3*.
78.670 *12*	35 *4*	78.671	7/2⁻	0.0	5/2⁻	E2(+M1)	≥4.6	8.4		α(K)=1.67 *10*; α(L)=5.10 *10*; α(M)=1.25 *3*; α(N+..)=0.345 *7* I_γ: from 1976Me06; 52.5 *25* in 1976Gr06 for 78.3γ+78.7γ doublet. Mult.: K:L1:L2:L3=65 *18*:8.8:129:129 (1976Gr06); α(K)exp=1.9 *6*.
89.490 *14*	3 *1*	278.257	5/2⁻	188.754	1/2⁻	E2		5.02		α(K)=1.30; α(L)=2.83; α(M)=0.696; α(N+..)=0.193 Mult.: K:L1:L2:L3=4.1 *10*:≈0.26:3.1:2.6 (1976Gr06); α(K)exp=1.4 *6*.
92.05 *7*	5.0 *15*	125.911	11/2⁺	33.909	7/2⁺	[E2]		4.49		α(K)=1.23; α(L)=2.48; α(M)=0.609; α(N+..)=0.169
95.270 *14*	6.2 *12*	308.456	(7/2)⁻	213.195	(5/2)⁻	M1+E2	0.16	3.98		α(K)=3.27; α(L)=0.549; α(M)=0.124; α(N+..)=0.0361 Mult.: K:L1:L2:L3=38 *10*:3.4:0.52:0.13 (1976Gr06); α(K)exp=6.1 *20*.
100.220 *14*	8.4 *12*	178.875	9/2⁻	78.671	7/2⁻	M1+E2	4.9 *+21−9*	3.23 *2*		α(K)=1.10 *4*; α(L)=1.62 *9*; α(M)=0.40 *2*; α(N+..)=0.110 *2* Mult.: K:L1:L2:L3=10 *3*:1.0:9.0:7.7 (1976Gr06); α(K)exp=1.2 *4*.
[x]100.70 *3*	2.8 *9*					(M1)		3.39		α(K)=2.83; α(L)=0.433; α(M)=0.097; α(N+..)=0.0283 Mult.: K:L1=10 *3*:1.0 (1976Gr06); α(K)exp=3.6 *16*.
102.080 *14*	11.0 *22*	419.589	(9/2)⁻	317.523	(7/2)⁻	M1+E2	0.17 *+5−6*	3.26 *1*		α(K)=2.68 *4*; α(L)=0.448 *21*; α(M)=0.101 *6*; α(N+..)=0.0293 *14* I_γ: from 1976Me06; 17 *3* for 102.1γ+102.6γ in 1976Gr06. Mult.: K:L1:L2=28 *7*:5.2:0.77 (1976Gr06); α(K)exp=2.5 *8*.
102.560 *16*	6.6 *15*	411.009	7/2⁻	308.456	(7/2)⁻	M1+E2	0.22 *5*	3.21 *1*		α(K)=2.61 *4*; α(L)=0.46 *2*; α(M)=0.105 *6*; α(N+..)=0.0303 *17* I_γ: from 1976Me06; 17 *3* for 102.1γ+102.6γ in 1976Gr06. Mult.: K:L1:L2=24 *7*:4.1:0.77 (1976Gr06); α(K)exp=3.6 *13*.
111.10 *5*		419.589	(9/2)⁻	308.456	(7/2)⁻	[M1,E2]		2.37 *20*	<7	$I_{(\gamma+ce)}$: based on Ice(K)=1.8 *4* (1976Gr06), Iγ<2 (1976Gr06).

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

γ(^{167}Yb) (continued)

Eγ[†]	Iγ[‡h]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	α[i]	$I_{(\gamma+ce)}$[h]	Comments
									Additional information 1.
120.310 *21*	24.7 *14*	178.875	9/2⁻	58.538	9/2⁺	E1	0.211		Mult.: α(K)exp>0.9 *2* (1976Gr06); rules out E1. α(K)=0.175; α(L)=0.0281; α(M)=0.00623; α(N+..)=0.00170 Iγ: other value: 13.2 *22* (1976Me06). Mult.: K:L1:L2:L3=3.1 *7*:0.5:≤0.13:≤0.10 (1976Gr06); α(K)exp=0.13 *3* and 0.21 *6* based on Iγ from 1976Gr06 and 1976Me06, respectively.
122.63 *4*		301.484	11/2⁻	178.875	9/2⁻	[M1,E2]	1.72 *22*	≈3[&]	$I_{(\gamma+ce)}$: Iγ<2.6, Ice(K)=1.0 *3* (1976Gr06), so α(K)exp>0.38 *12*, favoring M1,E2 multipolarity.
123.190 *21*	13.1 *13*	440.712	7/2⁻	317.523	(7/2)⁻	M1(+E2)	1.70 *22*		α(K)=1.1 *5*; α(L)=0.45 *21*; α(M)=0.11 *6*; α(N+..)=0.029 *14* Mult.: K:L1:L2=15 *4*:2.6:≤0.26 (1976Gr06); α(K)exp=1.1 *3*.
127.40 *6*	10.0 *11*	185.94	13/2⁺	58.538	9/2⁺	E2	1.31		α(K)=0.576; α(L)=0.560; α(M)=0.137; α(N+..)=0.0370 Mult.: from adopted gammas. Based on adopted gammas, this γ should be accompanied by a transition with Eγ=60.1 *2* and comparable strength. No such transition is reported in ε decay.
132.28 *4*		440.712	7/2⁻	308.456	(7/2)⁻	[M1,E2]	1.35 *21*	≈3.0	$I_{(\gamma+ce)}$: based on Ice(K)=1.0 *3* (1976Gr06) assuming mult=M1,E2.
133.84 *3*	10.5 *15*	553.44	9/2⁻	419.589	(9/2)⁻	M1+E2	1.30 *21*		α(K)=0.9 *4*; α(L)=0.32 *13*; α(M)=0.08 *4*; α(N+..)=0.021 *9* Mult.: K:L2:L3=9 *2*:≈0.08:<0.08 (1976Gr06); α(K)exp=0.86 *23*.
138.70 *17*	4.4 *15*	317.523	(7/2)⁻	178.875	9/2⁻	[M1,E2]	1.16 *20*		α(K)=0.8 *4*; α(L)=0.28 *11*; α(M)=0.07 *3*; α(N+..)=0.018 *8* Iγ: from 1976Me06;≈5 in 1976Gr06.
[x]139.62 *6*	≈2.3					(M1)	1.33		α(K)=1.11; α(L)=0.170; α(M)=0.0380; α(N+..)=0.0105 Mult.: α(K)exp≈0.9.
144.970 *21*	43.0 *20*	178.875	9/2⁻	33.909	7/2⁺	E1	0.130		α(K)=0.108; α(L)=0.0168; α(M)=0.00374; α(N+..)=0.00099 Mult.: K:L1:L2=3.6 *8*:0.26:<0.13 (1976Gr06).
151.960 *17*	5.8 *17*	571.548	(11/2)⁻	419.589	(9/2)⁻	M1(+E2)	0.87 *18*		α(K)=0.6 *3*; α(L)=0.20 *7*; α(M)=0.046 *17*; α(N+..)=0.012 *5* Iγ: other value: 5.3 *4* in 1976Me06. Mult.: K:L1=3.9 *8*:0.54 (1976Gr06); α(K)exp=0.67 *24*.
[x]158.15 *2*	≈0.8					(M1)	0.94		α(K)=0.785; α(L)=0.119; α(M)=0.0266; α(N+..)=0.00733 Mult.: α(K)exp≈0.6.
160.490[j] *17*	7.3[j] *16*	239.190	(5/2)⁻	78.671	7/2⁻	(M1,E2)	0.74 *17*		α(K)=0.53 *23*; α(L)=0.16 *5*; α(M)=0.037 *12*; α(N+..)=0.010 *3* Iγ: other value: 5.9 *4* (1976Me06). Mult.: α(K)exp=0.49 *16* (mult=E2(+M1)) for doubly placed G.
160.490[j] *17*	7.3[j] *16*	571.548	(11/2)⁻	411.009	7/2⁻	[E2]	0.575		α(K)=0.310; α(L)=0.203; α(M)=0.0492; α(N+..)=0.0132 Iγ: other value: 5.9 *4* in 1976Me06. Mult.: α(K)exp=0.49 *16* (mult=E2(+M1)) for doubly-placed γ; ΔJ=2 from level scheme.
162.42 *3*	1.0 *3*	440.712	7/2⁻	278.257	5/2⁻	M1	0.87		α(K)=0.729; α(L)=0.110; α(M)=0.0247; α(N+..)=0.00682 Mult.: K:L2:L3=1.3 *3*:0.08:≤0.08 (1976Gr06); α(K)exp=1.3 *5*.
[x]169.25 *25*	4.4[g] *11*								
178.87 *3*	64[g] *7*	178.875	9/2⁻	0.0	5/2⁻	E2	0.396		α(K)=0.229; α(L)=0.128; α(M)=0.0309; α(N+..)=0.0084

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

γ(^{167}Yb) (continued)

Eγ[†]	Iγ[‡h]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[i]	Comments
								Mult.: K:L1:L2:L3=11.3 *20*:1.0:1.65:1.78 (1976Gr06); α(K)exp=0.18 *4*.
179.69[j] *3*	<7[jg]	179.790	$(3/2^-)$	0.0	$5/2^-$	[M1,E2]	0.52 *14*	α(K)=0.39 *17*; α(L)=0.104 *22*; α(M)=0.024 *6*; α(N+..)=0.0067 *15* Mult.: α(K)exp>0.31 *7* for doubly-placed G.
179.69[j] *3*	<7[jg]	258.582	$3/2^-$	78.671	$7/2^-$	[E2]	0.390	α(K)=0.226; α(L)=0.125; α(M)=0.0303; α(N+..)=0.00824 Mult.: α(K)exp>0.31 *7* for doubly-placed γ; level scheme requires E2 for this placement.
180.34 *4*	10 *3*	419.589	$(9/2)^-$	239.190	$(5/2)^-$	E2	0.385	α(K)=0.223; α(L)=0.124; α(M)=0.0298; α(N+..)=0.00812 Mult.: K:L2:L3=2.3 *5*:0.3:0.3 (1976Gr06), α(K)exp=0.23 *9*.
182.07 *3*	44.0 *22*	440.712	$7/2^-$	258.582	$3/2^-$	E2	0.372	α(K)=0.217; α(L)=0.119; α(M)=0.0286; α(N+..)=0.00781 I_γ: from 1976Me06; 41 *28* in 1976Gr06. Mult.: K:L1:L2:L3=8.8 *20*:0.77:1.42:1.3 (1976Gr06); α(K)exp=0.18 *4*.
183.61 *4*	≈4	213.195	$(5/2)^-$	29.658	$5/2^+$	E1	0.0696	α(K)=0.0582; α(L)=0.0089; α(M)=0.00197; α(N+..)=0.00054 Mult.: α(K)exp≈0.063.
188.66 *4*	48.0 *24*	188.754	$1/2^-$	0.0	$5/2^-$	E2	0.330	α(K)=0.197; α(L)=0.102; α(M)=0.0246; α(N+..)=0.00675 Mult.: K:L1:L2:L3=10 *2*:0.72:1.23:1.6 (1976Gr06); α(K)exp=0.21 *4*.
[x]194.60 *3*	2.2 *7*					(M1)	0.526	α(K)=0.440; α(L)=0.0665; α(M)=0.0149; α(N+..)=0.00426 From 1976Me06;≈4 in 1976Gr06. Mult.: α(K)exp=0.40 *18*.
197.80[j] *5*	≈5[j]	411.009	$7/2^-$	213.195	$(5/2)^-$	(E2)	0.282	α(K)=0.172; α(L)=0.084; α(M)=0.0202; α(N+..)=0.00558 Mult.: α(K)exp≈0.20 for doubly-placed G.
197.80[j] *5*	≈5[j]	628.39	$7/2^+$	430.92	$7/2^+$	(E2)	0.282	α(K)=0.172; α(L)=0.084; α(M)=0.0202; α(N+..)=0.00558 Mult.: α(K)exp≈0.20. Eγ fits this placement poorly.
199.12 *4*	23 *3*	477.45	$9/2^-$	278.257	$5/2^-$	E2	0.275	α(K)=0.169; α(L)=0.0817; α(M)=0.0196; α(N+..)=0.00544 Mult.: K:L1:L2:L3=3.0 *8*:0.31:0.52:0.44, α(K)exp=0.13 *4* (1976Gr06).
201.560 *19*	2.2 *7*	440.712	$7/2^-$	239.190	$(5/2)^-$	(E2)	0.265	α(K)=0.163; α(L)=0.0777; α(M)=0.0187; α(N+..)=0.00518 I_γ: from 1976Me06; Iγ=5 *2* in 1976Gr06. Mult.: α(K)exp=0.20 *10*, 0.10 *6* based on Iγ from 1976Me06, 1976Gr06, respectively.
[x]202.9 *5*	3.0 *15*					E1,E2	0.16 *11*	α(K)=0.10 *6*; α(L)=0.04 *4*; α(M)=0.010 *9*; α(N+..)=0.0027 *23* Mult.: α(K)exp≤0.16.
205.40 *9*	11.5 *15*	239.190	$(5/2)^-$	33.909	$7/2^+$	[E1]	0.0520	α(K)=0.0435; α(L)=0.00659; α(M)=0.00146; α(N+..)=0.00041 I_γ: other value: 7.7 *15* (1976Me06).
[x]206.4 *1*								Ice(K)=0.1 *3* (1976Gr06) suggests typographical error.
209.58 *7*	20 *3*	239.190	$(5/2)^-$	29.658	$5/2^+$	[E1]	0.0493	α(K)=0.0413; α(L)=0.00625; α(M)=0.00139; α(N+..)=0.00039
213.20 *3*	86 *5*	213.195	$(5/2)^-$	0.0	$5/2^-$	M1	0.409	α(K)=0.343; α(L)=0.0517; α(M)=0.0115; α(N+..)=0.00337 Mult.: from K:L1:L2:L3=31 *6*:4.13:0.41:≤0.1 (1976Gr06); 1976Gr06 report δ≤0.18 for possible E2 admixture.
222.79 *3*	27.1 *15*	301.484	$11/2^-$	78.671	$7/2^-$	E2	0.190	α(K)=0.123; α(L)=0.0517; α(M)=0.0124; α(N+..)=0.00348 Mult.: K:L1:L2:L3=2.8 *5*:0.68:1.1:0.69 (1976Gr06); α(K)exp=0.103 *19*. A_2=−0.72 *27*, δ(Q,O)=+0.3 +6−3 (1981Kr08).

γ(^{167}Yb) (continued)

E_γ[†]	I_γ[‡h]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ[@]	α[i]	Comments
229.78 *3*	26.5 *15*	308.456	(7/2)$^-$	78.671	7/2$^-$	M1+E2	−0.39 *+20−24*	0.312 *21*	α(K)=0.26 *3*; α(L)=0.0425 *5*; α(M)=0.0096 *2*; α(N+..)=0.00281 *5* Mult.: K:L1:L2=6.5 *13*:0.91:<0.15 (1976Gr06); α(K)exp=0.25 *5*; A_2=−0.09 *19* (1981Kr08).
232.12 *3*	4.6 *4*	411.009	7/2$^-$	178.875	9/2$^-$	M1(+E2)	−1.4 *16*	0.22 *10*	α(K)=0.16 *11*; α(L)=0.0429 *19*; α(M)=0.0100 *9*; α(N+..)=0.00288 *17* I_γ: from 1976Me06; 5.3 *13* in 1976Gr06. Mult.: K:L1:L2=0.76 *15*:0.16:<0.16 (1976Gr06); α(K)exp=0.17 *4*. A_2=−0.7 *5* (1981Kr08). δ: $-3.0\le\delta\le+0.2$ (1981Kr08).
235.90 *8*	23 *3*	553.44	9/2$^-$	317.523	(7/2)$^-$	M1+E2	−2.7 *+11−25*	0.176 *25*	α(K)=0.12 *3*; α(L)=0.0409 *4*; α(M)=0.0097 *2*; α(N+..)=0.00276 *4* Mult.: K:L1:L2:L3=2.0 *4*:0.43:0.46:0.4 (1976Gr06); α(K)exp=0.088 *21*. A_2=+0.6 *8* (1981Kr08).
239.00 *8*	22 *11*	317.523	(7/2)$^-$	78.671	7/2$^-$	M1		0.299	α(K)=0.251; α(L)=0.0377; α(M)=0.0084; α(N+..)=0.00250 I_γ: from 1976Me06; 237 *10* in 1976Gr06 for 239.0γ+239.2γ doublet. Mult.: K:L1:L2:L3=5.4 *10*:0.77:0.21:<0.08 (1976Gr06); α(K)exp=0.25 *13*.
239.22 *4*	198 *11*	239.190	(5/2)$^-$	0.0	5/2$^-$	M1+E2	+2.9 *+15−9*	0.17 *4*	α(K)=0.116 *14*; α(L)=0.0388 *4*; α(M)=0.0092 *2*; α(N+..)=0.00262 *1* I_γ: from 1976Me06; 237 *10* in 1976Gr06 for 239.0γ+239.2γ doublet. Mult.,δ: K:L1:L2:L3=57 *10*:8.44:0.8:<0.1 (1976Gr06), α(K)exp=0.29 *5* imply M1; A_2=−0.19 *14* (1981Kr08) implies M1+E2 with δ=+2.9 *+15−9* (measurement affected by presence of 239.0γ, but Iγ(239.2γ)/Iγ(239.0γ)=9.0).
240.80 *9*	5 *2*	419.589	(9/2)$^-$	178.875	9/2$^-$	M1		0.293	α(K)=0.245; α(L)=0.0369; α(M)=0.00825; α(N+..)=0.00245 Mult.: α(K)exp=0.26 *12*.
[x]242.8 *2*	14 *2*								
243.5 *5*	6 *2*	301.484	11/2$^-$	58.538	9/2$^+$	E1+M2	≈+0.06	≈0.038	α(K)≈0.0318; α(L)≈0.00498; α(M)≈0.00111; α(N+..)≈0.00033 E_γ: from 1976Gr06; 243.4 *1* (1971Ab04) and 243.10 *15* (1976Me06) are probably for 242.8γ+243.5γ doublet. Mult.,δ: α(K)exp=0.022 *10* implies $\delta\le$0.06; A_2=−0.15 *20*, δ=+0.20 *14* (1981Kr08).
248.64 *6*	23 *3*	278.257	5/2$^-$	29.658	5/2$^+$	E1(+M2)	<0.10	0.038 *6*	α(K)=0.031 *5*; α(L)=0.0050 *10*; α(M)=0.00111 *23*; α(N+..)=0.00033 *7* Mult.,δ: α(K)exp=0.026 *9* implies δ<0.10; A_2=−0.7 *3* (1981Kr08) allows δ=+0.45 *+11−48*.
254.0 *2*	7.5 *20*	571.548	(11/2)$^-$	317.523	(7/2)$^-$	[E2]		0.125	α(K)=0.084; α(L)=0.0308; α(M)=0.00734; α(N+..)=0.00210 Mult.: K:L1=1.2 *2*:0.1 (1976Gr06); α(K)exp=0.16 *3* consistent with M1(+E2), but placement disallows M1 component.

^{167}Lu ε decay 1976Gr06,1976Me06 (continued)

γ(^{167}Yb) (continued)

E_γ[†]	I_γ[‡h]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ[@]	α[i]	Comments
258.54 *3*	36 *2*	258.582	3/2⁻	0.0	5/2⁻	M1(+E2)	−1.2 *14*	0.17 *7*	α(K)=0.13 *7*; α(L)=0.0294 *9*; α(M)=0.00682 *4*; α(N+..)=0.00199 *5* Mult.: K:L1:L2:L3=8.3 *15*:1.1:0.13:0.15 (1976Gr06); α(K)exp=0.23 *4*; A_2=−0.31 *23* (1981Kr08). δ: −2.6≤δ≤+0.2 (1981Kr08).
261.850 *19*	18.0 *15*	440.712	7/2⁻	178.875	9/2⁻	M1(+E2)	−0.06 *10*	0.233 *3*	α(K)=0.195 *3*; α(L)=0.0293 *1*; α(M)=0.00655; α(N+..)=0.00197 I_γ: other value: 30.8 *22* in 1976Me06, but this may be for 262γ+264γ doublet. Mult.: K:L1:L2=5.4 *10*:0.91:<0.1 (1976Gr06); α(K)exp=0.30 *6* (exceeds α(K)(M1)). A_2=+0.06 *15* (1981Kr08).
[x]263.5 *2*	7 *2*								
270.00 *9*	2.20 *22*	571.548	(11/2)⁻	301.484	11/2⁻	[M1,E2]		0.16 *6*	α(K)=0.13 *6*; α(L)=0.0257 *13*; α(M)=0.00591 *12*; α(N+..)=0.00174 *8* I_γ: from 1976Me06; Iγ≈2 in 1976Gr06.
274.42 *6*	6 *1*	308.456	(7/2)⁻	33.909	7/2⁺	(E1)		0.0249	α(K)=0.0209; α(L)=0.00310; α(M)=0.00069; α(N+..)=0.00020 E_γ: weighted average of 274.41 *2* (1976Gr06) and 274.70 *10* (1976Me06). Other Iγ: 4.8 *4* (1976Me06). Mult.: α(K)exp=0.043 *15*.
278.21 *6*	22 *7*	278.257	5/2⁻	0.0	5/2⁻	(M1,E2)		0.15 *6*	α(K)=0.12 *5*; α(L)=0.0233 *16*; α(M)=0.0054 *2*; α(N+..)=0.00158 *10* I_γ: from 1976Me06; Iγ for components of 278γ triplet deduced from $\gamma\gamma$ coin. Mult.,δ: K:L1:L2:L3=6.6 *13*:1.2:0.5:≈0.08, implies δ(M1,E2)=1.1 *+5−3* (1976Gr06); however, α(K)exp=0.30 *11* exceeds α(K)(M1)=0.166. It is assumed that Ice(278.2γ) data in 1976Gr06 include no contribution from the 278.5γ.
278.5	24 *7*	719.89	(7/2)⁻	440.712	7/2⁻	(E2)		0.093	α(K)=0.0652; α(L)=0.0217; α(M)=0.00514; α(N+..)=0.00148 I_γ: from 1976Me06; Iγ for components of 278γ triplet deduced from $\gamma\gamma$ coin. Mult.: see comment on 278.9γ.
278.91 *7*	46 *9*	308.456	(7/2)⁻	29.658	5/2⁺	[E1]		0.0239	α(K)=0.0201; α(L)=0.00298; α(M)=0.00066; α(N+..)=0.00020 I_γ: from 1976Me06; Iγ for components of 278γ triplet deduced from $\gamma\gamma$ coin. Mult.: K:L1=2.5 *5*:0.18 (1976Gr06), α(K)exp=0.054 *15*; however, Ice in 1976Gr06 may include contribution from the 278.5γ established by 1976Me06 using $\gamma\gamma$ 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]282.47 *22*	2.9 *8*					E2(+M1)		0.14[a] *5*	α(K)=0.11 *5*; α(L)=0.0222 *17*; α(M)=0.0051 *2*; α(N+..)=0.00151 *11* Mult.: α(K)exp=0.07 *3*.
298.59 *7*	9.0 *22*	477.45	9/2⁻	178.875	9/2⁻	M1(+E2)	+0.4 *5*	0.15 *3*	α(K)=0.10 *3*; α(L)=0.0200 *12*; α(M)=0.00449 *20*;

γ(^{167}Yb) (continued)

E_γ[†]	I_γ[‡h]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	δ[@]	α[i]	Comments
									α(N+..)=0.00135 *8* I_γ: other value: 6.6 *13* in 1976Me06. Mult.,δ: K:L1=0.63 *12*:0.1 (1976Gr06); α(K)exp=0.070 *22* is inconsistent with pure M1 or pure E2; 1981Kr08 report A_2=−0.9 *5*, −0.1≤δ≤+0.9.
308.47 *6*	8.7 *9*	308.456	(7/2)$^-$	0.0	5/2$^-$	M1+E2		0.11 *4*	α(K)=0.09 *4*; α(L)=0.0168 *20*; α(M)=0.0038 *4*; α(N+..)=0.00114 *13* Mult.,δ: K:L1:L2=1.3 *3*:0.21:<0.05 (1976Gr06); α(K)exp=0.15 *4*. A_2=−0.5 *7*; +0.4≤δ≤+4.5 or≤−5.7 (1981Kr08).
317.60 *7*	47 *3*	317.523	(7/2)$^-$	0.0	5/2$^-$	M1(+E2)	−0.05 *13*	0.138 *2*	α(K)=0.116 *2*; α(L)=0.0173 *1*; α(M)=0.00387 *2*; α(N+..)=0.00117 *1* Mult.: K:L1:L2=4.3 *8*:1.08:<0.08 (1976Gr06); α(K)exp=0.092 *18*; A_2=+0.43 *23* (1981Kr08).
330.32 *18*	2.2 *6*	569.45	(5/2,7/2)$^+$	239.190	(5/2)$^-$				I_γ: from 1976Me06; 4.0 *12* in 1976Gr06.
332.36 *8*	4.5 *12*	411.009	7/2$^-$	78.671	7/2$^-$	M1(+E2)		0.09[a] *4*	α(K)=0.07 *4*; α(L)=0.0134 *20*; α(M)=0.0030 *4*; α(N+..)=0.00091 *14* I_γ: other value: 3.6 *6* (1976Me06). M α(K)exp=0.09 *3*.
[x]339.00 *14*	3.0 *10*								Mult.: α(K)exp=0.027 *11*.
340.91 *15*	10.5 *15*	419.589	(9/2)$^-$	78.671	7/2$^-$	M1(+E2)		0.08[a] *4*	α(K)=0.07 *3*; α(L)=0.0124 *20*; α(M)=0.0028 *4*; α(N+..)=0.00084 *14* Mult.: K:L1:L2=1.1 *2*:0.1:<0.05 (1976Gr06); α(K)exp=0.105 *24*.
[x]344.8 *4*	3.4 *8*					E1		0.0142	α(K)=0.0120; α(L)=0.00175; α(M)=0.00039; α(N+..)=0.00012 Mult.: α(K)exp≤0.015 *4*.
[x]350.5 *2*	4.8[d] *4*					(E1)[d]		0.0137	α(K)=0.0115; α(L)=0.00168; α(M)=0.00037; α(N+..)=0.00011
352.3[j] *2*	4.8[jd] *4*	430.92	7/2$^+$	78.671	7/2$^-$	(E1)[d]		0.0135	α(K)=0.0114; α(L)=0.00166; α(M)=0.00037; α(N+..)=0.00011 Mult.: A_2=−0.3 *7*, δ(D,Q)=−0.3 *+7−9* (1981Kr08), α(K)exp=0.007 *2* for doubly-placed G. Anisotropy excludes J(431)=5/2 based on magnitude of δ required if ΔJ=2 (1981Kr08).
352.3[j] *2*	4.8[jd] *4*	477.45	9/2$^-$	125.911	11/2$^+$	(E1)[d]		0.0135	α(K)=0.0114; α(L)=0.00166; α(M)=0.00037; α(N+..)=0.00011 Mult.: A_2=−0.3 *7*, δ(D,Q)=−0.3 *+7−9* (1981Kr08), α(K)exp=0.007 *2* for doubly-placed G. Placed by evaluator.
356.23 *12*	7.9 *15*	569.45	(5/2,7/2)$^+$	213.195	(5/2)$^-$	E1		0.0132	α(K)=0.0111; α(L)=0.00162; α(M)=0.00036; α(N+..)=0.00011 I_γ: other value: 5.9 *8* in 1976Me06. Mult.: α(K)exp=0.010 *3* or 0.015 *4* based on Iγ from 1976Gr06 and 1976Me06, respectively.

From ENSDF

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

γ(^{167}Yb) (continued)

E_γ[†]	I_γ[‡h]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	δ[@]	α[i]	Comments
^{x}360.7 *2*									Ice(K)=0.08 *2* (1976Gr06).
361.82 *23*	11.2 *15*	440.712	7/2$^-$	78.671	7/2$^-$	M1(+E2)	+1.6 *+21−6*	0.06 *3*	α(K)=0.046 *11*; α(L)=0.0095 *20*; α(M)=0.0022 *4*; α(N+..)=0.00064 *6* δ: 1981Kr08 report A_2=−0.6 *6*, −0.5≤δ≤+3.6; α(K)exp=0.046 *11* implies δ=1.6 *+24−6*.
368.80[j] *10*	5.6[j] *8*	677.39	(7/2)$^-$	308.456	(7/2)$^-$	[M1,E2]		0.07 *3*	α(K)=0.054 *24*; α(L)=0.0098 *19*; α(M)=0.0022 *4*; α(N+..)=0.00066 *13* I_γ: from 1976Me06; 6.2 *20* in 1976Gr06. Mult.: α(K)exp=0.042 *16* (mult=E2(+M1)) for doubly-placed G.
368.80[j] *10*	5.6[j] *8*	788.39	(5/2,9/2)$^-$	419.589	(9/2)$^-$	[M1,E2]		0.07 *3*	α(K)=0.054 *24*; α(L)=0.0098 *19*; α(M)=0.0022 *4*; α(N+..)=0.00066 *13* I_γ: from 1976Me06; 6.2 *20* in 1976Gr06. Mult.: α(K)exp=0.042 *16* (mult=E2(+M1)) for doubly-placed G.
372.46 *8*	8.4 *8*	430.92	7/2$^+$	58.538	9/2$^+$	M1		0.091	α(K)=0.0759; α(L)=0.0113; α(M)=0.00252; α(N+..)=0.00076 I_γ: from 1976Me06; 8.8 *20* in 1976Gr06. Mult.: α(K)exp=0.09 *3*.
374.70 *20*	4.2 *14*	553.44	9/2$^-$	178.875	9/2$^-$	M1,E2		0.06 *3*	α(K)=0.052 *23*; α(L)=0.0093 *19*; α(M)=0.0021 *4*; α(N+..)=0.00063 *13* I_γ: from 1976Me06; 8 *3* in 1976Gr06. Mult.: α(K)exp=0.062 *25*, 0.033 *14* based on Iγ from 1976Me06, 1976Gr06, respectively.
377.03 *7*	24.9 *20*	411.009	7/2$^-$	33.909	7/2$^+$	E1+M2	≈+0.08	≈0.013	α(K)≈0.0112; α(L)≈0.00170; α(M)≈0.00038; α(N+..)≈0.00011 Mult.,δ: α(K)exp=0.0092 *21* implies δ≤0.08; A_2=−0.9 *4* (1981Kr08) allows δ=+0.5 *4*.
381.43 *11*	16.8 *17*	411.009	7/2$^-$	29.658	5/2$^+$	E1		0.0112	α(K)=0.0094; α(L)=0.00137; α(M)=0.00030 I_γ: from 1976Me06; 19.1 *25* in 1976Gr06 for doublet. Mult.: α(K)exp=0.011 *3*.
^{x}382.00 *15*									Ice(K)=0.08 *2* (1976Gr06).
385.55[j] *11*	18.9[j] *20*	419.589	(9/2)$^-$	33.909	7/2$^+$	(E1)		0.0109	α(K)=0.0092; α(L)=0.00134; α(M)=0.00030 Mult.: α(K)exp=0.0127 *25*, mult=E1 for doubly-placed G.
385.55[j] *11*	18.9[j] *20*	571.548	(11/2)$^-$	185.94	13/2$^+$	(E1)		0.0109	α(K)=0.0092; α(L)=0.00134; α(M)=0.00030 Mult.: α(K)exp=0.0127 *25*, mult=E1 for doubly-placed G.
392.61 *9*	19.7 *20*	571.548	(11/2)$^-$	178.875	9/2$^-$	M1+E2	+0.31 *+17−13*	0.075 *5*	α(K)=0.063 *4*; α(L)=0.0095 *4*; α(M)=0.00213 *7*; α(N+..)=0.00064 *2* Mult.: K:L1:L2=1.35 *20*:0.34:<0.05 (1976Gr06); α(K)exp=0.069 *12*; A_2=−0.26 *22* (1981Kr08).
396.94 *8*	21.6 *21*	430.92	7/2$^+$	33.909	7/2$^+$	M1+E2	−0.41 *+20−31*	0.070 *6*	α(K)=0.059 *8*; α(L)=0.0091 *5*; α(M)=0.00203 *9*; α(N+..)=0.00061 *5*

From ENSDF

γ(^{167}Yb) (continued)

E_γ[†]	I_γ[‡h]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	δ[@]	α[i]	Comments
									Mult.: K:L1:L2=0.9 *2*:0.077:<0.05 (1976Gr06); α(K)exp=0.042 *12*; A_2=−0.09 *21* (1981Kr08).
398.83[j] *13*	11.2[j] *12*	477.45	9/2$^-$	78.671	7/2$^-$	[M1,E2]		0.054 *22*	α(K)=0.044 *20*; α(L)=0.0078 *17*; α(M)=0.0018 *4*; α(N+..)=0.00052 *12* Mult.: K:L1:L2=0.51 *10*:0.08:<0.06 (1976Gr06); α(K)exp=0.046 *10* (mult=M1+E2) for doubly-placed G.
398.83[j] *13*	11.2[j] *12*	677.39	(7/2)$^-$	278.257	5/2$^-$	[M1,E2]		0.054 *22*	α(K)=0.044 *20*; α(L)=0.0078 *17*; α(M)=0.0018 *4*; α(N+..)=0.00052 *12* Mult.: K:L1:L2=0.51 *10*:0.08:<0.06 (1976Gr06); α(K)exp=0.046 *10* (mult=M1+E2) for doubly-placed G.
401.17 *10*	82 *4*	430.92	7/2$^+$	29.658	5/2$^+$	M1(+E2)	−0.02 *9*	0.0744 *5*	α(K)=0.0624 *5*; α(L)=0.0093; α(M)=0.00207 *1*; α(N+..)=0.00062 Mult.,δ: K:L1:L2=5.16:0.75:<0.10 (1976Gr06); A_2=+0.36 *18* (1981Kr08) allows δ=−0.02 *9*.
406.72 *10*	15.7 *19*	440.712	7/2$^-$	33.909	7/2$^+$	E1(+M2)	≤0.11	0.0111 *15*	α(K)=0.0093 *12*; α(L)=0.00139 *22*; α(M)=0.00031 *5*; α(N+..)=9.1×10^{-5} *15* δ: A_2=−0.46 *28*, −0.3≤δ≤+2.1 (1981Kr08). α(K)exp=0.0083 *22* implies δ≤0.11.
410.96 *10*	19.9 *24*	411.009	7/2$^-$	0.0	5/2$^-$	M1+E2	−3.1 *+14−49*	0.034 *7*	α(K)=0.026 *6*; α(L)=0.0058 *6*; α(M)=0.00134 *11*; α(N+..)=0.00039 *4* Mult.: A_2=+0.51 *35* (1981Kr08); α(K)exp=0.025 *6*.
^{x}415.4 *3*	3.7 *8*					E1		0.0092	α=0.0092; α(K)=0.00777; α(L)=0.00112; α(M)=0.00025 Mult.: α(K)exp≤0.014 *3*.
^{x}417.76 *8*	15.0 *15*					M1		0.0669	α(K)=0.0562; α(L)=0.0084; α(M)=0.00186; α(N+..)=0.00055 Mult.: α(K)exp=0.041 *9*. Other Iγ: 12.9 *14* (1976Me06).
^{x}420.0 *2*	5.3 *8*								Mult.: α(K)exp=0.013 *4*.
427.46 *18*	5.7 *11*	553.44	9/2$^-$	125.911	11/2$^+$	(E1(+M2))	+0.15 *23*	≈0.013	α(K)≈0.011; α(L)≈0.0017; α(M)≈0.00038; α(N+..)≈0.00012 Mult.,δ: A_2=+0.7 *6*, −0.08≤δ≤+0.38 (1981Kr08); Δπ=yes from level scheme. However, α(K)exp=0.028 *9* significantly exceeds value expected for an E1(+M2) transition (δ=0.38 *+9−10* implied).
^{x}435.30 *10*	2.6 *10*					M1		0.0601	α(K)=0.0505; α(L)=0.00749; α(M)=0.00167; α(N+..)=0.00049 Mult.: α(K)exp=0.050 *22*.
437.75 *22*	3.0 *9*	677.39	(7/2)$^-$	239.190	(5/2)$^-$	M1		0.0592	α(K)=0.0497; α(L)=0.00738; α(M)=0.00164; α(N+..)=0.00049 Mult.: α(K)exp=0.043 *16*.
^{x}439.9 *5*	2.0 *8*					M1,E2		0.042 *17*	α(K)=0.034 *15*; α(L)=0.0059 *15*; α(M)=0.0013 *3*; α(N+..)=0.00039 *10* Mult.: α(K)exp=0.040 *19*.
443.0[c] *9*	4.2 *17*	477.45	9/2$^-$	33.909	7/2$^+$				I_γ: from 1976Me06.

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

γ(^{167}Yb) (continued)

E_γ[†]	I_γ[‡h]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	δ[@]	α[i]	Comments
445.56 12	33.0 20	571.548	(11/2)$^-$	125.911	11/2$^+$	E1(+M2)	≤0.11	0.0089 11	α=0.0089 11; α(K)=0.0075 9; α(L)=0.00111 16; α(M)=0.00025 4 Mult.,δ: 1981Kr08 report A_2=−0.69 26, −0.01≤δ≤+0.70; α(K)exp=0.0073 10 implies δ≤0.11.
464.32 14	4.8 8	677.39	(7/2)$^-$	213.195	(5/2)$^-$	E2		0.0217	α(K)=0.0168; α(L)=0.00372; α(M)=0.00086; α(N+..)=0.00024 Mult.: α(K)exp=0.021 7.
[x]467.13 26	2.2 7					(E2)		0.0213	α(K)=0.0166; α(L)=0.00366; α(M)=0.00085; α(N+..)=0.00024 Mult.: α(K)exp=0.023 9.
470.70 16	11.0 10	788.39	(5/2,9/2)$^-$	317.523	(7/2)$^-$	M1+E2	≈+0.3	≈0.047	α(K)≈0.0392; α(L)≈0.00589; α(M)≈0.00131; α(N+..)≈0.00038 Mult.,δ: A_2=−0.6 4, +0.3≤δ≤+10.8 (1981Kr08); α(K)exp=0.049 10 implies δ≤0.31.
[x]474.08 19	3.0 8								
477.3 4	2.0[g] 6	477.45	9/2$^-$	0.0	5/2$^-$				
479.9 3	3.0 10	788.39	(5/2,9/2)$^-$	308.456	(7/2)$^-$	M1,E2		0.033 13	α(K)=0.027 12; α(L)=0.0046 13; α(M)=0.0010 3; α(N+..)=0.00030 8 Mult.: α(K)exp≈0.023 8.
[x]485.16 20	4.2[g] 8								
[x]487.57 14	7.2 15					E1,E2		0.013 7	α(K)=0.010 5; α(L)=0.0020 13; α(M)=0.0005 3; α(N+..)=0.00013 8 Other Iγ: 5.6 8 (1976Me06). Mult.: α(K)exp=0.010 3.
494.60 18	7.2 15	553.44	9/2$^-$	58.538	9/2$^+$				I_γ: other value: 4.8 14 in 1976Me06. Mult.: α(K)exp=0.010 3; value lies between values expected for E1 and E2, but level scheme requires Δπ=yes.
[x]504.9 4	6.5 15					E1,E2		0.012 6	α(K)=0.009 5; α(L)=0.0018 11 Mult.: α(K)exp<0.011 3.
[x]507.2 2	12 2					E2(+M1)		0.029 12	α(K)=0.024 11; α(L)=0.0039 11 Mult.: α(K)exp=0.019 5.
[x]510.3 7	43 10					(E2)		0.0171	α(K)=0.0134; α(L)=0.00279 Mult.: α(K)exp=0.016 4.
513.10 10	50 10	571.548	(11/2)$^-$	58.538	9/2$^+$	(E1)		0.00577	α=0.00577; α(K)=0.00486; α(L)=0.00069 Mult.: α(K)exp=0.0076 25.
[x]515.3 2	7 2					E1		0.00572	α=0.00572; α(K)=0.00481; α(L)=0.00068 Mult.: α(K)exp≈0.003.
[x]528.2 3	5.6[g] 6								
[x]534.60 20	6.9 14					M1		0.0355	α(K)=0.0297; α(L)=0.00437 Mult.: α(K)exp=0.029 9.
539.66[j] 18	5.8[j] 15	569.45	(5/2,7/2)$^+$	29.658	5/2$^+$				Mult.: A_2=+0.7 7, δ(D,Q)≤−0.5 if J(569)=5/2; A_2=+0.8 7, δ(D,Q)=+6.6 68 if J(569)=7/2 (1981Kr08); α(K)exp=0.029 10 (mult=M1(+E2)) for doubly-placed G.

γ(^{167}Yb) (continued)

E_γ[†]	I_γ[‡h]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ[@]	α[i]	Comments
539.66[j] *18*	5.8[j] *15*	719.89	(7/2)$^-$	179.790	(3/2$^-$)				Mult.: A_2=+0.8 *7*, δ(D,Q)=+6.6 *68* if J(720)=7/2 (1981Kr08); α(K)exp=0.029 *10* (mult=M1(+E2)) for doubly-placed G.
^{x}545.4 *5*	4.5 *10*					E2		0.0145	α(K)=0.0115; α(L)=0.00230 Mult.: α(K)exp=0.011 *3*.
549.00 *26*	5.6 *15*	788.39	(5/2,9/2)$^-$	239.190	(5/2)$^-$	E2(+M3)	+0.1 *+4−3*	0.02 *5*	α(K)=0.01 *4*; α(L)=0.003 *8* Other Iγ: 2.8 *8* (1976Me06). Mult.: A_2=−0.53 *32* (1981Kr08); α(K)exp=0.020 *6*.
^{x}561.2 *7*	3.4 *15*								
^{x}567.0 *7*	4.1 *20*					M1		0.0306	α(K)=0.0256; α(L)=0.00376 Mult.: α(K)exp=0.037 *19*.
570.0 *2*	14[e] *6*	628.39	7/2$^+$	58.538	9/2$^+$	M1(+E2)	−0.3 *10*	0.029 *10*	α(K)=0.024 *9*; α(L)=0.0036 *10* E_γ: from 1976Gr06; Eγ=569.86 *13* in 1976Me06 is possibly for a doublet. Mult.,δ: 1981Kr08 report A_2=−0.69 *20*, −1.2≤δ≤+0.7; α(K)exp≥0.015 *4*.
^{x}570.7 *3*									Iγ: see comment on 570.0γ.
^{x}574.3 *3*	9 *2*					M1		0.0296	α(K)=0.0248; α(L)=0.00363 Mult.: α(K)exp=0.019 *6*. Other Iγ: 5.0 *8* (1976Me06).
^{x}580.0 *5*	3 *1*					(E2)		0.0125	α(K)=0.0100; α(L)=0.00192 Mult.: α(K)exp≈0.013 *4*.
^{x}583.0 *5*	3 *1*								
^{x}588.18 *26*	2.8 *10*					M1		0.0278	α(K)=0.0233; α(L)=0.00342 Mult.: α(K)exp=0.029 *12*.
591.32 *10*	22.0 *10*	1022.29	(5/2,9/2)$^+$	430.92	7/2$^+$	M1+E2	+3.0 *+21−12*	0.014 *7*	α(K)=0.0109 *19*; α(L)=0.0020 *7* Mult.: A_2=−0.55 *19* (1981Kr08); α(K)exp=0.0114 *23* (implying δ=2.5 +∞−10).
594.51[j] *17*	8.5[j] *15*	628.39	7/2$^+$	33.909	7/2$^+$	[M1,E2]		0.019 *8*	α(K)=0.016 *7*; α(L)=0.0026 *8* Mult.: A_2=+0.8 *6* (1981Kr08), α(K)exp=0.020 *6* (mult=M1(+E2)) for doubly-placed G.
594.51[j] *17*	8.5[j] *15*	1951.19	(9/2)	1356.33	(9/2$^+$,11/2$^+$)				Additional information 2. Mult.: A_2=+0.8 *6*, −12.6≤δ(D,Q)≤+0.1 if J=9/2 to 7/2, δ(D,Q)≤−0.8 if J=9/2 to 9/2 (1981Kr08); α(K)exp=0.020 *6* (mult=M1(+E2)); for doubly-placed G. This placement affirmed by γγ coin (1976Gr06).
597.4 *6*	4 *3*	1952.85	(7/2)$^+$	1356.33	(9/2$^+$,11/2$^+$)				
599.4 *4*	16.2 *17*	628.39	7/2$^+$	29.658	5/2$^+$	M1+E2	+0.14 *12*	0.0263 *7*	α(K)=0.0220 *6*; α(L)=0.00323 *7* E_γ: 599.7 *2* (1976Gr06), 599.00 *20* (1976Me06). I_γ: from 1976Me06; 16.0 *27* in 1976Gr06. Mult.: A_2=+0.07 *22*, −0.19 *14* (1981Kr08); α(K)exp=0.022 *4*.

γ(^{167}Yb) (continued)

E_γ [†]	I_γ [‡h]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [#]	δ [@]	α [i]	Comments
[x]602.16 *17*	19.5 *20*					M1		0.0262	α(K)=0.0220; α(L)=0.00322 Mult.: α(K)exp=0.023 *5*.
[x]604.7 *3*	8.8 *18*					E1,E2		0.008 *4*	α(K)=0.006 *3*; α(L)=0.0011 *7* Mult.: α(K)exp≤0.017 *3*.
609.41 *12*	10.5 *15*	788.39	(5/2,9/2)⁻	178.875	9/2⁻	E2(+M1)	≥1.2	0.014 *3*	α(K)=0.011 *3*; α(L)=0.0020 *3* Mult.: A_2=+0.17 *24*; δ(D,Q)≤−0.4 or≥+2.1 (1981Kr08); α(K)exp=0.0114 *25* allows δ≥1.2.
[x]618.7 *2*	3.0 *5*								
[x]626.4 *5*	3.1 *10*					E1		0.00377	α=0.00377; α(K)=0.00318; α(L)=0.00045 Mult.: α(K)exp<0.0065 *21*.
[x]630.8 *6*	4.4 *20*					M1,E2		0.017 *7*	α(K)=0.014 *6*; α(L)=0.0022 *7* Mult.: α(K)exp=0.016 *8*.
[x]633.32 *14*	16 *3*					M1,E2		0.017 *7*	α(K)=0.014 *6*; α(L)=0.0022 *7* Mult.: α(K)exp=0.012 *3*. Other Iγ: 9.8 *14* (1976Me06).
[x]635.0 *4*	8 *3*								
640[j] *1*	2.0[j] *10*	719.89	(7/2)⁻	78.671	7/2⁻	[M1]		0.0225	α(K)=0.0188; α(L)=0.00275 Mult.: α(K)exp=0.020 *11*, mult=M1(+E2) for doubly-placed G.
640[j] *1*	2.0[j] *10*	1995.32	(9/2⁻)	1356.33	(9/2⁺,11/2⁺)				α(K)=0.0188; α(L)=0.00275 Mult.: α(K)exp=0.020 *11*, mult=M1(+E2) for doubly-placed G.
642.11[j] *12*	7.0[j] *8*	1947.50	(9/2⁺)	1305.53	7/2⁻				Other Iγ: 7.5 *20* (1976Me06). Mult.: A_2=−0.55 *34*, +0.3≤δ(D,Q)≤+9.7 (1981Kr08), α(K)exp=0.019 *4* (mult=M1(+E2)) for doubly-placed line.
642.11[j] *12*	7.0[j] *8*	1998.47	(9/2⁺)	1356.33	(9/2⁺,11/2⁺)	[M1,E2]		0.016 *7*	α(K)=0.013 *6*; α(L)=0.0021 *7* I_γ: from 1976Me06; 7.5 *20* (1976Gr06). Mult.: A_2=−0.55 *34*; −0.3≤δ≤+9.8 if J(1356)=7/2, −0.3≤δ≤+1.6 if J(1356)=9/2 (1981Kr08); α(K)exp=0.019 *4* (mult=M1(+E2)); for multiply-placed G.
[x]646.18 *21*	2.5 *8*					M1		0.0219	α(K)=0.0184; α(L)=0.00268 Mult.: α(K)exp=0.036 *14*. Other Iγ: 4.5 *6* (1976Me06).
[x]652.2 *5*	4.8 *6*					M1		0.0214	α(K)=0.0179; α(L)=0.00262 Mult.: α(K)exp=0.025 *5*. E_γ: weighted average of 652.6 *2* (1976Gr06) and 651.64 *25* (1976Me06); evaluator suspects that one of these energies was misprinted. Other Iγ: 3.4 *6* (1976Me06).
[x]660.5 *2*	10.5 *10*					E1		0.00338	α=0.00338; α(K)=0.00285; α(L)=0.00040 Mult.: α(K)exp=0.0038 *10*.
[x]663.75 *17*	4.8 *5*								Mult.: α(K)exp=0.0042 *21*.

γ(^{167}Yb) (continued)

E_γ[†]	I_γ[‡h]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	δ[@]	α[i]	Comments
^{x}671.1 3	2.8 13					E1		0.00327	α=0.00327; α(K)=0.00276; α(L)=0.00038 Mult.: α(K)exp<0.0036 17.
673.89 21	6.7 14	1979.50	(7/2$^-$)	1305.53	7/2$^-$	[E2]		0.0088	α=0.0088; α(K)=0.00709; α(L)=0.00128 Mult.: α(K)exp=0.006 3 consistent with E2(+M1) or E1 multipolarity.
677.23[f] 12	13.0 20	1305.53	7/2$^-$	628.39	7/2$^+$	E1		0.00321	α=0.00321; α(K)=0.00271; α(L)=0.00038 Other Iγ: 8.4 11 (1976Me06). Mult.: α(K)exp=0.0031 16 and 0.0048 24 based on Iγ from 1976Gr06 and 1976Me06, respectively, cf. α(K)(E1)=0.0027 and α(K)(E2)=0.0070.
^{x}679.92 19	5.0 15					(E2,M1)		0.014 6	α(K)=0.012 5; α(L)=0.0018 6 Mult.: α(K)exp≈0.008. Other Iγ: 4.2 6 (1976Me06).
685.3 5	4.7 25	719.89	(7/2)$^-$	33.909	7/2$^+$				Mult.: α(K)exp≤0.006 3 implies mult=E1,E2; Δπ=yes from level scheme.
689.7 3	7.7 21	719.89	(7/2)$^-$	29.658	5/2$^+$				E_γ: 689.8 2 (1976Gr06), 688.85 50 (1976Me06). Other Iγ: 2.2 3 (1976Me06). Mult.: α(K)exp≤0.0039 and≤0.014 based on Iγ from 1976Gr06 and 1976Me06, respectively.
^{x}695.93 22	8.3 17								Other Iγ: 3.6 6 (1976Me06). Mult.: α(K)exp≤0.0048 and≤0.0111 based on Iγ from 1976Gr06 and 1976Me06, respectively.
^{x}702.6 7	2.7 16								Mult.: α(K)exp=0.015 11.
705.3 5	2.8 14	1022.29	(5/2,9/2)$^+$	317.523	(7/2)$^-$				
709.79 12	13.0 12	788.39	(5/2,9/2)$^-$	78.671	7/2$^-$	E2(+M1)	≥1.8	0.0089 12	α=0.0089 12; α(K)=0.0073 10; α(L)=0.00123 12 Other Iγ: 10.1 14 (1976Me06). Mult.: A_2=−0.2 5; δ(D,Q)=+0.3 +5−3 or≥1.8 (1981Kr08); α(K)exp=0.0058 16 eliminates 1981Kr08's smaller solution for δ.
^{x}715.89 10	16.0 12					M1		0.0169	α(K)=0.0142; α(L)=0.00207 Other Iγ: 12.9 20 (1976Me06). Mult.: α(K)exp=0.011 3.
719.81 19	6.8 6	719.89	(7/2)$^-$	0.0	5/2$^-$	E2(+M1)		0.012[a] 5	α(K)=0.010 4; α(L)=0.0016 5 Mult.: α(K)exp=0.007 3.
^{x}726.4 4	2.5 8								Mult.: α(K)exp<0.012 4.
^{x}730.32 12	8.8 7					M1		0.0161	α(K)=0.0135; α(L)=0.00197 Mult.: α(K)exp=0.015 3.
^{x}734.57 14	8.4 6					M1		0.0159	α(K)=0.0133; α(L)=0.00194 Mult.: α(K)exp=0.0119 25.
^{x}740.1 2	10.0 6					M1(+E2)		0.011 5	α(K)=0.009 4; α(L)=0.0015 5 Mult.: α(K)exp=0.0100 21.
^{x}745.2 5	2.2 8								Mult.: α(K)exp<0.009 3.
^{x}753.0 7	3.1 5					M1+E2		0.011[a] 4	α(K)=0.009 4; α(L)=0.0014 5 Mult.: α(K)exp=0.0087 24.

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

γ(^{167}Yb) (continued)

E_γ[†]	I_γ[‡h]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[i]	Comments
[x]763.6 *4*	20.0 *14*					M1,E2	0.011 *4*	α(K)=0.009 *4*; α(L)=0.0013 *5* Other Iγ: 11.2 *17* (1976Me06). Mult.: α(K)exp=0.0080 *16* and 0.016 *4* based on Iγ from 1976Gr06 and 1976Me06, respectively.
[x]769.6 *4*	2.6 *6*							
[x]779.74 *14*	5.4 *5*					E2(+M1)	0.010[a] *4*	α(K)=0.008 *4*; α(L)=0.0013 *4* Mult.: α(K)exp=0.0070 *16*.
784.82 *9*	20.0 *10*	1356.33	(9/2$^+$,11/2$^+$)	571.548	(11/2)$^-$	(E1)	0.00239	α=0.00239; α(K)=0.00202; α(L)=0.00028 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 *14*	5.4 *6*	788.39	(5/2,9/2)$^-$	0.0	5/2$^-$	E2	0.00617	α=0.00617; α(K)=0.00503; α(L)=0.00086 Mult.: A_2=−0.2 *5*, δ(Q,O)=−0.2 +*5*−*8* (1981Kr08); α(K)exp=0.0056 *20*.
[x]792.5 *4*	2.0 *5*							
[x]803.82 *18*	5.4 *7*					M1	0.0127	α(K)=0.0106; α(L)=0.00154 Mult.: α(K)exp=0.0087 *22*.
[x]808.66 *14*	10.3 *12*					M1+E2	0.009[a] *4*	α(K)=0.008 *3*; α(L)=0.0012 *4* Mult.: α(K)exp=0.0068 *13*.
[x]814.9 *4*	4.4 *12*							
[x]817.3 *5*	<4.4							
[x]826.5 *2*	2.4 *4*							
[x]830.64 *12*	8.5 *7*					M1	0.0117	α(K)=0.0098; α(L)=0.00142 Mult.: α(K)exp=0.0094 *25*.
[x]833.61 *15*	8.9 *7*					M1(+E2)	0.009[a] *3*	α(K)=0.007 *3*; α(L)=0.0011 *4* Other Iγ: 5.6 *8* (1976Me06). Mult.: α(K)exp=0.0079 *13* and 0.014 *3* based on Iγ from 1976Gr06 and 1976Me06, respectively.
[x]847.05 *21*	4.6 *9*							Mult.: α(K)exp≤0.0057 *11*.
855.8[k] *3*	5.4 *11*	1267.24	5/2$^+$	411.009	7/2$^-$			Mult=M1,E2 from α(K)exp≈0.0063 is inconsistent with this placement, so placement is shown as tentative.
[x]858.5 *4*	3.7 *7*					M1	0.0108	α(K)=0.0090; α(L)=0.00131 Mult.: α(K)exp≈0.0092.
[x]867.91 *15*	7.9 *9*					M1	0.0105	α(K)=0.0088; α(L)=0.00127 Mult.: α(K)exp=0.0081 *16* and 0.017 *3* based on Iγ from 1976Gr06 and 1976Me06, respectively. Other Iγ: 4.2 *6* (1976Me06).
[x]873.87 *14*	8.1 *8*							Mult.: α(K)exp≤0.0028 *3* and≤0.0051 *9* based on Iγ from 1976Gr06 and 1976Me06, respectively. Other Iγ: 5.6 *14* (1976Me06).
[x]883.50 *20*	8.6 *7*					M1	0.0100	α(K)=0.0084; α(L)=0.00122 Mult.: α(K)exp=0.0080 *13* and 0.014 *4* based on Iγ from 1976Gr06 and 1976Me06, respectively. Other Iγ: 5.6 *14* (1976Me06).

γ(^{167}Yb) (continued)

E_γ[†]	I_γ[‡h]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ[@]	α[i]	Comments
[x]887.6 *2*	7.7 *7*					E2		0.00478	α=0.00478; α(K)=0.00393; α(L)=0.00064 Mult.: α(K)exp≈0.0039 *4*.
[x]893.0 *2*	6.2 *5*					M1+E2		0.007[a] *3*	α=0.007 *3*; α(K)=0.0060 *22*; α(L)=0.0009 *3* Mult.: α(K)exp=0.0068 *17*.
[x]898.8 *2*	5.0 *5*					M1		0.0096	α=0.0096; α(K)=0.00806; α(L)=0.00117 Mult.: α(K)exp=0.0084 *22*.
[x]903.2 *3*	3.8 *4*								
[x]908.66 *24*	4.8 *5*								Mult.: α(K)exp≈0.0042 *4*.
[x]919.97 *15*	7.3 *11*								
925.29 *23*	2.3 *6*	1947.50	(9/2$^+$)	1022.29	(5/2,9/2)$^+$				I_γ: mean of 1.8 *6* (1976Gr06) and 2.8 *6* (1976Me06).
936.0 *6*	2.3 *11*	1356.33	(9/2$^+$,11/2$^+$)	419.589	(9/2)$^-$				
[x]951.7 *3*	2.5 *7*								
[x]961.4 *2*	6.3 *6*								
963.75 *19*	11.5 *10*	1022.29	(5/2,9/2)$^+$	58.538	9/2$^+$	(E2)		0.00403	α=0.00403; α(K)=0.00332; α(L)=0.00053 Mult.: α(K)exp≈0.0020 *2* suggests mult=E1,E2; Δπ=no from level scheme.
[x]967.3 *4*	3.1[g] *6*								
[x]973.0 *7*	0.7 *4*								
975.9 *3*	1.4 *3*	1998.47	(9/2$^+$)	1022.29	(5/2,9/2)$^+$				
[x]980.0 *4*	1.1 *4*								
[x]985.8 *3*	3.5 *5*								
988.40 *9*	27.4 *17*	1022.29	(5/2,9/2)$^+$	33.909	7/2$^+$	(M1+E2)	+6.4 *61*	0.004 *4*	α=0.004 *4*; α(K)=0.003 *3*; α(L)=0.0005 *4* Mult.: D+Q from A_2=−0.6 *4* (1981Kr08), Δπ=no from level scheme.
991.0 *6*	2.8[g] *8*	2013.05	(7/2$^-$)	1022.29	(5/2,9/2)$^+$				
[x]999.6 *5*	1.8 *5*								
[x]1009.7 *3*	5.2 *6*								Mult.: α(K)exp≈0.0019 *2*.
[x]1013.4 *4*	2.9 *5*								
[x]1016.66 *15*	6.7 *7*					E1		0.00146	α=0.00146; α(K)=0.00123; α(L)=0.00017 Mult.: α(K)exp≈0.0015 *2*.
[x]1023.1 *3*	3.3 *6*								
[x]1034.0 *3*	3.7 *4*								
[x]1040.9 *3*	4.9 *8*					E1		0.00139	α=0.00139; α(K)=0.00118; α(L)=0.00016 Mult.: α(K)exp<0.0020 *3*.
[x]1043.4 *6*	2.3 *7*								
[x]1049.7 *3*	1.0 *5*								Other Iγ: 2.8 *6* (1976Me06).
1054.3 *5*	1.0 *5*	1356.33	(9/2$^+$,11/2$^+$)	301.484	11/2$^-$				
[x]1058.9 *2*	3.4 *5*								
[x]1068.1 *4*	6.5 *12*					M1		0.00630	α=0.00630; α(K)=0.00529; α(L)=0.00076 Mult.: α(K)exp=0.0077 *21*. Other Iγ: 4.2 *6* (1976Me06).
[x]1070.2 *7*	6.1 *12*					M1		0.00627	α=0.00627; α(K)=0.00526; α(L)=0.00076 Mult.: α(K)exp=0.0082 *23*.
[x]1076.0 *20*	≈3								

From ENSDF

$^{167}_{70}Yb_{97}$-19

γ(^{167}Yb) (continued)

E_γ[†]	I_γ[‡h]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	δ[@]	α[i]	Comments
^{x}1083.0 *3*	8.5 *12*					(E2)		0.00318	α=0.00318; α(K)=0.00263; α(L)=0.00041 Mult.: α(K)exp≈0.0035 *5*.
^{x}1085.27 *15*	15.9 *16*								Mult.: α(K)exp≈0.0019 *2*.
1092.3 *4*	3.2 *8*	1305.53	7/2$^-$	213.195	(5/2)$^-$				
^{x}1108.96 *19*	6.4 *23*								Mult.: α(K)exp=0.0031 *15*.
^{x}1112.1 *13*	3.0 *12*								
^{x}1120.4 *6*	1.8								
^{x}1123.1 *4*	3.1 *10*								
1126.62 *11*	16.2 *13*	1305.53	7/2$^-$	178.875	9/2$^-$	(M1(+E2))	+0.06 *24*	0.0055 *2*	α=0.0055 *2*; α(K)=0.00464 *18*; α(L)=0.00067 *2* Mult.: A_2=+0.23 *24* (1981Kr08); ΔJ=2 is ruled out by anisotropy which implies a 4.4% M3 admixture if ΔJ=2 (1981Kr08). However, α(K)exp=0.0010 *3* (cf. α(K)(E1)=0.0010, α(K)(E2)=0.0024), implies E1.
^{x}1132.2 *3*	≈3.8								
^{x}1137.0 *4*	≈4.3								Mult.: α(K)exp<0.0023.
^{x}1146.0 *15*	1.8 *8*								
^{x}1153.3 *10*	1.2 *6*								
^{x}1161.41 *13*	15.8 *15*					E1		0.00114	α=0.00114; α(K)=0.00097; α(L)=0.00013 Mult.: α(K)exp≤0.0013.
1164.20 *17*	10.2 *10*	1952.85	(7/2)$^+$	788.39	(5/2,9/2)$^-$	E1(+M2)	≤0.4	0.0019 *8*	α=0.0019 *8*; α(K)=0.0016 *7*; α(L)=0.00023 *10* δ: 1981Kr08 report A_2=+1.0 *8*, −0.1≤δ≤+48.2; α(K)exp≤0.0020 implies δ≤0.4. Anisotropy rules out a 7/2 to 7/2 transition (1981Kr08).
^{x}1167.9 *5*	3.7 *13*								
^{x}1173.5 *9*	6.7 *12*								
1175.5 *10*	6.5 *18*	1356.33	(9/2$^+$,11/2$^+$)	178.875	9/2$^-$				
1188.54 *7*	37.3 *19*	1267.24	5/2$^+$	78.671	7/2$^-$	E1(+M2)	−0.06 *+21−24*	0.0011 *7*	α=0.0011 *7*; α(K)=0.0010 *7*; α(L)=0.00013 *9* Mult.: A_2=+0.06 *28* (1981Kr08); α(K)exp=0.0009 *3*.
^{x}1196.59 *16*	7.3 *7*					(E2)			Mult.: α(K)exp=0.0026 *9*.
^{x}1199.9 *2*	8.1 *8*								
^{x}1208.2 *5*	3.9 *11*					M1,E2		0.0036 *11*	α=0.0036 *11*; α(K)=0.0030 *9*; α(L)=0.00044 *12* Mult.: α(K)exp=0.0036 *16*.
^{x}1212.8 *4*	5.5 *11*								Mult.: α(K)exp≤0.0018 *4*.
^{x}1217.3 *9*	3.2 *11*								
1227.31 *14*	37.5 *20*	1947.50	(9/2$^+$)	719.89	(7/2)$^-$	E1+M2	+0.39 *+11−9*	0.0023 *7*	α=0.0023 *7*; α(K)=0.0019 *6*; α(L)=0.00028 *9* Mult.: A_2=−0.38 *14*; δ(D,Q) (1981Kr08) favors Δπ=no; however, α(K)exp=0.00053 *14* implies mult=E1.
^{x}1234.0 *2*	10.5 *12*								
1255.50 *20*	8.2 *9*	1975.24	(9/2)$^+$	719.89	(7/2)$^-$	E1+M2	+0.20 *+18−16*	0.0013 *8*	α=0.0013 *8*; α(K)=0.0011 *7*; α(L)=0.00016 *11*

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

γ(^{167}Yb) (continued)

Eγ[†]	Iγ[‡h]	Ei(level)	J^π_i	E_f	J^π_f	Mult.[#]	δ[@]	α[i]	Comments
									Placed by 1981Kr08 from 1974 level also, but Eγ does not fit that placement. Mult.: A_2=−0.08 *28*, δ(D,Q)=+0.20 *+18−16* (1981Kr08), α(K)exp≤0.00122 *13*.
[x]1259.3 *3*	5.7 *7*								
1267.26 *7*	100 *3*	1267.24	5/2$^+$	0.0	5/2$^-$	E1		0.00098	α=0.00098; α(K)=0.00083; α(L)=0.00011 Mult.: α(K)exp=0.00093 *20*.
1275.38 *16*	18.8 *15*	1952.85	(7/2)$^+$	677.39	(7/2)$^-$	E1(+M2)	≤0.1	0.00101 *5*	α=0.00101 *5*; α(K)=0.00086 *4*; α(L)=0.00012 *1* Mult.,δ: A_2=−0.47 *16*, −0.2≤δ≤+1.5 (1981Kr08); α(K)exp=0.00064 *22* implies δ≤0.1. Anisotropy excludes 7/2 to 5/2 or 3/2 transition (1981Kr08). 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 *3*	10.9 *10*								
[x]1284.4 *3*	8 *1*								
[x]1289.4 *7*	3.8 *16*								
[x]1296.0 *5*	2.0 *9*								
[x]1301.06 *18*	8.0 *8*								Mult.: α(K)exp≤0.00125 *13*.
1305.46 *10*	20.6 *16*	1305.53	7/2$^-$	0.0	5/2$^-$	(M1+E2)		0.0030 *9*	α=0.0030 *9*; α(K)=0.0025 *8*; α(L)=0.00037 *10* Mult.: A_2=−0.36 *15*; δ(D,Q)=+0.38 *+12−9* or +6 *+8−3* (1981Kr08); magnitude of δ favors Δπ=no. However, α(K)exp=0.00058 *20* implies E1, inconsistent with level scheme.
[x]1308.3 *5*	3.4 *7*								
[x]1314.5 *6*	2.3 *9*								
[x]1319.76 *20*	8.8 *8*								Mult.: α(K)exp≤0.00114 *10*. Other Iγ: 5.9 *8* (1976Me06).
1323.2 *5*	1.9 *6*	1356.33	(9/2$^+$,11/2$^+$)	33.909	7/2$^+$				
[x]1327.6 *4*	4.5 *6*							0.00372	α=0.00372; α(K)=0.00313; α(L)=0.00045 Mult.: α(K)exp=0.042 *9* based on Ice(K)=0.19 *3* (1976Gr06) greatly exceeds α(K)(M1), suggesting typographical error in Ice. Authors assign M1.
[x]1338.1 *6*	5.5 *15*								
[x]1343.8 *5*	5.5 *15*								
[x]1348.8 *10*	2.5 *13*								
[x]1357 *2*	4 *2*								
[x]1362 *2*	3.3 *16*								
1375.99 *10*	19.1 *11*	1947.50	(9/2$^+$)	571.548	(11/2)$^-$	(E1+M2)	−1.2 *8*	0.005 *4*	α=0.005 *4*; α(K)=0.004 *3*; α(L)=0.0006 *5* Mult.: A_2=−0.53 *16* rules out a pure D ΔJ=1 transition (1981Kr08); magnitude of δ favors Δπ=no. However, α(K)exp≈0.00052 implies mult=E1 (α(K)(E1)=0.00070).
1379.5 *2*	18.9 *11*	1951.19	(9/2)	571.548	(11/2)$^-$				Mult.: α(K)exp≈0.0013 (cf. α(K)(E1)=0.0008, α(K)(E2)=0.0017) implies mult=E1,E2.

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

γ(^{167}Yb) (continued)

E_γ [†]	I_γ [‡h]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [#]	δ [@]	α [i]	Comments
1384.2 *3*	4.1 *7*	2012.32	(7/2,9/2⁻)	628.39	7/2⁺				
[x]1387.8 *3*	4.0 *7*								
1394.07 *13*	15.5 *11*	1947.50	(9/2⁺)	553.44	9/2⁻	E1(+M2)	+0.5 *6*	0.0022 *24*	α=0.0022 *24*; α(K)=0.0019 *20*; α(L)=0.0003 *3* Mult.,δ: A_2=−0.55 *19*, −0.1≤δ≤+1.1 (1981Kr08); α(K)exp≤0.0010 *1* (cf. α(K)(E2)=0.0016).
1397.60 *9*	30.0 *16*	1951.19	(9/2)	553.44	9/2⁻	Q(+D)		0.0026 *7*	α=0.0026 *7*; α(K)=0.0022 *6*; α(L)=0.00032 *8* Mult.: A_2=+0.33 *21*, −9.8≤δ(D,Q)≤−0.8 or δ≥4.6 (1981Kr08); magnitude of δ favors Δπ=no. However, α(K)exp≤0.00050 *3* (cf. α(K)(E1)=0.00070) favors E1.
1403.66 *11*	20.2 *12*	1975.24	(9/2)⁺	571.548	(11/2)⁻	D(+Q)	−0.04 *+25−11*		Mult.: from A_2=+0.22 *27* (1981Kr08).
[x]1414.1 *3*	2.7 *4*								
[x]1420.6 *4*	2.9 *4*								
1423.65 *17*	8.1 *6*	1995.32	(9/2⁻)	571.548	(11/2)⁻				
1426.84 *10*	25.4 *10*	1998.47	(9/2⁺)	571.548	(11/2)⁻	E1+M2 [b]		0.004 *4*	α=0.004 *4*; α(K)=0.003 *3*; α(L)=0.0005 *5* Mult.: A_2=−0.19 *16*; δ(D,Q)=−0.25 *+12−15* or −3.0 *+10−19* (1981Kr08), favoring Δπ=no; however, α(K)exp=0.00059 *20* implies E1(+M2).
[x]1439.0 *13*	2.3 *11*								
1444.91 *22*	8.3 *12*	1998.47	(9/2⁺)	553.44	9/2⁻	D(+Q) [b]	+0.7 *10*	0.0026 *5*	α=0.0026 *5*; α(K)=0.0022 *5*; α(L)=0.00032 *6* Mult.,δ: A_2=+0.5 *7*, −0.3≤δ≤+1.7 (1981Kr08); α(K)exp≤0.0018 *3*.
[x]1451.7 *8*	2.8 *12*								
1469.98 *18*	9.9 *8*	1947.50	(9/2⁺)	477.45	9/2⁻				Other Iγ: 4.8 *8* (1976Me06). Mult.: α(K)exp≤0.00152 *15* and≤0.0031 *5* based on Iγ from 1976Gr06 and 1976Me06, respectively.
1474.3 *7*	4.5 *8*	1951.19	(9/2)	477.45	9/2⁻				
[x]1500.4 *5*	6.3 *13*								
1506.84 *7*	78 *5*	1947.50	(9/2⁺)	440.712	7/2⁻	E1+M2 [b]	+0.18 *7*	0.00076 *13*	α=0.00076 *13*; α(K)=0.00076 *13* Mult.: A_2=−0.04 *12*, δ(D,Q)=+0.18 *7* or≥12.8 (1981Kr08); α(K)exp=0.00051 *13* implies mult=E1.
1510.39 *14*	21.5 *24*	1951.19	(9/2)	440.712	7/2⁻	D+Q	≥+0.3		α(K)=0.0018 *5* Mult.: A_2=−0.48 *20*, δ(D,Q)=+0.47 *+22−14* or +3.6 *+15−33* (1981Kr08); δ favors Δπ=no. However, α(K)exp=0.00060 *20* (cf. α(K)(E1)=0.00062, α(K)(E2)=0.00141) implies mult=E1.
[x]1515.8 *4*	5.3 *8*								Mult.: α(K)exp≤0.0028. I_γ: from 1976Me06; 8.5 *27* in 1976Gr06.
1521.52 *18*	9.5 *14*	1998.47	(9/2⁺)	477.45	9/2⁻	(E1+M2)	+0.4 *1*	0.0012 *3*	α=0.0012 *3*; α(K)=0.0012 *3* I_γ: from 1976Me06; Iγ=12 *3* in 1976Gr06. Mult.: A_2=−0.8 *3* (1981Kr08); magnitude of δ favors Δπ=no but α(K)exp≤0.00105 *16* and level scheme favor Δπ=yes.

From ENSDF

γ(^{167}Yb) (continued)

E_γ[†]	I_γ[‡h]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	δ[@]	α[i]	Comments
1531.63 *20*	9.1 *23*	1951.19	(9/2)	419.589	$(9/2)^-$				
1534.66[j] *17*	13.0[j] *10*	1975.24	$(9/2)^+$	440.712	$7/2^-$				Mult.: A_2=−0.20 *29*, δ(D,Q)=+0.25 +*21*−*18* if 9/2 to 7/2 transition; doubly-placed γ (1981Kr08).
1534.66[j] *17*	13.0[j] *10*	2012.32	$(7/2,9/2^-)$	477.45	$9/2^-$				Mult.: A_2=−0.20 *29*, δ(D,Q)=−0.3 *4* or +1.6 +*24*−*9* if J(2012)=9/2, A_2=−0.23 *33*, δ(D,Q)=−0.3 *3* or −2.6 +*14*−*52* if J(2012)=7/2; doubly-placed line (1981Kr08).
1541.94[j] *12*	19.0[j] *15*	1952.85	$(7/2)^+$	411.009	$7/2^-$				Mult.: A_2=−0.13 *32*, δ(D,Q)=−0.3 *4* (1981Kr08), α(K)exp=0.00053 *16* (mult=E1) for doubly-placed G.
1541.94[j] *12*	19.0[j] *15*	2330.40	$9/2^{(+)}$	788.39	$(5/2,9/2)^-$			0.0028 *22*	α=0.0028 *22*; α(K)=0.0028 *22* Mult.: A_2=−0.12 *28*, δ(D,Q)=−0.4 *4* for doubly-placed line (1981Kr08); α(K)exp=0.00053 *16* (mult=E1).
1548.43 *12*	18.0 *19*	1979.50	$(7/2^-)$	430.92	$7/2^+$	D(+Q)[b]			Mult.: A_2=−0.19 *35*, δ(D,Q)=−0.28 *44* (1981Kr08); α(K)exp=0.0011 *4*, cf. α(K)(E1)=0.0006 and α(K)(E2)=0.00135, favors E2 over E1, contrary to Δπ=(yes) from level scheme.
1554.7[j] *3*	5.2[j] *12*	1973.97	5/2,7/2	419.589	$(9/2)^-$				Mult.: A_2=−0.5 *5*; −4.2≤δ(D,Q)≤+0.2 if J(1974)=7/2 or −2.5≤δ(Q,O)≤+0.1 if J(1974)=5/2 (1981Kr08); doubly-placed line.
1554.7[j] *3*	5.2[j] *12*	1995.32	$(9/2^-)$	440.712	$7/2^-$				Mult.: A_2=−0.5 *4*, δ(D,Q)=+43 *43* for doubly-placed line (1981Kr08).
1558.1 *3*	5.2 *12*	1998.47	$(9/2^+)$	440.712	$7/2^-$				
1562.9 *4*	4.3 *11*	1973.97	5/2,7/2	411.009	$7/2^-$				
1578.80 *12*	13.6 *10*	1998.47	$(9/2^+)$	419.589	$(9/2)^-$				Mult.: α(K)exp=0.00074 *23* and 0.0010 *3* based on Iγ from 1976Gr06 and 1976Me06, respectively, imply mult=E1,E2.
1582.0 *13*	6.2 *21*	2012.32	$(7/2,9/2^-)$	430.92	$7/2^+$				
1584.9 *9*	4.2 *21*	1995.32	$(9/2^-)$	411.009	$7/2^-$				
1588.2 *20*	1.6 *8*	1998.47	$(9/2^+)$	411.009	$7/2^-$				
[x]1594.7 *4*	3.2 *12*								
[x]1601.0 *15*	1.8 *4*								
[x]1607.52 *22*	7.5 *11*								
[x]1610.97 *25*	6.5 *8*								
[x]1621.0 *5*	6.2 *26*								
[x]1624.7 *6*	7.3 *26*								
1629.7 *4*	10.0 *14*	1947.50	$(9/2^+)$	317.523	$(7/2)^-$	D(+Q)	−2.4 *23*		Other Iγ: 4.8 *8* (1976Me06). Mult.: A_2=+1.0 *6* (1981Kr08); −4.6≤δ(D,Q)≤−0.1 (1981Kr08). α(K)exp≤0.00100 *14* and≤0.0021 *4* based on Iγ from 1976Gr06 and 1976Me06, respectively.
1633.69 *13*	36 *3*	1951.19	(9/2)	317.523	$(7/2)^-$	D(+Q)[b]			Other Iγ: 29 *3* (1976Me06). Mult.: A_2=+0.22 *22*, δ(D,Q)=+0.04 *12* or +8 +*4*−*87* (1981Kr08). However, α(K)exp=0.00042 *15* or 0.00057 *20* based on Iγ from 1976Gr06 and 1976Me06,

From ENSDF

γ(^{167}Yb) (continued)

E_γ[†]	I_γ[‡h]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ[@]	Comments
								respectively (cf. α(K)(E1)=0.00054, α(K)(E2)=0.00122) implies mult=E1.
1644.49 *10*	45 *3*	1952.85	(7/2)$^+$	308.456	(7/2)$^-$	E1		Other Iγ: 38 *4* (1976Me06). Mult.: A_2=−0.24 *18*, δ(D,Q)=−0.23 *20* (1981Kr08); α(K)exp=0.00040 *11*, consistent with pure E1. Anisotropy rules out pure D, ΔJ=1 transition.
[x]1653.9 *4*	4.2 *6*							I_γ: from 1976Me06; 4.0 *15* in 1976Gr06.
1656.22 *21*	10.8 *15*	1973.97	5/2,7/2	317.523	(7/2)$^-$			
1665.48 *18*	20.9 *14*	1973.97	5/2,7/2	308.456	(7/2)$^-$	D(+Q)[b]		Other Iγ: 12.6 *20* (1976Me06). Mult.: A_2=+0.12 *26*, δ(D,Q)=−0.01 *+26−20* if J(1974)=5/2; A_2=+0.13 *28*, δ(D,Q)=+0.7 *+4−12* if J(1974)=7/2 (1981Kr08); α(K)exp=0.00048 *15* (mult=E1) or 0.0009 *3* (mult=E1,E2) based on Iγ from 1976Gr06 and 1976Me06, respectively.
[x]1671.9 *9*	4.5 *15*							
1675.6 *3*	14.0 *12*	1952.85	(7/2)$^+$	278.257	5/2$^-$	(E1)		Eγ fits this placement poorly. Other Iγ: 9.2 *17* (1976Me06). Mult.: α(K)exp≤0.00071 *6* and≤0.0011 *2* based on Iγ from 1976Gr06 and 1976Me06, respectively.
1678.0 *7*	8.4[g] *14*	1995.32	(9/2$^-$)	317.523	(7/2)$^-$			
1680.81 *25*	11.2[g] *17*	1998.47	(9/2$^+$)	317.523	(7/2)$^-$			Mult.: α(K)exp≤0.00089 *14* implies mult=E1 or E2.
[x]1694.8 *7*	8 *3*							
1696.3 *4*	8.4 *14*	1973.97	5/2,7/2	278.257	5/2$^-$	D(+Q)		E_γ: alternative placements from 2013 level (by 1976Me06) and from 1998 level (1976Gr06) are ruled out by coincidence and nuclear orientation data (1981Kr08); consequently, all I(1696γ) is assigned to the 1974-level placement. I_γ: from 1976Me06; 7.6 *28* in 1976Gr06. Mult.: A_2=−0.35 *27*, δ(D,Q)=−0.1 *+5−4* or +1.9 *+20−9* if J(1974)=5/2; A_2=−0.38 *29*, δ(D,Q)=+0.40 *+26−18* or +6 *+12−3* if J(1974)=7/2 (1981Kr08).
1701.8 *3*	5.1 *8*	2330.40	9/2$^{(+)}$	628.39	7/2$^+$	D+Q[b]	+4.9 *46*	Mult.: A_2=−0.5 *3* (1981Kr08).
[x]1704.5 *5*	4.9 *5*							
1713.62 *13*	24.6 *12*	1952.85	(7/2)$^+$	239.190	(5/2)$^-$	E1		Mult.: α(K)exp≤0.00041 *2*.
1720.1 *3*	4.7 *6*	1998.47	(9/2$^+$)	278.257	5/2$^-$			Other Iγ: 2.8 *6* (1976Me06).
[x]1730.92 *21*	8.8 *7*							Other Iγ: 5.6 *8* (1976Me06).
1735.31 *19*	19.2 *13*	2052.68	9/2$^{(-)}$	317.523	(7/2)$^-$	(M1+E2)[b]	+2.2 *18*	Other Iγ: 12.9 *20* (1976Me06). Mult.: A_2=−0.8 *4* (1981Kr08); α(K)exp≤0.00052 *4* or≤0.00078 *12* based on Iγ from 1976Gr06 and 1976Me06, respectively, favor E1 (α(K)(E1)=0.00049, α(K)(E2)=0.0011), but Δπ=(no) from level scheme.
1740.50 *20*	9.5 *17*	1979.50	(7/2$^-$)	239.190	(5/2)$^-$	D+Q[b]	+2.5 *20*	I_γ: from 1976Me06; 13 *5* in 1976Gr06. Mult.: A_2=−1.1 *7* (1981Kr08). α(K)exp≤0.00078 *27* or≤0.00105 *19* based on Iγ from 1976Gr06 and 1976Me06, respectively, allows E1 or E2.
[x]1747.50 *23*	10.5 *8*							Other Iγ: 5.0 *8* (1976Me06).

$^{167}_{70}$Yb$_{97}$-24

γ(^{167}Yb) (continued)

E_γ[†]	I_γ[‡h]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	Comments
							Mult.: α(K)exp≤0.0010 *3* or≤0.0020 *3*, based on Iγ from 1976Gr06 or 1976Me06, respectively.
1752.7 *3*	5.4 *15*	2052.68	9/2$^{(-)}$	301.484	11/2$^-$		Other Iγ: 2.2 *6* (1976Me06). Eγ fits this placement poorly.
1759.0[j] *3*	10.8[j] *8*	1998.47	(9/2$^+$)	239.190	(5/2)$^-$		Other Iγ: 6.2 *8* (1976Me06). Mult.: α(K)exp≤0.00161 *21*; A_2=−0.8 *4*, δ(D,Q)=+24 *24* (1981Kr08) for doubly-placed line.
1759.0[j] *3*	10.8[j] *8*	2330.40	9/2$^{(+)}$	571.548	(11/2)$^-$		Mult.: A_2=−0.8 *4*, δ(D,Q)=+24 *24* for doubly-placed line (1981Kr08); α(K)exp≤0.00161 *21*. Other Iγ: 6.2 *8* (1976Me06).
[x]1770.8 *4*	8.7 *9*						E_γ: weighted average of 1770.2 *3* (1976Gr06), 1771.11 *24* (1976Me06). Placed from the J=9/2 *1951* level to the (3/2$^-$) 180 (1976Me06) or the 9/2$^-$ 179 (1981Kr08) level, but the evaluator rejects both placements based on the very poor energy fit. Other Iγ: 6.4 *8* (1976Me06).
[x]1778.9 *3*	9.7 *6*						Mult.: α(K)exp≤0.00103 *6*.
[x]1785.4 *12*	2.2 *18*						
[x]1788.3 *15*	2.3 *18*						
1801.0 *3*	2.6 *8*	1979.50	(7/2$^-$)	178.875	9/2$^-$		
[x]1808.8 *3*	3.5 *4*						
1819.23 *25*	6.2 *5*	1998.47	(9/2$^+$)	178.875	9/2$^-$		
1824.8 *4*	2.1 *7*	1951.19	(9/2)	125.911	11/2$^+$		
1833.30 *20*	10.5 *8*	2012.32	(7/2,9/2$^-$)	178.875	9/2$^-$		Mult.: A_2=−0.22 *23*, δ(D,Q)=−0.3 *3* or +1.5 *+13−7* if J(2012)=9/2, A_2=−0.25 *26*, δ(D,Q)=−0.3 *+22−46* or −2.4 *+13−26* if J(2012)=7/2 (1981Kr08).
[x]1838.4 *10*	3.1 *5*						
[x]1843.9 *10*	3.7 *5*						
1849.2 *3*	5.5 *5*	1975.24	(9/2)$^+$	125.911	11/2$^+$		
[x]1855 *2*	1.5 *6*						
[x]1863 *2*	1.0 *6*						
[x]1868.30 *17*	15.5 *11*						
1873.02 *18*	10.5 *8*	1952.85	(7/2)$^+$	78.671	7/2$^-$	(E1)	Other Iγ: 6.4 *11* (1976Me06). Mult.,δ: 1981Kr08 report A_2=−0.7 *4*, −0.1≤δ(D,Q)≤+1.3; α(K)exp≤0.00067 and≤0.0011 based on Iγ from 1976Gr06 and 1976Me06, respectively. Eγ fits this placement poorly.
[x]1879.28 *19*	9.5 *7*						Other Iγ: 4.2 *14* (1976Me06).
[x]1884.7 *3*	7.3 *6*						
1889.87 *17*	14.3 *8*	2330.40	9/2$^{(+)}$	440.712	7/2$^-$		Mult.: A_2=+0.4 *4*; δ(D,Q)=−0.25 *25* or≥2.1 (1981Kr08). Designation as M1+E2 transition in 1981Kr08 is a misprint. Other Iγ: 5.6 *14* (1976Me06).
1893.3 *2*	8[g] *3*	1952.85	(7/2)$^+$	58.538	9/2$^+$		Eγ fits this placement poorly. Eγ=1894.4 *2* in 1976Gr06 is almost certainly for the 1893γ+1895γ doublet.
1895.38 *20*	17[g] *3*	1973.97	5/2,7/2	78.671	7/2$^-$	D(+Q)[b]	Mult.: A_2=−0.47 *18*, −1.9≤δ(D,Q)≤+0.4 if J(1974)=5/2; A_2=−0.50 *19*, −0.2≤δ(D,Q)≤+1.5 if J(1974)=7/2 (1981Kr08).
1899.67 *22*	14.3 *9*	2330.40	9/2$^{(+)}$	430.92	7/2$^+$		Other Iγ: 8.4 *14* (1976Me06).

$^{167}_{70}$Yb$_{97}$-25

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

E_γ[†]	I_γ[‡h]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	δ[@]	Comments
1910.78 *16*	7.7 *8*	2330.40	$9/2^{(+)}$	419.589	$(9/2)^-$			
1917.60 *20*	18.9 *15*	1951.19	(9/2)	33.909	$7/2^+$	D(+Q)	−0.18 *+18−16*	Mult.: from A_2=−0.03 *30* (1981Kr08).
1920.9 *2*	7.8 *8*	1979.50	$(7/2^-)$	58.538	$9/2^+$			
1926.5 *3*	9.7 *9*	2052.68	$9/2^{(-)}$	125.911	$11/2^+$	D(+Q)[b]	−2.2 *21*	Mult.: A_2=−0.1 *5* (1981Kr08).
1933.63 *18*	15 *3*	2012.32	$(7/2,9/2^-)$	78.671	$7/2^-$	(D+Q)		Mult.: A_2=−0.7 *4*, δ(D,Q)=+3.2 *28*, $\Delta\pi$=(no) if J(2012)=9/2, A_2=−0.8 *4*, δ(D,Q)=+0.6 *7* if J(2012)=7/2 (1981Kr08); α(K)exp≤0.0013; ΔJ ≠ 2 from level scheme.
1936.76 *18*	15.7 *22*	1995.32	$(9/2^-)$	58.538	$9/2^+$			I_γ: from 1976Me06; 17 *5* in 1976Gr06.
1941.32 *13*	45 *3*	1975.24	$(9/2)^+$	33.909	$7/2^+$	(M1,E2)		Mult.: A_2=+0.15 *29*; δ(D,Q)=+0.08 *16* or≥4.0 (1981Kr08); α(K)exp=0.0008 *4*.
1945.7[j] *5*	2.9[j] *5*	1975.24	$(9/2)^+$	29.658	$5/2^+$			
1945.7[j] *5*	3.1[jg] *6*	1979.50	$(7/2^-)$	33.909	$7/2^+$			
1951.48 *14*	15.0 *12*	1951.19	(9/2)	0.0	$5/2^-$			Mult.,δ: 1981Kr08 report A_2=+0.4 *8*, −0.6≤δ(Q,O)≤+6.6; α(K)exp=0.0007 *3*, consistent with E1 or E2.
1954.2[j] *6*	4.0[j] *5*	2012.32	$(7/2,9/2^-)$	58.538	$9/2^+$			
1954.2[j] *6*	4.2[jg] *6*	2013.05	$(7/2^-)$	58.538	$9/2^+$			
1961.42 *12*	25.5 *15*	1995.32	$(9/2^-)$	33.909	$7/2^+$	D+Q	+0.17 *9*	Mult.: A_2=−0.02 *16* (1981Kr08); α(K)exp=0.00071 *24* implies mult=E1,E2.
1964.75 *15*	12.0 *10*	1998.47	$(9/2^+)$	33.909	$7/2^+$	D(+Q)[b]	−1.2 *14*	δ: 1981Kr08 report A_2=+1.1 *4*, −2.6≤δ≤+0.2; α(K)exp=0.0011 *4* implies mult=D,E2.
1973.91[j] *11*	38.5[j] *17*	1973.97	5/2,7/2	0.0	$5/2^-$			Mult.: A_2=−0.41 *12*, δ(D,Q)=−0.02 *13* or +1.7 *+6−4* if J(1974)=5/2; A_2=−0.44 *13*, δ(D,Q)=+0.45 *12* or +4.7 *+34−15* if J(1974)=7/2 (1981Kr08); α(K)exp=0.00026 *10*; doubly-placed line.
1973.91[j] *11*	38.5[j] *17*	2052.68	$9/2^{(-)}$	78.671	$7/2^-$			Mult.: A_2=−0.39 *12*, δ(D,Q)=+0.40 *8* or +4.7 *+24−14* (1981Kr08); α(K)exp=0.00026 *10* (mult=E1) is inconsistent with this placement.
1979.55 *12*	28.3 *14*	1979.50	$(7/2^-)$	0.0	$5/2^-$	(M1+E2)		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. Mult.: A_2=−0.62 *16*, δ(D,Q)=+0.60 *+25−15* or +2.9 *+16−11* (1981Kr08), favors $\Delta\pi$=no as required by level scheme; however, α(K)exp=0.00046 *18* (cf. α(K)(E1)=0.00040, α(K)(E2)=0.00086) favors mult=E1.
1983.3 *3*	7.5 *8*	2013.05	$(7/2^-)$	29.658	$5/2^+$	D(+Q)[b]	−3.3 *34*	δ: A_2=+0.8 *6*, −6.8≤δ≤+0.1 (1981Kr08); ΔJ=1 transition if $\Delta\pi$=yes.
[x]1989.41 *12*	23.0 *12*							
1995.6 *5*	2.2 *10*	1995.32	$(9/2^-)$	0.0	$5/2^-$			
[x]2000.6 *3*	6.7 *7*							
[x]2003.2 *15*	1.1 *7*							
2013.04 *12*	39.0 *18*	2013.05	$(7/2^-)$	0.0	$5/2^-$	(M1+E2)		Mult.: A_2=−0.27 *13*; δ(D,Q)=+0.32 *9* or +10 *+23−4* (1981Kr08); magnitude of δ favors $\Delta\pi$=no.

γ(^{167}Yb) (continued)

E_γ[†]	I_γ[‡h]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ[@]	Comments
[x]2026.0 *5*	1.8 *3*							
[x]2031.9 *3*	3.1 *3*							
[x]2042.2 *11*	0.7 *4*							
[x]2047.8 *3*	3.9 *4*							
2052.1 *6*	1.6 *2*	2052.68	9/2$^{(-)}$	0.0	5/2$^-$			
[x]2062.6 *7*	2.0[g] *8*							
[x]2064.6 *7*	2.0[g] *8*							
[x]2075.0 *10*	0.8 *4*							
[x]2080.5 *4*	2.5 *8*							
[x]2085 *1*	0.8 *5*							
[x]2091.3 *20*	0.8 *5*							
[x]2095.4 *20*	0.8 *5*							
[x]2103.3 *7*	0.4 *2*							
[x]2107.4 *16*	1.2 *8*							
[x]2110.3 *25*	0.8 *6*							
[x]2121.5 *5*	0.6 *2*							
[x]2126.9 *4*	0.55 *20*							
[x]2132 *2*	0.2 *1*							
[x]2139.5 *5*	0.5 *2*							
[x]2145.9 *6*	0.9 *5*							
[x]2148.5 *3*	3.8 *5*							
2151.8 *6*	0.9 *2*	2330.40	9/2$^{(+)}$	178.875	9/2$^-$			
[x]2170.1 *5*	0.8 *2*							
[x]2173.7 *6*	0.7 *2*							
[x]2177.6 *12*	0.25 *12*							
[x]2190.2 *3*	2.4 *3*							
[x]2198.40 *16*	11.6 *8*							Other Iγ: 8.4 *14* (1976Me06).
2204.34 *17*	7.3 *5*	2330.40	9/2$^{(+)}$	125.911	11/2$^+$	D+Q[b]	+5.7 *55*	Mult.: A_2=+1.0 *5* (1981Kr08). Other Iγ: 5.0 *8* (1976Me06).
[x]2211.1 *4*	2.9 *3*							
[x]2215.9 *20*	1.0 *5*							
[x]2218.9 *7*	1.2 *5*							
[x]2225.2 *4*	1.1 *3*							
[x]2228.6 *5*	1.1 *3*							
[x]2231.4 *6*	0.65 *22*							
[x]2235.2 *8*	0.53 *27*							
[x]2237.8 *7*	0.74 *25*							
[x]2244 *1*	1.6 *5*							
[x]2247.58 *18*	6.0 *6*							
[x]2253.7 *5*	1.0 *3*							
[x]2257.9 *3*	2.6 *3*							
[x]2266.0 *4*	12.0[g] *11*							
[x]2269.8 *7*	5.6[g] *8*							

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

E_γ[†]	I_γ[‡h]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ[@]	Comments
2271.81 *19*	24.0 *12*	2330.40	9/2$^{(+)}$	58.538	9/2$^+$	(M1+E2)[b]	+0.35 *15*	Mult.: A_2=−0.69 *19* (1981Kr08). Magnitude of δ favors $\Delta\pi$=no.
^{x}2278.4 *4*	1.9 *3*							
^{x}2283.0 *5*	0.75 *20*							
^{x}2288.9 *6*	0.75 *13*							
^{x}2292.7 *4*	2.4 *2*							
2296.2 *3*	2.2 *2*	2330.40	9/2$^{(+)}$	33.909	7/2$^+$			
^{x}2304.7 *20*	0.5 *3*							
^{x}2308.6 *5*	1.3 *3*							
^{x}2335.0 *6*	0.6 *2*							
^{x}2339.3 *6*	0.27 *13*							
^{x}2367.5 *6*	0.5 *3*							
^{x}2401.5 *10*	0.5 *3*							
^{x}2458.1 *5*	0.45 *11*							
^{x}2467.1 *4*	0.92 *13*							
^{x}2545.8 *4*	1.3 *2*							
^{x}2559.0 *4*	0.94 *12*							

† Weighted average of values from 1976Gr06 and 1976Me06 if E_γ>300, and from 1976Gr06 and 1971Ab04 for lower E_γ, except when transition is reported in only one of these studies. Exceptions are noted.

‡ From 1976Gr06, except as noted. Data from 1976Me06 are a little less comprehensive, but are of comparable precision and, in general, are in excellent agreement with those from 1976Gr06. 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 1976Gr06 and 1976Me06, the evaluator 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 9 most precise intensity ratios Iγ(1976Gr06)/Iγ(1976Me06) in each energy range (the need for different scaling factors in these energy ranges is not understood).

From α(K)exp and/or ce subshell ratios (1976Gr06), except where noted; the photon and ce intensity scales were normalized by 1976Gr06 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 (authors′ analysis of subshell ratios from 1976Gr06).

& Deduced from Ice data (1976Gr06) and adopted mult.

a Value and uncertainty cover combined range for both multipolarities.

b From γ-ray anisotropies (nuclear orientation measurements (1981Kr08)); decay scheme of 1976Me06 was used in analysis.

c Alternative placement from 569.4 level consistent only with mult(443.0γ)=E2 and J$^\pi$(569.4 level)=7/2$^+$. 1976Gr06 report no conversion electrons for 443.0γ, favoring mult=E1.

d Iγ=9.5 *8* (1976Me06), presumably for 351γ+352γ doublet since, otherwise, α(K)exp=0.007 *2* cf. α(K)(E1)=0.0114; Iγ=9.8 *25* for this doublet in 1976Gr06. Ice(K)=0.06 *2* for each component (1976Gr06), favoring E1 for each; therefore, the evaluator assigns Iγ=4.8 *4* to each.

e Iγ=17 *3* for 570.0γ+570.7γ in 1976Gr06 (14.0 *11* in 1976Me06). From Ice(570.0), α(K)exp(570.0)≥0.015 *4* (ruling out E1 multipolarity), and Iγ(570.0)≥10 *2* assuming α(K)exp≤α(K)(M1 theory); the evaluator adopts Iγ=14 *6* for this component of the doublet, leaving Iγ=3 *7* for the 570.7γ. Additionally, from

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

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

Ice(570.7), Iγ(570.7)≤13 *3* and≥2, respectively, assuming α(K)exp≥α(K)(E1) and≤α(K)(M1).

[f] Placed by 1976Me06 (and 1981Kr08) from 677 and/or 1305 level(s); the energy fit for the former placement is excellent, but the level scheme requires mult=M1,E2 whereas α(K)exp lies midway between α(K)(E1) and α(K)(E2).

[g] From 1976Me06; data scaled as indicated in general comment on Iγ data.

[h] For absolute intensity per 100 decays, multiply by 0.0387 *17*.

[i] 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.

[j] Multiply placed with undivided intensity.

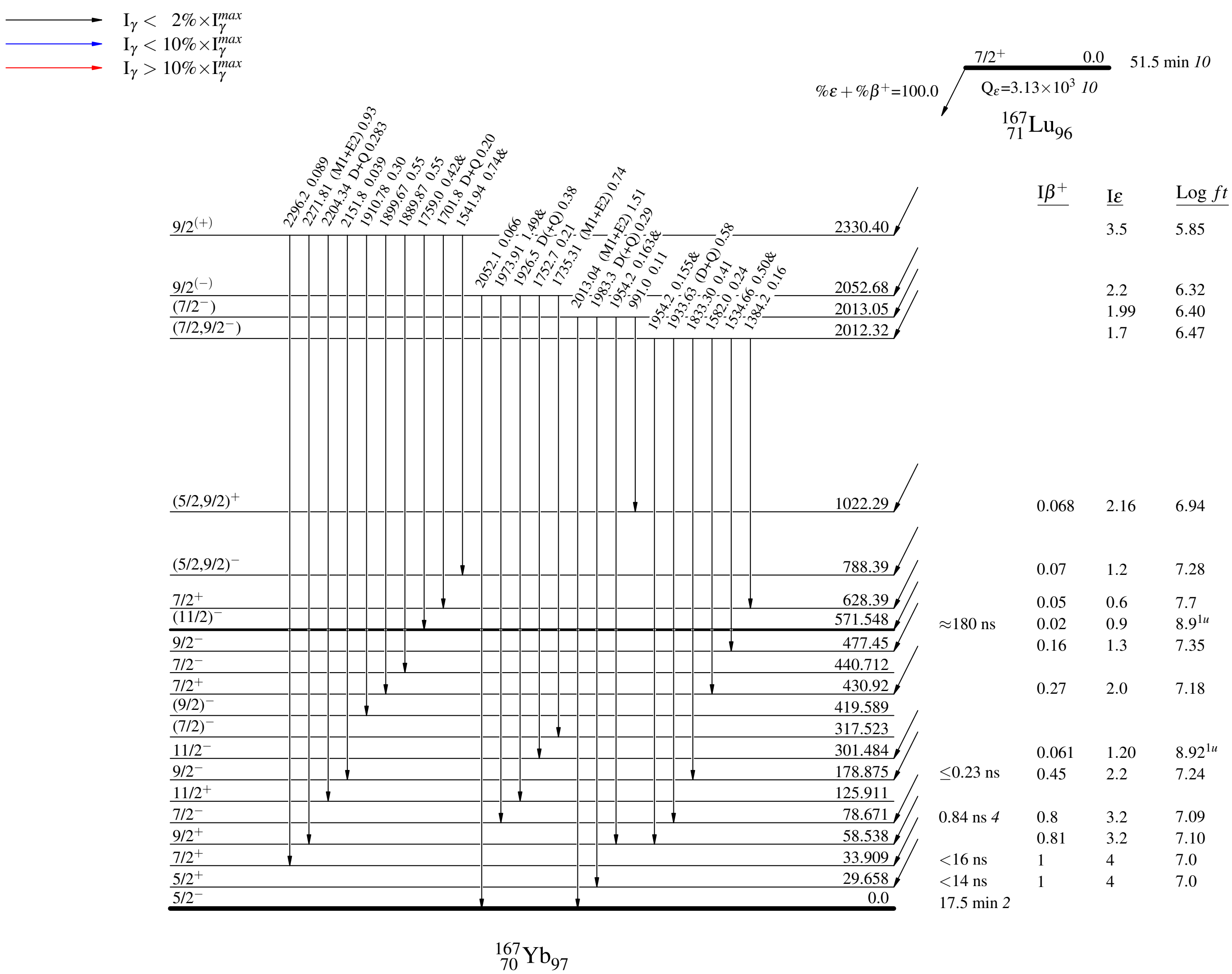
[k] Placement of transition in the level scheme is uncertain.

[x] γ ray not placed in level scheme.

^{167}Lu ε decay 1976Gr06,1976Me06

Decay Scheme

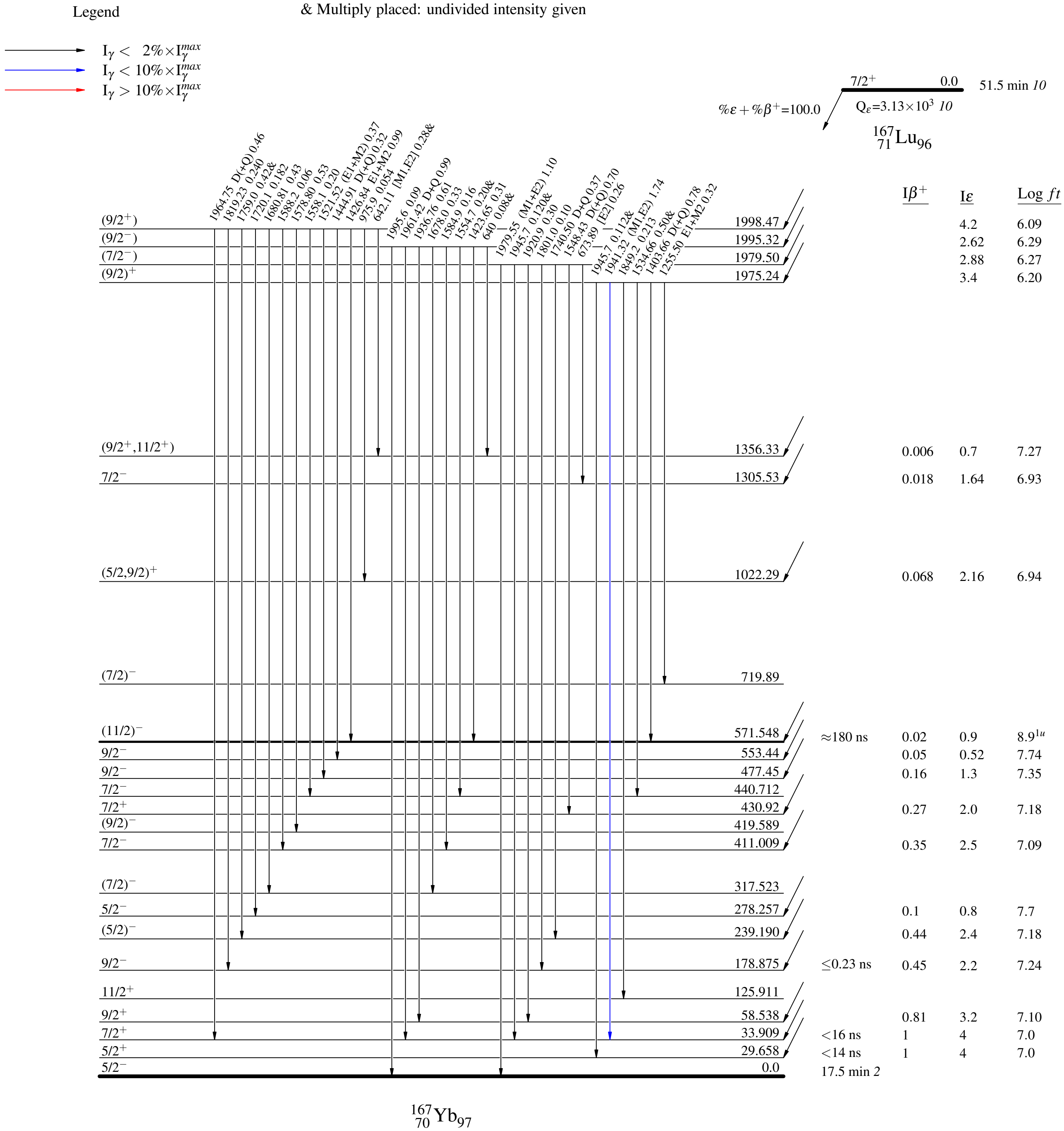
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
& Multiply placed: undivided intensity given



^{167}Lu ε decay 1976Gr06,1976Me06

Decay Scheme (continued)

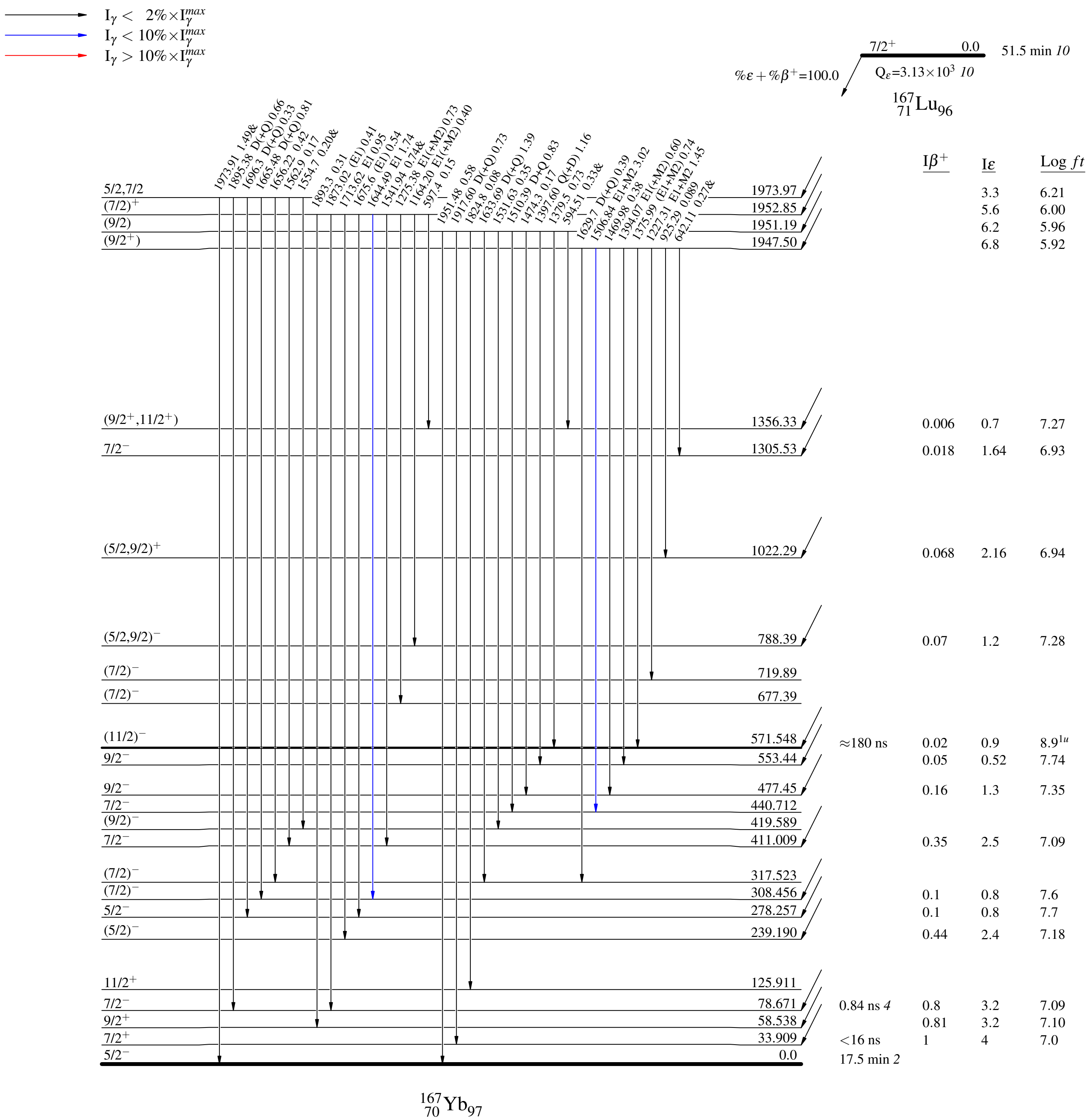
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
& Multiply placed: undivided intensity given



^{167}Lu ε decay 1976Gr06,1976Me06

Decay Scheme (continued)

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

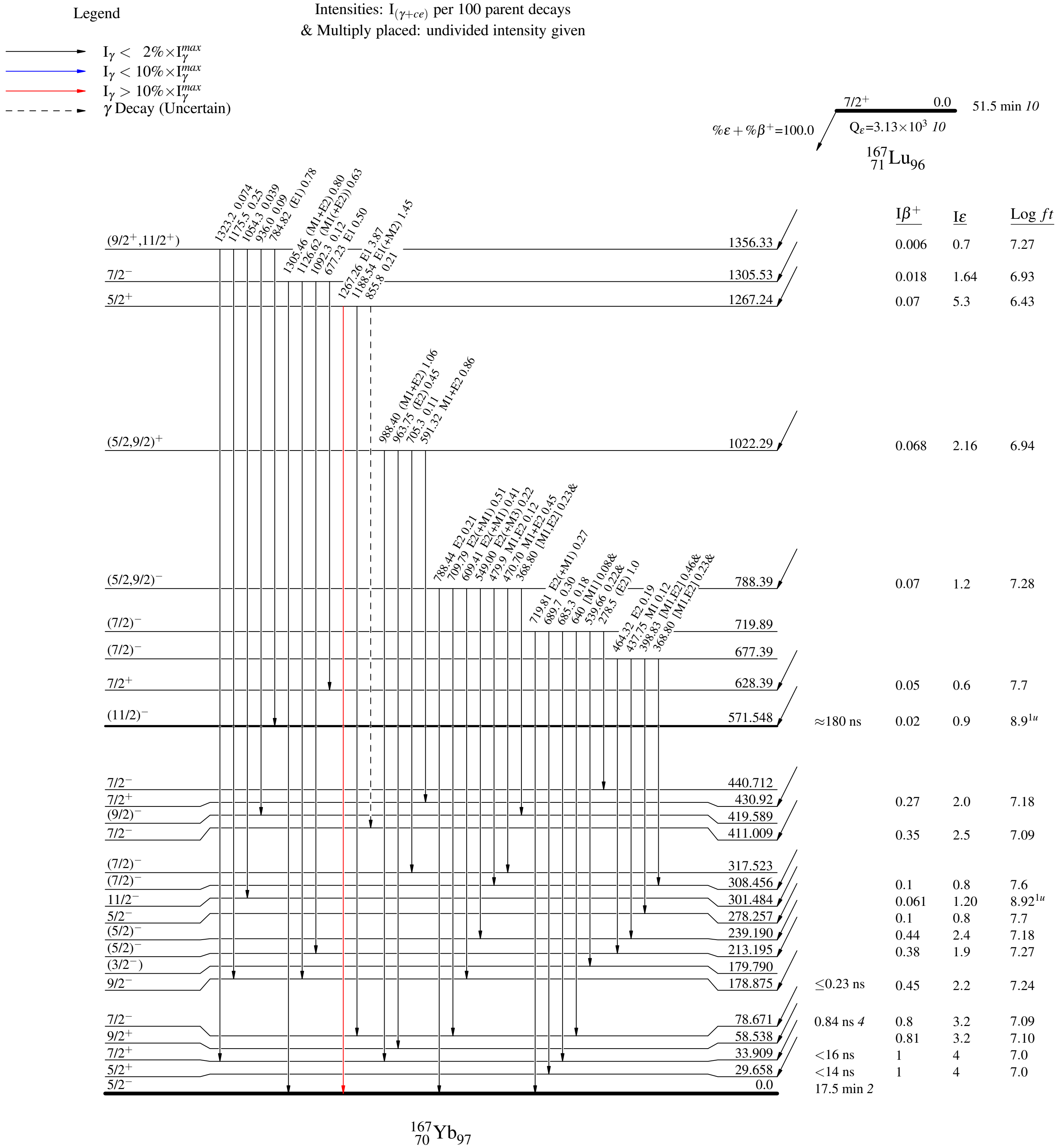


^{167}Lu ε decay 1976Gr06,1976Me06

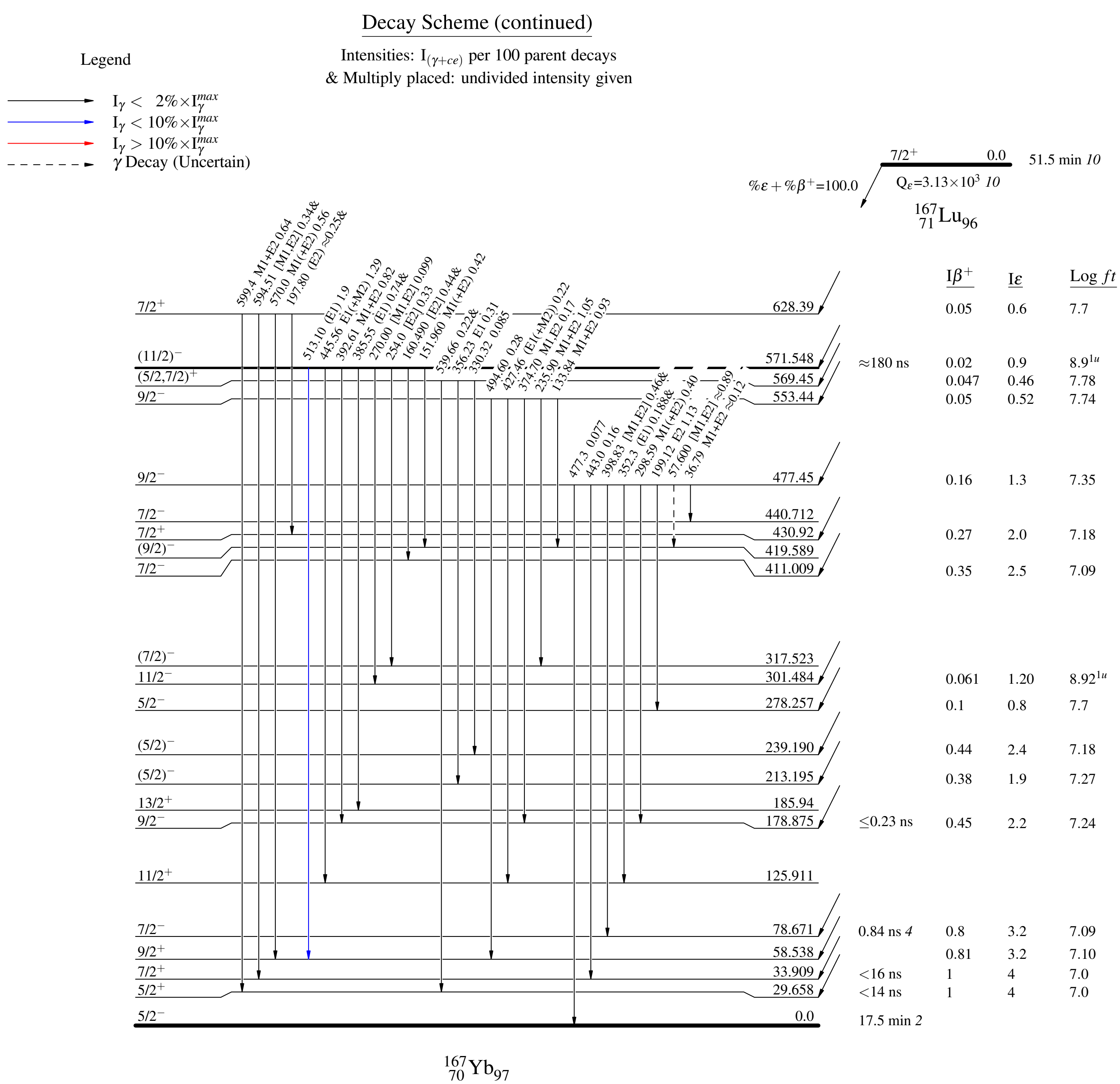
Decay Scheme (continued)

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

& Multiply placed: undivided intensity given



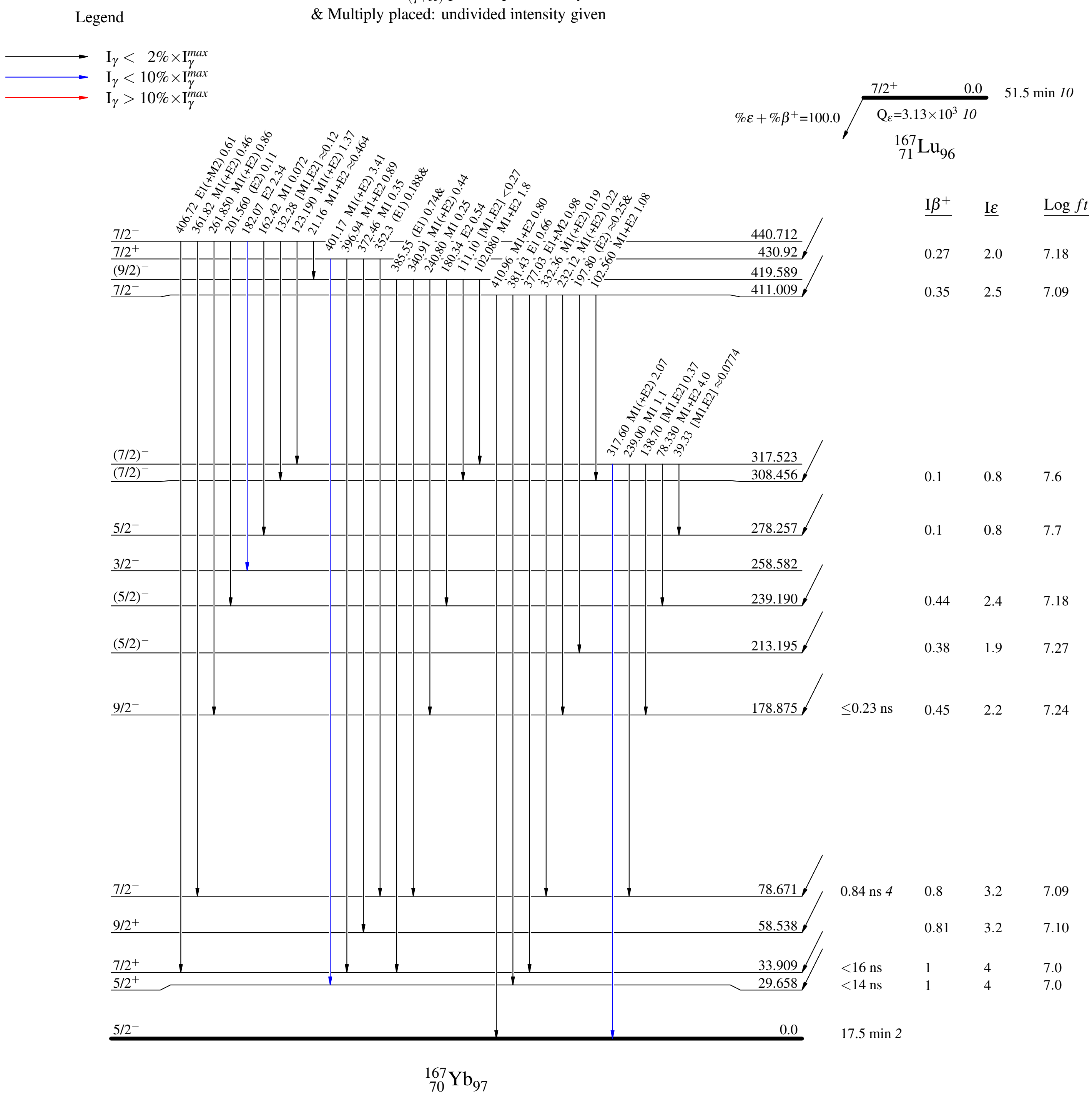
^{167}Lu ε decay 1976Gr06,1976Me06



^{167}Lu ε decay 1976Gr06,1976Me06

Decay Scheme (continued)

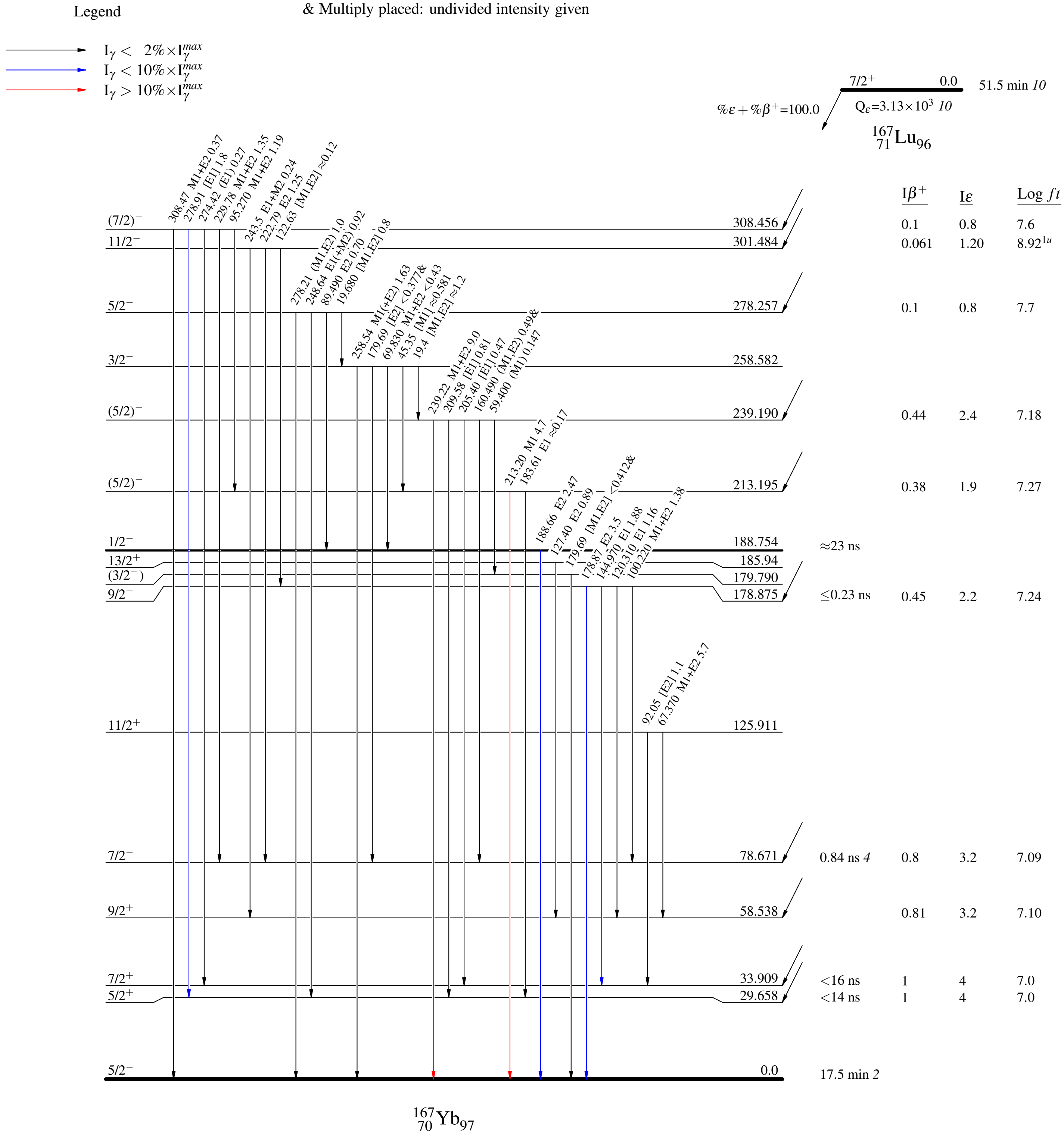
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
& Multiply placed: undivided intensity given



^{167}Lu ε decay 1976Gr06,1976Me06

Decay Scheme (continued)

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



^{167}Lu ε decay 1976Gr06,1976Me06

Decay Scheme (continued)

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