^{169}Lu ε decay (34.06 h) 1978Ba73,1978Bo39,1980Ba07

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 109, 2033 (2008)	15-Jun-2008

Parent: ^{169}Lu: E=0.0; J$^{\pi}$=7/2^{+}; $T_{1/2}$=34.06 h *5*; Q(ε)=2293 *3*; %ε+%β^{+} decay=100.0

Others: 1957Bo61, 1958Ke88, 1959Dz01, 1959Ha09, 1960Dz02, 1960Ha18, 1960Io01, 1960Io02, 1961Me05, 1961Pl02, 1962Dz05, 1963Tu01, 1964Dz02, 1964Dz06, 1968Lo10, 1969Ar23, 1970Ba09, 1970Bo06, 1970Dz11, 1971Ma74, 1972Dz02, 1973Bo38, 1977Ar17, 1977Bo31, 1980DuZP, 1980Bu24, 1991Dz04, 1982Da23.

1980Ba07: measured ce-γ coin; Ge(Li) detector (FWHM=3.5 keV At Eγ=1332) and toroidal magnetic spectrometer.

1978Ba73: measured Eγ, Iγ, $\gamma\gamma$ coin using Ge(Li) detectors (FWHM=0.5 keV at$\approx$100 keV, 0.9 keV at$\approx$200 keV, 2.1-2.7 keV at E$\approx$1 MeV), and ce data using a Si(Li) detector.

1977Bo31: measured β^{+} and ce spectra using iron-free toroidal spectrometer, resolution=1.1%.

1977Ar17: magnetic spectrometer, 0.17% resolution; measured ce spectra.

^{169}Lu sources for γ and ce studies were from spallation of tantalum by protons (E(p)=660-680 MeV); chemical and mass separation.

The decay scheme is largely from 1978Bo39, incorporating photon data from 1977Ar17 and 1978Ba73 and β^{+} data from 1977Bo31. Additions and refinements to the scheme from 1978Bo39, based on ce-γ coin, were introduced by 1980Ba07 (16 additional levels, 5 levels from 1978Bo39 eliminated); the evaluation by 1988DzZW then proposed an additional 9 levels, along with the omission of 8 of the levels newly proposed by 1980Ba07 and an additional 5 of the levels proposed by 1978Bo39 (1541, 1566, 1707, 1708, 1954). Small changes have been made based on data of 1982Da23 (nuclear orientation) and several other studies; additional changes accommodate some of the recommendations from 1991DzZY or 1992Dz03.

For discussion of band structure and other possible levels of ^{169}Yb that May Be deduced from earlier decay data, see 1988DzZW, 1989Dz05, 1991Dz04, 1991DzZY, 1992Dz03, 1993Dz02 and 1995Dz02.

^{169}Yb Levels

E(level)[†]	J$^{\pi}$[‡]	$T_{1/2}$	Comments
0.0[#]	7/2^{+}	32.018 d *5*	$T_{1/2}$: from Adopted Levels.
24.210[@] *8*	1/2^{-}	46 s *2*	$T_{1/2}$: from Adopted Levels.
70.880[#] *5*	9/2^{+}		
86.927[@] *7*	3/2^{-}		
99.250[@] *6*	5/2^{-}		
161.645[#] *6*	11/2^{+}		
191.216[&] *5*	5/2^{-}	3.35 ns *15*	$T_{1/2}$: from $\gamma\gamma$(t) (1968Lo10).
243.827[@] *7*	7/2^{-}		
264.272[@] *8*	9/2^{-}		
269.628[#] *19*	13/2^{+}		
278.594[&] *6*	7/2^{-}		
389.523[&] *7*	9/2^{-}		
487.031[@] *14*	(11/2^{-})		
512.039[@] *17*	(13/2)$^{-}$		
523.066[&] *7*	11/2^{-}		
569.837[a] *10*	5/2^{-}		
590.67[b] *3*	(5/2)$^{+}$		
647.34[b] *3*	7/2^{+}		
647.847[a] *11*	7/2^{-}		
659.52[c] *12*	3/2^{-}		
707.03[b] *5*	9/2^{+}		
720.00[d] *8*	3/2^{+}		
722.21[c] *5*	5/2^{-}		

Continued on next page (footnotes at end of table)

^{169}Lu ε decay (34.06 h) 1978Ba73,1978Bo39,1980Ba07 (continued)

^{169}Yb Levels (continued)

E(level)[†]	Jπ[‡]	Comments
748.923[a] *23*	(9/2)⁻	
761.822[d] *18*	(5/2)⁺	
807.079[c] *16*	(7/2)⁻	
832.085[d] *20*	(7/2)⁺	
851.7? *5*		tentative level proposed In 1988DzZW.
886.80[d] *4*	9/2⁺	
911.38[e] *5*	(5/2)⁻	
919.80[c] *5*	(9/2)⁻	
929.17 *4*	11/2⁻	
960.612[f] *14*	7/2⁻	
1061.2 *3*		level proposed In 1988DzZW.
1070.77[g] *3*	7/2⁺	
1078.335[f] *19*	9/2⁻	
1141.44[g] *7*	(9/2)⁺	
1167.74 *8*	(7/2,9/2)⁻	level not included In 1988DzZW.
1177.01 *6*	(7/2,9/2)⁺	
1204.55 *17*		level proposed In 1988DzZW and 1993Dz02.
1283.282 *20*	(7/2,9/2)⁻	
1343.57 *4*	(7/2)⁻	
1406.35 *4*	9/2⁻	level not included In 1988DzZW.
1420.31 *13*	(5/2⁻,7/2,9/2⁻)	proposed As J=7/2 member of 1/2[521] β vibration band by 1980Ba07. however, level is absent from 1988DzZW.
1427.12 *10*	(7/2,9/2)⁻	
1444.75 *5*	7/2⁻,9/2⁻	level not included In 1988DzZW.
1449.781 *13*	7/2⁻	
1463.412 *16*	7/2⁻	
1540.69 *4*	9/2⁻	level not included In 1988DzZW.
1554.876 *24*	9/2⁻	
1565.65 *5*	(7/2⁻)	level not included In 1988DzZW.
1616.80 *4*	(1/2⁺,3/2,5/2⁺)	
1656.22 *9*	5/2⁻,7/2⁻,9/2⁻	level not included In 1988DzZW.
1658.10 *3*	5/2⁺	
1689.290 *23*	7/2⁻	
1694.48 *6*	5/2⁺	level not included In 1988DzZW.
1707.71 *8*	(7/2,9/2)⁺	level not included In 1988DzZW.
1708.52 *4*	7/2⁻	level not included In 1988DzZW.
1716.02 *3*	7/2⁺	
1781.696 *22*	7/2⁻	
1888.00 *6*	(7/2⁺,9/2⁺)	level not included In 1988DzZW.
1908.63 *3*	5/2⁺	
1954.50 *4*	5/2⁻,7/2⁻	level not included In 1988DzZW.
1972.35 *8*	9/2⁻	level not included In 1988DzZW.
1973.97 *3*	7/2⁻	
2029.87 *4*	7/2⁻	
2065.04 *11*	7/2⁺	
2101.03 *7*	(5/2,7/2)⁻	
2135.4 *4*		
2287.23 *5*	7/2⁻	%ε+%β⁺=0.281 *11* implied; however decay energy too low for K or L1 or L2 capture. calculated log *ft* unrealistic.
2296.78? *15*	5/2⁻,7/2,9/2⁻	%ε+%β⁺=0.083 *14* implied; however level energy≥Q value. Consequently, level is indicated As uncertain, As are the placements of all transitions deexciting IT.

Continued on next page (footnotes at end of table)

^{169}Lu ε decay (34.06 h) 1978Ba73,1978Bo39,1980Ba07 (continued)

^{169}Yb Levels (continued)

† From least-squares fit to Eγ, excluding all questionably or multiply-placed transitions As well As the 761γ (from 832 level), 908.64γ (from 1070 level), 1151.70γ (from 1541 level) and 1676.46γ (from 1954 level), each of which fits its placement poorly. however, even with these exclusions, three Eγ are 4σ from their expected values and four deviate by 3σ. almost certainly, some transitions are misplaced In this decay scheme.
‡ From Adopted Levels.
# Band(A): 7/2[633] band.
@ Band(B): 1/2[521] band.
& Band(C): 5/2[512] band.
[a] Band(D): 5/2[523] band.
[b] Band(E): 5/2[642] band.
[c] Band(F): 3/2[521] band + K-2 γ vibration built on 1/2[521].
[d] Band(G): 3/2[651] band + K-2 γ vibration built on 7/2[633].
[e] Band(H): 1/2[510] band + K-2 γ vibration built on 5/2[512].
[f] Band(I): 7/2[514] band.
[g] Band(J): β vibration band. Built on 7/2[633] g.s.; band assignment from 1988DzZW.

ε,β^+ radiations

$\varepsilon+\beta^+$ feedings to excited states are from intensity imbalance at each level; see comment on Iγ normalization for calculation of g.s. feeding. the allowed, ΔN=2 feeding from a 7/2[404] parent to the 7/2[633] g.s. of ^{169}Yb is expected to Be strongly inhibited. feeding to members of the 1/2[521] band (K-forbidden) is expected to Be weak also. For questionable placements and for multiply-placed transitions with undivided intensity, intensities of 1/2Iγ ± 1/2Iγ have been assumed for each placement. There is apparent and unexpected feeding of 0.25% 11 to 161.7 level, 0.23% 9 to 269.7 level, 0.17% 8 to 486.9 level, and 0.19% 2 to 720.0 level. This might be attributable to an incomplete decay scheme (2.7% of γ intensity is unplaced).

β^+ spectrum (1977Bo31):
Other β^+ spectrum: 1981By04 (used total-absorption γ-ray spectroscopy to measure strength function).

Eβ	Iβ (relative to Ice(K)=1 for 191.2γ)
1271 3	0.55 5
900 +100-60	0.028 11
670 50	0.028 6
310 +60-40	0.006 +4-3

The 1271 β^+ group feeds the ground state.

E(decay)	E(level)	Iε†	Log *ft*	I($\varepsilon+\beta^+$)†	Comments
(158 *3*)	2135.4	0.0070 *11*	8.46 *8*	0.0070 *11*	εK=0.678 *5*; εL=0.241 *4*; εM+=0.0803 *14*
(192 *3*)	2101.03	0.072 *5*	7.68 *4*	0.072 *5*	εK=0.720 *3*; εL=0.2114 *20*; εM+=0.0690 *8*
(228 *3*)	2065.04	0.0125 *11*	8.64 *4*	0.0125 *11*	εK=0.7447 *17*; εL=0.1931 *13*; εM+=0.0622 *5*
(263 *3*)	2029.87	1.14 *6*	6.84 *3*	1.14 *6*	εK=0.7607 *12*; εL=0.1815 *9*; εM+=0.0579 *3*
(319 *3*)	1973.97	1.02 *9*	7.09 *4*	1.02 *9*	εK=0.7770 *7*; εL=0.1695 *5*; εM+=0.05345 *19*
(321 *3*)	1972.35	0.41 *6*	7.49 *7*	0.41 *6*	εK=0.7774 *7*; εL=0.1693 *5*; εM+=0.05335 *19*
(339 *3*)	1954.50	0.57 *4*	7.40 *4*	0.57 *4*	εK=0.7812 *6*; εL=0.1665 *5*; εM+=0.05234 *16*
(384 *3*)	1908.63	2.12 *9*	6.960 *20*	2.12 *9*	εK=0.7889 *5*; εL=0.1608 *4*; εM+=0.05026 *12*
(405 *3*)	1888.00	0.35 *3*	7.79 *4*	0.35 *3*	εK=0.7917 *4*; εL=0.1588 *3*; εM+=0.04951 *11*
(511 *3*)	1781.696	3.25 *8*	7.055 *13*	3.25 *8*	εK=0.8021 *3*; εL=0.15121 *17*; εM+=0.04674 *6*
(577 *3*)	1716.02	1.69 *7*	7.455 *19*	1.69 *7*	εK=0.8063 *2*; εL=0.1481 *2*; εM+=0.04561 *5*

Continued on next page (footnotes at end of table)

^{169}Lu ε decay (34.06 h) 1978Ba73,1978Bo39,1980Ba07 (continued)

ε,β^+ radiations (continued)

E(decay)	E(level)	Iβ^+ [†]	Iε [†]	Log ft	I(ε+β^+) [†]	Comments
(584 3)	1708.52		0.84 7	7.77 4	0.84 7	εK=0.8067 2; εL=0.1478 2; εM+=0.04550 5
(585 3)	1707.71		0.410 19	8.084 21	0.410 19	εK=0.8067 2; εL=0.1478 2; εM+=0.04549 5
(599 3)	1694.48		0.121 8	8.64 3	0.121 8	εK=0.8075 2; εL=0.1472 2; εM+=0.04530 5
(604 3)	1689.290		1.62 5	7.517 15	1.62 5	εK=0.8077 2; εL=0.1470 2; εM+=0.04523 4
(635 3)	1658.10		4.86 13	7.087 13	4.86 13	εK=0.8092 2; εL=0.1460 1; εM+=0.04484 4
(637 3)	1656.22		0.44 5	8.13 5	0.44 5	εK=0.8093 2; εL=0.1459 1; εM+=0.04481 4
(676 3)	1616.80		0.407 15	8.224 17	0.407 15	εK=0.8110 2; εL=0.14467 9; εM+=0.04437 4
(727 3)	1565.65		0.37 4	8.33 5	0.37 4	εK=0.8128 1; εL=0.14330 8; εM+=0.04388 3
(738 3)	1554.876		1.63 15	7.70 4	1.63 15	εK=0.8132 1; εL=0.14304 8; εM+=0.04378 3
(752 3)	1540.69		0.69 9	8.09 6	0.69 9	εK=0.8136 1; εL=0.14271 7; εM+=0.04366 3
(830 3)	1463.412		5.07 17	7.319 15	5.07 17	εK=0.8158; εL=0.14112 6; εM+=0.04309 2
(843 3)	1449.781		15.8 4	6.841 12	15.8 4	εK=0.8161; εL=0.14088 6; εM+=0.04300 2
(848 3)	1444.75		0.245 25	8.66 5	0.245 25	εK=0.8162; εL=0.14079 6; εM+=0.04297 2
(866 3)	1427.12		0.36 12	8.51 15	0.36 12	εK=0.8167; εL=0.14048 5; εM+=0.04286 2
(873 3)	1420.31		0.22 4	8.73 8	0.22 4	εK=0.8168; εL=0.14037 5; εM+=0.04282 2
(887 3)	1406.35		0.69 9	8.25 6	0.69 9	εK=0.8171; εL=0.14014 5; εM+=0.04274 2
(949 3)	1343.57		1.38 6	8.009 20	1.38 6	εK=0.8184; εL=0.13921 5; εM+=0.04240 2
(1010 3)	1283.282		2.15 11	7.873 23	2.15 11	εK=0.8194; εL=0.13843 4; εM+=0.04212 2
(1116 3)	1177.01		0.283 21	8.84 4	0.283 21	εK=0.8210; εL=0.13728 3; εM+=0.04171 1
(1125 3)	1167.74		0.41 4	8.69 5	0.41 4	εK=0.8211; εL=0.13719 3; εM+=0.04167 1
(1152 3)	1141.44		0.111 11	9.28 5	0.111 11	εK=0.8215; εL=0.13694 3; εM+=0.04158 1
(1215 3)	1078.335		3.14 10	7.877 14	3.14 10	εK=0.8222; εL=0.13639 3; εM+=0.041388 9
(1222 3)	1070.77		0.67 5	8.55 4	0.67 5	εK=0.8223; εL=0.13633 3; εM+=0.041366 9
(1332 3)	960.612	0.0058 3	25.2 7	7.056 13	25.2 7	av Eβ=156.0 14; εK=0.8232; εL=0.13550 3; εM+=0.041067 8
(1364 3)	929.17		0.33 7	9.78[1u] 10	0.33 7	εK=0.8100; εL=0.14533 5; εM+=0.04467 2
(1382 3)	911.38		0.145 17	9.33 5	0.145 17	εK=0.8235; εL=0.13515 2; εM+=0.040944 8
(1406 3)	886.80		0.495 20	8.812 18	0.495 20	εK=0.8236; εL=0.13498 2; εM+=0.040884 8
(1441[‡] 3)	851.7?		0.09 9	9.6 5	0.09 9	εK=0.8236; εL=0.13474 2; εM+=0.040800 8
(1486 3)	807.079	0.00079 9	0.62 7	8.76 5	0.62 7	av Eβ=225.3 14; εK=0.8236; εL=0.13444 2; εM+=0.040694 8
(1531 3)	761.822	0.0010 2	0.54 11	8.85 9	0.54 11	av Eβ=245.4 14; εK=0.8234; εL=0.13412 2; εM+=0.040587 8
(1544 3)	748.923	0.0014 2	0.67 10	8.77 7	0.67 10	av Eβ=251.1 14; εK=0.8234; εL=0.13403 3; εM+=0.040556 8
(1586 3)	707.03	0.0022 5	0.80 16	8.71 9	0.80 16	av Eβ=269.7 16; εK=0.8230; εL=0.13374 3; εM+=0.040454 8
(1633 3)	659.52		0.27 15	10.19[1u] 25	0.27 15	εK=0.8141; εL=0.14185 4; εM+=0.04340 2
(1645 3)	647.847	0.0085 3	2.05 7	8.335 15	2.06 7	av Eβ=295.6 15; εK=0.8223; εL=0.13329 3; εM+=0.040305 8
(1646 3)	647.34	0.0022 3	0.53 7	8.93 6	0.53 7	av Eβ=295.9 15; εK=0.8223; εL=0.13329 3; εM+=0.040304 8
(1702 3)	590.67	0.0025 5	0.43 8	9.05 8	0.43 8	av Eβ=321.0 14; εK=0.8212; εL=0.13284 3; εM+=0.040154 9
(1723 3)	569.837	0.0065 5	1.00 8	8.69 4	1.01 8	av Eβ=330.2 14; εK=0.8208; εL=0.13266 3; εM+=0.040097 9
(1903 3)	389.523	0.012 3	0.78 20	8.89 11	0.79 20	av Eβ=409.3 14; εK=0.8147 2; εL=0.13091 4; εM+=0.03953 1
(2014 3)	278.594	0.02 1	0.8 4	8.94 22	0.8 4	av Eβ=458.0 14; εK=0.8088 2; εL=0.12957 4; εM+=0.03911 2
(2029[‡] 3)	264.272	<0.0090	<0.37	>9.3	<0.38	av Eβ=464.3 14; εK=0.8079 2; εL=0.12939 4; εM+=0.03905 2
(2049[‡] 3)	243.827	<0.012	<0.46	>9.2	<0.47	av Eβ=473.3 14; εK=0.8066 2; εL=0.12911 5; εM+=0.03896 2
(2102 3)	191.216	0.048 18	1.6 6	8.68 17	1.6 6	av Eβ=496.4 14; εK=0.8030 3; εL=0.12835 5; εM+=0.03873 2

Continued on next page (footnotes at end of table)

^{169}Lu ε decay (34.06 h) 1978Ba73,1978Bo39,1980Ba07 (continued)

ϵ,β^+ radiations (continued)

E(decay)	E(level)	Iβ^+ †	Iε†	Log *ft*	I(ε+β^+)†	Comments
2293 *3*	0.0	0.54 *5*	10.0 *9*	7.95 *5*	10.5 *10*	av Eβ=580.6 *14*; εK=0.7860 *4*; εL=0.12513 *6*; εM+=0.03773 *2* E(decay): from Eβ+=1271 *3* (1977Bo31). I(ε+β^+),Iε: deduced from Iβ(1271β)/Ice(K)(191.2γ)=0.55 *5* (1977Bo31).

† Absolute intensity per 100 decays.
‡ Existence of this branch is questionable.

γ(^{169}Yb)

Iγ normalization: from total I(γ+ce) (to g.s. plus 24.2 level) less Ti(24.2γ)=89.5% 10; this follows from (%ε+%β$^+$ to g.s.)=10.5 *10* based on measured I(β$^+$ to g.s.)/I(191 ce(K))=0.55 *5* (1977Bo31) and I(ε)/I(β$^+$)=18.6 from theory for this allowed transition. Using this normalization, the decay-scheme value for Σ Iγ(K x ray) is 526 *6* compared with Σ Iγ(K x ray)(exp)=503 *6*.

Iγ(K x ray) (relative to Iγ(960.6γ)=100 (1978Ba73)).
α(K)exp data given in comments are from 1978Ba73, unless indicated to the contrary.

```
  Eγ          Iγ(K x ray)
------        ------
51.354        146 3
52.389        254 5
59.4          82 2
61.0          20.7 5
```

Eγ[†]	Iγ[†f]	Ei(level)	J_i^π	Ef	J_f^π	Mult.[‡]	δ[‡]	α[g]	$I_{(\gamma+ce)}$[f]	Comments
12.31[@] *2*	0.078[&] *17*	99.250	5/2⁻	86.927	3/2⁻	M1+E2	0.026 *+6−4*	307 *23*		α(L)=238 *17*; α(M)=54 *5*; α(N+..)=14.5 *11* α(N)=12.7 *10*; α(O)=1.76 *11*; α(P)=0.0825 *13* Eγ: from 1973Bo38. Iγ: deduced from Ice(L)=19.3 *43* (1977Ar17) and α(L)(theory). Mult.: from ce subshell ratios: L1:L2:L3:M1:M2:M3:N1:N2:O= 350 *100*:60 *15*:55 *25*:70 *16*:12 *2*:10 *3*:17 *3*:3 *1*:3.3 *10* (1977Ar17).
14.22 *4*		278.594	7/2⁻	264.272	9/2⁻				<1.8	Eγ: from 1973Bo38. Ti(14.2γ) cannot exceed 0.9 *9* and Ti(34.8γ) cannot exceed 1.5 *7* based on intensity balances at the 243.8 and 264.3 levels.
20.44 *2*	0.035 *6*	264.272	9/2⁻	243.827	7/2⁻	M1		59.0		α(L)=45.9 *7*; α(M)=10.30 *15*; α(N+..)=2.78 *4* α(N)=2.42 *4*; α(O)=0.344 *5*; α(P)=0.0183 *3* Eγ: from 1973Bo38. Iγ: deduced from Ice(M1)=0.33 *6* (1977Ar17) and α(M1)(theory). Mult.: from ce subshell ratios (1977Ar17); M1+E2 with δ<0.055 (nuclear orientation, 1982Da23). L1:M1:M2=36 *6*:8.0 *13*:≤1.6 (1977Ar17).
24.20 *2*		24.210	1/2⁻	0.0	7/2⁺	E3		2.58×10^5	60.0 *22*	ce(L)/(γ+ce)=0.717 *8*; ce(M)/(γ+ce)=0.225 *5*; ce(N+)/(γ+ce)=0.0580 *12* ce(N)/(γ+ce)=0.0526 *11*; ce(O)/(γ+ce)=0.00541 *12*; ce(P)/(γ+ce)=2.64×10^{-6} *6*

γ(^{169}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
										E_γ: from 1970Ba09. $I_{(\gamma+ce)}$: from intensity balance at 24.2 level; ε+β^+ feeding to this level is not expected (ΔJ=3, Δπ=yes). Mult.: from ce subshell ratios: L1:L2:L3:M1:M2:M3:(M4+M5):N:O=≤50:500 *50*:600 *50*:<8:140 *15*:160 *15*:29 *3*:71 *7*:6 *2* (1977Ar17).
34.79 *4*		278.594	7/2⁻	243.827	7/2⁻	M1+E2	≈0.022[b]	≈12.36	<2.2	ce(L)/(γ+ce)≈0.720; ce(M)/(γ+ce)≈0.162; ce(N+)/(γ+ce)≈0.0436 ce(N)/(γ+ce)≈0.0379; ce(O)/(γ+ce)≈0.00539; ce(P)/(γ+ce)≈0.000283 E_γ: from 1973Bo38. $I_{(\gamma+ce)}$: See comment with 14.2γ. Mult.: from ce subshell ratios (1977Ar17). L1:L2=11.6 *13*:≈1.2 (1977Ar17).
62.730[@] *14*	2.79 *11*	86.927	3/2⁻	24.210	1/2⁻	M1+E2	0.60[b] *3*	15.1 *3*		α(K)=8.22 *22*; α(L)=5.3 *3*; α(M)=1.27 *7*; α(N+..)=0.326 *18* α(N)=0.291 *16*; α(O)=0.0348 *17*; α(P)=0.000523 *13* α(L)exp=4.7 *3* (1977Ar17); L1:L2:L3:M1:M2:M3:N= 75 *7*:130 *15*:130 *10*:≈20:≈40:≈40:19 *2* (1977Ar17); L1:L2:L3=100:161 *5*:164 *5* (1987BaZB).
70.880[@] *6*	7.27 *13*	70.880	9/2⁺	0.0	7/2⁺	M1+E2	−0.31[c] *+15−26*	9.4 *6*		α(K)=7.1 *10*; α(L)=1.8 *12*; α(M)=0.4 *3*; α(N+..)=0.11 *8* α(N)=0.10 *7*; α(O)=0.013 *8*; α(P)=0.00043 *6* α(K)exp=6.4 *9* (1978Ba73), 7.2 *11* (1977Ar17); K:L1:L2:L3:M1:M2:M3= 1220 *150*:170 *20*:80 *15*:50 *10*:37 *7*:19 *3*:11.5 *20* (1977Ar17); L1:L2:L3=100:46.9 *13*:34.4 *7* (1987BaZB).
75.036 *6*	1.30 *3*	99.250	5/2⁻	24.210	1/2⁻	E2		10.05		α(K)=1.619 *23*; α(L)=6.44 *9*; α(M)=1.591 *23*; α(N+..)=0.404 *6* α(N)=0.362 *5*; α(O)=0.0412 *6*; α(P)=8.18×10^{-5} *12* Mult.: from ce subshell ratios (1973Bo38,1977Ar17). α(K)exp=1.4 *3* (1978Ba73); K:L1:L2:L3:M1:M2:M3:N:O= 50 *9*:5.0:83:85:1.33:26.6:26.6:13.3:3.3 (1973Bo38); K:L1:L2:L3=≤50:5.5 *5*:95 *3*:100 (1977Ar17).
87.377[@] *4*	10.50 *19*	278.594	7/2⁻	191.216	5/2⁻	M1+E2	−0.23[b] *2*	5.00		α(K)=4.01 *7*; α(L)=0.763 *24*; α(M)=0.175 *6*; α(N+..)=0.0465 *15* α(N)=0.0407 *14*; α(O)=0.00556 *16*; α(P)=0.000245 *4* δ: sign from δ=−0.14 *+7−24* from γγ(θ) (1980Bu24).

From ENSDF

γ(^{169}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=3.5 *5* (1978Ba73), 4.0 *5* (1977Ar17); K:L1:L2:L3:M1:M2:M3= 1050 *100*:160 *12*:32 *3*:24 *3*:32 *3*:8.7 *7*:5.7 *10* (1977Ar17); L1:L2:L3=100:21.3 *9*:16.4 *5* (1987BaZB).
90.764[@] *4*	2.38 *5*	161.645	11/2$^+$	70.880	9/2$^+$	M1+E2	−0.26[b] *3*	4.47	α(K)=3.57 *7*; α(L)=0.70 *3*; α(M)=0.161 *8*; α(N+..)=0.0428 *20* α(N)=0.0375 *18*; α(O)=0.00509 *20*; α(P)=0.000217 *4* δ: sign from nuclear orientation (δ=−0.3 *+3−6*, 1982Da23); δ<0 supported by δ= −0.40 *9* from ^{167}Er(α,2nγ)). α(K)exp=3.0 *3* (1978Ba73), 3.0 *6* (1977Ar17); K:L1:L2:L3:M1:M2:N:O= 66 *11*:10:2.5:<0.83:2.5:0.66:0.83:0.17 (1973Bo38); K:L1:L2:L3=190 *15*:27 *2*:8.1 *10*:4.5 *7* (1977Ar17).
91.965[@] *3*	2.56 *5*	191.216	5/2$^-$	99.250	5/2$^-$	M1(+E2)	−0.2[c] *+4−3*	4.30 *7*	α(K)=3.5 *4*; α(L)=0.6 *3*; α(M)=0.14 *8*; α(N+..)=0.038 *20* α(N)=0.033 *18*; α(O)=0.0046 *19*; α(P)=0.00021 *3* α(K)exp=3.63 *8* (1977Ar17); K:L1:L2:L3:M1:M2:N= 133 *20*:16.6:3.3:<0.66:5.0:0.83:1.33 (1973Bo38); K:L1:L2=240 *30*:31 *4*:4.3 *15* (1977Ar17).
104.293[@] *9*	2.04 *7*	191.216	5/2$^-$	86.927	3/2$^-$	M1(+E2)	−0.55[c] *+65−20*	2.93 *7*	α(K)=2.1 *4*; α(L)=0.61 *23*; α(M)=0.14 *6*; α(N+..)=0.038 *14* α(N)=0.033 *13*; α(O)=0.0043 *14*; α(P)=0.00013 *3* Mult.: from ce subshell ratios (1977Ar17). α(K)exp=2.0 *4* (1978Ba73), 1.9 *3* (1977Ar17); K:L1:L2:M= 140 *10*:18.3 *14*:1.7 *3*:≈4.6 (1977Ar17); K:L1:L2:L3:M1:M2:N:O= 108 *20*:19.9:2.0:0.20:6.64:0.66:1.66:0.50 (1973Bo38).
108.004[@] *25*	0.353 *18*	269.628	13/2$^+$	161.645	11/2$^+$	M1+E2	−1.0[b] *+6−4*	2.55 *12*	α(K)=1.6 *5*; α(L)=0.8 *3*; α(M)=0.18 *8*; α(N+..)=0.047 *19* α(N)=0.042 *18*; α(O)=0.0051 *19*; α(P)=9.E−5 *4* δ: sign from Adopted Gammas. α(K)exp=1.6 *3* (1978Ba73); K:L1:L2:L3:M1:M2:N= 150 *23*:23.2:8.3:2.3:6.6:1.7:1.7 (1973Bo38).
110.924[@] *4*	7.48 *18*	389.523	9/2$^-$	278.594	7/2$^-$	M1+E2	−0.17[c] *+7−8*	2.50	α(K)=2.06 *5*; α(L)=0.341 *23*; α(M)=0.077 *6*; α(N+..)=0.0207 *15* α(N)=0.0180 *13*; α(O)=0.00253 *14*; α(P)=0.000125 *4* δ: other values: −0.28 *+9−8* ($\gamma\gamma(\theta)$, 1980Bu24), −0.11 *+16−25* (from ^{167}Er(α,2nγ)). α(K)exp=1.55 *25* (1978Ba73); K:L1:L2:L3:M1:M2:M3:N:O= 32 *5*:4.2:0.75:0.22:1.0:0.18:0.07:0.25:0.066 (1973Bo38).
133.540 *5*	0.843 *22*	523.066	11/2$^-$	389.523	9/2$^-$	M1+E2	−0.20 *+10−12*	1.46 *3*	α(K)=1.21 *5*; α(L)=0.198 *15*; α(M)=0.045 *4*; α(N+..)=0.0120 *10* α(N)=0.0105 *9*; α(O)=0.00147 *9*; α(P)=7.3×10^{-5} *4* δ: from Adopted Gammas; other value: −0.02 *22* (nuclear

From ENSDF

γ(^{169}Yb) (continued)

E_γ [†]	I_γ [†f]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [‡]	δ [‡]	α [g]	Comments
									orientation, 1982Da23). α(K)exp=1.3 *2* (1978Ba73); K:L1:L2:L3:M1:M2:N= 300 *50*:36:6.6:1.3:8.3:1.7:2.5 (1973Bo38).
144.576[@] *7*	2.41 *6*	243.827	7/2$^-$	99.250	5/2$^-$	M1+E2	+0.52[c] *+12−9*	1.10 *4*	α(K)=0.86 *5*; α(L)=0.186 *14*; α(M)=0.043 *4*; α(N+..)=0.0114 *9* α(N)=0.0100 *8*; α(O)=0.00133 *8*; α(P)=5.1×10^{-5} *4* Other δ: 0.42 *3* (ce subshell ratios, 1987BaZB). α(K)exp=0.80 *15* (1978Ba73); K:L1:L2:L3:M1:M2:N= 515 *90*:73:11.6:5:18.3:3.3:5.0 (1973Bo38); L1:L2:L3=100:27.0 *22*:16.7 *22* (1987BaZB).
156.901 *4*	6.01 *11*	243.827	7/2$^-$	86.927	3/2$^-$	E2		0.616	α(K)=0.326 *5*; α(L)=0.222 *4*; α(M)=0.0541 *8*; α(N+..)=0.01385 *20* α(N)=0.01238 *18*; α(O)=0.001461 *21*; α(P)=1.443×10^{-5} *21* Mult.: from ce subshell ratios (1973Bo38). α(K)exp=0.28 *5* (1978Ba73), 0.30 *4* (1977Ar17); K:L1:L2:L3:M1:M2:M3:N:O= 432 *83*:50:99.6:66.4:11.6:2.5:16.6:13.3:3.3 (1973Bo38).
161.659 *15*	0.74 *4*	161.645	11/2$^+$	0.0	7/2$^+$	E2		0.555	α(K)=0.300 *5*; α(L)=0.195 *3*; α(M)=0.0475 *7*; α(N+..)=0.01217 *17* α(N)=0.01087 *16*; α(O)=0.001287 *18*; α(P)=1.337×10^{-5} *19* Mult.: from ce subshell ratios (1973Bo38). α(K)exp=0.38 *10* (1978Ba73); K:L1:L2:L3:M1:M2:M3:N= 76 *16*:6.6:20:15:1.7:5:3.3:2.5 (1973Bo38).
165.020 *7*	8.41 *16*	264.272	9/2$^-$	99.250	5/2$^-$	E2		0.517	α(K)=0.284 *4*; α(L)=0.1783 *25*; α(M)=0.0434 *6*; α(N+..)=0.01114 *16* α(N)=0.00995 *14*; α(O)=0.001179 *17*; α(P)=1.268×10^{-5} *18* Mult.: from ce subshell ratios (1973Bo38). α(K)exp=0.24 *5* (1978Ba73), 0.28 *4* (1977Ar17); K:L1:L2:L3:M1:M2:M3:N:O= 531 *90*:55:222:178:13.3:56.4:50:25.0:6.6 (1973Bo38).
166.509 *19*	0.546 *25*	1449.781	7/2$^-$	1283.282	(7/2,9/2)$^-$	M1+E2	+0.5[c] *3*	0.73 *6*	α(K)=0.59 *8*; α(L)=0.115 *14*; α(M)=0.026 *4*; α(N+..)=0.0070 *9* α(N)=0.0062 *9*; α(O)=0.00083 *8*; α(P)=3.5×10^{-5} *6* α(K)exp=0.52 *14* (1978Ba73); K:L1:L2:L3:M1:M2:M3= 75 *17*:10:26.6:21.6:2.5:6.6:5 (1973Bo38).
191.217[@] *5*	88 *2*	191.216	5/2$^-$	0.0	7/2$^+$	E1+M2	−0.017[c] *16*	0.0631 *25*	α(K)=0.0527 *20*; α(L)=0.0081 *5*; α(M)=0.00181 *10*; α(N+..)=0.00048 *3*

From ENSDF

$^{169}_{70}$Yb$_{99}$-9

γ(^{169}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)=0.000419 *24*; α(O)=5.7×10^{-5} *4*; α(P)=2.57×10^{-6} *16* Mult.: from α(K)exp=0.046 *10* (1978Ba73) and K:L1:L2:L3:M1:M2:M3:N:O= 108 *20*:18.6:2.7:2.7:5:0.7:0.7:0.15:0.35 (1973Bo38). α(K)exp=0.59 *9* (1977Ar17) is presumed to Be erroneous. δ: −0.058 *9* from nuclear orientation (1982Da23) but <0.042 from α(K)exp=0.046 *10* (1978Ba73). B(M2)(W.u.)≤1.0 (from RUL) implies δ≤0.033, so evaluator adopts δ=−0.017 *16*.
198.26 *12*	3.28 *11*	389.523	9/2$^-$	191.216	5/2$^-$	E2		0.276	α(K)=0.1690 *24*; α(L)=0.0823 *12*; α(M)=0.0199 *3*; α(N+..)=0.00512 *8* α(N)=0.00457 *7*; α(O)=0.000550 *8*; α(P)=7.88×10^{-6} *11* α(K)exp=0.13 *3* (1978Ba73); K:L2:L3:M1:M2= 111 *20*:30:21.6:8.3:5 (1973Bo38).
198.727[@] *25*	0.18[&] *4*	269.628	13/2$^+$	70.880	9/2$^+$	[E2]		0.274	α(K)=0.1679 *24*; α(L)=0.0815 *12*; α(M)=0.0197 *3*; α(N+..)=0.00508 *8* α(N)=0.00452 *7*; α(O)=0.000545 *8*; α(P)=7.84×10^{-6} *11* α(K)exp=0.032 *15*, deduced from Iγ and I(ce(K))=0.0058 *25* (1978Ba73); inconsistent with α(K)(theory)=0.168 for required E2 multipolarity.
207.727[@] *25*	1.84 *6*	278.594	7/2$^-$	70.880	9/2$^+$	E1(+M2)	−0.09[c] *+14−16*	0.07 *11*	α(K)=0.06 *9*; α(L)=0.009 *19*; α(M)=0.002 *5*; α(N+..)=0.0006 *12* α(N)=0.0005 *11*; α(O)=7.E−5 *15*; α(P)=3.E−6 *8* α(K)exp=0.034 *17* (1978Ba73).
222.70[#] *6*	0.14[#] *7*	487.031	(11/2$^-$)	264.272	9/2$^-$				α(K)exp=0.07 *5* (1978Ba73).
225.86 *3*	0.30 *15*	748.923	(9/2)$^-$	523.066	11/2$^-$				α(K)exp=0.06 *5*.
227.892 *18*	0.92 *17*	389.523	9/2$^-$	161.645	11/2$^+$	[E1]		0.0396	α(K)=0.0332 *5*; α(L)=0.00499 *7*; α(M)=0.001113 *16*; α(N+..)=0.000296 *5* α(N)=0.000259 *4*; α(O)=3.55×10^{-5} *5*; α(P)=1.637×10^{-6} *23*
243.207 *12*	0.92 *20*	487.031	(11/2$^-$)	243.827	7/2$^-$	(E2)		0.1420	α(K)=0.0948 *14*; α(L)=0.0362 *5*; α(M)=0.00869 *13*; α(N+..)=0.00225 *4* α(N)=0.00200 *3*; α(O)=0.000246 *4*; α(P)=4.64×10^{-6} *7* α(K)exp=0.074 *26*.
244.474[@] *5*	0.82 *15*	523.066	11/2$^-$	278.594	7/2$^-$	(E2)		0.1395	α(K)=0.0934 *13*; α(L)=0.0355 *5*; α(M)=0.00850 *12*; α(N+..)=0.00220 *3* α(N)=0.00196 *3*; α(O)=0.000240 *4*; α(P)=4.57×10^{-6} *7* α(K)exp=0.12 *5*.
247.2 *3*	0.24 *8*	1167.74	(7/2,9/2)$^-$	919.80	(9/2)$^-$	M1+E2	1.0 *+28−8*	0.20 *6*	α(K)=0.16 *7*; α(L)=0.0338 *6*; α(M)=0.0078 *4*; α(N+..)=0.00207 *5*

$\gamma(^{169}$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)=0.00182 *6*; α(O)=0.000241 *11*; α(P)=9.E−6 *5* I_γ: deduced from Iγ=0.39 *7* for 247.2γ+247.8γ, separate Ice components for doublet (1978Ba73), and known E2 multipolarity for 247.8γ. α(K)exp=0.16 *6*.
247.766[#] *15*	0.15 *3*	512.039	(13/2)$^-$	264.272	9/2$^-$	E2[a]		0.1337	α(K)=0.0899 *13*; α(L)=0.0337 *5*; α(M)=0.00806 *12*; α(N+..)=0.00209 *3* α(N)=0.00186 *3*; α(O)=0.000228 *4*; α(P)=4.42×10^{-6} *7* I_γ: see comment with 247.2γ from 1168 level.
258.331 *19*	1.45 *6*	647.847	7/2$^-$	389.523	9/2$^-$	M1+E2	+1.6 *+33−7*	0.15 *4*	α(K)=0.11 *4*; α(L)=0.0289 *5*; α(M)=0.00679 *11*; α(N+..)=0.00178 *3* α(N)=0.001572 *23*; α(O)=0.000203 *9*; α(P)=6.2×10^{-6} *22* δ: sign from δ=+0.12 *+25−21* in nuclear orientation (1982Da23). α(K)exp=0.12 *3*.
272.66[i@] *16*	0.12[i&] *4*	919.80	(9/2)$^-$	647.34	7/2$^+$				α(K)exp=0.017 *9*.
272.66[i] *16*	0.25[i] *8*	1343.57	(7/2)$^-$	1070.77	7/2$^+$				I_γ: deduced from Iγ(272.1γ+272.7γ)=0.37 *6* and Iγ(272.1γ)=0.12 *4*. α(K)exp=0.017 *9* for doublet.
278.60 *4*	0.56 *4*	278.594	7/2$^-$	0.0	7/2$^+$	(E1)		0.0239	α(K)=0.0201 *3*; α(L)=0.00298 *5*; α(M)=0.000663 *10*; α(N+..)=0.0001765 *25* α(N)=0.0001542 *22*; α(O)=2.13×10^{-5} *3*; α(P)=1.011×10^{-6} *15* α(K)exp=0.022 *11* (1978Ba73).
291.234[@] *19*	1.90 *7*	569.837	5/2$^-$	278.594	7/2$^-$	M1+E2	−0.10[c] *9*	0.170 *4*	α(K)=0.142 *3*; α(L)=0.0214 *4*; α(M)=0.00479 *7*; α(N+..)=0.001294 *19* α(N)=0.001124 *16*; α(O)=0.0001608 *25*; α(P)=8.58×10^{-6} *19* δ: sign from δ=−0.17 *+6−8* from $\gamma\gamma(\theta)$ (1980Bu24). Other δ: +0.10 *9* (1982Da23, nuclear orientation). α(K)exp=0.18 *4*.
318.70 *7*	0.384 *18*	389.523	9/2$^-$	70.880	9/2$^+$	(E1)		0.01720	α(K)=0.01447 *21*; α(L)=0.00212 *3*; α(M)=0.000473 *7*; α(N+..)=0.0001261 *18* α(N)=0.0001101 *16*; α(O)=1.528×10^{-5} *22*; α(P)=7.37×10^{-7} *11* α(K)exp=0.024 *12* (1978Ba73).
[x]357.10 *20*	0.20 *10*								α(K)exp=0.024 *17*.
359.38 *7*	0.71 *4*	748.923	(9/2)$^-$	389.523	9/2$^-$	(M1+E2)	1.5 *+15−6*	0.060 *14*	α(K)=0.048 *12*; α(L)=0.0097 *9*; α(M)=0.00223 *18*; α(N+..)=0.00059 *6* α(N)=0.00052 *5*; α(O)=6.9×10^{-5} *8*; α(P)=2.7×10^{-6} *8* δ: other value: −0.44≤δ≤+2.04 (nuclear orientation, 1982Da23). α(K)exp=0.049 *11*.

γ(^{169}Yb) (continued)

E_γ †	I_γ †f	E_i(level)	J^π_i	E_f	J^π_f	Mult.‡	δ‡	α g	Comments
369.251@ *15*	3.58 *9*	647.847	7/2⁻	278.594	7/2⁻	M1+E2	−0.02c *5*	0.0904	α(K)=0.0759 *11*; α(L)=0.01131 *16*; α(M)=0.00253 *4*; α(N+..)=0.000683 *10* α(N)=0.000593 *9*; α(O)=8.50×10^{-5} *12*; α(P)=4.57×10^{-6} *7* α(K)exp=0.076 *6*.
378.632@ *11*	9.01 *23*	569.837	5/2⁻	191.216	5/2⁻	M1(+E2)	−0.04c *6*	0.0845 *13*	α(K)=0.0710 *11*; α(L)=0.01057 *15*; α(M)=0.00236 *4*; α(N+..)=0.000638 *9* α(N)=0.000555 *8*; α(O)=7.95×10^{-5} *12*; α(P)=4.27×10^{-6} *7* α(K)exp=0.065 *5*.
383.59 *5*	0.32 *5*	647.847	7/2⁻	264.272	9/2⁻	[M1,E2]		0.059 *23*	α(K)=0.048 *21*; α(L)=0.0085 *17*; α(M)=0.0019 *4*; α(N+..)=0.00052 *10* α(N)=0.00045 *9*; α(O)=6.2×10^{-5} *15*; α(P)=2.8×10^{-6} *14*
389.57 *5*	0.63 *3*	389.523	9/2⁻	0.0	7/2⁺	(E1)		0.01066	α(K)=0.00899 *13*; α(L)=0.001303 *19*; α(M)=0.000290 *4*; α(N+..)=7.74×10^{-5} *11* α(N)=6.75×10^{-5} *10*; α(O)=9.43×10^{-6} *14*; α(P)=4.66×10^{-7} *7* Mult.: δ=+0.03 *21* (nuclear orientation, 1982Da23) suggests possible M2 admixture. α(K)exp=0.013 *2* (1978Ba73).
403.98 *4*	0.53 *4*	647.847	7/2⁻	243.827	7/2⁻	(M1)		0.0714	α(K)=0.0599 *9*; α(L)=0.00890 *13*; α(M)=0.00199 *3*; α(N+..)=0.000537 *8* α(N)=0.000467 *7*; α(O)=6.69×10^{-5} *10*; α(P)=3.60×10^{-6} *5* α(K)exp=0.056 *6*.
406.03h *7*	0.181h *16*	929.17	11/2⁻	523.066	11/2⁻				α(K)exp=0.051 *7* for doublet.
406.03h *7*	0.181h *16*	1689.290	7/2⁻	1283.282	(7/2,9/2)⁻				α(K)exp=0.0051 *7* for doublet.
419.39 *8*	0.155 *14*	1973.97	7/2⁻	1554.876	9/2⁻				
423.53@ *6*	0.121 *14*	1070.77	7/2⁺	647.34	7/2⁺	M1		0.0630	α(K)=0.0529 *8*; α(L)=0.00786 *11*; α(M)=0.001754 *25*; α(N+..)=0.000474 *7* α(N)=0.000412 *6*; α(O)=5.90×10^{-5} *9*; α(P)=3.18×10^{-6} *5* α(K)exp=0.066 *14*.
x427.81 *3*	0.251 *16*					M1		0.0614	α(K)=0.0516 *8*; α(L)=0.00765 *11*; α(M)=0.001708 *24*; α(N+..)=0.000462 *7* α(N)=0.000401 *6*; α(O)=5.75×10^{-5} *8*; α(P)=3.10×10^{-6} *5* α(K)exp=0.049 *10*. placed by 1992Dz03 from 1071 level to an otherwise unknown 643 level deexcited only by two γ's already placed elsewhere.

$^{169}_{70}$Yb$_{99}$-12

γ(^{169}Yb) (continued)

E_γ [†]	I_γ [†f]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [‡]	δ [‡]	α [g]	Comments
432.27 7	0.118 13	1343.57	(7/2)$^-$	911.38	(5/2)$^-$	M1+E2	1.2 +43−7	0.040 14	α(K)=0.032 12; α(L)=0.0058 11; α(M)=0.00132 23; α(N+..)=0.00035 7 α(N)=0.00031 6; α(O)=4.2×10^{-5} 9; α(P)=1.9×10^{-6} 8 α(K)exp=0.033 12.
[x]452.42 8	0.29 4								placed by 1992Dz03 from 1071 level to an otherwise unknown 618 level deexcited by two γ's already placed elsewhere.
456.621[@] 27	3.05 14	647.847	7/2$^-$	191.216	5/2$^-$	M1(+E2)	−0.09[c] 9	0.0516 10	α(K)=0.0433 9; α(L)=0.00642 11; α(M)=0.001434 24; α(N+..)=0.000387 7 α(N)=0.000337 6; α(O)=4.82×10^{-5} 9; α(P)=2.60×10^{-6} 6 δ: other value: −0.24 +10−9 (γγ(θ), 1980Bu24). α(K)exp=0.038 6.
466.93 21	0.20 5	1427.12	(7/2,9/2)$^-$	960.612	7/2$^-$	(E2)		0.0213	α(K)=0.01658 24; α(L)=0.00363 6; α(M)=0.000843 12; α(N+..)=0.000222 4 α(N)=0.000196 3; α(O)=2.58×10^{-5} 4; α(P)=9.03×10^{-7} 13 α(K)exp=0.020 10.
470.47[i] 3	0.46[i] 5	569.837	5/2$^-$	99.250	5/2$^-$				I_γ: deduced from total Iγ=2.33 13 and requirement that I(470γ from 570 level)/I(379γ) and I(470γ from 749 level)/I(360γ) should be identical In ε decay and (n,γ) E=thermal. α(K)exp=0.042 10 for doublet.
470.47[i] 3	1.87[i] 26	748.923	(9/2)$^-$	278.594	7/2$^-$	M1		0.0479	α(K)=0.0403 6; α(L)=0.00596 9; α(M)=0.001329 19; α(N+..)=0.000359 5 α(N)=0.000312 5; α(O)=4.48×10^{-5} 7; α(P)=2.41×10^{-6} 4 See comment on 470γ from 570 level.
476.38 15	0.13 3	1283.282	(7/2,9/2)$^-$	807.079	(7/2)$^-$				α(K)exp=0.036 18.
480.00 8	0.68 8	1070.77	7/2$^+$	590.67	(5/2)$^+$	(M1)		0.0455	α(K)=0.0382 6; α(L)=0.00565 8; α(M)=0.001261 18; α(N+..)=0.000341 5 α(N)=0.000296 5; α(O)=4.25×10^{-5} 6; α(P)=2.29×10^{-6} 4 α(K)exp=0.050 8.
482.84 4	0.63 3	569.837	5/2$^-$	86.927	3/2$^-$	M1		0.0448	α(K)=0.0377 6; α(L)=0.00556 8; α(M)=0.001241 18; α(N+..)=0.000336 5 α(N)=0.000292 4; α(O)=4.18×10^{-5} 6; α(P)=2.26×10^{-6} 4 α(K)exp=0.038 7.
484.65 4	0.70 3	748.923	(9/2)$^-$	264.272	9/2$^-$	(M1)		0.0444	α(K)=0.0373 6; α(L)=0.00551 8; α(M)=0.001230 18; α(N+..)=0.000332 5 α(N)=0.000289 4; α(O)=4.14×10^{-5} 6; α(P)=2.23×10^{-6}

$^{169}_{70}$Yb$_{99}$-13

$\gamma(^{169}$Yb) (continued)

E_γ [†]	I_γ [†f]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [‡]	α [g]	Comments
								4 α(K)exp=0.032 *7*.
489.25 *6*	0.60 *7*	1449.781	7/2$^-$	960.612	7/2$^-$	M1	0.0433	α(K)=0.0364 *5*; α(L)=0.00538 *8*; α(M)=0.001200 *17*; α(N+..)=0.000324 *5* α(N)=0.000282 *4*; α(O)=4.04×10^{-5} *6*; α(P)=2.18×10^{-6} *3* α(K)exp=0.045 *7*.
^{x}492.25 *26*	0.20 *10*							α(K)exp=0.043 *25*.
502.8 *3*	0.59 *9*	1463.412	7/2$^-$	960.612	7/2$^-$	[M1,E2]	0.029 *12*	α(K)=0.024 *10*; α(L)=0.0040 *11*; α(M)=0.00089 *23*; α(N+..)=0.00024 *7* α(N)=0.00021 *6*; α(O)=2.9×10^{-5} *9*; α(P)=1.4×10^{-6} *7* I_γ: combined value for 502.8γ+505.4γ.
505.10 *17*	0.59 *9*	748.923	(9/2)$^-$	243.827	7/2$^-$	M1	0.0399	α(K)=0.0335 *5*; α(L)=0.00495 *7*; α(M)=0.001104 *16*; α(N+..)=0.000298 *5* α(N)=0.000259 *4*; α(O)=3.72×10^{-5} *6*; α(P)=2.01×10^{-6} *3* α(K)exp≥0.028 *9*. For 505.4γ+502.8γ; component from 1463 level, suggested by 1978Ba73, very weak. Relative branchings from 749 level in ^{168}Yb(n,γ) E=thermal imply more than Iγ=0.59 intensity here from this level if all Iγ for a 505.4γ in that data set deexcites the 749 level and evaluator presumes that the 504γ is a doublet In that reaction. I_γ: combined value for 502.8γ+505.4γ.
519.788 [i@] *15*	0.080 [i&] *15*	590.67	(5/2)$^+$	70.880	9/2$^+$	[E2]	0.01617	α(K)=0.01278 *18*; α(L)=0.00262 *4*; α(M)=0.000606 *9*; α(N+..)=0.0001602 *23* α(N)=0.0001408 *20*; α(O)=1.88×10^{-5} *3*; α(P)=7.03×10^{-7} *10* α(K)exp=0.0096 *28* for doublet. E_γ: from Adopted Gammas.
520.02 [i] *6*	0.21 [i] *3*	1167.74	(7/2,9/2)$^-$	647.847	7/2$^-$	(E2)	0.01617	α(K)=0.01278 *18*; α(L)=0.00262 *4*; α(M)=0.000606 *9*; α(N+..)=0.0001602 *23* α(N)=0.0001408 *20*; α(O)=1.88×10^{-5} *3*; α(P)=7.03×10^{-7} *10* I_γ: deduced from total Iγ(520γ)=0.293 *25* and Iγ=0.080 *15* for 591-level placement. α(K)exp=0.0096 *28* for doublet dominated by this transition.
529.7 *5*	0.20 *10*	919.80	(9/2)$^-$	389.523	9/2$^-$			Alternative placement from 1177 level, as suggested by 1980Ba07 and 1993Dz02, not likely. Relative branchings from 920 level in ^{168}Yb(n,γ) E=thermal require more than Iγ=0.20 here. α(K)exp=0.043 *25*.
539.37 *15*	0.40 *6*	929.17	11/2$^-$	389.523	9/2$^-$			
542.91 *13*	0.31 *4*	807.079	(7/2)$^-$	264.272	9/2$^-$	(M1)	0.0331	α(K)=0.0279 *4*; α(L)=0.00410 *6*; α(M)=0.000915 *13*; α(N+..)=0.000247 *4* α(N)=0.000215 *3*; α(O)=3.08×10^{-5} *5*; α(P)=1.666×10^{-6} *24* α(K)exp=0.045 *10*.

$^{169}_{70}$Yb$_{99}$-14

γ(^{169}Yb) (continued)

E_γ[†]	I_γ[†f]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	δ[‡]	α[g]	Comments
545.43[@] *7*	1.57 *10*	707.03	9/2+	161.645	11/2+	M1+E2	−0.12[c] *7*	0.0325 *6*	α(K)=0.0273 *5*; α(L)=0.00402 *7*; α(M)=0.000898 *15*; α(N+..)=0.000243 *4* α(N)=0.000211 *4*; α(O)=3.02×10^{-5} *6*; α(P)=1.63×10^{-6} *3* α(K)exp=0.027 *3*.
548.70[@] *5*	1.46 *8*	647.847	7/2−	99.250	5/2−	M1+E2	+0.53[c] *+13−10*	0.0283 *16*	α(K)=0.0237 *14*; α(L)=0.00361 *16*; α(M)=0.00081 *4*; α(N+..)=0.000218 *10* α(N)=0.000190 *8*; α(O)=2.69×10^{-5} *13*; α(P)=1.40×10^{-6} *9* α(K)exp=0.027 *3*.
[x]550.2 *3*	0.30 *15*								α(K)exp=0.024 *14*.
560.73[i@] *7*	0.42[i&] *3*	647.847	7/2−	86.927	3/2−	(E2)		0.01342	α(K)=0.01070 *15*; α(L)=0.00211 *3*; α(M)=0.000485 *7*; α(N+..)=0.0001285 *18* α(N)=0.0001128 *16*; α(O)=1.513×10^{-5} *22*; α(P)=5.92×10^{-7} *9* I_γ: deduced from total Iγ=0.533 *16* and Iγ=0.115 *26* for 659.6-level placement. Mult.,δ: M1+E2, δ=1.1 *3* from α(K)exp=0.021 *2* for doublet dominated by this transition; other component is known from (n,γ) to have α(K)exp>α(K)(M1) so mult=E2(+M1) is likely for this transition. An M1 component would Be inconsistent with level scheme.
560.73[i@] *7*	0.115[i&] *26*	659.52	3/2−	99.250	5/2−	(M1)		0.0305	α(K)=0.0257 *4*; α(L)=0.00378 *6*; α(M)=0.000842 *12*; α(N+..)=0.000228 *4* α(N)=0.000198 *3*; α(O)=2.84×10^{-5} *4*; α(P)=1.534×10^{-6} *22* Mult.: from Adopted Gammas. α(K)exp=0.021 *2* for doublet.
563.243 *15*	1.71 *10*	807.079	(7/2)−	243.827	7/2−	(E2)		0.01326	α(K)=0.01058 *15*; α(L)=0.00208 *3*; α(M)=0.000478 *7*; α(N+..)=0.0001266 *18* α(N)=0.0001111 *16*; α(O)=1.492×10^{-5} *21*; α(P)=5.85×10^{-7} *9* E_γ: from Adopted Gammas. Eγ=562.98 *5* In 1978Ba73. α(K)exp=0.0140 *15*.
569.79 *4*	0.62 *3*	569.837	5/2−	0.0	7/2+	[E1]		0.00457	α(K)=0.00387 *6*; α(L)=0.000547 *8*; α(M)=0.0001213 *17*; α(N+..)=3.25×10^{-5} *5* α(N)=2.83×10^{-5} *4*; α(O)=4.00×10^{-6} *6*; α(P)=2.05×10^{-7} *3* α(K)exp=0.008 *4*.
572.59[@] *12*	0.46 *6*	659.52	3/2−	86.927	3/2−	M1+E2	−0.7[c] *+4−6*	0.024 *5*	α(K)=0.020 *5*; α(L)=0.0030 *5*; α(M)=0.00068 *11*; α(N+..)=0.00018 *3*

$^{169}_{70}$Yb$_{99}$-15

γ(^{169}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)=0.000160 *25*; α(O)=2.3×10^{-5} *4*; α(P)=1.2×10^{-6} *3* α(K)exp=0.023 *6*.
576.42[@] *4*	3.01 *25*	647.34	7/2$^+$	70.880	9/2$^+$	M1+E2	+0.09[c] *4*	0.0283 *5*	α(K)=0.0238 *4*; α(L)=0.00350 *5*; α(M)=0.000780 *12*; α(N+..)=0.000211 *3* α(N)=0.000183 *3*; α(O)=2.63×10^{-5} *4*; α(P)=1.420×10^{-6} *22* α(K)exp=0.025 *3*.
587.44 *6*	0.27 *5*	1658.10	5/2$^+$	1070.77	7/2$^+$	M1		0.0271	α(K)=0.0228 *4*; α(L)=0.00334 *5*; α(M)=0.000746 *11*; α(N+..)=0.000202 *3* α(N)=0.0001751 *25*; α(O)=2.51×10^{-5} *4*; α(P)=1.359×10^{-6} *19* α(K)exp=0.023 *5*. placement from 1992Dz03; based on energy.
590.66[@] *3*	3.00 *16*	590.67	(5/2)$^+$	0.0	7/2$^+$	M1+E2	+0.34[c] *+8−7*	0.0252 *8*	α(K)=0.0211 *7*; α(L)=0.00314 *9*; α(M)=0.000702 *18*; α(N+..)=0.000190 *5* α(N)=0.000165 *5*; α(O)=2.36×10^{-5} *7*; α(P)=1.26×10^{-6} *5* α(K)exp=0.024 *3*.
613.9 *3*	0.15 *8*	1204.55		590.67	(5/2)$^+$				α(K)exp=0.015 *11*. placement from 1993Dz02.
617.682 *25*	1.01 *8*	1449.781	7/2$^-$	832.085	(7/2)$^+$	E1		0.00386	α(K)=0.00327 *5*; α(L)=0.000460 *7*; α(M)=0.0001019 *15*; α(N+..)=2.73×10^{-5} *4* α(N)=2.38×10^{-5} *4*; α(O)=3.36×10^{-6} *5*; α(P)=1.735×10^{-7} *25* α(K)exp=0.0040 *22*.
622.96 *5*	0.71 *6*	722.21	5/2$^-$	99.250	5/2$^-$	M1(+E2)		0.017[e] *7*	α(K)=0.014 *6*; α(L)=0.0022 *7*; α(M)=0.00050 *15*; α(N+..)=0.00013 *4* α(N)=0.00012 *4*; α(O)=1.6×10^{-5} *6*; α(P)=8.E−7 *4* Mult.: α(K)exp consistent with pure M1; $-0.10\le\delta\le+2.07$ (nuclear orientation, 1982Da23) suggests E2 admixture. α(K)exp=0.022 *3*.
[x]632.8 *3*	0.20 *10*								α(K)exp=0.012 *8*. 1978Ba73 proposed placement from 720 level, but transition is not seen in ^{168}Yb(n,γ) E=thermal despite intense population of the 720 level in that reaction.
632.8[@] *3*	0.34[&] *4*	911.38	(5/2)$^-$	278.594	7/2$^-$				α(K)exp=0.012 *8*. I_γ: 0.20 *10* from 1978Ba73.
635.410[h] *15*	<1.3[h]	659.52	3/2$^-$	24.210	1/2$^-$	M1		0.0222	α(K)=0.0187 *3*; α(L)=0.00273 *4*; α(M)=0.000609 *9*; α(N+..)=0.0001647 *23* α(N)=0.0001430 *20*; α(O)=2.05×10^{-5} *3*;

$^{169}_{70}$Yb$_{99}$-16

γ(^{169}Yb) (continued)

Eγ[†]	Iγ[†f]	Ei(level)	J^π_i	Ef	J^π_f	Mult.[‡]	δ[‡]	α[g]	Comments
									α(P)=1.112×10^{-6} *16* Eγ: from Adopted Gammas. Iγ: deduced from Iγ(635.4γ+636.1γ)=2.72 *9* and Iγ(636.1γ)=2.1 *7*. α(K)exp>0.03 from I(ce(K)) (1978Ba73) and Iγ here.
635.410[h] *15*	<1.3[h]	722.21	5/2⁻	86.927	3/2⁻	M1		0.0222	α(K)=0.0187 *3*; α(L)=0.00273 *4*; α(M)=0.000609 *9*; α(N+..)=0.0001647 *23* α(N)=0.0001430 *20*; α(O)=2.05×10^{-5} *3*; α(P)=1.112×10^{-6} *16* Eγ: from Adopted Gammas.
636.11[@] *7*	2.1[&] *7*	707.03	9/2⁺	70.880	9/2⁺	(M1+E2)	≈0.91	≈0.01659	α(K)≈0.01381; α(L)≈0.00216; α(M)≈0.000486; α(N+..)≈0.0001306 α(N)≈0.0001138; α(O)≈1.605×10^{-5}; α(P)≈8.09×10^{-7} Eγ: from Adopted Gammas. α(K)exp=0.008 from I(ce(K)) (1978Ba73) and Iγ here.
642.65 *8*	0.24 *4*	1449.781	7/2⁻	807.079	(7/2)⁻	(M1)		0.0216	α(K)=0.0181 *3*; α(L)=0.00265 *4*; α(M)=0.000592 *9*; α(N+..)=0.0001600 *23* α(N)=0.0001389 *20*; α(O)=1.99×10^{-5} *3*; α(P)=1.081×10^{-6} *16* α(K)exp=0.036 *11*.
647.33[@] *18*	1.23 *9*	647.34	7/2⁺	0.0	7/2⁺	M1+E2	+0.5[c] *+6−4*	0.019 *4*	α(K)=0.016 *4*; α(L)=0.0024 *5*; α(M)=0.00053 *9*; α(N+..)=0.000143 *25* α(N)=0.000124 *22*; α(O)=1.8×10^{-5} *4*; α(P)=9.3×10^{-7} *22* α(K)exp=0.016 *2*.
649.72 *12*	0.24 *3*	748.923	(9/2)⁻	99.250	5/2⁻				α(K)exp≤0.012.
655.61 *13*	0.69 *8*	919.80	(9/2)⁻	264.272	9/2⁻	(M1)		0.0205	α(K)=0.01725 *25*; α(L)=0.00252 *4*; α(M)=0.000562 *8*; α(N+..)=0.0001520 *22* α(N)=0.0001320 *19*; α(O)=1.89×10^{-5} *3*; α(P)=1.027×10^{-6} *15* α(K)exp=0.0164 *23*.
657.9[#j] *3*		929.17	11/2⁻	269.628	13/2⁺	(E1)[#]		0.00338	α(K)=0.00287 *4*; α(L)=0.000402 *6*; α(M)=8.91×10^{-5} *13*; α(N+..)=2.39×10^{-5} *4* α(N)=2.08×10^{-5} *3*; α(O)=2.95×10^{-6} *5*; α(P)=1.528×10^{-7} *22* Iγ: 0.81 *10* for 657.9γ+660.5γ doublet.
657.9 *3*	0.81 *10*	1406.35	9/2⁻	748.923	(9/2)⁻				α(K)exp≥0.016 *9*. Iγ: combined intensity for 657.9γ+660.5γ.
660.5[hdj] *5*	0.81[h] *10*	851.7?		191.216	5/2⁻				Iγ: combined intensity for 657.9γ+660.5γ.
664.69[hd] *8*	0.52[h] *5*	929.17	11/2⁻	264.272	9/2⁻	[E2(+M1)]		0.014 *6*	α(K)=0.012 *5*; α(L)=0.0019 *6*; α(M)=0.00042 *13*; α(N+..)=0.00011 *4* α(N)=0.00010 *3*; α(O)=1.4×10^{-5} *5*; α(P)=7.E−7 *3* α(K)exp=0.009 *3* (MULT.=E2(+M1)) for doubly-placed G.

$^{169}_{70}$Yb$_{99}$-17

γ(^{169}Yb) (continued)

E_γ[†]	I_γ[†f]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	δ[‡]	α[g]	Comments
664.69[hd] *8*	0.52[h] *5*	1427.12	(7/2,9/2)⁻	761.822	(5/2)⁺				α(K)exp=0.009 *3* (MULT.=E2(+M1)) for doubly-placed G.
667.59[@] *7*	0.31 *5*	911.38	(5/2)⁻	243.827	7/2⁻	M1[@]		0.0196	α(K)=0.01647 *23*; α(L)=0.00241 *4*; α(M)=0.000536 *8*; α(N+..)=0.0001449 *21* α(N)=0.0001259 *18*; α(O)=1.81×10⁻⁵ *3*; α(P)=9.80×10⁻⁷ *14*
670.39 *3*	0.90 *9*	832.085	(7/2)⁺	161.645	11/2⁺	E2		0.00878	α(K)=0.00712 *10*; α(L)=0.001288 *18*; α(M)=0.000294 *5*; α(N+..)=7.82×10⁻⁵ *11* α(N)=6.85×10⁻⁵ *10*; α(O)=9.33×10⁻⁶ *13*; α(P)=3.98×10⁻⁷ *6* α(K)exp=0.0079 *27*.
675.90 *11*	0.32 *4*	919.80	(9/2)⁻	243.827	7/2⁻	M1		0.0190	α(K)=0.01598 *23*; α(L)=0.00233 *4*; α(M)=0.000520 *8*; α(N+..)=0.0001406 *20* α(N)=0.0001221 *18*; α(O)=1.753×10⁻⁵ *25*; α(P)=9.51×10⁻⁷ *14* α(K)exp=0.022 *8*.
682.1 *3*	0.09 *4*	960.612	7/2⁻	278.594	7/2⁻				α(K)exp=0.007 *4*.
687.93 *4*	1.15 *6*	1449.781	7/2⁻	761.822	(5/2)⁺	(E1(+M2))	+0.01[c] *8*	0.0031 *4*	α(K)=0.0026 *4*; α(L)=0.00037 *6*; α(M)=8.1×10⁻⁵ *12*; α(N+..)=2.2×10⁻⁵ *4* α(N)=1.9×10⁻⁵ *3*; α(O)=2.7×10⁻⁶ *4*; α(P)=1.40×10⁻⁷ *21* Mult.: from nuclear orientation, with Δπ=yes from decay scheme.
690.87 *3*	2.05 *10*	761.822	(5/2)⁺	70.880	9/2⁺	(E2)		0.00820	α(K)=0.00667 *10*; α(L)=0.001190 *17*; α(M)=0.000271 *4*; α(N+..)=7.22×10⁻⁵ *11* α(N)=6.32×10⁻⁵ *9*; α(O)=8.63×10⁻⁶ *12*; α(P)=3.73×10⁻⁷ *6* α(K)exp=0.0078 *7*.
701.04 *24*	0.25 *5*	1449.781	7/2⁻	748.923	(9/2)⁻				
703.33 *10*	0.52 *6*	1781.696	7/2⁻	1078.335	9/2⁻	M1		0.01716	α(K)=0.01446 *21*; α(L)=0.00211 *3*; α(M)=0.000470 *7*; α(N+..)=0.0001270 *18* α(N)=0.0001103 *16*; α(O)=1.584×10⁻⁵ *23*; α(P)=8.59×10⁻⁷ *12* α(K)exp=0.019 *7*.
707.94[@] *6*	1.48 *9*	807.079	(7/2)⁻	99.250	5/2⁻	M1+E2	+0.30[c] *13*	0.0161 *7*	α(K)=0.0136 *7*; α(L)=0.00200 *8*; α(M)=0.000445 *17*; α(N+..)=0.000120 *5* α(N)=0.000104 *4*; α(O)=1.50×10⁻⁵ *6*; α(P)=8.1×10⁻⁷ *4* α(K)exp=0.016 *4*.
720.00 *8*	0.89 *8*	720.00	3/2⁺	0.0	7/2⁺	E2		0.00747	α(K)=0.00609 *9*; α(L)=0.001070 *15*; α(M)=0.000243 *4*; α(N+..)=6.48×10⁻⁵ *9*

$^{169}_{70}$Yb$_{99}$-18

γ(^{169}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)=5.67×10^{-5} *8*; α(O)=7.77×10^{-6} *11*; α(P)=3.41×10^{-7} *5* α(K)exp=0.0077 *10*.
725.07 *7*	1.40 *7*	886.80	9/2$^+$	161.645	11/2$^+$	M1+E2	1.1 *3*	0.0112 *14*	α(K)=0.0093 *12*; α(L)=0.00146 *15*; α(M)=0.00033 *4*; α(N+..)=8.8×10^{-5} *9* α(N)=7.7×10^{-5} *8*; α(O)=1.08×10^{-5} *12*; α(P)=5.4×10^{-7} *8* α(K)exp=0.0095 *8*.
728.73 *6*	1.04 *6*	1689.290	7/2$^-$	960.612	7/2$^-$	(M1)		0.01570	α(K)=0.01323 *19*; α(L)=0.00193 *3*; α(M)=0.000429 *6*; α(N+..)=0.0001160 *17* α(N)=0.0001008 *15*; α(O)=1.447×10^{-5} *21*; α(P)=7.86×10^{-7} *11* α(K)exp=0.0155 *16*.
760.95[@] *4*	0.9 *5*	832.085	(7/2)$^+$	70.880	9/2$^+$	M1+E2	0.8 *3*	0.0112 *15*	α(K)=0.0094 *13*; α(L)=0.00142 *16*; α(M)=0.00032 *4*; α(N+..)=8.5×10^{-5} *10* α(N)=7.4×10^{-5} *8*; α(O)=1.06×10^{-5} *12*; α(P)=5.5×10^{-7} *8* E_γ: from Adopted Gammas. Eγ=761.35 *3* In 1978Ba73. I_γ: deduced from Iγ(761.0γ+761.9γ)=3.11 *26* and Iγ(761.9γ)=2.2 *4*. α(K)exp=0.0095 *10* for doublet.
761.864[@] *25*	2.2[&] *4*	761.822	(5/2)$^+$	0.0	7/2$^+$	M1+E2	0.8 *2*	0.0111 *10*	α(K)=0.0093 *9*; α(L)=0.00141 *11*; α(M)=0.000316 *23*; α(N+..)=8.5×10^{-5} *6* α(N)=7.4×10^{-5} *6*; α(O)=1.05×10^{-5} *8*; α(P)=5.5×10^{-7} *5* E_γ: from Adopted Gammas. Eγ=761.35 *3* In 1978Ba73. α(K)exp=0.0095 *10*.
767.55 *4*	1.46 *12*	929.17	11/2$^-$	161.645	11/2$^+$	E1+M2	−0.17[c] *+12−10*	0.0034 *14*	α(K)=0.0029 *12*; α(L)=0.00042 *19*; α(M)=9.E−5 *5*; α(N+..)=2.5×10^{-5} *12* α(N)=2.2×10^{-5} *10*; α(O)=3.1×10^{-6} *15*; α(P)=1.7×10^{-7} *8* α(K)exp=0.0029 *4*.
782.6[d] *3*	0.20 *10*	1061.2		278.594	7/2$^-$				α(K)exp=0.032 *20*.
^{x}792.5 *5*	0.10 *5*								α(K)exp=0.039 *27*.
796.93 *7*	0.34 *7*	1444.75	7/2$^-$,9/2$^-$	647.847	7/2$^-$	E2		0.00597	α(K)=0.00491 *7*; α(L)=0.000829 *12*; α(M)=0.000188 *3*; α(N+..)=5.01×10^{-5} *7* α(N)=4.38×10^{-5} *7*; α(O)=6.05×10^{-6} *9*; α(P)=2.75×10^{-7} *4* α(K)exp=0.0049 *13*.
802.34 *4*	1.13 *9*	1449.781	7/2$^-$	647.34	7/2$^+$				α(K)exp≤0.004.
815.95 *4*	0.91 *4*	886.80	9/2$^+$	70.880	9/2$^+$	M1+E2	−0.80[c] *+17−24*	0.0094 *8*	α(K)=0.0079 *7*; α(L)=0.00119 *9*; α(M)=0.000266 *20*; α(N+..)=7.2×10^{-5} *6* α(N)=6.2×10^{-5} *5*; α(O)=8.9×10^{-6} *7*; α(P)=4.6×10^{-7} *5* α(K)exp=0.0084 *9*.

γ(^{169}Yb) (continued)

E_γ[†]	I_γ[†f]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	δ[‡]	α[g]	Comments
817.6[#] 4	0.90[#] 4	1888.00	(7/2+,9/2+)	1070.77	7/2+				
821.18 4	1.35 5	1781.696	7/2−	960.612	7/2−	M1+E2	+0.13[c] +31−13	0.0115 9	α(K)=0.0097 8; α(L)=0.00141 10; α(M)=0.000315 22; α(N+..)=8.5×10^{-5} 6 α(N)=7.4×10^{-5} 5; α(O)=1.06×10^{-5} 8; α(P)=5.8×10^{-7} 5 α(K)exp=0.0118 10.
824.70[@] 17	0.15 4	911.38	(5/2)−	86.927	3/2−	(M1)		0.01153	α(K)=0.00972 14; α(L)=0.001409 20; α(M)=0.000314 5; α(N+..)=8.49×10^{-5} 12 α(N)=7.37×10^{-5} 11; α(O)=1.059×10^{-5} 15; α(P)=5.76×10^{-7} 8 α(K)exp=0.015 5.
832.01 9	0.29 4	832.085	(7/2)+	0.0	7/2+	(M1)		0.01128	α(K)=0.00951 14; α(L)=0.001378 20; α(M)=0.000307 5; α(N+..)=8.30×10^{-5} 12 α(N)=7.21×10^{-5} 10; α(O)=1.035×10^{-5} 15; α(P)=5.63×10^{-7} 8 α(K)exp=0.0085 12.
847.9[dj] 7	0.10 5	2296.78?	5/2−,7/2,9/2−	1449.781	7/2−	M1		0.01076	α(K)=0.00907 13; α(L)=0.001314 19; α(M)=0.000293 5; α(N+..)=7.91×10^{-5} 12 α(N)=6.87×10^{-5} 10; α(O)=9.87×10^{-6} 14; α(P)=5.37×10^{-7} 8 α(K)exp=0.009 6.
857.15[#] 24	0.15 8	1427.12	(7/2,9/2)−	569.837	5/2−				α(K)exp=0.012 8.
862.4[h] 5	0.15[h] 8	1781.696	7/2−	919.80	(9/2)−				α(K)exp=0.008 6 for doublet.
862.4[h] 5	0.15[h] 8	2029.87	7/2−	1167.74	(7/2,9/2)−				α(K)exp=0.008 6 for doublet.
875.9[h]	0.15[h] 8	1707.71	(7/2,9/2)+	832.085	(7/2)+				α(K)exp=0.012 8 for doublet.
875.9[h]	0.15[h] 8	1954.50	5/2−,7/2−	1078.335	9/2−				α(K)exp=0.012 8 for doublet.
879.93 4	1.46 8	1449.781	7/2−	569.837	5/2−	M1+E2	−0.9[c] 4	0.0076 13	α(K)=0.0064 11; α(L)=0.00095 14; α(M)=0.00021 3; α(N+..)=5.7×10^{-5} 9 α(N)=5.0×10^{-5} 7; α(O)=7.1×10^{-6} 11; α(P)=3.7×10^{-7} 7 α(K)exp=0.0086 9.
883.81 9	0.35 7	1954.50	5/2−,7/2−	1070.77	7/2+				Alternative placement from 1716 level, as suggested by 1978Ba73, not likely. Additional intensity to 832 level would make intensity balance there negative.
889.753 21	22.9 6	960.612	7/2−	70.880	9/2+	E1		0.00186	α(K)=0.001584 23; α(L)=0.000219 3; α(M)=4.83×10^{-5} 7; α(N+..)=1.300×10^{-5} 19 α(N)=1.130×10^{-5} 16; α(O)=1.608×10^{-6} 23; α(P)=8.52×10^{-8} 12 Mult.: E1 for 889.8γ and 960.6γ established

$^{169}_{70}$Yb$_{99}$-20

$\gamma(^{169}Yb)$ (continued)

E_γ [†]	I_γ [†f]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [‡]	δ [‡]	α [g]	Comments
									by low α(K)exp from preliminary normalization. Adopted normalization of 1978Ba73 assumes pure E1 for both. 1982Da23 report δ=+0.018 *29* for 889.8γ (nuclear orientation).
895.82 *11*	0.61 *21*	1973.97	7/2$^-$	1078.335	9/2$^-$				α(K)exp=0.006 *3*.
903.42 *23*	0.17 *7*	1167.74	(7/2,9/2)$^-$	264.272	9/2$^-$				α(K)exp=0.007 *4*.
908.64 *7*	0.52 *7*	1070.77	7/2$^+$	161.645	11/2$^+$				α(K)exp≤0.003.
916.71 *3*	3.71 *11*	1078.335	9/2$^-$	161.645	11/2$^+$	E1(+M2)	−0.010[c] *27*	0.00176 *4*	α(K)=0.00150 *3*; α(L)=0.000207 *5*; α(M)=4.57×10^{-5} *11*; α(N+..)=1.23×10^{-5} *3* α(N)=1.068×10^{-5} *24*; α(O)=1.52×10^{-6} *4*; α(P)=8.07×10^{-8} *18* α(K)exp=0.0014 *3*.
[x]920.41 *21*	0.22 *5*					(E2)		0.00440	α(K)=0.00364 *6*; α(L)=0.000588 *9*; α(M)=0.0001325 *19*; α(N+..)=3.55×10^{-5} *5* α(N)=3.09×10^{-5} *5*; α(O)=4.31×10^{-6} *6*; α(P)=2.05×10^{-7} *3* α(K)exp=0.0043 *20*.
926.6 *5*	0.10 *5*	1449.781	7/2$^-$	523.066	11/2$^-$				α(K)exp≤0.028.
934.5 *5*	0.30 *15*	1656.22	5/2$^-$,7/2$^-$,9/2$^-$	722.21	5/2$^-$				α(K)exp=0.0035 *21* for doublet.
939.7[h] *5*	0.50[h] *25*	1427.12	(7/2,9/2)$^-$	487.031	(11/2$^-$)				α(K)exp=0.0042 *23*.
939.7[h] *5*	0.50[h] *25*	1463.412	7/2$^-$	523.066	11/2$^-$				α(K)exp=0.0042 *23* for doublet.
960.622 *20*	100 *2*	960.612	7/2$^-$	0.0	7/2$^+$	E1		1.61×10^{-3}	α(K)=0.001372 *20*; α(L)=0.000189 *3*; α(M)=4.17×10^{-5} *6*; α(N+..)=1.121×10^{-5} *16* α(N)=9.75×10^{-6} *14*; α(O)=1.389×10^{-6} *20*; α(P)=7.39×10^{-8} *11* Mult.: see comment with 889.8γ. 1982Da23 report δ=+0.06 *+5−4* for 960.6γ (nuclear orientation).
979.79[d] *7*	0.52 *5*	1141.44	(9/2)$^+$	161.645	11/2$^+$	E2(+M1)		0.0057 *19*	α(K)=0.0048 *16*; α(L)=0.00071 *21*; α(M)=0.00016 *5*; α(N+..)=4.3×10^{-5} *13* α(N)=3.7×10^{-5} *11*; α(O)=5.3×10^{-6} *16*; α(P)=2.8×10^{-7} *10* α(K)exp=0.0023 *7*.
[x]984.09 *14*	0.75 *8*								α(K)exp=0.0023 *13*.
993.96 *13*	0.23 *7*	1954.50	5/2$^-$,7/2$^-$	960.612	7/2$^-$	(M1)		0.00727	α(K)=0.00613 *9*; α(L)=0.000884 *13*; α(M)=0.000197 *3*; α(N+..)=5.32×10^{-5} *8*

$^{169}_{70}Yb_{99}$-21

γ(^{169}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)=4.62×10^{-5} *7*; α(O)=6.64×10^{-6} *10*; α(P)=3.62×10^{-7} *5* α(K)exp=0.0068 *25*.
999.96 *7*	1.80 *11*	1070.77	7/2$^+$	70.880	9/2$^+$	M1+E2	+1.3[c] *6*	0.0050 *11*	α(K)=0.0042 *9*; α(L)=0.00063 *12*; α(M)=0.00014 *3*; α(N+..)=3.8×10^{-5} *7* α(N)=3.3×10^{-5} *6*; α(O)=4.7×10^{-6} *9*; α(P)=2.4×10^{-7} *6* α(K)exp=0.0037 *5*.
1007.47 *3*	7.71 *19*	1078.335	9/2$^-$	70.880	9/2$^+$	E1+M2	−0.08[c] *5*	0.00158 *17*	α(K)=0.00134 *14*; α(L)=0.000186 *22*; α(M)=4.1×10^{-5} *5*; α(N+..)=1.11×10^{-5} *14* α(N)=9.6×10^{-6} *12*; α(O)=1.37×10^{-6} *17*; α(P)=7.3×10^{-8} *9* α(K)exp=0.00137 *10*.
1013.08 *10*	0.34 *6*	1973.97	7/2$^-$	960.612	7/2$^-$	(M1)		0.00693	α(K)=0.00585 *9*; α(L)=0.000843 *12*; α(M)=0.000188 *3*; α(N+..)=5.07×10^{-5} *8* α(N)=4.40×10^{-5} *7*; α(O)=6.33×10^{-6} *9*; α(P)=3.46×10^{-7} *5* α(K)exp=0.011 *4*.
1015.4[#] *4*		1177.01	(7/2,9/2)$^+$	161.645	11/2$^+$				Seen only in ce spectrum (1976Ba61).
1017.58 *5*	1.11 *8*	1540.69	9/2$^-$	523.066	11/2$^-$	M1		0.00686	α(K)=0.00579 *9*; α(L)=0.000834 *12*; α(M)=0.000186 *3*; α(N+..)=5.02×10^{-5} *7* α(N)=4.36×10^{-5} *6*; α(O)=6.26×10^{-6} *9*; α(P)=3.42×10^{-7} *5* Mult.: M1+E2 with 0.41≤δ≤3.05 (nuclear orientation, 1982Da23). α(K)exp=0.0055 *9*.
[x]1025.72 *7*	0.36 *5*								α(K)exp=0.0039 *21*.
1031.91 *6*	0.56 *3*	1554.876	9/2$^-$	523.066	11/2$^-$	M1+E2	−0.28[c] *+19−29*	0.0064 *6*	α(K)=0.0054 *5*; α(L)=0.00078 *7*; α(M)=0.000174 *14*; α(N+..)=4.7×10^{-5} *4* α(N)=4.1×10^{-5} *4*; α(O)=5.9×10^{-6} *5*; α(P)=3.2×10^{-7} *3* α(K)exp=0.0063 *9*.
1037.49[#] *13*	0.20 *10*	1427.12	(7/2,9/2)$^-$	389.523	9/2$^-$				α(K)exp=0.023 *13*.
1043.20 *8*	0.65 *5*	1972.35	9/2$^-$	929.17	11/2$^-$	M1+E2	−1.1[c] *7*	0.0048 *13*	α(K)=0.0040 *11*; α(L)=0.00060 *14*; α(M)=0.00013 *3*; α(N+..)=3.6×10^{-5} *9* α(N)=3.1×10^{-5} *8*; α(O)=4.4×10^{-6} *11*; α(P)=2.3×10^{-7} *7* α(K)exp=0.0047 *7*.
1055.8 *4*	0.35 *12*	1888.00	(7/2$^+$,9/2$^+$)	832.085	(7/2)$^+$				α(K)exp=0.0036 *20*.
1060.28 *4*	8.16 *27*	1449.781	7/2$^-$	389.523	9/2$^-$	M1+E2	+0.036[c] *22*	0.00620	α(K)=0.00523 *8*; α(L)=0.000753 *11*;

$^{169}_{70}$Yb$_{99}$-22

γ(^{169}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
										α(M)=0.0001674 *24*; α(N+..)=4.53×10^{-5} *7* α(N)=3.93×10^{-5} *6*; α(O)=5.65×10^{-6} *8*; α(P)=3.09×10^{-7} *5* α(K)exp=0.0052 *5*.
1065.09 *5*	2.00 *16*	1343.57	(7/2)$^-$	278.594	7/2$^-$	M1		0.00614		α(K)=0.00518 *8*; α(L)=0.000745 *11*; α(M)=0.0001657 *24*; α(N+..)=4.48×10^{-5} *7* α(N)=3.89×10^{-5} *6*; α(O)=5.59×10^{-6} *8*; α(P)=3.06×10^{-7} *5* α(K)exp=0.0063 *8*.
1068.54 *8*	1.36 *8*	1167.74	(7/2,9/2)$^-$	99.250	5/2$^-$					Alternative placement from 1716.1 level, as suggested by 1978Ba73 and 1993Dz02, not likely. 1980Ba07 assign all intensity to this 1168-level placement on basis of ceγ coin data. α(K)exp=0.0029 *15*.
1070.81 *7*	1.71 *8*	1070.77	7/2$^+$	0.0	7/2$^+$	E0+M1+E2		0.0046 *15*	1.78 *8*	ce(K)/(γ+ce)=0.0039 *12*; ce(L)/(γ+ce)=0.00057 *16*; ce(M)/(γ+ce)=0.00013 *4*; ce(N+)/(γ+ce)=3.5×10^{-5} *10* ce(N)/(γ+ce)=3.0×10^{-5} *9*; ce(O)/(γ+ce)=4.3×10^{-6} *13*; ce(P)/(γ+ce)=2.3×10^{-7} *8* α: estimated from α(K)exp. $I_{(\gamma+ce)}$: deduced from Iγ, α(K)exp, and K/L ratios for E0 transitions (1969Ha61)). Mult.,α: from α(K)exp=0.0367 *26* (1978Ba73) and nuclear orientation (1982Da23). 1982Da23 report two solutions for δ(M1,E2) (−0.74 *+11−13*, +10 *+50−5*), and combining these with α(K)exp, one can deduce q(E0/E2)=5.8 *+8−7* or 3.57 *14*, respectively, and α=0.042 if Ω(E0,K):Ω(E0,L1):Ω(E0,L2)=1.14:0.164:0.0047.
1073.79 *3*	4.8 *3*	1463.412	7/2$^-$	389.523	9/2$^-$	M1+E2	+0.18[c] *7*	0.00593 *12*		α(K)=0.00500 *10*; α(L)=0.000720 *14*; α(M)=0.000160 *3*; α(N+..)=4.33×10^{-5} *8* α(N)=3.76×10^{-5} *7*; α(O)=5.41×10^{-6} *10*; α(P)=2.95×10^{-7} *6* α(K)exp=0.0046 *5*.
1078.28 *4*	4.58 *18*	1078.335	9/2$^-$	0.0	7/2$^+$	E1(+M2)	−0.01[c] *3*	0.00131 *3*		α(K)=0.001111 *23*; α(L)=0.000152 *4*; α(M)=3.35×10^{-5} *8*; α(N+..)=9.03×10^{-6} *21* α(N)=7.85×10^{-6} *18*; α(O)=1.12×10^{-6} *3*; α(P)=6.00×10^{-8} *14* α(K)exp=0.00139 *20*.
1088.23 *8*	0.43 *7*	1658.10	5/2$^+$	569.837	5/2$^-$					α(K)exp<0.002.

From ENSDF

$^{169}_{70}$Yb$_{99}$-23

γ(^{169}Yb) (continued)

E_γ[†]	I_γ[†f]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	δ[‡]	α[g]	Comments
1099.89 *11*	0.27 *3*	1343.57	(7/2)$^-$	243.827	7/2$^-$				α(K)exp<0.003.
1106.11 *6*	0.65 *6*	1177.01	(7/2,9/2)$^+$	70.880	9/2$^+$	M1(+E2)		0.0043 *13*	α(K)=0.0036 *11*; α(L)=0.00053 *15*; α(M)=0.00012 *4*; α(N+..)=3.2×10^{-5} *9* α(N)=2.8×10^{-5} *8*; α(O)=4.0×10^{-6} *12*; α(P)=2.1×10^{-7} *7*; α(IPF)=3.4×10^{-7} *5* Mult.: δ=−0.21 *+13−17* (if J(1177.0 level)=7/2) or δ=−0.41 *22* (if J=9/2) (nuclear orientation, 1982Da23) suggests E2 admixture. α(K)exp=0.0053 *7*.
1109.99 *7*	0.79 *4*	2029.87	7/2$^-$	919.80	(9/2)$^-$	M1+E2	−0.19[c] *+24−37*	0.0055 *6*	α(K)=0.0046 *5*; α(L)=0.00066 *6*; α(M)=0.000147 *13*; α(N+..)=4.0×10^{-5} *4* α(N)=3.5×10^{-5} *3*; α(O)=5.0×10^{-6} *5*; α(P)=2.7×10^{-7} *3*; α(IPF)=4.48×10^{-7} *22* α(K)exp=0.0049 *8*.
1117.61[d] *20*	0.13 *4*	1204.55		86.927	3/2$^-$				α(K)exp=0.010 *5*.
1122.21 *7*	0.66 *8*	1954.50	5/2$^-$,7/2$^-$	832.085	(7/2)$^+$				α(K)exp<0.0016.
1127.1[#] *6*		1888.00	(7/2$^+$,9/2$^+$)	761.822	(5/2)$^+$				Seen only in ce spectrum (1976Ba61).
[x]1133.44 *5*	0.80 *7*								α(K)exp=0.0016 *6*.
[x]1139.28 *5*	0.389 *21*					M1		0.00521	α(K)=0.00440 *7*; α(L)=0.000631 *9*; α(M)=0.0001403 *20*; α(N+..)=3.92×10^{-5} *6* α(N)=3.29×10^{-5} *5*; α(O)=4.74×10^{-6} *7*; α(P)=2.59×10^{-7} *4*; α(IPF)=1.292×10^{-6} *19* α(K)exp=0.0043 *11*.
1141.96 *10*	0.176 *23*	1406.35	9/2$^-$	264.272	9/2$^-$	M1		0.00518	α(K)=0.00437 *7*; α(L)=0.000627 *9*; α(M)=0.0001395 *20*; α(N+..)=3.91×10^{-5} *6* α(N)=3.28×10^{-5} *5*; α(O)=4.71×10^{-6} *7*; α(P)=2.58×10^{-7} *4*; α(IPF)=1.408×10^{-6} *21* α(K)exp=0.0054 *20*.
1146.92 *13*	0.31 *6*	1908.63	5/2$^+$	761.822	(5/2)$^+$	(M1)		0.00512	α(K)=0.00433 *6*; α(L)=0.000621 *9*; α(M)=0.0001380 *20*; α(N+..)=3.90×10^{-5} *6* α(N)=3.24×10^{-5} *5*; α(O)=4.66×10^{-6} *7*; α(P)=2.55×10^{-7} *4*; α(IPF)=1.645×10^{-6} *24* α(K)exp=0.0039 *16*.
1148.0[#] *6*	0.23[#] *12*	1427.12	(7/2,9/2)$^-$	278.594	7/2$^-$				
1151.70 *7*	0.88 *11*	1540.69	9/2$^-$	389.523	9/2$^-$	M1+E2	≥0.36[c]	0.0038 *11*	α(K)=0.0032 *9*; α(L)=0.00047 *12*; α(M)=0.00010 *3*; α(N+..)=3.0×10^{-5} *7* α(N)=2.5×10^{-5} *6*; α(O)=3.5×10^{-6} *9*; α(P)=1.8×10^{-7} *6*; α(IPF)=1.67×10^{-6} *19* α(K)exp=0.0045 *15*.
1156.03 *16*	0.22 *4*	1420.31	(5/2$^-$,7/2,9/2$^-$)	264.272	9/2$^-$				
1162.49[h] *7*	0.77[h] *5*	1406.35	9/2$^-$	243.827	7/2$^-$	M1		0.00496	α(K)=0.00419 *6*; α(L)=0.000600 *9*;

$\gamma(^{169}$Yb) (continued)

E_γ[†]	I_γ[†f]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	δ[‡]	α[g]	Comments
									α(M)=0.0001335 *19*; α(N+..)=3.87×10^{-5} *6* α(N)=3.13×10^{-5} *5*; α(O)=4.51×10^{-6} *7*; α(P)=2.47×10^{-7} *4*; α(IPF)=2.59×10^{-6} *4* α(K)exp=0.0050 *6* for doublet.
1162.49[h] *7*	0.77[h] *5*	1427.12	(7/2,9/2)$^-$	264.272	9/2$^-$	M1		0.00496	α(K)=0.00419 *6*; α(L)=0.000600 *9*; α(M)=0.0001335 *19*; α(N+..)=3.87×10^{-5} *6* α(N)=3.13×10^{-5} *5*; α(O)=4.51×10^{-6} *7*; α(P)=2.47×10^{-7} *4*; α(IPF)=2.59×10^{-6} *4* α(K)exp=0.0050 *6* for doublet.
1165.21 *11*	0.73 *5*	1554.876	9/2$^-$	389.523	9/2$^-$	M1		0.00493	α(K)=0.00416 *6*; α(L)=0.000597 *9*; α(M)=0.0001327 *19*; α(N+..)=3.87×10^{-5} *6* α(N)=3.12×10^{-5} *5*; α(O)=4.48×10^{-6} *7*; α(P)=2.45×10^{-7} *4*; α(IPF)=2.79×10^{-6} *4* α(K)exp=0.0039 *13*.
1171.20 *4*	3.43 *11*	1449.781	7/2$^-$	278.594	7/2$^-$	M1+E2	+0.22[c] *+74−15*	0.0048 *10*	α(K)=0.0040 *8*; α(L)=0.00058 *11*; α(M)=0.000129 *24*; α(N+..)=3.8×10^{-5} *7* α(N)=3.0×10^{-5} *6*; α(O)=4.3×10^{-6} *9*; α(P)=2.4×10^{-7} *5*; α(IPF)=3.2×10^{-6} *3* α(K)exp=0.0048 *4*.
1176.48[#] *22*	0.68 *7*	1420.31	(5/2$^-$,7/2,9/2$^-$)	243.827	7/2$^-$				I_γ: combined value for 1176.5γ+1177.7γ. α(K)exp=0.0010 *2* for doublet.
1177.7[#] *4*	0.68 *7*	1177.01	(7/2,9/2)$^+$	0.0	7/2$^+$				I_γ: see comment with 1176.5γ from 1420 level.
1180.45 *6*	0.81 *9*	1444.75	7/2$^-$,9/2$^-$	264.272	9/2$^-$	M1(+E2)		0.0037[e] *11*	α(K)=0.0031 *9*; α(L)=0.00046 *12*; α(M)=0.00010 *3*; α(N+..)=3.1×10^{-5} *8* α(N)=2.4×10^{-5} *7*; α(O)=3.4×10^{-6} *10*; α(P)=1.8×10^{-7} *6*; α(IPF)=3.7×10^{-6} *5* Mult.: δ=−0.7 *+2−10* (if J(1444.7 level)=7/2) or δ=+0.88 *24* or −0.02 *+16−11* (if J=9/2) (nuclear orientation, 1982Da23) suggests E2 admixture. α(K)exp=0.0049 *12*.
1184.875 *24*	9.5 *4*	1463.412	7/2$^-$	278.594	7/2$^-$	M1+E2	−0.15[c] *7*	0.00469 *9*	α(K)=0.00396 *7*; α(L)=0.000568 *10*; α(M)=0.0001262 *22*; α(N+..)=3.87×10^{-5} *7* α(N)=2.96×10^{-5} *6*; α(O)=4.26×10^{-6} *8*; α(P)=2.33×10^{-7} *5*; α(IPF)=4.52×10^{-6} *7* δ: other value: −0.10 *+0−13* ($\gamma\gamma(\theta)$, 1980Bu24). α(K)exp=0.0042 *3*.
1199.10 *6*	0.96 *8*	1463.412	7/2$^-$	264.272	9/2$^-$	M1+E2	+0.22[c] *+25−19*	0.0045 *3*	α(K)=0.00380 *24*; α(L)=0.00055 *4*; α(M)=0.000121 *7*; α(N+..)=3.89×10^{-5} *21* α(N)=2.85×10^{-5} *17*; α(O)=4.10×10^{-6} *25*; α(P)=2.24×10^{-7} *15*; α(IPF)=6.09×10^{-6} *20* α(K)exp=0.0040 *6*.

$^{169}_{70}$Yb$_{99}$-25

γ(^{169}Yb) (continued)

E_γ[†]	I_γ[†f]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	δ[‡]	α[g]	Comments
1201.0[#] 9		1444.75	7/2⁻,9/2⁻	243.827	7/2⁻				Seen only in ce spectrum (1976Ba61).
1206.00 4	2.15 14	1449.781	7/2⁻	243.827	7/2⁻	M1+E2	≥0.83[c]	0.0031 6	α(K)=0.0026 5; α(L)=0.00039 7; α(M)=8.7×10^{-5} 15; α(N+..)=2.9×10^{-5} 5 α(N)=2.0×10^{-5} 4; α(O)=2.9×10^{-6} 6; α(P)=1.5×10^{-7} 4; α(IPF)=6.0×10^{-6} 5 α(K)exp=0.0043 5.
1212.52 8	2.04 16	1283.282	(7/2,9/2)⁻	70.880	9/2⁺	E1+M2	−0.02[c] 7	0.00109 8	α(K)=0.00090 7; α(L)=0.000123 10; α(M)=2.71×10^{-5} 22; α(N+..)=3.34×10^{-5} 7 α(N)=6.3×10^{-6} 6; α(O)=9.1×10^{-7} 8; α(P)=4.9×10^{-8} 4; α(IPF)=2.61×10^{-5} 5 α(K)exp=8.2×10^{-4} 7.
1215.28 11	0.45 4	1406.35	9/2⁻	191.216	5/2⁻				α(K)exp≤0.0035.
1219.61 4	1.28 17	1463.412	7/2⁻	243.827	7/2⁻	M1+E2	−1.0[c] +3−9	0.0035 6	α(K)=0.0029 5; α(L)=0.00042 7; α(M)=9.5×10^{-5} 14; α(N+..)=3.3×10^{-5} 5 α(N)=2.2×10^{-5} 4; α(O)=3.2×10^{-6} 5; α(P)=1.7×10^{-7} 3; α(IPF)=8.0×10^{-6} 6 α(K)exp=0.0064 11.
1223.07[h] 8	0.48[h] 12	1972.35	9/2⁻	748.923	(9/2)⁻				
1223.07[h] 8	0.48[h] 12	2029.87	7/2⁻	807.079	(7/2)⁻				
1244.24 12	0.32 4	1343.57	(7/2)⁻	99.250	5/2⁻	M1		0.00422	α(K)=0.00355 5; α(L)=0.000508 8; α(M)=0.0001130 16; α(N+..)=4.33×10^{-5} 6 α(N)=2.65×10^{-5} 4; α(O)=3.82×10^{-6} 6; α(P)=2.09×10^{-7} 3; α(IPF)=1.279×10^{-5} 18 α(K)exp=0.0045 11.
1251.74 25	0.28 9	1973.97	7/2⁻	722.21	5/2⁻	(E2)		0.00238	α(K)=0.00199 3; α(L)=0.000298 5; α(M)=6.67×10^{-5} 10; α(N+..)=2.90×10^{-5} 4 α(N)=1.560×10^{-5} 22; α(O)=2.20×10^{-6} 3; α(P)=1.119×10^{-7} 16; α(IPF)=1.112×10^{-5} 16 α(K)exp=0.0026 10.
1258.59 6	1.52 4	1449.781	7/2⁻	191.216	5/2⁻	M1		0.00410	α(K)=0.00346 5; α(L)=0.000494 7; α(M)=0.0001098 16; α(N+..)=4.50×10^{-5} 7 α(N)=2.58×10^{-5} 4; α(O)=3.71×10^{-6} 6; α(P)=2.03×10^{-7} 3; α(IPF)=1.527×10^{-5} 22 α(K)exp=0.0031 6.
1260.86 6	1.36 8	1908.63	5/2⁺	647.847	7/2⁻				
1266.68[#] 25	0.57 10	1656.22	5/2⁻,7/2⁻,9/2⁻	389.523	9/2⁻	E2		0.00233	α(K)=0.00194 3; α(L)=0.000291 4; α(M)=6.50×10^{-5} 10; α(N+..)=3.07×10^{-5} 5 α(N)=1.522×10^{-5} 22; α(O)=2.15×10^{-6} 3; α(P)=1.094×10^{-7} 16; α(IPF)=1.324×10^{-5} 19 Mult.: −0.65≤δ≤+3.30 (nuclear orientation,

γ(^{169}Yb) (continued)

Eγ[†]	Iγ[†f]	Ei(level)	J^π_i	Ef	J^π_f	Mult.[‡]	δ[‡]	α[g]	Comments
									1982Da23) suggests little, if any, M1 admixture. α(K)exp=0.0017 *5*.
1272.46 *6*	2.91 *14*	1343.57	(7/2)⁻	70.880	9/2⁺				α(K)exp=0.0016 *5*.
1276.62[h] *23*	0.75[h] *7*	1540.69	9/2⁻	264.272	9/2⁻	M1		0.00397	α(K)=0.00334 *5*; α(L)=0.000477 *7*; α(M)=0.0001061 *15*; α(N+..)=4.73×10⁻⁵ *7* α(N)=2.49×10⁻⁵ *4*; α(O)=3.58×10⁻⁶ *5*; α(P)=1.96×10⁻⁷ *3*; α(IPF)=1.86×10⁻⁵ *3* α(K)exp=0.0038 *11* for doublet.
1276.62[h] *23*	0.75[h] *7*	1554.876	9/2⁻	278.594	7/2⁻	M1		0.00397	α(K)=0.00334 *5*; α(L)=0.000477 *7*; α(M)=0.0001061 *15*; α(N+..)=4.73×10⁻⁵ *7* α(N)=2.49×10⁻⁵ *4*; α(O)=3.58×10⁻⁶ *5*; α(P)=1.96×10⁻⁷ *3*; α(IPF)=1.86×10⁻⁵ *3* α(K)exp=0.0038 *11* for doublet.
1283.28 *4*	9.0 *4*	1283.282	(7/2,9/2)⁻	0.0	7/2⁺	E1+M2	−0.01[c] *+6−5*	0.00101 *4*	α(K)=0.00081 *3*; α(L)=0.000111 *4*; α(M)=2.44×10⁻⁵ *9*; α(N+..)=6.36×10⁻⁵ *9* α(N)=5.71×10⁻⁶ *22*; α(O)=8.2×10⁻⁷ *3*; α(P)=4.41×10⁻⁸ *17*; α(IPF)=5.70×10⁻⁵ *9* α(K)exp=7.3×10⁻⁴ *7*.
1290.59 *3*	4.89 *26*	1554.876	9/2⁻	264.272	9/2⁻	M1+E2	0.9 *4*	0.0031 *4*	α(K)=0.0026 *4*; α(L)=0.00038 *5*; α(M)=8.5×10⁻⁵ *11*; α(N+..)=4.2×10⁻⁵ *4* α(N)=1.99×10⁻⁵ *24*; α(O)=2.9×10⁻⁶ *4*; α(P)=1.53×10⁻⁷ *22*; α(IPF)=1.94×10⁻⁵ *12* δ: 1982Da23 (nuclear orientation) report δ=−0.33 *6* or +1.61 *20*. α(K)exp=0.0027 *3*.
1296.90 *5*	0.71 *4*	1540.69	9/2⁻	243.827	7/2⁻	M1+E2	1.0 *+9−5*	0.0030 *5*	α(K)=0.0025 *4*; α(L)=0.00037 *6*; α(M)=8.2×10⁻⁵ *13*; α(N+..)=4.2×10⁻⁵ *5* α(N)=1.9×10⁻⁵ *3*; α(O)=2.7×10⁻⁶ *5*; α(P)=1.5×10⁻⁷ *3*; α(IPF)=2.03×10⁻⁵ *15* α(K)exp=0.0026 *4*.
1301.33 *5*	0.66 *4*	1565.65	(7/2⁻)	264.272	9/2⁻	(M1)		0.00380	α(K)=0.00319 *5*; α(L)=0.000455 *7*; α(M)=0.0001012 *15*; α(N+..)=5.11×10⁻⁵ *8* α(N)=2.38×10⁻⁵ *4*; α(O)=3.42×10⁻⁶ *5*; α(P)=1.87×10⁻⁷ *3*; α(IPF)=2.37×10⁻⁵ *4* α(K)exp=0.0028 *4*.
1307.20 *5*	0.48 *8*	1406.35	9/2⁻	99.250	5/2⁻	E2		0.00220	α(K)=0.00183 *3*; α(L)=0.000272 *4*; α(M)=6.08×10⁻⁵ *9*; α(N+..)=3.61×10⁻⁵ *5* α(N)=1.424×10⁻⁵ *20*; α(O)=2.01×10⁻⁶ *3*; α(P)=1.030×10⁻⁷ *15*; α(IPF)=1.98×10⁻⁵ *3* α(K)exp=0.0016 *4*.
1311.13 *7*	0.28 *5*	1554.876	9/2⁻	243.827	7/2⁻	M1		0.00373	α(K)=0.00313 *5*; α(L)=0.000447 *7*; α(M)=9.94×10⁻⁵ *14*;

$^{169}_{70}$Yb$_{99}$-27

γ(^{169}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
										α(N+..)=5.28×10^{-5} *8* α(N)=2.33×10^{-5} *4*; α(O)=3.36×10^{-6} *5*; α(P)=1.84×10^{-7} *3*; α(IPF)=2.59×10^{-5} *4* α(K)exp=0.0036 *8*.
1318.53 [h] *12*	0.55 [h] *5*	1708.52	7/2$^-$	389.523	9/2$^-$	(M1)		0.00368		α(K)=0.00309 *5*; α(L)=0.000441 *7*; α(M)=9.80×10^{-5} *14*; α(N+..)=5.42×10^{-5} *8* α(N)=2.30×10^{-5} *4*; α(O)=3.31×10^{-6} *5*; α(P)=1.82×10^{-7} *3*; α(IPF)=2.77×10^{-5} *4* α(K)exp=0.0029 *9* for doublet.
1318.53 [h] *12*	0.55 [h] *5*	1908.63	5/2$^+$	590.67	(5/2)$^+$	(M1)		0.00368		α(K)=0.00309 *5*; α(L)=0.000441 *7*; α(M)=9.80×10^{-5} *14*; α(N+..)=5.42×10^{-5} *8* α(N)=2.30×10^{-5} *4*; α(O)=3.31×10^{-6} *5*; α(P)=1.82×10^{-7} *3*; α(IPF)=2.77×10^{-5} *4* α(K)exp=0.0029 *9* for doublet.
1321.53 [h] *16*	0.33 [h] *3*	1420.31	(5/2$^-$,7/2,9/2$^-$)	99.250	5/2$^-$					
1321.53 [h] *16*	0.33 [h] *3*	1565.65	(7/2$^-$)	243.827	7/2$^-$					
1326.85 [i] *3*	2.54 [i]	1716.02	7/2$^+$	389.523	9/2$^-$	E1		9.81×10^{-4}		α(K)=0.000768 *11*; α(L)=0.0001040 *15*; α(M)=2.30×10^{-5} *4*; α(N+..)=8.56×10^{-5} *12* α(N)=5.38×10^{-6} *8*; α(O)=7.69×10^{-7} *11*; α(P)=4.16×10^{-8} *6*; α(IPF)=7.94×10^{-5} *12* I_γ: ceγ coincidence data (1980Ba07) used to estimate Iγ for each placement; Iγ(exp)=3.02 *8* for doublet. α(K)exp=8.9×10^{-4} *33*.
1326.85 [i] *3*	0.48 [i]	1973.97	7/2$^-$	647.34	7/2$^+$	E1		9.81×10^{-4}		α(K)=0.000768 *11*; α(L)=0.0001040 *15*; α(M)=2.30×10^{-5} *4*; α(N+..)=8.56×10^{-5} *12* α(N)=5.38×10^{-6} *8*; α(O)=7.69×10^{-7} *11*; α(P)=4.16×10^{-8} *6*; α(IPF)=7.94×10^{-5} *12*

γ(^{169}Yb) (continued)

$E_γ$[†]	$I_γ$[†f]	E_i(level)	$J^π_i$	E_f	$J^π_f$	Mult.[‡]	δ[‡]	α[g]	Comments
1338.82 4	6.93 21	1908.63	5/2+	569.837	5/2−	E1+M2	−0.04[c] 3	0.00099 3	α(K)=0.000766 23; α(L)=0.000104 4; α(M)=2.29×10^{-5} 8; α(N+..)=9.23×10^{-5} 13 α(N)=5.37×10^{-6} 19; α(O)=7.7×10^{-7} 3; α(P)=4.16×10^{-8} 14; α(IPF)=8.61×10^{-5} 13 α(K)exp=8.5×10^{-4} 20.
1343.56 13	0.63 5	1343.57	(7/2)−	0.0	7/2+				
1350.65 9	0.828 21	1449.781	7/2−	99.250	5/2−	M1+E2	−0.19[c] +15−21	0.00344 16	α(K)=0.00287 13; α(L)=0.000410 18; α(M)=9.1×10^{-5} 4; α(N+..)=6.07×10^{-5} 20 α(N)=2.14×10^{-5} 10; α(O)=3.08×10^{-6} 14; α(P)=1.69×10^{-7} 8; α(IPF)=3.60×10^{-5} 10 α(K)exp=0.0037 6.
[x]1355.11 5	0.57 3					M1+E2	0.9 +5−3	0.0028 3	α(K)=0.0024 3; α(L)=0.00034 4; α(M)=7.6×10^{-5} 8; α(N+..)=5.5×10^{-5} 4 α(N)=1.78×10^{-5} 18; α(O)=2.5×10^{-6} 3; α(P)=1.37×10^{-7} 16; α(IPF)=3.40×10^{-5} 18 α(K)exp=0.0024 3.
1363.83 9	0.30 4	1554.876	9/2−	191.216	5/2−	E2		0.00204	α(K)=0.001689 24; α(L)=0.000250 4; α(M)=5.57×10^{-5} 8; α(N+..)=4.67×10^{-5} 7 α(N)=1.304×10^{-5} 19; α(O)=1.85×10^{-6} 3; α(P)=9.50×10^{-8} 14; α(IPF)=3.17×10^{-5} 5 α(K)exp=0.0018 6.
1367.56[d] 7	0.64 4	2287.23	7/2−	919.80	(9/2)−				
1374.53 8	0.90 4	1565.65	(7/2−)	191.216	5/2−	(M1)		0.00335	α(K)=0.00279 4; α(L)=0.000399 6; α(M)=8.86×10^{-5} 13; α(N+..)=6.75×10^{-5} 10 α(N)=2.08×10^{-5} 3; α(O)=2.99×10^{-6} 5; α(P)=1.642×10^{-7} 23; α(IPF)=4.35×10^{-5} 6 α(K)exp=0.0042 12.
1379.04[i] 4	9.0[i]	1449.781	7/2−	70.880	9/2+	E1		9.54×10^{-4}	α(K)=0.000719 10; α(L)=9.72×10^{-5} 14; α(M)=2.14×10^{-5} 3; α(N+..)=0.0001170 17 α(N)=5.02×10^{-6} 7; α(O)=7.18×10^{-7} 10; α(P)=3.89×10^{-8} 6; α(IPF)=0.0001112 16 α(K)exp=6.8×10^{-4} 11 for doublet. $I_γ$: ceγ coincidence data (1980Ba07) used to estimate Iγ for each placement; Iγ=13.6 3 for doublet.
1379.04[i] 4	4.6[i]	1658.10	5/2+	278.594	7/2−	E1		9.54×10^{-4}	α(K)=0.000719 10; α(L)=9.72×10^{-5} 14; α(M)=2.14×10^{-5} 3; α(N+..)=0.0001170 17 α(N)=5.02×10^{-6} 7; α(O)=7.18×10^{-7} 10; α(P)=3.89×10^{-8} 6; α(IPF)=0.0001112 16 α(K)exp=0.0068 11 for doublet. See comment on 1379γ from 1450 level.

γ(^{169}Yb) (continued)

Eγ[†]	Iγ[†f]	Ei(level)	J^π_i	Ef	J^π_f	Mult.[‡]	δ[‡]	α[g]	Comments
1392.27[i] *4*	0.45[i]	1656.22	5/2−,7/2−,9/2−	264.272	9/2−	E2		0.00197	α(K)=0.001624 *23*; α(L)=0.000239 *4*; α(M)=5.34×10^{-5} *8*; α(N+..)=5.33×10^{-5} *8* α(N)=1.249×10^{-5} *18*; α(O)=1.771×10^{-6} *25*; α(P)=9.14×10^{-8} *13*; α(IPF)=3.89×10^{-5} *6* Iγ: ceγ coincidence data (1980Ba07) used to estimate Iγ for each placement; Iγ(exp)=5.56 *12* for doublet. α(K)exp=0.0017 *3* for doublet.
1392.27[i] *4*	5.11[i]	1781.696	7/2−	389.523	9/2−	E2		0.00197	α(K)=0.001624 *23*; α(L)=0.000239 *4*; α(M)=5.34×10^{-5} *8*; α(N+..)=5.33×10^{-5} *8* α(N)=1.249×10^{-5} *18*; α(O)=1.771×10^{-6} *25*; α(P)=9.14×10^{-8} *13*; α(IPF)=3.89×10^{-5} *6* α(K)exp=0.0017 *3* for doublet.
1406.23 *5*	0.96 *4*	1406.35	9/2−	0.0	7/2+	E1+M2	+0.08[c] *13*	0.00099 *24*	α(K)=0.00073 *20*; α(L)=0.00010 *3*; α(M)=2.2×10^{-5} *7*; α(N+..)=0.000134 *3* α(N)=5.1×10^{-6} *16*; α(O)=7.3×10^{-7} *23*; α(P)=4.0×10^{-8} *13*; α(IPF)=0.000128 *5* α(K)exp=0.0014 *7*.
1412.39 *10*	0.49 *5*	1656.22	5/2−,7/2−,9/2−	243.827	7/2−	M1+E2	−0.08[c] *18*	0.00315 *9*	α(K)=0.00261 *7*; α(L)=0.000372 *10*; α(M)=8.27×10^{-5} *22*; α(N+..)=7.85×10^{-5} *16* α(N)=1.94×10^{-5} *5*; α(O)=2.80×10^{-6} *8*; α(P)=1.53×10^{-7} *5*; α(IPF)=5.61×10^{-5} *11* α(K)exp=0.004 *1*.
[x]1419.68 *13*	0.18 *4*								
[x]1425.54[d] *22*	0.27 *6*					M1		0.00309	α(K)=0.00256 *4*; α(L)=0.000365 *6*; α(M)=8.11×10^{-5} *12*; α(N+..)=8.28×10^{-5} *12* α(N)=1.90×10^{-5} *3*; α(O)=2.74×10^{-6} *4*; α(P)=1.504×10^{-7} *21*; α(IPF)=6.09×10^{-5} *9* α(K)exp=0.0042 *15*. placed by 1988DzZW from 1617 level, but absence of this γ In (n,γ) E=thermal (where many transitions from this level are observed) makes that placement unlikely. a γ of similar energy deexcites a 1555 level In (n,γ) E=thermal.
1429.87 *9*	1.33 *8*	1708.52	7/2−	278.594	7/2−	M1+E2	+0.02[c] *+18−13*	0.00307 *7*	α(K)=0.00254 *6*; α(L)=0.000362 *8*; α(M)=8.05×10^{-5} *16*; α(N+..)=8.42×10^{-5} *15* α(N)=1.89×10^{-5} *4*; α(O)=2.72×10^{-6} *6*; α(P)=1.49×10^{-7} *4*; α(IPF)=6.24×10^{-5} *10* α(K)exp=0.0035 *6*.
1437.43 *4*	2.67 *9*	1716.02	7/2+	278.594	7/2−	E1(+M2)	−0.07[c] *+9−8*	0.00096 *11*	α(K)=0.00069 *9*; α(L)=9.4×10^{-5} *14*;

From ENSDF

γ(^{169}Yb) (continued)

Eγ†	Iγ†f	Ei(level)	Jπi	Ef	Jπf	Mult.‡	δ‡	αg	Comments
									α(M)=2.1×10^{-5} *3*; α(N+..)=0.000155 *3* α(N)=4.9×10^{-6} *8*; α(O)=7.0×10^{-7} *11*; α(P)=3.8×10^{-8} *6*; α(IPF)=0.000149 *3* α(K)exp=4.9×10^{-4} *16*.
1449.74 *4*	42.4 *9*	1449.781	7/2−	0.0	7/2+	E1(+M2)	0.00c *4*	9.32×10^{-4} *16*	α(K)=0.000660 *13*; α(L)=8.91×10^{-5} *18*; α(M)=1.96×10^{-5} *4*; α(N+..)=0.0001637 *23* α(N)=4.60×10^{-6} *10*; α(O)=6.59×10^{-7} *13*; α(P)=3.58×10^{-8} *7*; α(IPF)=0.0001584 *23* α(K)exp=5.3×10^{-4} *15*.
1463.39 *4*	6.45 *15*	1463.412	7/2−	0.0	7/2+	E1(+M2)	+0.02c *+11−9*	0.00093 *10*	α(K)=0.00065 *8*; α(L)=8.8×10^{-5} *13*; α(M)=1.9×10^{-5} *3*; α(N+..)=0.000173 *3* α(N)=4.5×10^{-6} *7*; α(O)=6.5×10^{-7} *10*; α(P)=3.5×10^{-8} *5*; α(IPF)=0.000168 *4* α(K)exp=8.1×10^{-4} *14*.
1466.84 *4*	14.2 *4*	1658.10	5/2+	191.216	5/2−	E1(+M2)	−0.03c *4*	0.00093 *3*	α(K)=0.000651 *22*; α(L)=8.8×10^{-5} *4*; α(M)=1.94×10^{-5} *8*; α(N+..)=0.0001751 *25* α(N)=4.54×10^{-6} *17*; α(O)=6.51×10^{-7} *25*; α(P)=3.53×10^{-8} *13*; α(IPF)=0.0001699 *25* α(K)exp=8.5×10^{-4} *12*.
1483.97dj *9*	0.86 *6*	1554.876	9/2−	70.880	9/2+	[E1]		9.25×10^{-4}	α(K)=0.000634 *9*; α(L)=8.55×10^{-5} *12*; α(M)=1.89×10^{-5} *3*; α(N+..)=0.000187 *3* α(N)=4.42×10^{-6} *7*; α(O)=6.33×10^{-7} *9*; α(P)=3.44×10^{-8} *5*; α(IPF)=0.000182 *3* Mult.: α(K)exp=0.0015 *4* favors mult=E2, inconsistent with this placement. consequently, the evaluator shows the placement As uncertain.
1487.21 *24*	0.155 *20*	1973.97	7/2−	487.031	(11/2−)				
1497.92 *4*	1.20 *5*	1689.290	7/2−	191.216	5/2−	M1+E2	+0.24c *6*	0.00272 *5*	α(K)=0.00223 *4*; α(L)=0.000317 *6*; α(M)=7.05×10^{-5} *13*; α(N+..)=0.0001069 *17* α(N)=1.66×10^{-5} *3*; α(O)=2.38×10^{-6} *5*; α(P)=1.306×10^{-7} *24*; α(IPF)=8.78×10^{-5} *14* α(K)exp=0.0017 *5*.
1502.89 *6*	0.92 *5*	1781.696	7/2−	278.594	7/2−				Multipolarity cannot be determined with available data (α(K)exp=0.0020 *6*; δ=+0.03 *+10−8* or +1.03 *18* from nuclear orientation (1982Da23)).
1517.31 *4*	2.33 *13*	1708.52	7/2−	191.216	5/2−	M1+E2	−5.9c *+7−9*	0.00175 *3*	α(K)=0.001406 *21*; α(L)=0.000204 *3*; α(M)=4.55×10^{-5} *7*; α(N+..)=8.94×10^{-5} *13* α(N)=1.065×10^{-5} *16*; α(O)=1.514×10^{-6} *23*; α(P)=7.92×10^{-8} *12*; α(IPF)=7.72×10^{-5} *11* α(K)exp=0.0013 *3*.
1524.77 *5*	2.19 *11*	1716.02	7/2+	191.216	5/2−	E1(+M2)	+0.03c *4*	9.26×10^{-4} *25*	α(K)=0.000610 *20*; α(L)=8.2×10^{-5} *3*;

From ENSDF

$^{169}_{70}$Yb$_{99}$-31

γ(^{169}Yb) (continued)

E_γ [†]	I_γ [†f]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [‡]	δ [‡]	α [g]	Comments
									α(M)=1.81×10^{-5} *7*; α(N+..)=0.000215 *3* α(N)=4.25×10^{-6} *16*; α(O)=6.09×10^{-7} *22*; α(P)=3.31×10^{-8} *12*; α(IPF)=0.000210 *3* α(K)exp=5.4×10^{-4} *14*.
1529.87[d] *4*	1.92 *6*	1616.80	(1/2$^+$,3/2,5/2$^+$)	86.927	3/2$^-$				
1540.63 *15*	0.17 *4*	1540.69	9/2$^-$	0.0	7/2$^+$				
1547.69[dj] *18*	0.23 *3*	2296.78?	5/2$^-$,7/2,9/2$^-$	748.923	(9/2)$^-$				
1554.4[h] *5*	0.46[h] *11*	1554.876	9/2$^-$	0.0	7/2$^+$				
1554.4[h] *5*	0.46[h] *11*	1716.02	7/2$^+$	161.645	11/2$^+$				
1556.7 *4*	0.24 *4*	1656.22	5/2$^-$,7/2$^-$,9/2$^-$	99.250	5/2$^-$				
[x]1568.66 *18*	0.11 *3*								α(K)exp=0.0043 *25*.
[x]1575.76 *7*	0.37 *3*								α(K)exp=0.0024 *9*.
[x]1584.70 *9*	0.60 *5*								α(K)exp=0.0012 *5*.
1590.35 *5*	2.05 *8*	1781.696	7/2$^-$	191.216	5/2$^-$	M1+E2	+0.117[c] *23*	0.00245	α(K)=0.00197 *3*; α(L)=0.000279 *4*; α(M)=6.20×10^{-5} *9*; α(N+..)=0.0001468 *21* α(N)=1.456×10^{-5} *21*; α(O)=2.10×10^{-6} *3*; α(P)=1.151×10^{-7} *17*; α(IPF)=0.0001300 *19* α(K)exp=0.0020 *5*.
1595.89 *23*	0.097 *23*	1694.48	5/2$^+$	99.250	5/2$^-$				α(K)exp=0.0028 *17*.
1607.51 *6*	0.289 *23*	1694.48	5/2$^+$	86.927	3/2$^-$	E1(+M2)	+0.04[c] *18*	0.00093 *20*	α(K)=0.00056 *18*; α(L)=8.E−5 *3*; α(M)=1.7×10^{-5} *6*; α(N+..)=0.000276 *9* α(N)=3.9×10^{-6} *14*; α(O)=5.6×10^{-7} *20*; α(P)=3.0×10^{-8} *11*; α(IPF)=0.000271 *11* α(K)exp=5.4×10^{-4} *20*.
1618.48 *4*	3.04 *7*	1689.290	7/2$^-$	70.880	9/2$^+$	E1(+M2)	+0.04[c] *6*	0.00093 *4*	α(K)=0.00055 *4*; α(L)=7.5×10^{-5} *5*; α(M)=1.65×10^{-5} *11*; α(N+..)=0.000284 *5* α(N)=3.9×10^{-6} *3*; α(O)=5.5×10^{-7} *4*; α(P)=3.01×10^{-8} *20*; α(IPF)=0.000279 *5* α(K)exp=6.0×10^{-4} *16*.
[x]1626.12 *14*	0.098 *20*								
1630.02 *13*	0.28 *5*	1908.63	5/2$^+$	278.594	7/2$^-$				
1636.82 *8*	0.94 *4*	1707.71	(7/2,9/2)$^+$	70.880	9/2$^+$	M1+E2		0.0019 *4*	α(K)=0.0015 *4*; α(L)=0.00022 *5*; α(M)=4.8×10^{-5} *10*; α(N+..)=0.000150 *20* α(N)=1.13×10^{-5} *24*; α(O)=1.6×10^{-6} *4*; α(P)=8.8×10^{-8} *21*; α(IPF)=0.000137 *17* Mult.: restricted to M1+E2 by α(K)exp and two δ values (both large) (+10 *+18−4* (if J(1707.8 level)=7/2 or −2.8 *+15−158* (if J=9/2)) (nuclear orientation, 1982Da23). α(K)exp=9×10^{-4} *5*.

γ(^{169}Yb) (continued)

E_γ[†]	I_γ[†f]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[‡]	δ[‡]	α[g]	Comments
1645.14 *8*	0.339 *21*	1716.02	7/2$^+$	70.880	9/2$^+$	M1+E2	+0.34[c] *+21−15*	0.00223 *11*	α(K)=0.00176 *9*; α(L)=0.000249 *12*; α(M)=5.5×10^{-5} *3*; α(N+..)=0.000169 *6* α(N)=1.30×10^{-5} *7*; α(O)=1.87×10^{-6} *9*; α(P)=1.03×10^{-7} *6*; α(IPF)=0.000154 *5* α(K)exp=0.0025 *11*.
1658.08 *5*	3.39 *8*	1658.10	5/2$^+$	0.0	7/2$^+$	M1+E2	+0.28[c] *11*	0.00222 *6*	α(K)=0.00174 *5*; α(L)=0.000247 *7*; α(M)=5.50×10^{-5} *14*; α(N+..)=0.000176 *4* α(N)=1.29×10^{-5} *4*; α(O)=1.86×10^{-6} *5*; α(P)=1.02×10^{-7} *3*; α(IPF)=0.000161 *3* α(K)exp=0.0020 *4*.
^{x}1671.60 *10*	0.234 *22*								α(K)exp=0.0024 *12*.
1676.46 *8*	0.378 *18*	1954.50	5/2$^-$,7/2$^-$	278.594	7/2$^-$	M1		0.00223	α(K)=0.001743 *25*; α(L)=0.000247 *4*; α(M)=5.49×10^{-5} *8*; α(N+..)=0.000188 *3* α(N)=1.288×10^{-5} *18*; α(O)=1.85×10^{-6} *3*; α(P)=1.020×10^{-7} *15*; α(IPF)=0.0001728 *25* α(K)exp=0.0024 *7*.
1682.49 *5*	1.25 *13*	1781.696	7/2$^-$	99.250	5/2$^-$	M1+E2	+0.53[c] *+8−6*	0.00206 *5*	α(K)=0.00160 *4*; α(L)=0.000227 *6*; α(M)=5.04×10^{-5} *12*; α(N+..)=0.000181 *4* α(N)=1.18×10^{-5} *3*; α(O)=1.70×10^{-6} *4*; α(P)=9.31×10^{-8} *24*; α(IPF)=0.000168 *3* α(K)exp=0.0024 *7*.
1689.35 *5*	2.23 *11*	1689.290	7/2$^-$	0.0	7/2$^+$	E1(+M2)	−0.03[c] *7*	0.00093 *4*	α(K)=0.00051 *4*; α(L)=6.9×10^{-5} *5*; α(M)=1.52×10^{-5} *11*; α(N+..)=0.000336 *6* α(N)=3.56×10^{-6} *25*; α(O)=5.1×10^{-7} *4*; α(P)=2.79×10^{-8} *20*; α(IPF)=0.000332 *6* α(K)exp=6.3×10^{-4} *20*.
1694.38 *14*	0.186 *13*	1694.48	5/2$^+$	0.0	7/2$^+$	(M1)		0.00219	α(K)=0.001700 *24*; α(L)=0.000241 *4*; α(M)=5.35×10^{-5} *8*; α(N+..)=0.000197 *3* α(N)=1.256×10^{-5} *18*; α(O)=1.81×10^{-6} *3*; α(P)=9.95×10^{-8} *14*; α(IPF)=0.000182 *3* α(K)exp=0.0038 *9*.
^{x}1702 *1*	0.10 *5*								
1707.97[i] *9*	0.91[i]	1707.71	(7/2,9/2)$^+$	0.0	7/2$^+$	(M1+E2)		0.0018 *4*	α(K)=0.0014 *3*; α(L)=0.00020 *4*; α(M)=4.4×10^{-5} *9*; α(N+..)=0.000181 *23* α(N)=1.03×10^{-5} *21*; α(O)=1.5×10^{-6} *3*; α(P)=8.0×10^{-8} *18*; α(IPF)=0.000169 *20* I_γ: ceγ coincidence data (1980Ba07) used to estimate Iγ for each placement; Iγ(exp)=1.86 *26* for doublet. α(K)exp=0.0012 *4* for doublet.
1707.97[i] *9*	0.95[i]	1972.35	9/2$^-$	264.272	9/2$^-$	(M1+E2)		0.0018 *4*	α(K)=0.0014 *3*; α(L)=0.00020 *4*; α(M)=4.4×10^{-5} *9*; α(N+..)=0.000181 *23*

$^{169}_{70}$Yb$_{99}$-33

γ(^{169}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)=1.03×10^{-5} *21*; α(O)=1.5×10^{-6} *3*; α(P)=8.0×10^{-8} *18*; α(IPF)=0.000169 *20*
1710.17 *10*	1.2 *3*	1973.97	7/2$^-$	264.272	9/2$^-$				
1717.41 *6*	0.48 *4*	1908.63	5/2$^+$	191.216	5/2$^-$				
1726.30 *9*	0.26 *3*	1888.00	(7/2$^+$,9/2$^+$)	161.645	11/2$^+$				
1730.8 *6*	0.09 *5*	1973.97	7/2$^-$	243.827	7/2$^-$				α(K)exp=0.005 *3*.
^{x}1737.03 *26*	0.180 *23*								α(K)exp<0.005.
^{x}1746.78 *14*	0.27 *4*					M1		0.00208	α(K)=0.001581 *23*; α(L)=0.000224 *4*; α(M)=4.97×10^{-5} *7*; α(N+..)=0.000224 *4* α(N)=1.167×10^{-5} *17*; α(O)=1.681×10^{-6} *24*; α(P)=9.25×10^{-8} *13*; α(IPF)=0.000210 *3* α(K)exp=0.0038 *16*. placed by 1988DzZW from 1909 level, but adopted J$^\pi$=5/2$^+$ for that level would imply an M3 transition.
1751.2 *4*	0.058 *14*	2029.87	7/2$^-$	278.594	7/2$^-$				
1763.35 *5*	0.79 *4*	1954.50	5/2$^-$,7/2$^-$	191.216	5/2$^-$	M1(+E2)		0.0017 *4*	α(K)=0.0013 *3*; α(L)=0.00018 *4*; α(M)=4.1×10^{-5} *8*; α(N+..)=0.00021 *3* α(N)=9.6×10^{-6} *19*; α(O)=1.4×10^{-6} *3*; α(P)=7.5×10^{-8} *16*; α(IPF)=0.000196 *24* Mult.: δ=−0.8 *+2−4* (if J(1954.6 level)=5/2) or δ=0.00 *7* (if J=7/2) (nuclear orientation, 1982Da23) suggests E2 admixture. α(K)exp=0.0021 *6*.
1781.75 *5*	4.01 *11*	1781.696	7/2$^-$	0.0	7/2$^+$	E1+M2	+0.08[c] *+6−5*	0.00097 *5*	α(K)=0.00049 *4*; α(L)=6.6×10^{-5} *6*; α(M)=1.44×10^{-5} *13*; α(N+..)=0.000402 *7* α(N)=3.4×10^{-6} *3*; α(O)=4.9×10^{-7} *5*; α(P)=2.66×10^{-8} *24*; α(IPF)=0.000399 *7* α(K)exp=6.2×10^{-4} *13*.
^{x}1790.55 *10*	0.262 *11*								α(K)exp=0.0011 *6*.
1810.64 *13*	0.104 *18*	1972.35	9/2$^-$	161.645	11/2$^+$				
1817.12 *7*	0.145 *10*	1888.00	(7/2$^+$,9/2$^+$)	70.880	9/2$^+$				α(K)exp=0.0029 *15*.
1822.42[d] *11*	0.150 *10*	2101.03	(5/2,7/2)$^-$	278.594	7/2$^-$				α(K)exp=0.00063 *22*; consistent with E1 or E2.
^{x}1833.41 *11*	0.133 *10*								
1838.30 *8*	0.150 *9*	2029.87	7/2$^-$	191.216	5/2$^-$				
^{x}1850.87 *10*	0.102 *20*								
^{x}1862.44 *9*	0.626 *24*								α(K)exp=0.0010 *5*.
^{x}1867.06 *12*	0.086 *7*								α(K)exp=0.0013 *5*.
1897.60[d] *10*	0.137 *8*	2287.23	7/2$^-$	389.523	9/2$^-$	M1		0.00183	α(K)=0.001301 *19*; α(L)=0.000184 *3*; α(M)=4.08×10^{-5} *6*; α(N+..)=0.000306 *5* α(N)=9.58×10^{-6} *14*; α(O)=1.379×10^{-6} *20*; α(P)=7.60×10^{-8} *11*; α(IPF)=0.000295 *5* α(K)exp=0.0048 *12*.

From ENSDF

γ(^{169}Yb) (continued)

E_γ[†]	I_γ[†f]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[‡]	δ[‡]	α[g]	Comments
1903.04 *5*	0.308 *16*	1973.97	7/2⁻	70.880	9/2⁺	(E1+M2)	+0.08[c] *15*	0.00100 *12*	α(K)=0.00044 *11*; α(L)=5.9×10^{-5} *17*; α(M)=1.3×10^{-5} *4*; α(N+..)=0.000491 *16* α(N)=3.0×10^{-6} *9*; α(O)=4.3×10^{-7} *13*; α(P)=2.4×10^{-8} *7*; α(IPF)=0.000488 *17* Placement from 1982Da23. Mult.: from nuclear orientation, with Δπ=yes from decay scheme.
1908.46 *6*	0.354 *20*	1908.63	5/2⁺	0.0	7/2⁺	(M1,E2)		0.0016 *3*	α(K)=0.00110 *19*; α(L)=0.00015 *3*; α(M)=3.4×10^{-5} *6*; α(N+..)=0.00028 *4* α(N)=8.1×10^{-6} *14*; α(O)=1.16×10^{-6} *21*; α(P)=6.3×10^{-8} *12*; α(IPF)=0.00027 *4* δ: 1982Da23 (nuclear orientation) report δ=0.00 *18* or δ≥3.0. α(K)exp=0.0014 *5*.
ˣ1916.1 *4*	0.042 *10*								
ˣ1920.81 *17*	0.104 *9*								
ˣ1947.33 *22*	0.050 *8*								
1954.48 *9*	0.184 *12*	1954.50	5/2⁻,7/2⁻	0.0	7/2⁺				
1959.24 *9*	1.18 *4*	2029.87	7/2⁻	70.880	9/2⁺	(E1(+M2))	+0.03[c] *4*	1.00×10^{-3} *2*	α(K)=0.000403 *11*; α(L)=5.39×10^{-5} *16*; α(M)=1.19×10^{-5} *4*; α(N+..)=0.000534 *8* α(N)=2.78×10^{-6} *9*; α(O)=3.99×10^{-7} *12*; α(P)=2.19×10^{-8} *7*; α(IPF)=0.000531 *8* Mult.: from nuclear orientation, with Δπ=yes from decay scheme. α(K)exp=0.0010 *3*.
ˣ1969.80 *20*	0.146 *10*								
1973.68 *6*	1.21 *4*	1973.97	7/2⁻	0.0	7/2⁺	(E1+M2)	−0.13[c] *+9−8*	0.00104 *7*	α(K)=0.00043 *6*; α(L)=5.9×10^{-5} *9*; α(M)=1.29×10^{-5} *20*; α(N+..)=0.000539 *12* α(N)=3.0×10^{-6} *5*; α(O)=4.3×10^{-7} *7*; α(P)=2.4×10^{-8} *4*; α(IPF)=0.000535 *13* Mult.: from nuclear orientation, with Δπ=yes from decay scheme. α(K)exp=7×10^{-4} *4*.
ˣ1985.08 *12*	0.427 *14*								α(K)exp=0.00073 *21*.
2014.06[d] *9*	0.135 *16*	2101.03	(5/2,7/2)⁻	86.927	3/2⁻	M1,E2		0.00148 *23*	α(K)=0.00098 *16*; α(L)=0.000138 *22*; α(M)=3.1×10^{-5} *5*; α(N+..)=0.00033 *4* α(N)=7.2×10^{-6} *12*; α(O)=1.03×10^{-6} *17*; α(P)=5.6×10^{-8} *10*; α(IPF)=0.00032 *4* α(K)exp=0.0012 *7*.
2018.40[dj] *27*	0.062 *19*	2296.78?	5/2⁻,7/2,9/2⁻	278.594	7/2⁻				
ˣ2025.46 *11*	0.493 *23*								α(K)exp=0.0016 *8*.

γ(^{169}Yb) (continued)

E_γ[†]	I_γ[†f]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[‡]	δ[‡]	α[g]	Comments
2030.00 *6*	2.89 *8*	2029.87	7/2$^-$	0.0	7/2$^+$	(E1(+M2))	+0.03[c] *5*	1.03×10^{-3} *2*	α(K)=0.000380 *13*; α(L)=5.08×10^{-5} *19*; α(M)=1.12×10^{-5} *5*; α(N+..)=0.000584 *9* α(N)=2.62×10^{-6} *10*; α(O)=3.77×10^{-7} *14*; α(P)=2.07×10^{-8} *8*; α(IPF)=0.000581 *9* Mult.: from nuclear orientation, with Δπ=yes from decay scheme. α(K)exp=2.4×10^{-4} *13*.
[x]2048.99 *8*	0.335 *22*								α(K)exp=0.0029 *15*.
[x]2056.17 *5*	1.23 *4*								α(K)exp=0.0021 *11*.
2065.03 *11*	0.059 *5*	2065.04	7/2$^+$	0.0	7/2$^+$	M1+E2+E0		0.00145 *21*	α(K)=0.00093 *15*; α(L)=0.000130 *21*; α(M)=2.9×10^{-5} *5*; α(N+..)=0.00036 *5* α(N)=6.8×10^{-6} *11*; α(O)=9.7×10^{-7} *16*; α(P)=5.3×10^{-8} *10*; α(IPF)=0.00035 *5* α(K)exp=0.0062 *16*. placement from 1991DzZY.
[x]2070.85 *11*	0.130 *5*								α(K)exp=0.0014 *6*.
[x]2088.69 *14*	0.043 *3*								
2095.90[d] *7*	0.549 *19*	2287.23	7/2$^-$	191.216	5/2$^-$	M1		1.63×10^{-3}	α(K)=0.001031 *15*; α(L)=0.0001452 *21*; α(M)=3.22×10^{-5} *5*; α(N+..)=0.000420 *6* α(N)=7.56×10^{-6} *11*; α(O)=1.090×10^{-6} *16*; α(P)=6.01×10^{-8} *9*; α(IPF)=0.000412 *6* α(K)exp=0.0018 *6*.
2101.09[d] *13*	0.053 *4*	2101.03	(5/2,7/2)$^-$	0.0	7/2$^+$				α(K)exp<0.003.
[x]2112.0 *4*	0.036 *11*								
[x]2114.33 *26*	0.070 *4*								
[x]2122.47 *10*	0.84 *4*								α(K)exp=0.00112 *20*.
2135.4 *4*	0.033 *5*	2135.4		0.0	7/2$^+$				placement from 1991DzZY.
[x]2139.39 *17*	0.31 *4*								α(K)exp=0.00078 *22*.
[x]2141.88 *20*	0.063 *8*								
[x]2148.27 *17*	0.106 *6*								
[x]2158.05 *25*	0.116 *25*								α(K)exp=0.0027 *9*.
[x]2161.18 *10*	0.30 *3*								α(K)exp=0.0009 *5*.
[x]2191.49 *20*	0.068 *4*								

† From 1978Ba73, except where noted.

‡ From α(K)exp and/or α(L)exp in 1978Ba73, except where noted. The photon and ce intensity scales in 1978Ba73 were normalized to give α(K) values consistent with known multipolarities of 75.0γ (E2), 156.9γ (E2), 165.0γ (E2), and 191.2γ (E1+M2), and then adjusted slightly to give α(K)=0.00158 (E1 theory) for 889.8γ and α(K)=0.00137 (E1 theory) for 960.6γ.

From 1980Ba07 and/or 1976Ba61.

$^{169}_{70}$Yb$_{99}$-36

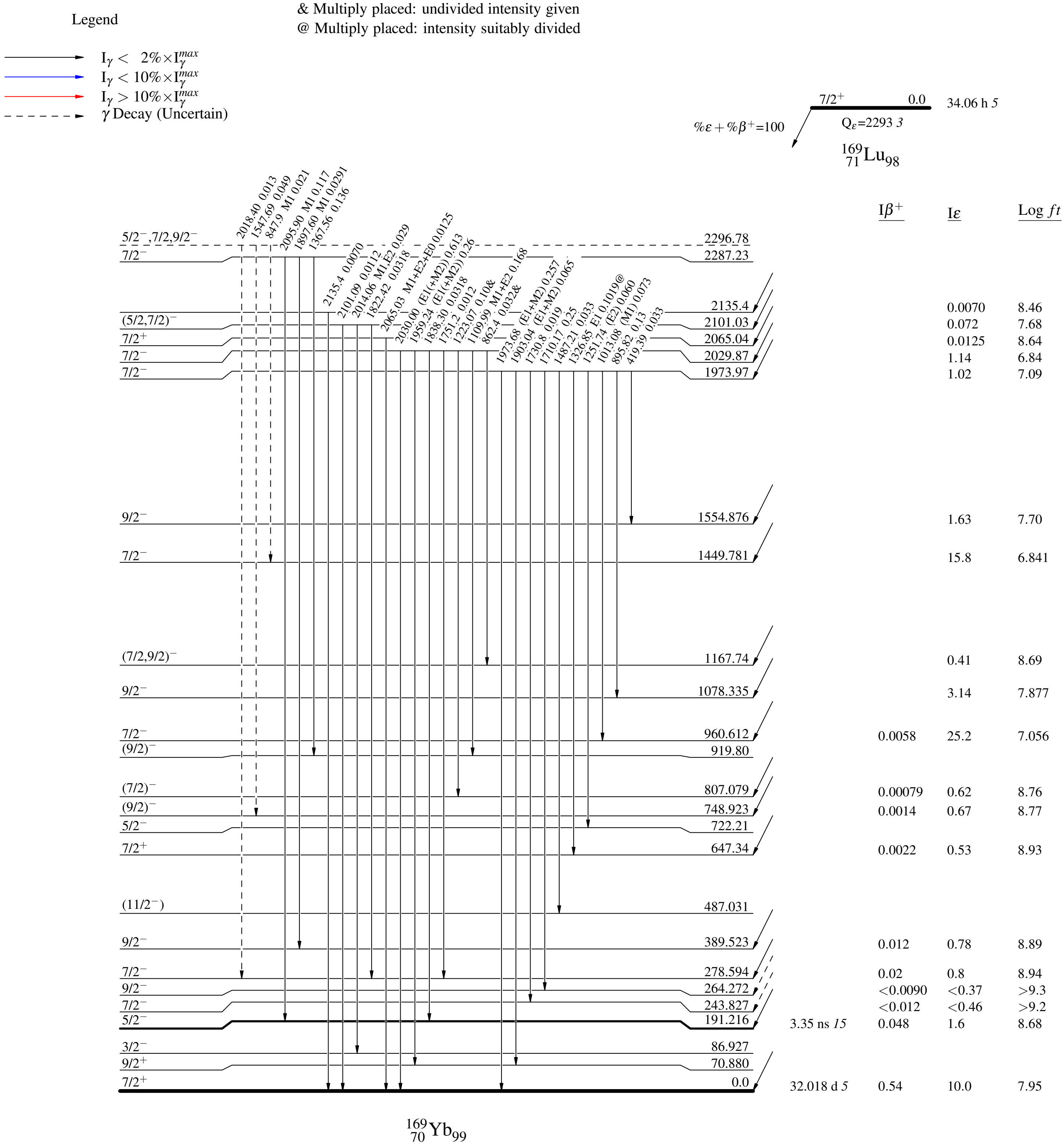
$\gamma(^{169}Yb)$ (continued)

[@] From Adopted Gammas.
[&] Deduced from relative photon branchings in ^{168}Yb(n,γ) E=thermal and Iγ for transitions common to both decay and (n,γ).
[a] From Adopted Gammas.
[b] From L and/or M subshell ratios.
[c] From nuclear orientation (1982Da23).
[d] Placement from 1988DzZW.
[e] For pure M1.
[f] For absolute intensity per 100 decays, multiply by 0.212 *4*.
[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] Multiply placed with intensity suitably divided.
[j] Placement of transition in the level scheme is uncertain.
[x] γ ray not placed in level scheme.

^{169}Lu ε decay (34.06 h) 1978Ba73,1978Bo39,1980Ba07

Decay Scheme

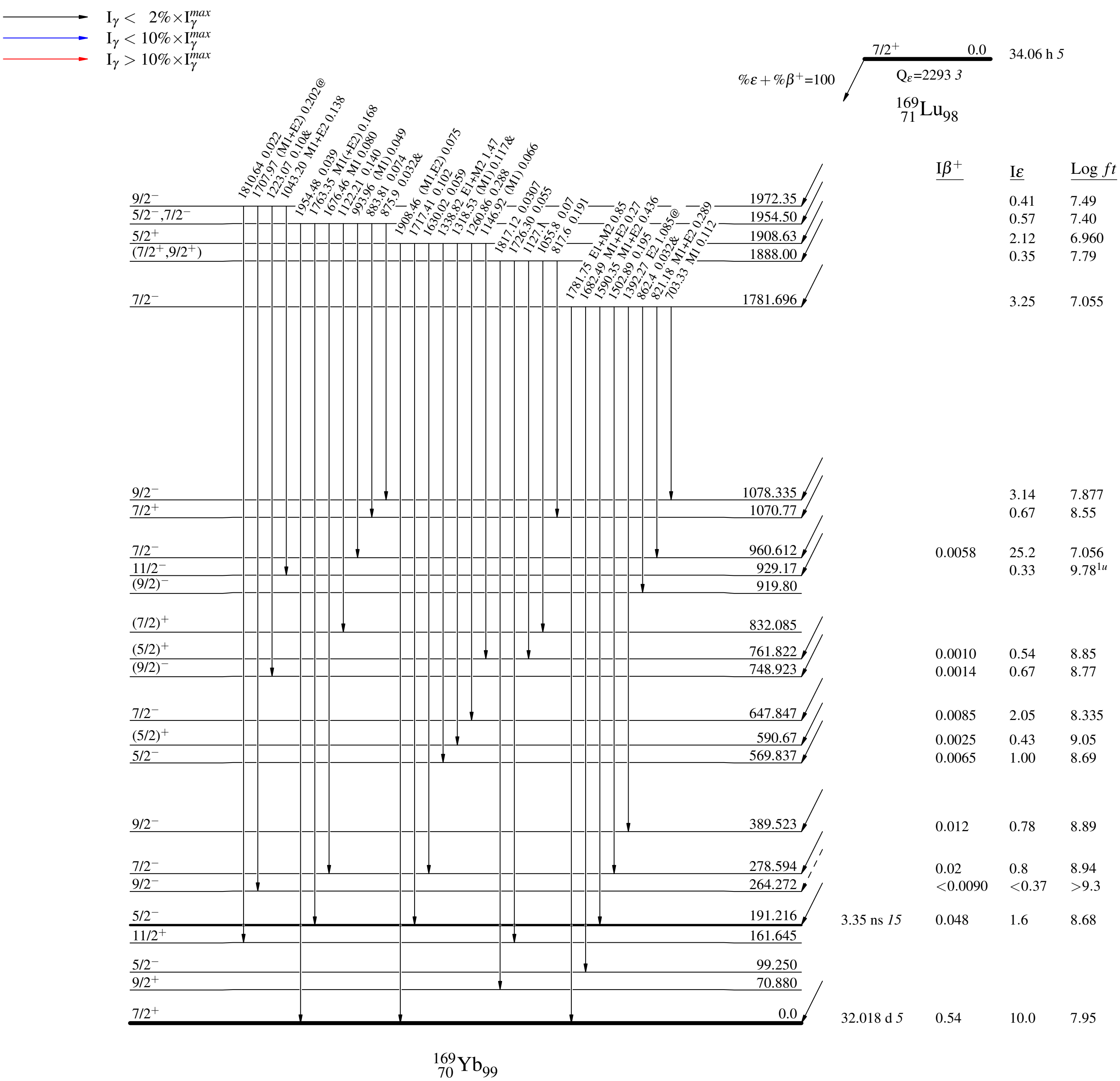
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided



^{169}Lu ε decay (34.06 h) 1978Ba73,1978Bo39,1980Ba07

Decay Scheme (continued)

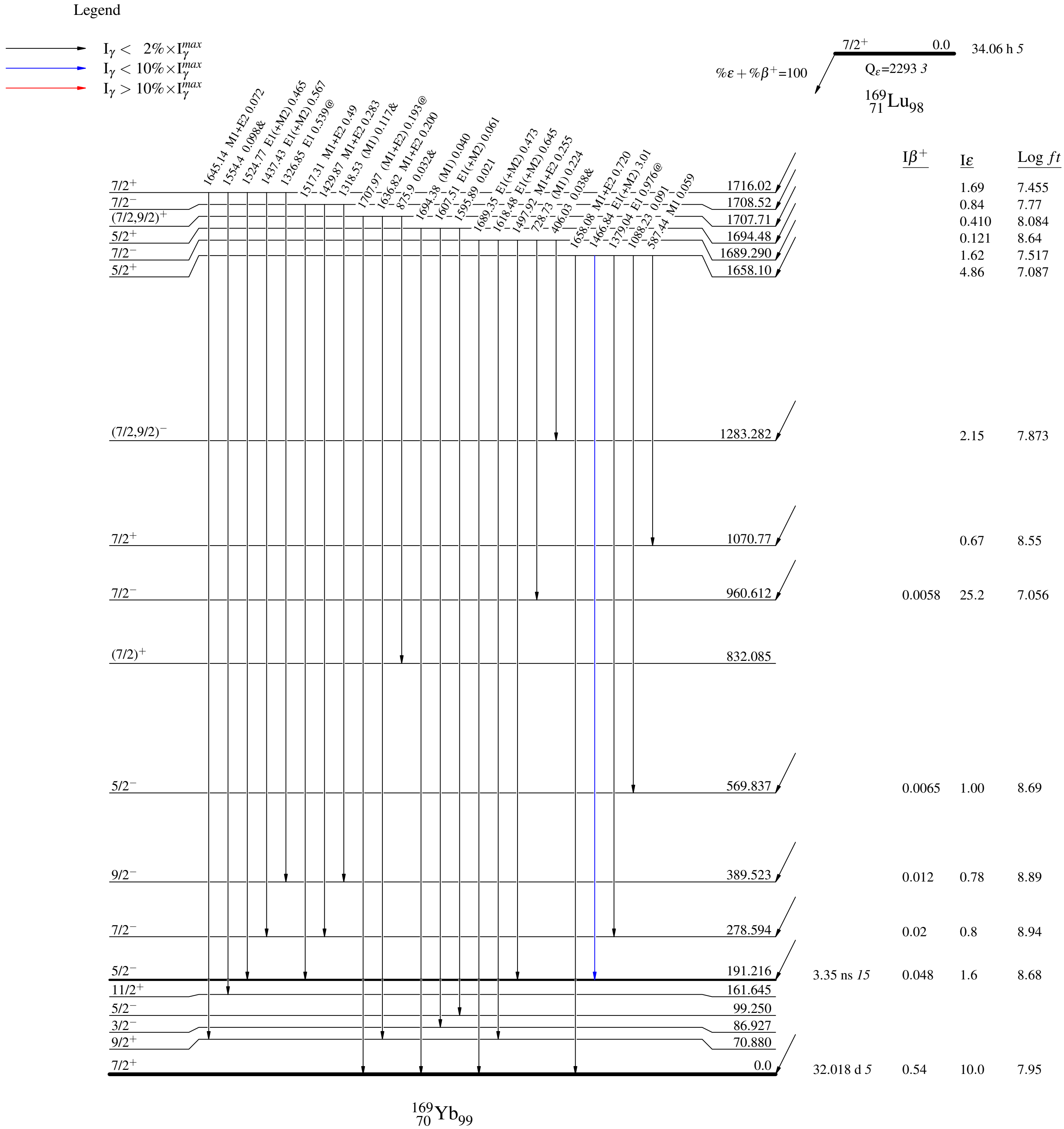
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided



^{169}Lu ε decay (34.06 h) 1978Ba73,1978Bo39,1980Ba07

Decay Scheme (continued)

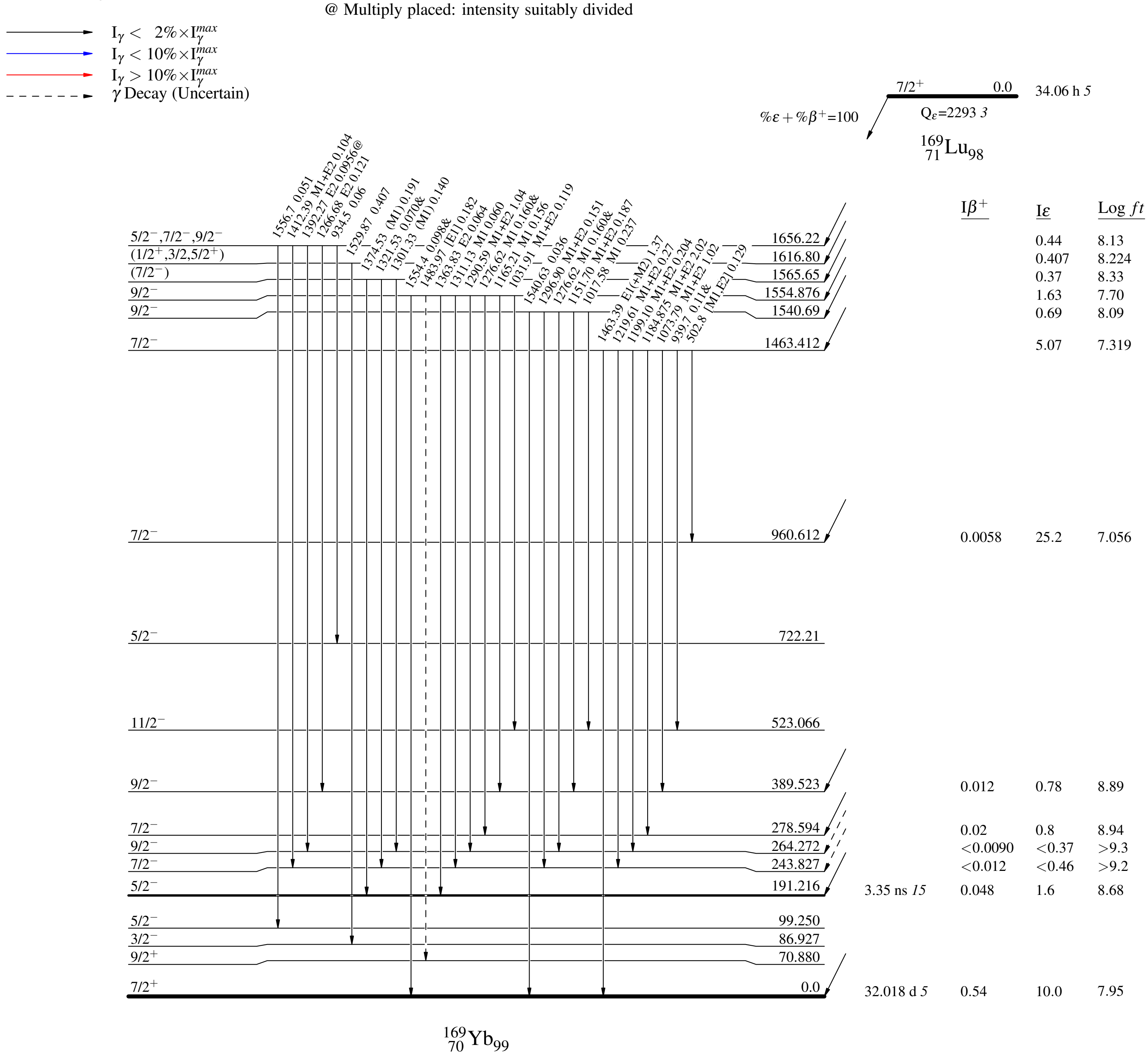
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided



^{169}Lu ε decay (34.06 h) 1978Ba73,1978Bo39,1980Ba07

Decay Scheme (continued)

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

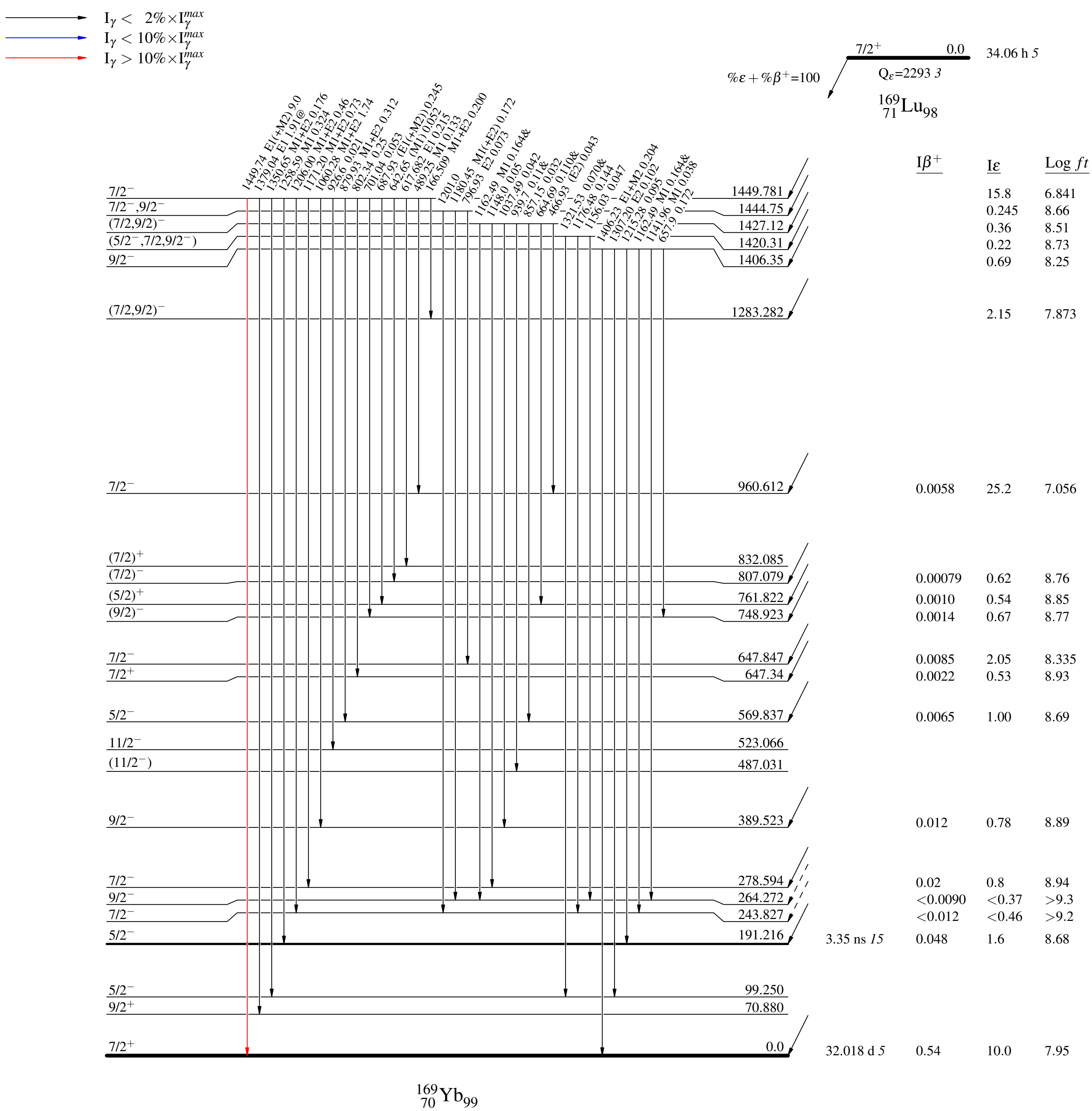


^{169}Lu ε decay (34.06 h) 1978Ba73,1978Bo39,1980Ba07

Decay Scheme (continued)

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

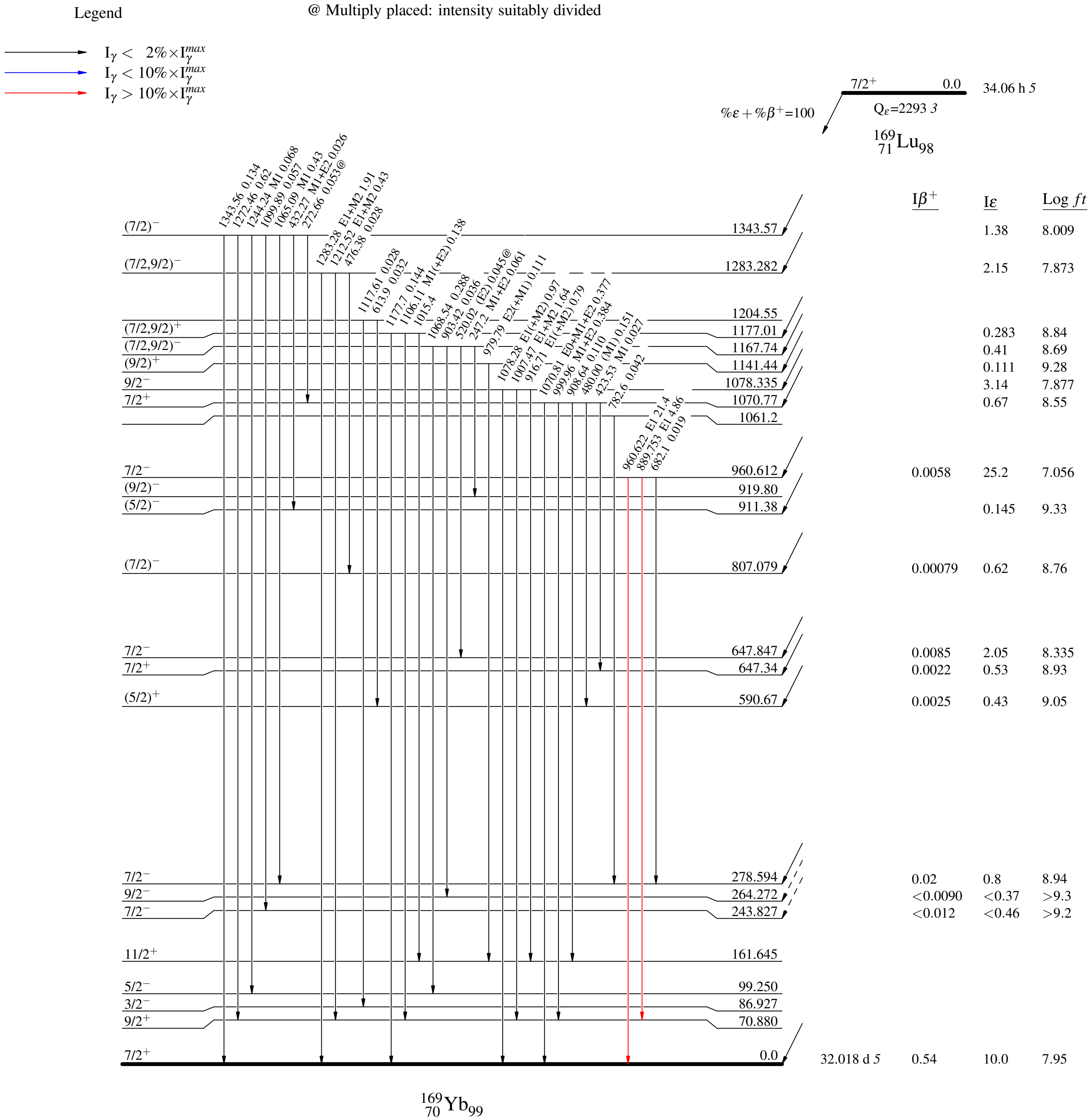
Legend



^{169}Lu ε decay (34.06 h) 1978Ba73,1978Bo39,1980Ba07

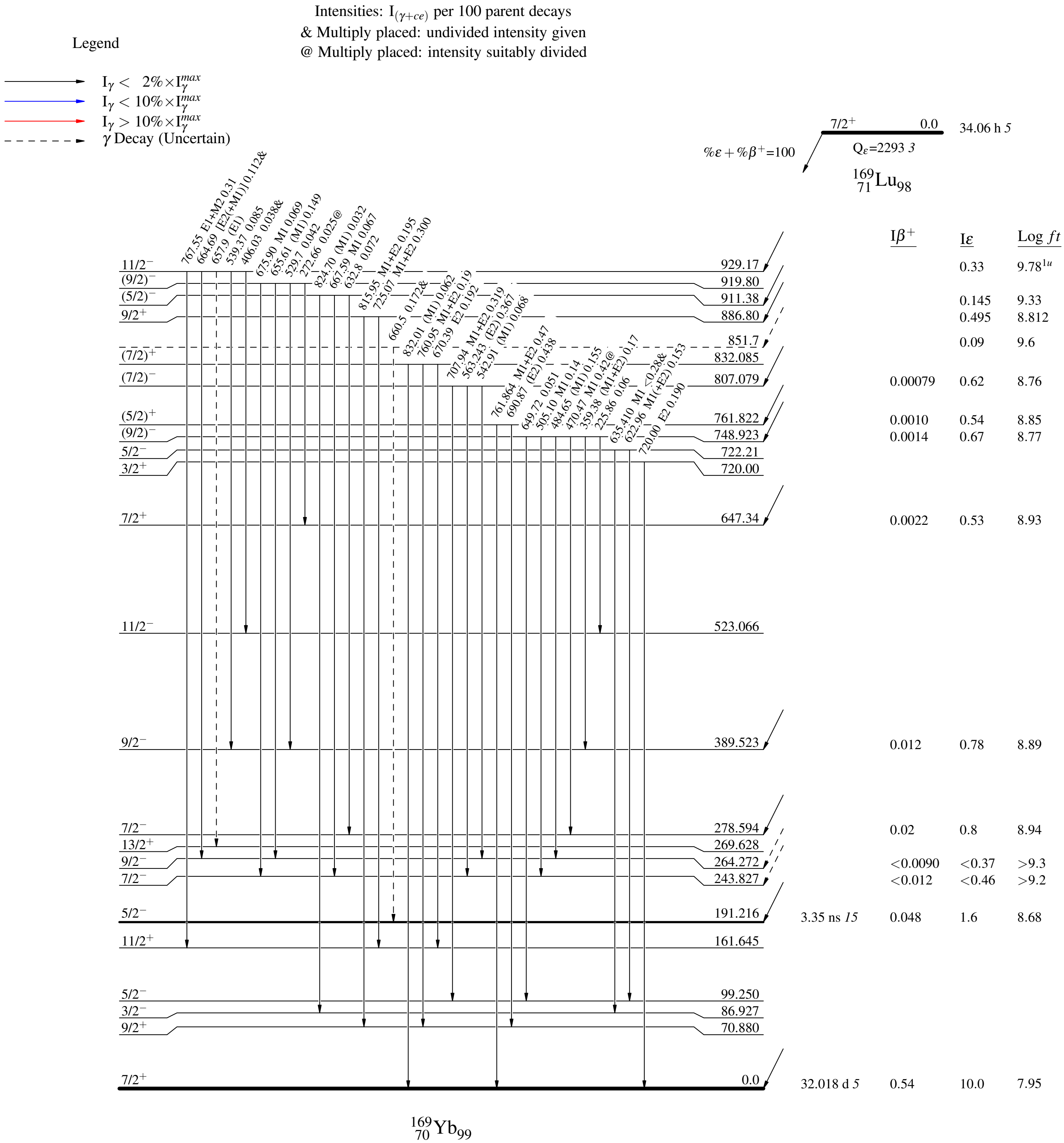
Decay Scheme (continued)

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



^{169}Lu ε decay (34.06 h) 1978Ba73,1978Bo39,1980Ba07

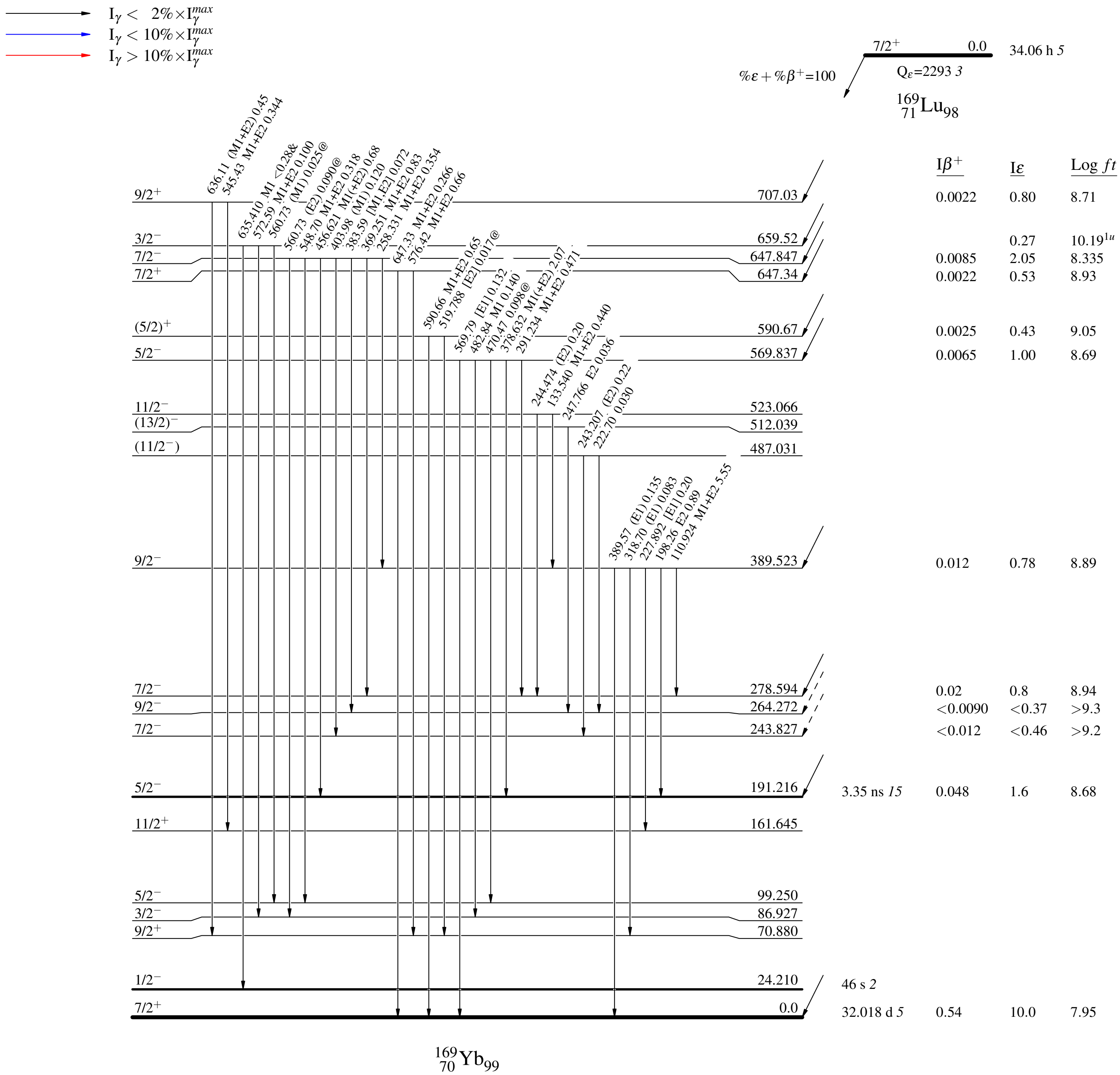
Decay Scheme (continued)



^{169}Lu ε decay (34.06 h) 1978Ba73,1978Bo39,1980Ba07

Decay Scheme (continued)

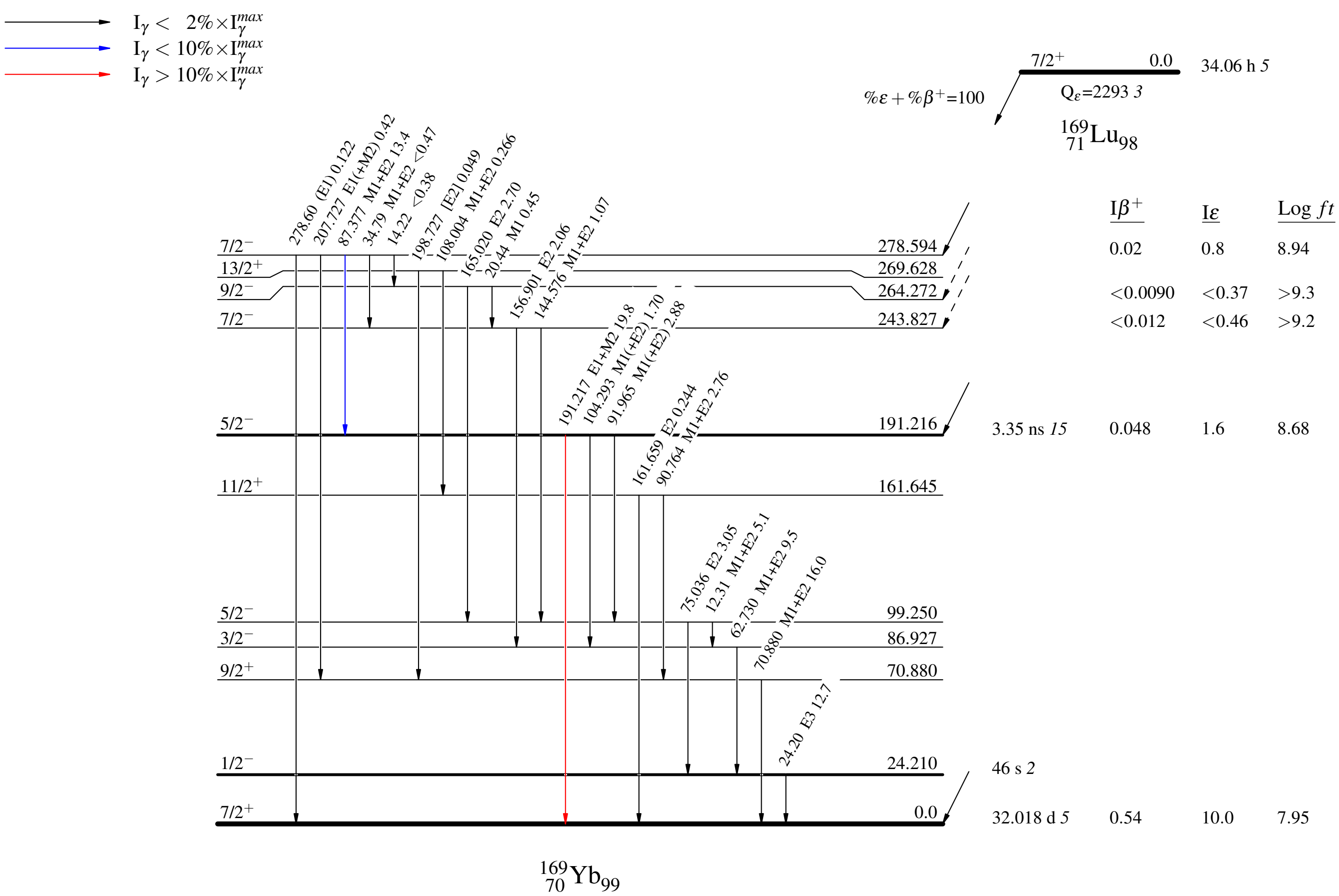
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided



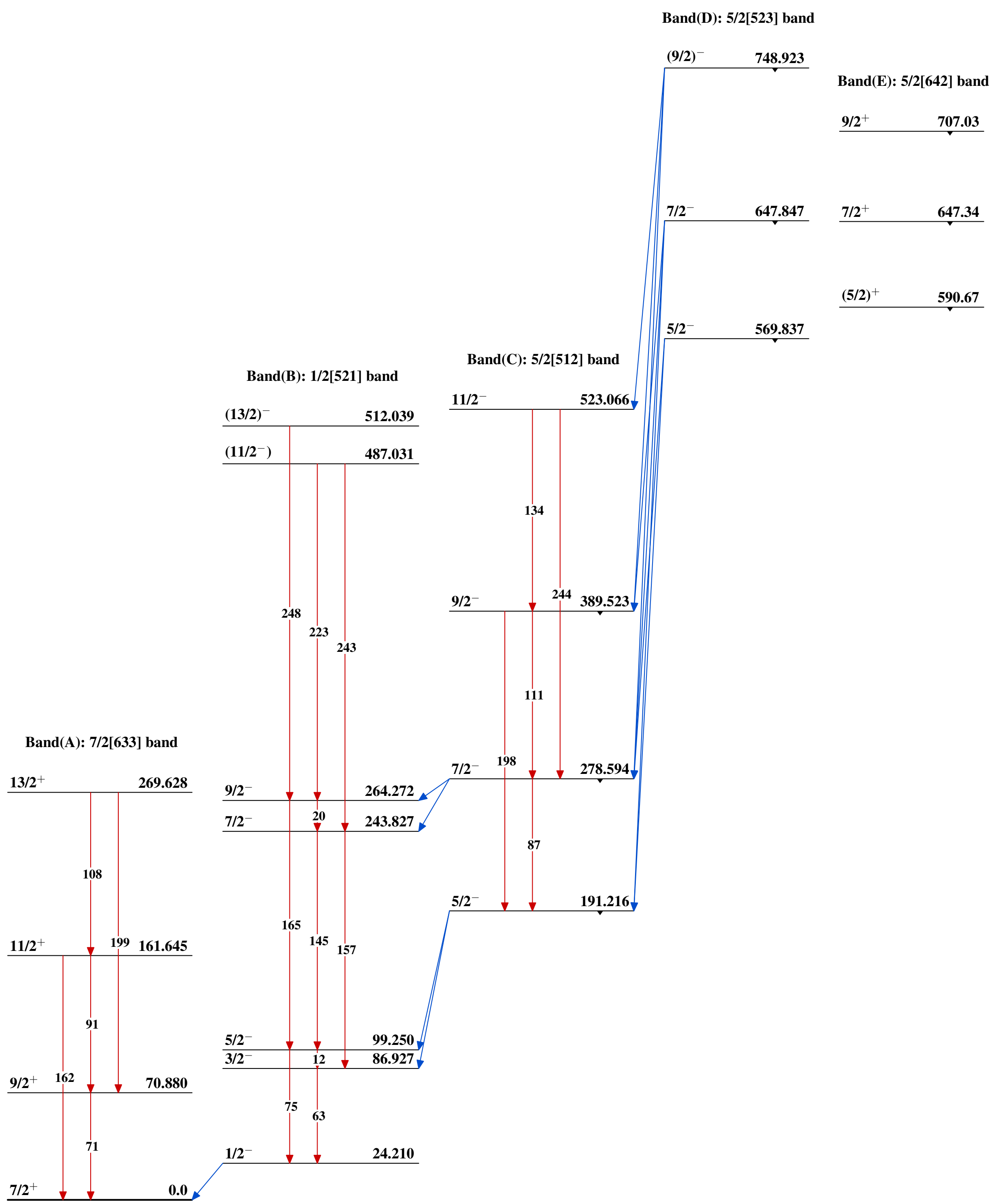
^{169}Lu ε decay (34.06 h) 1978Ba73,1978Bo39,1980Ba07

Decay Scheme (continued)

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

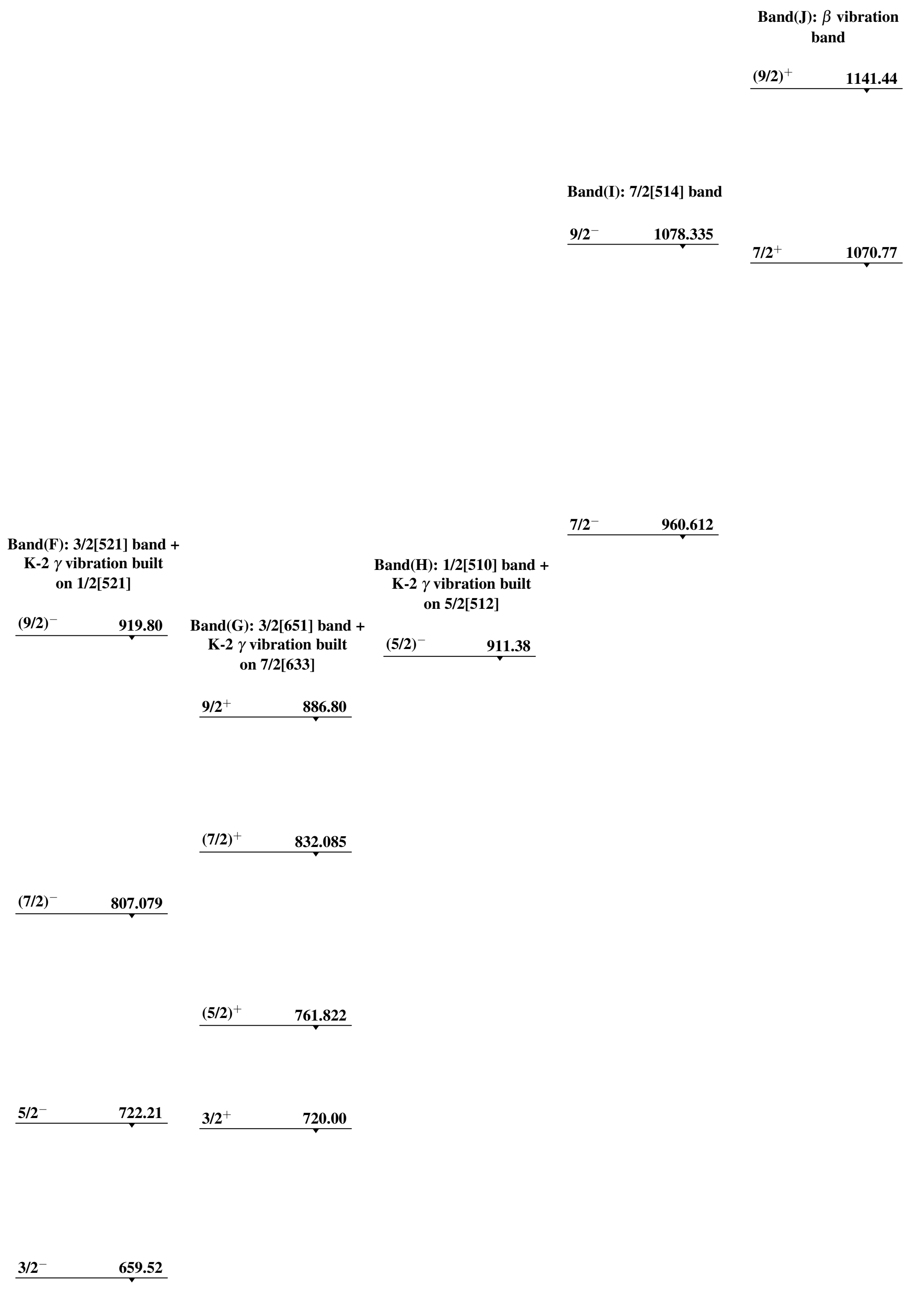


^{169}Lu ε decay (34.06 h) 1978Ba73,1978Bo39,1980Ba07



$^{169}_{70}Yb_{99}$

^{169}Lu ε decay (34.06 h) 1978Ba73,1978Bo39,1980Ba07 (continued)



$^{169}_{70}Yb_{99}$