^{172}Lu ε decay (6.70 d) 1978Bo18,1978Hn01,1984Kr14

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	NDS 75,199 (1995)	31-May-1995

Parent: ^{172}Lu: E=0.0; $J^\pi=4^-$; $T_{1/2}$=6.70 d *4*; Q(ε)=2519.3 *24*; %ε+%$β^+$ decay=100.0

^{172}Lu has been formed in many different reactions such as: (p,X) spallation reactions on Ta and Pb (1978Bo18,1978Hn01) followed by chemical or mass separation; ^{169}Tm(α,n) (1980En01); from ^{172}Hf parent produced by Yb(α,xn) (1970Se05); ^{172}Yb(d,2n) (1976Kr04); ^{172}Yb(p,n) (1968Ka01), etc.

1978Bo18 (also 1978Bo19): measured γ, ce, γγ.

1978Hn01: measured G.

1970Se05 (also 1970SeZT): G.

1968PrZW: γ, γγ, ce.

1984Kr14: γ(θ,T), oriented nuclei. 1993KrZX report anisotropy for 410.3γ, 929.1γ, and 2083.4γ.

Other measurements:

γ: 1993He18, 1980En01, 1978Me13, 1978BaYJ, 1976Sh26, 1976Kr04, 1974Ba56, 1972Dz02, 1972Ba50, 1969Mo26, 1968Ka01, 1967Kl01, 1967Co26, 1967Co20, 1966Vr02, 1965Ka17, 1961Ha23, 1960Wi11, 1960Bu27, 1959Di44.

ce: main data are reported by 1972Ba50, 1968Ka01, 1964Dz01, 1964Ka07, 1961Ha23, 1960Tu01 and 1960Pl03. Others: 1980Bu28, 1979Bu21, 1978Me13, 1977Ka30, 1974Ba56, 1974Ba21, 1972Dz02, 1969Vu01, 1967Kl01, 1967Co26, 1966Ba51, 1964Dz04, 1963Tu01, 1962Dz05, 1962Br40, 1960Io02, 1960Io01, 1960Dz02, 1960Ab06, 1959Di44, 1957Bo61.

γγ: 1980Pe16, 1978BaYJ, 1967Kl01, 1967Dz10, 1962Va07, 1960Wi11, 1959Di44.

cece: 1960Dz08.

γγ(t): 1980En01, 1963He01.

γce(t): 1970Ra18, 1968Ka01.

cece(t): 1969Vu01.

Auger electrons: 1982Ar22, 1965Ka17.

β-strength functions: 1981By04 (total absorption), 1979Mi17 (analysis).

γ(θ,T): 1983No10, 1976Kr04, 1985Fi06.

γγ(lin pol): 1967We08, 1967Bl01, 1963St09,

γ(lin pol,T): 1983No10.

γγ(θ): 1982BuZH, 1972Be94, 1971Wa03, 1965Gu01, 1963St09.

γce(θ), cece(θ): 1969Vu01, 1967Kl01.

γγ(θ,t): 1970Ra18, 1969Fo07, 1962Bl01.

γγ(θ,H): 1987Bu15, 1972Be94, 1971Wa03, 1970He17, 1965Gu01, 1964Gu01.

γγ(θ,H,t): 1969Li08.

$T_{1/2}$(^{172}Lu isotope): 1960Wi11, 1967Co26, 1967Co20, 1967Ba57, 1963Ra14, 1962Bo12, 1960Dz02, 1960Bu27, 1960Wi06, 1951Wi08.

^{172}Yb Levels

E(level)†	J^π‡	$T_{1/2}$	Comments
0.0#	0^+		
78.7427# *6*	2^+	1.6 ns *4*	$T_{1/2}$: γγ(t) (1968Ka01).
260.270# *5*	4^+		
539.984# *11*	6^+		
1117.99@ *8*	2^+		
1172.390& *8*	3^+	8.33 ns *8*	$T_{1/2}$: from 1980En01. Others: 7.8 ns *4* (1968Ka01), 8.14 ns *22* (1969Be34), 7.9 ns *5* (1969Vu01).
1221.51a *9*	3^-		
1263.036& *8*	4^+	0.49 ns *3*	$T_{1/2}$: from γγ(t) (1969Be34). Other:≤0.6 ns (1968Ka01). Additional information 1.
1286.48@ *5*	4^+		
1330.93a *18*	4^-		

Continued on next page (footnotes at end of table)

^{172}Lu ε decay (6.70 d) 1978Bo18,1978Hn01,1984Kr14 (continued)

^{172}Yb Levels (continued)

E(level)†	Jπ‡	Comments
1375.816[&] 8	5+	
1465.929[&] 15	2+	
1476.77[c] 7	2+	Level proposed by 1978Bo19 only.
1510.188[&] 13	6+	
1549.118[b] 17	3+	
1608.62[d] 4	2+	
1633.10[c] 11	(4)+	
1640.575[e] 10	4−	
1657.85[b] 4	(4)+	
1662.812[f] 10	3+	
1700.645[d] 10	3+	
1706.454[e] 14	5−	
1749.208[f] 10	4+	
1778.87[b] 5	5+	
1803.113[d] 9	4+	
1821.64[g] 9	3−	
1862.808[f] 16	(5)+	
1869.648[h] 13	(4,5)−	
1926.958[d] 16	5+	
2073.125[i] 8	4+	
2175.074[j] 16	3+	
2181.98 3	(4,5,6)+	Proposed by 1970Se05 only.
2192.152[i] 12	5+	
2213.327 25	3+,4+	
2285.399[j] 11	4+	
2307.83 6	3+,4+	
2343.720[k] 16	4+	

† From least-squares fit to Eγ′s.
‡ From Adopted Levels.
# Band(A): Kπ=0+ g.s. band.
@ Band(B): Kπ=0+ β band.
& Band(C): Kπ=3+ band. two-quasiparticle state.
a Band(D): Kπ=1− octupole band.
b Band(E): Kπ=2+ γ band.
c Band(F): Kπ=0+ band.
d Band(G): Kπ=2+.
e Band(H): Kπ=(4−) band.
f Band(I): Kπ=3+ band.
g Band(J): Kπ=2− octupole band.
h Band(K): band 1.
i Band(L): Kπ=4+ band.
j Band(M): Kπ=3+ band.
k Band(N): Kπ=4+ band.

^{172}Lu ε decay (6.70 d) 1978Bo18,1978Hn01,1984Kr14 (continued)

ε,β+ radiations

E(decay)	E(level)	Iβ+ †	Iε†	Log *ft*	I(ε+β+)†	Comments
(175.6 *24*)	2343.720		2.57 *8*	6.70 *2*	2.57 *8*	εK=0.703 *3*; εL=0.2234 *21*; εM+=0.0736 *8*
(211.5 *24*)	2307.83		0.36 *25*	7.8 *3*	0.36 *25*	εK=0.7347 *17*; εL=0.2004 *12*; εM+=0.0649 *5*
(233.9 *24*)	2285.399		5.94 *14*	6.66 *2*	5.94 *14*	εK=0.7479 *13*; εL=0.1908 *9*; εM+=0.0613 *4*
(306.0 *24*)	2213.327		0.72 *3*	7.87 *2*	0.72 *3*	εK=0.7739; εL=0.1718 *5*; εM+=0.05429 *17*
(327.1 *24*)	2192.152		5.48 *12*	7.06 *2*	5.48 *12*	εK=0.7788; εL=0.1682 *4*; εM+=0.05296 *14*
(337.3 *24*)	2181.98		0.22 *2*	8.49 *4*	0.22 *2*	εK=0.7809; εL=0.1667 *4*; εM+=0.05240 *13*
(344.2 *24*)	2175.074		2.17 *14*	7.51 *3*	2.17 *14*	εK=0.7823; εL=0.1657 *4*; εM+=0.05204 *13*
(446.2 *24*)	2073.125		65.0 *10*	6.30 *1*	65.0 *10*	εK=0.7964; εL=0.15535 *18*; εM+=0.04825 *7*
(592.3 *24*)	1926.958		0.59 *4*	8.61 *3*	0.59 *4*	εK=0.8071; εL=0.1475; εM+=0.04539
(649.7 *24*)	1869.648		0.68 *4*	8.64 *3*	0.68 *4*	εK=0.8099; εL=0.1455; εM+=0.04466
(697.7 *24*)	1821.64		0.022 *2*	10.19 *4*	0.022 *2*	εK=0.8118; εL=0.1441; εM+=0.04416
(716.2 *24*)	1803.113		0.71 *9*	8.71 *6*	0.71 *9*	εK=0.8124; εL=0.1436; εM+=0.04398
(740.4 *24*)	1778.87		0.064 *17*	9.79 *12*	0.064 *17*	εK=0.8132; εL=0.1430; εM+=0.04376
(770.1‡ *24*)	1749.208		<0.09	>9.7	<0.09	εK=0.8142; εL=0.1423; εM+=0.04352
(812.8 *24*)	1706.454		0.46 *5*	9.02 *5*	0.46 *5*	εK=0.8154; εL=0.1414; εM+=0.04321
(818.7 *24*)	1700.645		3.14 *13*	8.19 *2*	3.14 *13*	εK=0.8155; εL=0.1413; εM+=0.04316
(856.5 *24*)	1662.812		3.53 *11*	8.18 *2*	3.53 *11*	εK=0.8164; εL=0.1406; εM+=0.04292
(878.7 *24*)	1640.575		1.85 *9*	8.48 *2*	1.85 *9*	εK=0.8169; εL=0.1403; εM+=0.04278
(886.2 *24*)	1633.10		0.048 *8*	10.1 *1*	0.048 *8*	εK=0.8171; εL=0.1401; εM+=0.04274
(910.7 *24*)	1608.62		0.117 *13*	10.2[1u] *1*	0.117 *13*	εK=0.7946; εL=0.1566; εM+=0.04885
(970.2‡ *24*)	1549.118		<0.08	>9.9	<0.08	εK=0.8188; εL=0.1389; εM+=0.04230
(1042.5 *24*)	1476.77		0.13 *2*	10.4[1u] *1*	0.13 *2*	εK=0.8007; εL=0.1521; εM+=0.04718
(1053.4 *24*)	1465.929		0.22 *7*	10.2[1u] *2*	0.22 *7*	εK=0.8011; εL=0.1518; εM+=0.04707
(1143.5 *24*)	1375.816		0.6 *3*	9.2 *2*	0.6 *3*	εK=0.8214; εL=0.1370; εM+=0.04161
(1188.4 *24*)	1330.93		0.027 *7*	10.6 *1*	0.027 *7*	εK=0.8219; εL=0.1366; εM+=0.04147
(1232.8 *24*)	1286.48		0.067 *5*	10.2 *1*	0.067 *5*	εK=0.8224; εL=0.1362; εM+=0.04133
(1297.8 *24*)	1221.51		0.062 *13*	10.3 *1*	0.062 *13*	εK=0.8230; εL=0.1357; εM+=0.04116
(1346.9 *24*)	1172.390	0.0018 *5*	6.3 *18*	8.34 *13*	6.3 *18*	av Eβ=162.7 *11*; εK=0.8233; εL=0.1354; εM+=0.04103
(1401.3 *24*)	1117.99		0.14 *2*	10.9[1u] *1*	0.14 *2*	εK=0.8107; εL=0.1448; εM+=0.04446
(1979.3‡ *24*)	539.984	<0.00070	<0.16	>11.4[1u]	<0.16	av Eβ=458.0 *11*; εK=0.8150; εL=0.1385; εM+=0.04219
(2259.0‡ *24*)	260.270	<0.04	<0.9	>9.7	<0.9	av Eβ=565.6 *12*; εK=0.7895; εL=0.1258; εM+=0.03793

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

^{172}Lu ε decay (6.70 d) 1978Bo18,1978Hn01,1984Kr14 (continued)

$\gamma(^{172}Yb)$

Iγ normalization: Σ (I(γ+ce) of transitions to 78.7 level + I(γ+ce) of transitions to g.s. (except 78.7γ))=100. Iγ normalization=0.625 gives calculated I(kx)=110 (1986BrZQ) compared to the observed intensity of 98 (1978Bo18).

The following γ rays with Eγ (Iγ) assigned by 1970Se05 are omitted here due to lack of confirmation by other studies (1978Bo18,1978Hn01,1976Kr04). Some of these may be sum lines as pointed out by 1976Sh26: 137.94 (0.059), 142.63 (0.158), 233.46 (0.54), 241.03 (0.11), 383.1 (0.09), 562.1 (0.19), 862.4 (0.52), 953.01 (0.69), 963.7 (0.27), 979.7 (0.22), 1061.83 (0.17), 1145.38 (0.80), 1152.97 (0.32), 1179.3 (0.20), 1400.2 (0.32), 1592.88 (0.13).

The following lines with Eγ(ce(K)) reported by 1978Me13 in ce study are omitted due to lack of confirmation in γ-ray studies and other electron studies: 557.5 (0.38 *20*), 718.8 (0.9 *3*), 745.0 (0.43 *21*), 833.1 (0.55 *22*), 1448.2 (0.05 *3*), 1452.4 (0.06 *3*), 1501.4 (0.026 *18*).

α(K)exp′s are generally from 1978Bo18. The electron intensities are given under comments (only in ENSDF) and are relative to 100 for 1094γ. Typically α(exp)=(Ice/Iγ)0.00275.

	A_2 values from $\gamma(\theta,T)$ ($A_4 \approx 0$ for all transitions)		
Eγ	1984Kr14	1976Kr04	1983No10
79		0.21 5 b)	
91		0.67 5	
181	-0.44 4	-0.45 3 a)	
203	-0.44 6	-0.44 4 a)	-0.420 20
247		-0.45 8 a)	
265	0.02 9	0.14 6 b)	-0.136 7
270	-0.49 7	-0.59 3	-0.57 3
280	-0.41 11	-0.41 7 a)	-0.37 7
324	-0.65 8	-0.59 3	-0.573 7
330		-0.53 5	
367		-0.32 12	0.20 19
372	-0.70 4	-0.80 3	-0.655 13
378	-0.41 3	-0.42 3	-0.326 22
400	0.05 9	0.15 6	
410	-0.71 4	-0.79 3	-0.80 3
432	-0.46 5	-0.53 3	-0.486 10
438	0.28 14		
482	-0.36 5	-0.49 7	-0.415 23
486	-0.66 10	-0.57 7	-0.41 3
490	-0.47 3	-0.53 4	-0.46 3
524	-0.62 6		
528	-0.441 23	-0.48 3	-0.405 19
536	-0.31 5	-0.42 6	-0.163 4
540	-0.42 6	-0.41 5	-0.30 3
551	-0.20 12	-0.32 11	
577	-0.13 11	0.50 15	
585	0.20 16	0.39 10	
595	-0.55 17	-0.50 10	
607	-0.33 14	-0.34 14 a)	
631	0.49 27	0.23 7	
682	0.32 11	0.31 7	
697	0.138 15	0.142 10	0.121 2
709	-0.48 5	-0.24 5	

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723	-0.29 9		
810	-0.38 3	-0.421 17	-0.421 17 a)
816	-0.52 4	-0.54 4	-0.373 19
901	0.186 17	0.187 8	0.187 8 a)
912	-0.23 3	-0.318 21	-0.216 12
929	0.415 16	0.422 17	0.41 4
968	-0.68 15		
1003	0.21 5	0.250 19	0.293 3
1022	-0.54 6	-0.50 5	-0.459 23
1041		-0.52 7	
1081	-0.27 10	-0.31 5	
1094	0.35 3	0.46 3	0.345 1
1113	0.62 7	0.75 7	
1184	-0.50 8	-0.29 13 a)	
1289	-0.16 11		
1387	0.34 4	0.48 5	
1398	0.28 8		
1403	0.42 5	0.35 3	
1441	0.52 5	0.46 4	
1466	-0.66 13	-0.67 10 a)	
1470	0.13 8	0.13 4	
1489	0.30 6	0.29 3	
1543	0.18 5	0.29 4	
1579	-0.49 20		
1584	-0.158 21	-0.229 17	
1603	-0.09 6	-0.15 6	
1622	-0.232 21	-0.225 19	
1666	-0.26 5	-0.29 5	
1670	-0.46 5	-0.43 5 a)	
1724	-0.47 7	-0.46 3 a)	
1813	0.14 7	0.25 5	
1915	-0.23 3	-0.27 3	
1994		-0.11 6	
2083	-0.67 11	-0.63 9	
2096	-0.68 10		

a) transition used for determination of orientation coefficient
b) from 4 Millik data. Sign of A_2 is negative in the 20 Millik data

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γ(lin pol,T) data (1983No10)

Eγ	pol	Eγ	pol
203	-0.55 15	528	-0.209 5
265	-0.15 8	536	-0.66 33
270	-0.25 11	540	-0.10 2

280	-0.21 10	697	0.14 9
324	-0.10 3	810	-0.15 9
373	0.24 7	816	-0.28 3
378	0.32 8	901	0.28 5
410	0.45 22	912	0.17 10
433	0.23 4	929	0.15 2
482	-0.16 30	1003	0.38 4
486	-0.25 20	1022	-0.27 6
490	-0.06 35	1094	-0.11 3

A_2 and A_4 values from $\gamma\gamma(\theta)$

Level	Cascade	A_2	A_4	Reference
1172	912-181	0.337 7	-0.150 12	(1982BuZH)
	1094-79	-0.387 6	-0.061 9	(1982BuZH)
		-0.386 16	-0.081 16	(1971Wa03)
		-0.410 10	-0.042 12	(1967Bl01)
1263	91-1094	0.356 12	0.010 20	(1982BuZH)
		0.354 16	0.06 3	(1971Wa03)
		0.420 20	0.012 25	(1967Bl01)
	1003-181	-0.126 4	0.150 8	(1982BuZH)
1376	203-1094	-0.081 4	0.013 9	(1982BuZH)
1641	377-91	-0.294 15	0.00 3	(1982BuZH)
1663	1402-181	-0.235 14	-0.144 24	(1982BuZH)
1701	528-1094	-0.173 17	0.02 3	(1982BuZH)
	1440-181	-0.134 18	-0.14 3	(1982BuZH)
2073	697-203	-0.050 22	-0.01 4	(1982BuZH)
	697-1094	-0.095 10	0.008 17	(1982BuZH)
	810-91	-0.38 8	0.04 5	(1971Wa03)
	810-1094	-0.095 10	0.008 17	(1982BuZH)
	901-1094	0.023 8	-0.015 13	(1982BuZH)

Others: 1965Gu01, 1963St09

γce(θ), cece(θ) data (1969Vu01)

Level	Cascade	A_2G_2
260	181(ce(L))-79(ce(L))	0.037 6
	181(ce(K))-79(ce(L))	0.040 4
	181γ-79(ce(L))	0.032 4
1172	912(ce(K))-181(ce(K))	0.310 15
	912(ce(K))-181(ce(L))	0.309 22
	912γ-181(ce(K))	0.465 9
	912γ-181(ce(L))	0.415 19
	1094(ce(K))-79(ce(L))	-0.109 5
		-0.115 12 (1967Kl01)
	1094γ-79(ce(L))	-0.123 4
		-0.136 14 (1967Kl01)

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x-ray intensities (1978Bo18)
(relative to 100 for 1093.6γ)

Transition	Energy	Intensity
$K\alpha_1$ x ray	51.35	45.7 9

		Kα$_2$ x ray	52.39		79.2 15				
		Kβ$_1$ x ray	59.3		25.2 5				
		Kβ$_2$ x ray	61.0		6.51 13				
E$_\gamma$ [†]	I$_\gamma$ [†b]	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult. [@]	δ [&]	α [c]	Comments
66 [‡f]		1706.454	5$^-$	1640.575	4$^-$	[M1,E2]		14 *3*	α(K)=6 *4*; α(L)=7 *6*; α(M)=1.6 *14*; α(N+..)=0.4 *4*
78.7426 *6*	16.9 *5*	78.7427	2$^+$	0.0	0$^+$	E2 [a]		8.4	α(K)=1.57; α(L)=5.17; α(M)=1.27; α(N+..)=0.350 E$_\gamma$: from 1993He18. I$_\gamma$: from Ti(79γ)(per 100 decays)=99.2 *2*. Weighted average of 1978Bo18, 1978Hn01 and 1970Se05 gives 15.8 *7*. Iγ=16.8 *13* (1978Hn01). Additional information 11.
90.6440 *19*	7.26 *25*	1263.036	4$^+$	1172.390	3$^+$	M1+E2	−1.64 *2*	4.72	α(K)=1.96 *1*; α(L)=2.10 *1*; α(M)=0.513 *3*; α(N+..)=0.143 *1* E$_\gamma$: from 1993He18. δ: from L1/L2=0.230 *12*, L2/L3=1.045 *21*, M1/M2=0.261 *10*, M2/M3=0.935 *28* (1968Ka01) and α(K)exp=1.62 *6*. Sign(δ) from −2.4 *2* (1976Kr04) and −2.33 *15* (1982BuZH). Additional information 19.
112.7780 *27*	2.03 *7*	1375.816	5$^+$	1263.036	4$^+$	M1+E2	1.43 *3*	2.19	α(K)=1.20 *1*; α(L)=0.756 *7*; α(M)=0.183 *2*; α(N+..)=0.0505 *5* E$_\gamma$: from 1993He18. Mult.,δ: from L1/L2=0.43 *4*, L2/L3=1.17 *8*, M1/M2=0.31 *10*, M2/M3=1.00 *14* (1968Ka01). α(K)exp=1.06 *21*, α(L2)exp=0.40 *1*. Additional information 24.
119.023 *15*	0.048 *9*	2192.152	5$^+$	2073.125	4$^+$	[M1,E2]		1.90 *22*	α(K)=1.2 *6*; α(L)=0.51 *25*; α(M)=0.12 *7*; α(N+..)=0.034 *17*
134.363 *18*	0.103 *6*	1510.188	6$^+$	1375.816	5$^+$	E2+M1	1.3 *3*	1.23 *6*	α(K)=0.78 *10*; α(L)=0.35 *4*; α(M)=0.083 *9*; α(N+..)=0.0226 *23* I$_\gamma$: 0.056 *7* (1970Se05). Mult.,δ: from L1/L2=0.62 *19*, L2/L3=1.3 *3* (1968Ka01) and α(K)exp=0.63 *16*. Additional information 33.
145.21 *5*	0.059 *10*	1803.113	4$^+$	1657.85	(4)$^+$	M1(+E2)	<1.4	1.07 *13*	α(K)=0.80 *20*; α(L)=0.21 *6*; α(M)=0.048 *14*; α(N+..)=0.013 *4* E$_\gamma$,I$_\gamma$: from 1978Bo18. Line unresolved in 1978Hn01 and 1970Se05. α(K)exp=0.68 for 145.21γ+146.03γ (1978Bo18) gives δ(E2/M1)=1.4 *1*. Additional information 66.
146.03 *4*	0.117 *16*	2073.125	4$^+$	1926.958	5$^+$	M1(+E2)	<1.4	1.05 *13*	α(K)=0.79 *20*; α(L)=0.20 *6*; α(M)=0.047 *14*; α(N+..)=0.013 *4* Additional information 84. α(K)exp=0.68 for 145.21γ+146.03γ (1978Bo18) gives δ(E2/M1)=1.4 *1*.
151.55 [d] *6*	0.064 [d] *11*	1700.645	3$^+$	1549.118	3$^+$	[M1,E2]		0.88 *18*	α(K)=0.6 *3*; α(L)=0.20 *7*; α(M)=0.047 *17*; α(N+..)=0.013 *5*
151.55 [d] *6*	0.064 [d] *11*	2343.720	4$^+$	2192.152	5$^+$	[M1,E2]		0.88 *18*	α(K)=0.6 *3*; α(L)=0.20 *7*; α(M)=0.047 *17*; α(N+..)=0.013 *5*

$^{172}_{70}Yb_{102}$-7

^{172}Lu ε decay (6.70 d) 1978Bo18,1978Hn01,1984Kr14 (continued)

γ(^{172}Yb) (continued)

E_γ [†]	I_γ [†b]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [@]	δ [&]	α [c]	Comments
[x]155.87 *7*	0.032 *7*					M1(+E2)	<0.7	0.92 *6*	α(K)=0.74 *8*; α(L)=0.142 *18*; α(M)=0.032 *5*; α(N+..)=0.0088 *12* γ reported by 1978Bo18 only. α(K)exp=1.2 *4*. Additional information 2.
163.165 *20*	0.107 *7*	1869.648	(4,5)$^-$	1706.454	5$^-$	M1(+E2)	<0.8	0.80 *7*	α(K)=0.64 *9*; α(L)=0.125 *16*; α(M)=0.029 *5*; α(N+..)=0.0078 *11* α(K)exp=0.96 *30*. Additional information 78.
[x]174.671 *19*	0.180 *8*								
181.525 *5*	32.9 *7*	260.270	4$^+$	78.7427	2$^+$	E2		0.376	α(K)=0.219; α(L)=0.120; α(M)=0.0290; α(N+..)=0.00790 E_γ: average of 181.530 *4* (1978Bo18) and 181.519 *6* (1965Ka17,from ce(L3) line). Mult.: from L1/L2=0.43 *2*, L1/L3=0.57 *2* (1968Ka01) and α(K)exp=0.210 *8*. δ(M3/E2)=−0.002 *35* (1984Kr14),<0.05 from L-subshell ratios. Additional information 12.
196.38 *4*	0.161 *9*	1706.454	5$^-$	1510.188	6$^+$	(E1)		0.058	α(K)=0.0489; α(L)=0.00743; α(M)=0.00165; α(N+..)=0.00046 α(K)exp<0.27 gives E1, E2. Additional information 54.
200.5[d] *4*	0.079[d] *16*	1749.208	4$^+$	1549.118	3$^+$	E2		0.27	α(K)=0.165; α(L)=0.0794; α(M)=0.0191; α(N+..)=0.00529 α(K)exp=0.14 *8* gives δ(E2/M1)>2.5. Additional information 58.
200.5[d] *4*	0.079[d] *16*	1862.808	(5)$^+$	1662.812	3$^+$	E2		0.27	α(K)=0.165; α(L)=0.0794; α(M)=0.0191; α(N+..)=0.00529
203[‡f]		1465.929	2$^+$	1263.036	4$^+$				
203.433 *13*	8.03 *17*	1375.816	5$^+$	1172.390	3$^+$	E2		0.26	α(K)=0.159; α(L)=0.0748; α(M)=0.0180; α(N+..)=0.00499 δ(M3/E2)=+0.01 *5* (1984Kr14), 0.000 *14* (1983No10),<0.05 (from L1/L2=0.56 *3*, L2/L3=1.37 *7* (1968Ka01)). α(K)exp=0.150 *5*, α(L2)exp=0.032 *1*. Additional information 25.
210.28 *3*	0.141 *11*	2073.125	4$^+$	1862.808	(5)$^+$	M1(+E2)	<1.1	0.37 *6*	α(K)=0.30 *6*; α(L)=0.057 *4*; α(M)=0.0130 *10*; α(N+..)=0.0037 *3* α(K)exp=0.41 *14*. Additional information 85.
229.080 *10*	0.570 *15*	1869.648	(4,5)$^-$	1640.575	4$^-$	M1(+E2)	<1.4	0.28 *6*	α(K)=0.23 *6*; α(L)=0.0437 *13*; α(M)=0.0100 *6*; α(N+..)=0.00290 *11* α(K)exp=0.28 *9*. Additional information 79.
[x]233.46 *20*	0.54 *15*								
247.155 *16*	0.92 *4*	1510.188	6$^+$	1263.036	4$^+$	E2		0.136	α(K)=0.091; α(L)=0.0343; α(M)=0.00818; α(N+..)=0.00233 Mult.: γ(θ,T) (1984Kr14) consistent with E2. α(K)exp=0.0097 *15* gives δ(M3/E2)<0.06. Mult.: from L1/L2=0.79 *14*, L2/L3=1.52 *25*, L1/L3=1.20 *26* (1968Ka01) and α(K)exp=0.0097 *15*. Additional information 34.
[x]251.46[#] *15*	0.053[#] *10*								

$^{172}_{70}Yb_{102}$-8

^{172}Lu ε decay (6.70 d) 1978Bo18,1978Hn01,1984Kr14 (continued)

γ(^{172}Yb) (continued)

E_γ[†]	I_γ[†b]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[@]	δ[&]	α[c]	Comments
254.39 *24*	0.089 *25*	2181.98	(4,5,6)$^+$	1926.958	5$^+$	[M1,E2]		0.19 *7*	α(K)=0.15 *7*; α(L)=0.0312 *6*; α(M)=0.00719 *11*; α(N+..)=0.00210 *2* Additional information 105.
264.798 *11*	1.20 *3*	1640.575	4$^-$	1375.816	5$^+$	E1(+M2)	−0.09 *6*	0.035 *14*	α(K)=0.029 *11*; α(L)=0.0047 *22*; α(M)=0.0010 *5*; α(N+..)=0.00031 *15* δ: −0.03 *4* (1976Kr04), 0.0 (from α(K)exp). δ=−0.207 *6* (1983No10) is discrepant and gives B(M2)(W.u.)>>1 (RUL(M2)=1). α(K)exp=0.0187 *17*. Additional information 42.
270.028 *8*	3.09 *7*	2073.125	4$^+$	1803.113	4$^+$	M1+E2	+0.79 *+21−31*	0.172 *15*	α(K)=0.138 *22*; α(L)=0.0260 *4*; α(M)=0.00593 *3*; α(N+..)=0.00176 *3* δ: or +0.09 *+23−12* (1984Kr14). Others: +0.40 *13* (1976Kr04), <+0.61 (1983No10), 0.6 *2* (from α(K)exp). L1/L2=0.87 (1963Tu01). α(K)exp=0.173 *12*. Additional information 86.
279.705 *12*	1.90 *6*	539.984	6$^+$	260.270	4$^+$	E2		0.092	α(K)=0.0644; α(L)=0.0213; α(M)=0.00506; α(N+..)=0.00145 δ(M3/E2)=0.00 *10* (1984Kr14), −0.030 *7* (1983No10),<0.07 from ce data. Mult.: from L1/L3=3.0 (1961Ha23) and α(K)exp=0.072 *5*. Additional information 13.
319.174 *22*	0.215 *15*	2181.98	(4,5,6)$^+$	1862.808	(5)$^+$	M1(+E2)	<0.5	0.129 *8*	α(K)=0.108 *7*; α(L)=0.0167 *4*; α(M)=0.00375 *8*; α(N+..)=0.00113 *3* α(K)exp=0.137 *18*. Additional information 106.
323.899 *15*	2.40 *4*	2073.125	4$^+$	1749.208	4$^+$	M1+E2	+0.40 *8*	0.121 *4*	α(K)=0.101 *4*; α(L)=0.0159 *2*; α(M)=0.00357 *4*; α(N+..)=0.00108 *1* δ: +0.40 *14* (1976Kr04), +0.40 *10* (1983No10), 0.68 *13* (from α(K)exp). α(K)exp=0.104 *7*. Additional information 87.
329.39 *5*	0.218 *17*	2192.152	5$^+$	1862.808	(5)$^+$	M1(+E2)	<1	0.108 *18*	α(K)=0.089 *16*; α(L)=0.0147 *10*; α(M)=0.00332 *19*; α(N+..)=0.00100 *7* α(K)exp=0.110 *25*. Additional information 107.
330.619 *21*	0.83 *6*	1706.454	5$^-$	1375.816	5$^+$	E1(+M2)	<0.13	0.020 *4*	α(K)=0.016 *3*; α(L)=0.0025 *6*; α(M)=0.00057 *14*; α(N+..)=0.00017 *4* δ: from α(K)exp. 1976Kr04 give δ=+0.36 *28*. α(K)exp≤0.021 gives δ<0.13. Additional information 55.
337.85[f] *9*	0.074 *11*	1803.113	4$^+$	1465.929	2$^+$	(E2)		0.052	α(K)=0.0384; α(L)=0.0107; α(M)=0.00252; α(N+..)=0.00073 E_γ: poor fit in level scheme. Level energy difference gives

$^{172}_{70}Yb_{102}$-9

^{172}Lu ε decay (6.70 d) 1978Bo18,1978Hn01,1984Kr14 (continued)

γ(^{172}Yb) (continued)

E_γ [†]	I_γ [†b]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [@]	δ [&]	α [c]	Comments
									337.18. α(K)exp=0.08 *4* gives M1,E2. Additional information 67. Placement by the evaluator.
348.6 [f] *4*	0.024 *13*	1465.929	2+	1117.99	2+				Additional information 28.
[x]348.83 [#] *22*	0.015 [#] *11*								
352.55 *4*	0.102 *15*	1862.808	(5)+	1510.188	6+	E2(+M1)	>2.7	0.050 *4*	α(K)=0.037 *4*; α(L)=0.0095 *2*; α(M)=0.00221 *5*; α(N+..)=0.00064 *2* I_γ: 0.35 *11* (1970Se05). α(K)exp=0.037 *7*. Additional information 74.
358.45 *3*	0.193 *9*	2285.399	4+	1926.958	5+	M1+E2	1.3 *2*	0.065 *5*	α(K)=0.052 *5*; α(L)=0.0101 *3*; α(M)=0.00232 *6*; α(N+..)=0.00068 *2* Additional information 117. α(K)exp=0.058 *4*.
366.684 *24*	0.461 *18*	2073.125	4+	1706.454	5−	E1		0.0123	α(K)=0.0103; α(L)=0.00151; α(M)=0.00033; α(N+..)=0.00010 δ(M2/E1)=+0.02 *12* (1983No10), +0.04 *7* (1976Kr04),<0.05 (from α(K)exp). α(K)exp=0.0102 *19*. Additional information 88.
372.507 *12*	4.26 *8*	2073.125	4+	1700.645	3+	M1+E2	+0.71 *+7−5*	0.073 *2*	α(K)=0.060 *2*; α(L)=0.0101 *2*; α(M)=0.00228 *4*; α(N+..)=0.00068 *1* δ: +0.65 *2* (1983No10), +1.2 *+5−3* (1976Kr04). α(K)exp=0.060 *4* gives δ=1.0 *2*. Additional information 89.
373 [‡f]		1749.208	4+	1375.816	5+				
377.523 *12*	5.36 *9*	1640.575	4−	1263.036	4+	E1(+M2)	−0.05 *4*	0.012 *2*	α(K)=0.0103 *14*; α(L)=0.0015 *3*; α(M)=0.00034 *6*; α(N+..)=0.00010 *2* δ: −0.15 *3* (1983No10), 0.0 (from α(K)exp). α(K)exp=0.0101 *7*. Additional information 43.
389.44 *5*	0.112 *13*	2192.152	5+	1803.113	4+				E_γ: poor fit in level scheme. Level energy difference gives 389.04. α(K)exp=0.015 *5* gives δ(M2/E1)<0.2 but ΔJ^π requires M1,E2. α(K)exp excludes M1,E2. Additional information 108.
399.766 *15*	0.882 *23*	1662.812	3+	1263.036	4+	M1(+E2)	−0.07 *7*	0.075	α(K)=0.0629 *6*; α(L)=0.0094 *1*; α(M)=0.00208 *1*; α(N+..)=0.00062 δ: 0.00 *4* (1976Kr04). Additional information 46.
410.308 *12*	3.16 *5*	2073.125	4+	1662.812	3+	M1+E2	+0.74 *+9−7*	0.056 *2*	α(K)exp=0.050 *5* (1978Bo18) gives δ=1.0 *2*. But α(K)exp=0.12 *3* (1972Ba50) is consistent with δ=0. α(K)=0.0462 *20*; α(L)=0.0076 *2*; α(M)=0.00171 *4*;

$^{172}_{70}Yb_{102}$-10

^{172}Lu ε decay (6.70 d) 1978Bo18,1978Hn01,1984Kr14 (continued)

γ(^{172}Yb) (continued)

E_γ[†]	I_γ[†b]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[@]	δ[&]	α[c]	Comments
									α(N+..)=0.00051 *1* δ: +0.94 *+26−10* or +1.6 *+2−4* (1976Kr04), +0.98 *5* (1983No10), 1.2 *2* (from α(K)exp). α(K)exp=0.043 *3*. Additional information 90.
413.2 *3*	0.060 *22*	2192.152	5^+	1778.87	5^+	[M1,E2]		0.049 *20*	α(K)=0.040 *18*; α(L)=0.0070 *16*; α(M)=0.0016 *4*; α(N+..)=0.00047 *11*
415.7 *4*	0.08 *4*	2073.125	4^+	1657.85	$(4)^+$	(M1,E2)		0.048 *20*	α(K)=0.040 *18*; α(L)=0.0069 *16*; α(M)=0.0016 *4*; α(N+..)=0.00046 *11* γ reported by 1978Bo18 only. α(K)exp≤0.085 gives D, E2, E3. Additional information 91.
416.65[d] *8*	0.137[d] *16*	1926.958	5^+	1510.188	6^+	M1(+E2)	<0.7	0.061 *7*	α(K)=0.051 *6*; α(L)=0.0079 *6*; α(M)=0.00176 *11*; α(N+..)=0.00052 *4*
416.65[d] *8*	0.137[d] *16*	2343.720	4^+	1926.958	5^+	M1(+E2)	<0.7	0.061 *7*	α(K)=0.051 *6*; α(L)=0.0079 *6*; α(M)=0.00176 *11*; α(N+..)=0.00052 *4* α(K)exp=0.063 *11*. Additional information 131.
422.61 *3*	0.219 *9*	2285.399	4^+	1862.808	$(5)^+$	(M1,E2)		0.046 *19*	α(K)=0.038 *17*; α(L)=0.0066 *16*; α(M)=0.0015 *4*; α(N+..)=0.00043 *11* α(K)exp≤0.072 gives D, E2, E3. Additional information 118.
427.19 *5*	0.197 *11*	1803.113	4^+	1375.816	5^+	M1+E2	1.6 *6*	0.037 *8*	α(K)=0.030 *7*; α(L)=0.0057 *7*; α(M)=0.00130 *14*; α(N+..)=0.00038 *5* α(K)exp=0.034 *5*. Additional information 68.
432.549 *13*	2.62 *7*	2073.125	4^+	1640.575	4^-	E1(+M2)	+0.04 *+9−7*	0.009 *3*	α(K)=0.0073 *24*; α(L)=0.0011 *5*; α(M)=0.00024 *10* δ: +0.08 *2* (1983No10), +0.18 *+9−7* (1976Kr04),<0.01 (from α(K)exp). α(K)exp=0.0063 *15*. Additional information 92.
437.60 *2*	0.375 *12*	1700.645	3^+	1263.036	4^+	M1(+E2)	+0.09 *10*	0.059	α(K)=0.0495 *9*; α(L)=0.00737 *8*; α(M)=0.00164 *2*; α(N+..)=0.00048 *1* α(K)exp=0.0476 *12* gives δ<1.2. Additional information 50.
443.29 *4*	0.222 *12*	1706.454	5^-	1263.036	4^+	E1		0.00795	α=0.00795; α(K)=0.00671; α(L)=0.00096; α(M)=0.00021 δ(M2/E1)=−0.13 *18* (1980DaZI). α(K)exp=0.0099 *12* gives δ<0.15. Additional information 56.
480.84 *10*	0.196 *20*	2343.720	4^+	1862.808	$(5)^+$	M1(+E2)	<1.3	0.038 *9*	α(K)=0.032 *8*; α(L)=0.0050 *8*; α(M)=0.00112 *16*; α(N+..)=0.00032 *5* α(K)exp=0.039 *11*. Additional information 132.

$^{172}_{70}Yb_{102}$-11

^{172}Lu ε decay (6.70 d) 1978Bo18,1978Hn01,1984Kr14 (continued)

γ(^{172}Yb) (continued)

E_γ †	I_γ †b	E_i(level)	J_i^π	E_f	J_f^π	Mult.@	δ&	α c	Comments
482.23 *4*	0.93 *6*	2285.399	4^+	1803.113	4^+	M1+E2	−0.10 *7*	0.046	α(K)=0.0385 *5*; α(L)=0.00570 *5*; α(M)=0.00127 *1*; α(N+..)=0.00037 δ: −0.03 *2* (1983No10), +0.08 *+18−11* or +0.82 *+20−26* (1976Kr04), 0.5 *2* (from α(K)exp). α(K)exp=0.040 *4*. Additional information 119.
486.160 *18*	1.06 *5*	1749.208	4^+	1263.036	4^+	M1+E2	+0.41 *14*	0.041 *2*	α(K)=0.0346 *21*; α(L)=0.0053 *2*; α(M)=0.00117 *5*; α(N+..)=0.00034 *1* δ: +0.40 *+36−22* (1976Kr04), −0.04 *4* (1983No10). α(K)exp=0.036 *3* gives δ=0.7 *2*. Additional information 59.
490.437 *14*	3.06 *9*	1662.812	3^+	1172.390	3^+	M1(+E2)	+0.04 *4*	0.044	α(K)=0.0370 *1*; α(L)=0.00547 *1*; α(M)=0.00122; α(N+..)=0.00035 δ: +0.13 *+6−5* (1976Kr04), −0.03 *3* (1983No10). α(K)exp=0.035 *3* gives δ=0.7 *2*. Additional information 47.
493.83 *9*	0.106 *25*	1869.648	$(4,5)^-$	1375.816	5^+	[E1]		0.00625	α=0.00625; α(K)=0.00528; α(L)=0.00075; α(M)=0.00017
512.54 *5*	0.314 *23*	2213.327	$3^+,4^+$	1700.645	3^+	M1+E2	0.6 *3*	0.034 *5*	α(K)=0.028 *4*; α(L)=0.0043 *4* α(K)exp=0.032 *4*. Additional information 115.
517.29 *10*	0.064 *11*	2175.074	3^+	1657.85	$(4)^+$	[M1,E2]		0.028 *11*	α(K)=0.023 *10*; α(L)=0.0037 *11*
524.05e *4*	0.358e *16*	2073.125	4^+	1549.118	3^+	M1+E2	+2.8 *+5−4*	0.0185	α(K)=0.0147 *7*; α(L)=0.00281 *10* I_γ: main intensity belongs with decay of 2073 level. α(K)exp=0.018 *5* gives δ>1.3. Additional information 93.
524.05ef *6*	e	2181.98	$(4,5,6)^+$	1657.85	$(4)^+$				I_γ: only a small part of intensity may belong here.
528.260 *14*	6.47 *12*	1700.645	3^+	1172.390	3^+	M1(+E2)	+0.01 *3*	0.037	α(K)=0.0306; α(L)=0.00451 δ: −0.03 *2* (1983No10), +0.05 *4* (1976Kr04), +0.08 *+7−5* (1982BuZH). α(K)exp=0.032 *3* gives δ<0.7. Additional information 51.
534.29 *7*	0.20 *3*	2192.152	5^+	1657.85	$(4)^+$	M1(+E2)	<2	0.027 *9*	α(K)=0.023 *7*; α(L)=0.0036 *8* Additional information 109.
536.194 *19*	1.02 *6*	2285.399	4^+	1749.208	4^+	M1+E2	−0.17 *7*	0.035	α(K)exp=0.027 *10*. α(K)=0.0290 *5*; α(L)=0.00429 *5* δ: −0.34 *1* (1983No10), −0.02 *9* (1976Kr04),<0.4 (from α(K)exp). Additional information 120.
540.187e *16*	2.24e *6*	1803.113	4^+	1263.036	4^+	M1(+E2)	−0.03 *+10−8*	0.0346	α(K)exp=0.035 *3*. α(K)=0.0289 *2*; α(L)=0.00426 *3* E_γ: level energy difference is 540.084. I_γ: main intensity belongs with 1803 level.

$^{172}_{70}Yb_{102}$-12

^{172}Lu ε decay (6.70 d) 1978Bo18,1978Hn01,1984Kr14 (continued)

γ(^{172}Yb) (continued)

E_γ [†]	I_γ [†b]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [@]	δ [&]	α [c]	Comments
									δ: −0.18 *3* (1983No10), −0.04 *7* or +1.0 *+2−1* (1976Kr04). α(K)exp=0.029 *4* gives δ=0.6 *3*. Additional information 69.
540.187 [ef] *16*	[e]	2343.720	4+	1803.113	4+				I_γ: only a small part of intensity may belong here.
551.078 *19*	0.659 *22*	1926.958	5+	1375.816	5+	M1+E2	+1.5 *+5−4*	0.020 *4*	α(K)=0.0162 *24*; α(L)=0.0028 *4* δ: +1.1 *3* (1976Kr04), 1.6 *+9−4* (from α(K)exp). Additional information 81. α(K)exp=0.018 *3*.
566.49 *5*	0.123 *11*	2175.074	3+	1608.62	2+	E2(+M1)	>0.8	0.019 *6*	α(K)=0.015 *5*; α(L)=0.0026 *6* α(K)exp=0.017 *6*. Additional information 100.
576.835 *18*	0.484 *21*	1749.208	4+	1172.390	3+	M1+E2	+0.24 *6*	0.0284	α(K)=0.0237 *4*; α(L)=0.00350 *5* δ: −0.10 *8* (1976Kr04). α(K)exp=0.026 *5* gives δ<0.8. Additional information 60.
584.725 *17*	0.538 *16*	2285.399	4+	1700.645	3+	M1(+E2)	+0.06 *9*	0.0282	α(K)=0.0236 *3*; α(L)=0.00346 *3* δ: −0.04 *6* (1976Kr04). Additional information 121.
594.538 *19*	0.67 *4*	2343.720	4+	1749.208	4+	M1(+E2)	+0.23 *+18−31*	0.026	α(K)exp=0.0239 *20* gives δ=0.5 *2*. α(K)=0.0220 *13*; α(L)=0.00325 *15* δ: or +0.62 *+53−19* (1984Kr14), +0.12 *+28−16* or −0.8 *+4−3*(1976Kr04), 0.7 *3* (from α(K)exp). α(K)exp=0.021 *3*. Additional information 133.
[x]596.75 [#] *15*	0.102 [#] *23*								
599.86 [ef] *4*	[e]	1821.64	3−	1221.51	3−				I_γ: only a small intensity may belong here.
599.86 [e] *4*	0.22 [e] *3*	1862.808	(5)+	1263.036	4+	E2+M1	>1	0.015 *4*	α(K)=0.012 *4*; α(L)=0.0021 *4* α(K)exp=0.013 *5*. Additional information 75.
[x]604.65 [#] *19*	0.050 [#] *23*								
607.141 [d] *18*	0.79 [d] *8*	2073.125	4+	1465.929	2+	E2		0.0112	α(K)=0.0090; α(L)=0.00169 δ(M3/E2)=−0.06 *14* (1984Kr14). α(K)exp=0.0072 *19* gives E2. Additional information 94.
607.141 [d] *18*	0.79 [d] *8*	2307.83	3+,4+	1700.645	3+	E2		0.0112	α(K)=0.0090; α(L)=0.00169
622.605 *22*	0.257 *19*	2285.399	4+	1662.812	3+	M1(+E2)	<0.4	0.023 *1*	α(K)=0.0194 *8*; α(L)=0.00286 *10* α(K)exp=0.024 *3*. Additional information 122.
625.95 *4*	0.497 *21*	2175.074	3+	1549.118	3+	E2(+M1)	>3	0.0111 *7*	α(K)=0.0089 *6*; α(L)=0.00163 *7* α(K)exp=0.0080 *26*. Additional information 101.
630.706 *17*	0.70 *3*	1803.113	4+	1172.390	3+	M1(+E2)	−0.10 *+14−17*	0.0232	α(K)=0.0194 *7*; α(L)=0.00284 *6*

$^{172}_{70}Yb_{102}$-13

^{172}Lu ε decay (6.70 d) 1978Bo18,1978Hn01,1984Kr14 (continued)

γ(^{172}Yb) (continued)

E_γ [†]	I_γ [†b]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [@]	δ [&]	α [c]	Comments
									δ: +0.05 *4* (1976Kr04). Additional information 70. α(K)exp=0.0217 *17* gives δ<0.5.
643.04 *3*	0.362 *18*	2343.720	4+	1700.645	3+	M1(+E2)	<0.6	0.021 *2*	α(K)=0.0172 *15*; α(L)=0.00255 *17* α(K)exp=0.0204 *18*. Additional information 134.
644.86 *6*	0.188 *15*	2285.399	4+	1640.575	4−				α(K)exp=0.012 *5* gives M1,E2 but α(K)exp=0.0024 *8* for ce(K)=0.17 *5* gives E1. Additional information 123.
649.6 *5*	0.069 *20*	2307.83	3+,4+	1657.85	(4)+	[M1,E2]		0.016 *6*	α(K)=0.013 *6*; α(L)=0.0020 *7* α(K)exp=0.051 *17* exceeds α(K) for M1. Additional information 129.
664.07[d] *5*	0.173[d] *12*	1926.958	5+	1263.036	4+	M1(+E2)	<1.2	0.017 *4*	α(K)=0.014 *3*; α(L)=0.0022 *4* α(K)exp=0.019 *6*. Additional information 82.
664.07[d] *5*	0.173[d] *12*	2213.327	3+,4+	1549.118	3+	M1(+E2)	<1.2	0.017 *4*	α(K)=0.014 *3*; α(L)=0.0022 *4*
680.7[#f] *4*	0.18[#] *7*	2343.720	4+	1662.812	3+	[M1,E2]		0.014 *6*	α(K)=0.012 *5*; α(L)=0.0018 *6*
681.82 *4*	1.11 *4*	2192.152	5+	1510.188	6+	M1+E2	+0.10 *7*	0.0191	α(K)=0.0160 *2*; α(L)=0.00233 *2* δ: +0.09 *5* (1976Kr04). Additional information 110.
697.300 *16*	9.81 *18*	2073.125	4+	1375.816	5+	M1(+E2)	−0.014 *10*	0.0181	α(K)exp=0.0145 *15* gives δ=0.8 *2*. α(K)=0.0152; α(L)=0.00221 δ: −0.012 *7* (1976Kr04), −0.025 *2* (1983No10), −0.05 *3* (1982BuZH). α(K)exp=0.0145 *16* gives δ=0.7 *2*. Additional information 95.
703.06[#f] *8*	0.218[#] *23*	2343.720	4+	1640.575	4−	[E1]		0.00297	α=0.00297; α(K)=0.00251; α(L)=0.00035
709.133 *17*	1.31 *5*	2175.074	3+	1465.929	2+	M1+E2	+4.9 *+10−8*	0.0082 *2*	α=0.0082 *2*; α(K)=0.00666 *14*; α(L)=0.00116 *2* δ: +16 *+13−5* (1976Kr04),>6 (from α(K)exp). α(K)exp=0.0064 *7*. Additional information 102.
723.02 *2*	0.730 *23*	1263.036	4+	539.984	6+	E2		0.00748	α=0.00748; α(K)=0.00607; α(L)=0.00106 δ(M3/E2)=−0.05 *+8−10* (1984Kr14),<0.09 from α(K)exp. α(K)exp=0.0062 *6*. Additional information 20.
746.5[f]		1286.48	4+	539.984	6+				E_γ: from decay scheme by 1978Bo19. γ not reported by 1978Bo18, 1978Hn01, and 1970Se05.
758.74 *8*	0.113 *19*	2307.83	3+,4+	1549.118	3+	M1		0.0147	α(K)=0.0123; α(L)=0.00179 α(K)exp=0.020 *5*. Additional information 130.
810.064 *15*	26.6 *4*	2073.125	4+	1263.036	4+	M1+E2	−0.08 *4*	0.0124	α(K)=0.0104 *1*; α(L)=0.00151 *1* δ: −0.026 *24* (1976Kr04), −0.03 *+9−7* (1982BuZH).

$^{172}_{70}Yb_{102}$-14

^{172}Lu ε decay (6.70 d) 1978Bo18,1978Hn01,1984Kr14 (continued)

γ(^{172}Yb) (continued)

E_γ [†]	I_γ [†b]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [@]	δ [&]	α [c]	Comments
									α(K)exp=0.0103 *2*, α(L)exp=0.00190 *4* give δ=0.46 *4*. Additional information 96.
816.327 *20*	1.84 *4*	2192.152	5^+	1375.816	5^+	M1+E2	+0.20 *14*	0.0120 *5*	α(K)=0.0100 *4*; α(L)=0.00146 *5* δ: +0.35 *25* (1976Kr04), −0.11 *4* (1983No10), 0.6 *3* (from α(K)exp). α(K)exp=0.0102 *12*. Additional information 111.
835.85 *7*	0.210 *13*	1375.816	5^+	539.984	6^+	M1+E2	1.0 *6*	0.0085 *22*	α(K)=0.0070 *19*; α(L)=0.00107 *24* α(K)exp=0.0080 *15*. Additional information 26.
857.76 *11*	0.135 *17*	1117.99	2^+	260.270	4^+				
900.724 *20*	47.7 *6*	2073.125	4^+	1172.390	3^+	M1+E2	+0.068 *9*	0.0095	α=0.0095; α(K)=0.00800 *1*; α(L)=0.00116 δ: +0.066 *5* (1976Kr04), +0.06 *2* (1982BuZH). α(K)exp=0.0083 *2*, α(L)exp=0.00123 *3*, α(M)exp=0.00026 *1* give δ=0.58 *4*. Additional information 97.
909.70 *6*	1.04 *8*	2285.399	4^+	1375.816	5^+	E2(+M1)	>1.3	0.0054 *9*	α=0.0054 *9*; α(K)=0.0045 *8*; α(L)=0.00070 *10* α(K)exp=0.0050 *9*. Additional information 124.
912.079 *17*	24.4 *4*	1172.390	3^+	260.270	4^+	M1+E2	−2.36 *15*	0.00524 *9*	α=0.00524 *9*; α(K)=0.00433 *8*; α(L)=0.00068 *1* δ: −2.47 *8* (1983No10), −1.9 *1* (1976Kr04), −1.88 *+9−14* (1982BuZH), −1.7 *2* (1969Vu01), 2.7 *+12−6* (from α(K)exp). α(K)exp=0.0047 *3*. Additional information 15.
929.106 *20*	4.87 *11*	2192.152	5^+	1263.036	4^+	M1+E2	−0.066 *9*	0.0088	α=0.0088; α(K)=0.00741 *1*; α(L)=0.00107 δ: −0.070 *9* (1976Kr04), −0.06 *2* (1983No10), 0.66 *7* (from α(K)exp). α(K)exp=0.0073 *2*. Additional information 112.
950.37 *7*	0.091 *16*	2213.327	$3^+,4^+$	1263.036	4^+				
961.03 *12*	0.053 *20*	1221.51	3^-	260.270	4^+				1970Se05 report Eγ=960.4 *3*, Iγ=0.18 *6*. γ not reported by 1978Bo18. α(K)exp<0.10. Additional information 17.
967.89 *5*	0.304 *14*	2343.720	4^+	1375.816	5^+	M1+E2	−0.93 *13*	0.0061 *3*	α=0.0061 *3*; α(K)=0.0051 *3*; α(L)=0.00076 *4* α(K)exp=0.0055 *6* gives δ=1.1 *4*. Additional information 135.
970.0 *4*	0.11 *6*	1510.188	6^+	539.984	6^+				Additional information 35.
[x]990.75 *15*	0.12 *6*					D,E2			Additional information 3. α(K)exp≤0.007.
1002.74[e] *2*	8.4[e] *2*	1263.036	4^+	260.270	4^+	E2(+M1)	+13 *+76−6*	0.00373 *2*	α=0.00373 *2*; α(K)=0.00309 *5*; α(L)=0.00049 I_γ: total Iγ=8.81 *12*. Intensity divided based on adopted gammas.

$^{172}_{70}Yb_{102}$-15

^{172}Lu ε decay (6.70 d) 1978Bo18,1978Hn01,1984Kr14 (continued)

γ(^{172}Yb) (continued)

E_γ [†]	I_γ [†b]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [@]	δ [&]	α [c]	Comments
									δ: >2.5 (from α(K)exp=0.0036 *3*, α(L)exp=0.00062 *10*), +41 *+50−15* (1982BuZH), >+21 (1976Kr04), −23 *3* (1983No10),>13 (1969Vu01). Additional information 21.
1002.74 [e] *2*	0.4 [e] *2*	2175.074	3+	1172.390	3+				
[x]1010.71 *17*	0.059 *20*								
[x]1012.6 *3*	0.050 *20*								Additional information 4.
1019.79 *4*	0.183 *15*	2192.152	5+	1172.390	3+	(E2)		0.00359	α=0.00359; α(K)=0.00297; α(L)=0.00047 α(K)exp≤0.0030 gives E2, E1. Additional information 113.
1022.370 *21*	2.25 *6*	2285.399	4+	1263.036	4+	M1+E2	+0.75 *17*	0.0058 *4*	α=0.0058 *4*; α(K)=0.0048 *4*; α(L)=0.00071 *5* δ: from 1976Kr04. Others: +0.21 *+20−14* (1984Kr14), +0.11 *+13−9* (1976Kr04), +0.03 *3* (1983No10), 0.75 *25* (from α(K)exp). α(K)exp=0.0056 *5*. Additional information 125.
1026.21 *5*	0.107 *7*	1286.48	4+	260.270	4+	M1,E2		0.0052 *17*	α=0.0052 *17*; α(K)=0.0044 *15*; α(L)=0.00065 *19* α(K)exp=0.0055 *25*. Additional information 23.
1039.25 *11*	0.112 *10*	1117.99	2+	78.7427	2+	M1(+E2)	<0.8	0.0061 *7*	α=0.0061 *7*; α(K)=0.0051 *6*; α(L)=0.00074 *8* Mult.,δ: α(K)exp=0.0080 *26*. Additional information 14.
1040.99 *3*	0.561 *17*	2213.327	3+,4+	1172.390	3+	M1(+E2)	<0.9	0.0060 *8*	α=0.0060 *8*; α(K)=0.0050 *7*; α(L)=0.00073 *9* δ: from α(K)exp. Others: +0.11 *+12−9* or +1.0 *+3−2* for J=3 and +0.51 *7* for J=4 (1976Kr04). α(K)exp=0.0059 *8*. Additional information 116.
[x]1055.4 [f] *4*	0.023 *10*								Eγ=1054.49 *13*, Iγ=0.14 *2* (1970Se05). γ not reported by 1978Bo18. Iγ<0.04 (1976Kr04). α(K)exp≤0.023. Additional information 5.
1070.66 [#] *18*	0.043 [#] *10*	1330.93	4−	260.270	4+				
1080.68 *4*	1.45 *4*	2343.720	4+	1263.036	4+	M1+E2	−0.22 *12*	0.00599 *17*	α=0.00599 *17*; α(K)=0.00502 *15*; α(L)=0.00072 *2* Eγ=1080.81 *4*, Iγ=1.89 *5* (1970Se05) not used in averaging. δ: −0.17 *7* (1976Kr04),<0.46 (from α(K)exp). α(K)exp=0.0060 *5*. Additional information 136.
1093.63 *2*	100 *2*	1172.390	3+	78.7427	2+	M1+E2	−4.0 *3*	0.00328 *3*	α=0.00328 *3*; α(K)=0.00273 *2*; α(L)=0.00042 δ: −4.05 *3* (1983No10), −3.2 *2* (1976Kr04), −3.75 *11* (1982BuZH), −3.3 *4* (1969Vu01), −3.5 *2* (1967Bl01,1971Wa03),>4 (from α(K)exp). α(K)exp=0.00262 *17*, α(L)exp=0.00045 *2*. Additional information 16.

$^{172}_{70}Yb_{102}$-16

^{172}Lu ε decay (6.70 d) 1978Bo18,1978Hn01,1984Kr14 (continued)

γ(^{172}Yb) (continued)

E_γ [†]	I_γ [†b]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [@]	δ [&]	α [c]	Comments
1113.05 *5*	2.64 *13*	2285.399	4^+	1172.390	3^+	M1+E2	−0.18 *4*	0.00561 *4*	α=0.00561 *4*; α(K)=0.00471 *4*; α(L)=0.00068 *1* δ: −0.26 *5* (1976Kr04). Additional information 126. α(K)exp=0.0046 *4* gives δ=0.7 *2*.
1115.54 *5*	0.59 *5*	1375.816	5^+	260.270	4^+	E2		0.00299	α=0.00299; α(K)=0.00249; α(L)=0.00038 α(K)exp=0.0023 *4* gives E2. δ(E2/M1)>3.3 (1969Vu01). Additional information 27.
[x]1125.22[f] *4*	0.170 *8*					(M1)		0.00555	α=0.00555; α(K)=0.00466; α(L)=0.00067 α(K)exp=0.0076 *15*. I_γ: <0.03 (1976Kr04). Additional information 6.
1142.98 *13*	0.046 *6*	1221.51	3^-	78.7427	2^+				α(K)exp≤0.0095 gives D, E2, E3. Additional information 18.
[x]1148.5[#] *3*	0.023[#] *10*								
1166.50 *5*	0.109 *10*	1706.454	5^-	539.984	6^+	E1		0.00114	α=0.00114; α(K)=0.00096; α(L)=0.00013 I_γ: 0.24 *5* (1970Se05). α(K)exp≤0.0019. Additional information 57.
1171.31 *11*	0.040 *10*	2343.720	4^+	1172.390	3^+				E_γ,I_γ: from 1978Hn01. Iγ=0.40 *8* for a 1172.3γ (1970Se05) is probably contributed by a sum line. γ not reported by 1978Bo18. α(K)exp≤0.003 gives E1, E2. Additional information 137.
1184.29 *3*	0.530 *20*	1263.036	4^+	78.7427	2^+	E2		0.00266	α=0.00266; α(K)=0.00221; α(L)=0.00034 I_γ: 0.80 *6* (1970Se05). δ(M3/E2)=+0.04 *7* (1984Kr14),<0.06 (from α(K)exp). α(K)exp=0.00228 *24*. Additional information 22.
1205.65 *13*	0.047 *13*	1465.929	2^+	260.270	4^+	(E2)		0.00257	α=0.00257; α(K)=0.00214; α(L)=0.00032 α(K)exp=0.004 *2* gives M1,E2 but ΔJ^π requires E2. Additional information 29.
1209.13 *10*	0.083 *8*	1749.208	4^+	539.984	6^+	(E2)		0.00255	α=0.00255; α(K)=0.00213; α(L)=0.00032 α(K)exp=0.0050 *26* gives M1,E2. Additional information 61.
1238.73 *8*	0.092 *11*	1778.87	5^+	539.984	6^+	M1(+E2)	<0.8	0.0040 *4*	α=0.0040 *4*; α(K)=0.0034 *4*; α(L)=0.00049 *5* α(K)exp=0.0048 *13*. Additional information 64.
1263.16 *9*	0.070 *9*	1803.113	4^+	539.984	6^+	(E2)		0.00234	α=0.00234; α(K)=0.00195; α(L)=0.00029 α(K)exp=0.0065 *30* gives M1,E2 with δ<0.7 but ΔJ^π requires E2. Additional information 71.
1288.84 *3*	0.309 *12*	1549.118	3^+	260.270	4^+	M1+E2	+2.8 *+7−10*	0.00245 *13*	α=0.00245 *13*; α(K)=0.00205 *19*; α(L)=0.00030 *2*

$^{172}_{70}Yb_{102}$-17

^{172}Lu ε decay (6.70 d) 1978Bo18,1978Hn01,1984Kr14 (continued)

γ(^{172}Yb) (continued)

E_γ [†]	I_γ [†b]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [@]	δ [&]	α [c]	Comments
									α(K)exp=0.0022 *3* gives δ>1.8. Additional information 36.
1322.66 *9*	0.160 *14*	1862.808	(5)$^+$	539.984	6$^+$	E2(+M1)	>1.6	0.00237 *23*	α=0.00237 *23*; α(K)=0.00198 *20*; α(L)=0.00029 *3* δ: from α(K)exp. 1980DaZI give δ=−0.13 *22*. α(K)exp=0.0020 *5*. Additional information 76.
1329.72[f] *7*	0.056 *7*	1869.648	(4,5)$^-$	539.984	6$^+$			0.0029 *8*	α=0.0029 *8*; α(K)=0.0024 *7*; α(L)=0.00035 *10* α(K)exp=0.0032 *17* gives M1,E2 but ΔJ$^\pi$ requires E1. Additional information 80.
1372.79 *14*	0.054 *10*	1633.10	(4)$^+$	260.270	4$^+$	M1,E2		0.0027 *8*	Placement by the evaluator. α=0.0027 *8*; α(K)=0.0023 *6*; α(L)=0.00033 *9* α(K)exp=0.0055 *35*. Additional information 40.
1380.23[#] *10*	0.066[#] *23*	1640.575	4$^-$	260.270	4$^+$				
1387.18[e] *2*	1.39[e] *3*	1465.929	2$^+$	78.7427	2$^+$	M1+E2	−5.1 *+11−16*	0.00201 *3*	α=0.00201 *3*; α(K)=0.00168 *3*; α(L)=0.00025 I_γ: a small part of the intensity may belong with 1927 level. δ: −2.4 *+15−8* (1976Kr04). α(K)exp=0.00183 *20* gives δ>2.5. Additional information 30.
1387.18[e] *2*	<0.2[e]	1926.958	5$^+$	539.984	6$^+$				
1397.50[e f] *3*	0.15[e] *3*	1476.77	2$^+$	78.7427	2$^+$				I_γ: total Iγ=0.436 *13*. Intensity divided on the basis of reaction γ-ray studies.
1397.50[e] *3*	0.29[e] *3*	1657.85	(4)$^+$	260.270	4$^+$	M1+E2	−1.1 *+2−5*	0.00255 *16*	α=0.00255 *16*; α(K)=0.00214 *19*; α(L)=0.00031 *2* δ: <−6 (1984Kr14). α(K)exp=0.0023 *3* for possible doublet gives δ=1.4 *+11−5*. Additional information 44.
1402.53 *3*	1.16 *3*	1662.812	3$^+$	260.270	4$^+$	E2(+M1)	+12 *+9−4*	0.00193 *13*	α=0.00193 *13*; α(K)=0.00161 *1*; α(L)=0.00024 *2* δ: +3.2 *2* (1982BuZH), >+20 (1976Kr04). α(K)exp=0.00135 *19* consistent with E2. Additional information 48.
1440.38 *3*	0.96 *3*	1700.645	3$^+$	260.270	4$^+$	M1+E2	+6.5 *+22−14*	0.00185 *4*	α=0.00185 *4*; α(K)=0.00155 *2*; α(L)=0.00023 δ: +10 *+4−3* (1976Kr04), +5.5 *+7−6* (1982BuZH). α(K)exp=0.00164 *23* gives δ>2.5. Additional information 52.
1446.20 *6*	0.055 *5*	1706.454	5$^-$	260.270	4$^+$				
1465.98 *4*	1.07 *2*	1465.929	2$^+$	0.0	0$^+$	E2		0.00176	α=0.00176; α(K)=0.00147; α(L)=0.00022 α(K)exp=0.00138 *22* gives E2. Mult.: γ(θ,T) (1984Kr14,1976Kr04) consistent with E2. Additional information 31.
1470.39 *3*	1.14 *4*	1549.118	3$^+$	78.7427	2$^+$	M1+E2	−7.6 *+19−36*	0.00177 *2*	α=0.00177 *2*; α(K)=0.00148 *1*; α(L)=0.00022

$^{172}_{70}Yb_{102}$-18

^{172}Lu ε decay (6.70 d) 1978Bo18,1978Hn01,1984Kr14 (continued)

γ(^{172}Yb) (continued)

E_γ[†]	I_γ[†b]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[@]	δ[&]	α[c]	Comments
									δ: −7.6 +*10*−*14* (1976Kr04). α(K)exp=0.00128 *22* gives E2. Additional information 37.
1476.77 *7*	0.056 *10*	1476.77	2^+	0.0	0^+	(E2)		0.00174	α=0.00174; α(K)=0.00145; α(L)=0.00021 α(K)exp=0.0015 *8* gives δ(E2/M1)>1. Additional information 32.
1488.94 *3*	1.84 *3*	1749.208	4^+	260.270	4^+	E2(+M1)	<−6	0.0023 *6*	α=0.0023 *6*; α(K)=0.0019 *5*; α(L)=0.00028 *7* δ: <−11 (1976Kr04). Additional information 62.
1518.68 *6*	0.073 *5*	1778.87	5^+	260.270	4^+	M1,E2		0.0018 *5*	α(K)exp=0.00131 *19* gives E2. α=0.0018 *5*; α(K)=0.0018 *5* α(K)exp=0.0028 *11*. Additional information 65.
1529.78 *5*	0.139 *13*	1608.62	2^+	78.7427	2^+	(E2)		0.00136	α=0.00136; α(K)=0.00136 α(K)exp≤0.0014 gives E1, E2. Additional information 38.
1533.27 *12*	0.044 *5*	2073.125	4^+	539.984	6^+				
1542.850 *23*	1.63 *3*	1803.113	4^+	260.270	4^+	E2(+M1)	+9 +*11*−*3*	0.00135 *16*	α=0.00135 *16*; α(K)=0.00135 *1* δ: or −0.84 +*9*−*11* (1984Kr14). Others: <−9 or −1.2 *2* (1976Kr04),>2.5 (from α(K)exp). α(K)exp=0.00145 *21*. Additional information 72.
1554.38[#] *15*	0.022[#] *7*	1633.10	$(4)^+$	78.7427	2^+	M1,E2			Placement from 1978Bo19. α(K)exp≈0.0015. Additional information 41.
[x]1572.12 *17*	0.045 *20*								Additional information 7.
1578.97 *12*	0.16 *3*	1657.85	$(4)^+$	78.7427	2^+	E2			α(K)exp≤0.0012 gives E1 or E2. I_γ: 0.33 *3* (1970Se05). δ(M3/E2)=+0.04 *20* (1984Kr14). α(K)exp=0.0010 *3* gives E2. Additional information 45.
1584.12 *4*	4.22 *7*	1662.812	3^+	78.7427	2^+	E2(+M1)	+55 +*94*−*22*		α(K)exp=0.00156 *20* gives δ>1.5. Additional information 49.
1602.54 *3*	0.477 *15*	1862.808	$(5)^+$	260.270	4^+	E2(+M1)	+21 +*45*−*9*		δ: +18 *3* (1976Kr04). δ=+0.267 *12* (1984Kr14), +0.31 *1* (1976Kr04) are inconsistent with α(K)exp. δ: or +0.21 *4* (1984Kr14). Others: +12 +*8*−*3* or +0.24 *4* (1976Kr04),>0.7 (from α(K)exp). Lower δ is not supported by α(K)exp. α(K)exp=0.0016 *4*. Additional information 77.
1608.81[#] *6*	0.174[#] *10*	1608.62	2^+	0.0	0^+	(E2)			α(K)exp=0.0026 *19* gives D, E2, E3. Additional information 39.
1621.92 *3*	3.45 *6*	1700.645	3^+	78.7427	2^+	M1+E2	+17 +*4*−*3*		δ: +18 +*5*−*3* (1976Kr04).

$^{172}_{70}Yb_{102}$-19

^{172}Lu ε decay (6.70 d) 1978Bo18,1978Hn01,1984Kr14 (continued)

γ(^{172}Yb) (continued)

E_γ[†]	I_γ[†b]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[@]	δ[&]	Comments
								Additional information 53.
								α(K)exp=0.00134 *17* gives δ>2.5.
[x]1635.2[#] *7*	0.024[#] *7*							
1652.32 *10*	0.023 *5*	2192.152	5^+	539.984	6^+			
1666.84 *4*	0.445 *9*	1926.958	5^+	260.270	4^+	E2(+M1)	+6.9 *+19−12*	E_γ: poor fit in level scheme. Level energy difference is 1666.68.
								δ: −6.1 *+9−12* (1976Kr04).
								Additional information 83.
								α(K)exp≤0.0011 gives E2 or E1.
1670.49 *3*	0.847 *19*	1749.208	4^+	78.7427	2^+	E2		δ(M3/E2)=+0.01 *5* (1984Kr14),<0.4 (from α(K)exp).
								α(K)exp=0.0017 *6*.
								Additional information 63.
1724.35 *3*	0.701 *16*	1803.113	4^+	78.7427	2^+	E2		δ(M3/E2)=+0.03 *6* (1984Kr14),<0.3 (from α(K)exp).
								α(K)exp=0.0015 *3*.
								Additional information 73.
1742.90 *9*	0.035 *3*	1821.64	3^-	78.7427	2^+			
1803.97[f] *15*	0.019 *3*	2343.720	4^+	539.984	6^+			Placement by the evaluator.
[x]1809.42[#] *22*	0.018[#] *3*							
1812.85 *4*	0.308 *12*	2073.125	4^+	260.270	4^+	E2(+M1)	+6.0 *+57−19*	δ: or −0.75 *12* (1984Kr14). Others: <−18, >+13, −1.0 *2* (1976Kr04).
								α(K)exp agrees better with larger δ.
								α(K)exp=0.0010 *3* gives δ>1.5.
								Additional information 98.
1914.80 *3*	0.955 *18*	2175.074	3^+	260.270	4^+	M1+E2	−0.291 *24*	δ: −0.34 *3* (1976Kr04),<0.6 (from α(K)exp).
								Additional information 103.
								α(K)exp=0.00162 *22*.
[x]1920.50 *14*	0.029 *3*							α(K)exp≤0.0063.
								Additional information 8.
1931.76 *7*	0.060 *6*	2192.152	5^+	260.270	4^+	(M1,E2)		α(K)exp≤0.0027 gives D, E2, E3.
								Additional information 114.
1994.36 *6*	0.239 *15*	2073.125	4^+	78.7427	2^+	E2		δ(M3/E2)=−0.27 *15* (1980DaZI),<0.35 (from α(K)exp).
								α(K)exp=0.0009 *5*.
								Additional information 99.
[x]2015.17[#] *8*	0.092[#] *10*					(M1)		α(K)exp=0.0019 *5*.
								Additional information 9.
2024.9 *3*	0.090 *9*	2285.399	4^+	260.270	4^+	M1(+E2)	+0.46 *44*	δ: from 1980DaZI.
								α(K)exp=0.0019 *5* gives M1.
								Additional information 127.
[x]2044.6[#] *5*	0.008[#] *4*							
2047.55 *15*	0.017 *4*	2307.83	$3^+,4^+$	260.270	4^+			
2083.41 *6*	0.348 *11*	2343.720	4^+	260.270	4^+	M1+E2	+0.41 *14*	δ: +0.40 *24* (1976Kr04),<0.25 (from α(K)exp).
								α(K)exp=0.00145 *22*.
								Additional information 138.
2096.33 *5*	0.111 *5*	2175.074	3^+	78.7427	2^+	M1+E2	+0.68 *+16−11*	δ: or +2.7 *+8−7* (1984Kr14),<2.6 (from α(K)exp).

$^{172}_{70}Yb_{102}$-20

γ(^{172}Yb) (continued)

E_γ[†]	I_γ[†b]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[@]	Comments
							α(K)exp=0.0012 *3*. Additional information 104.
[x]2127.8 *2*	0.0079 *22*						
[x]2134.81 *9*	0.014 *4*						
[x]2137.8 *3*	0.006 *3*						Additional information 10.
2206.72[f] *15*	0.013 *7*	2285.399	4+	78.7427	2+	(E2)	Placement by evaluator. E_γ,I_γ: from 1978Hn01. Eγ=2205.1 *4*, Iγ=0.050 *17* (1970Se05). Eγ=2206.5 *4* (1981MeZT). γ not reported by 1978Bo18. α(K)exp=0.0013 *8* gives M1,E2. Additional information 128.
[x]2212.71[#] *23*	0.007[#] *3*						
2265.02[f] *8*	0.021 *3*	2343.720	4+	78.7427	2+	(E2)	Placement by the evaluator. E_γ,I_γ: from 1978Hn01. Eγ=2264.5 *4* (1981MeZT). γ not reported by 1978Bo18. α(K)exp=0.00066 *28* gives δ(E2/M1)>1. Additional information 139.

[†] From weighted averages of 1978Bo18, 1978Hn01 and 1970Se05.
[‡] From γγ data (1978BaYJ).
[#] From 1978Hn01 only.
[@] From ce data (generally from 1978Bo18, but other data have also been considered). The ce data were normalized (by 1978Bo18) to those for 662γ from ^{137}Cs decay (α(K)(M4)=0.0905). Other studies used different normalization procedures: 1972Ba50 used 1093.6γ assumed as E2 and 1968Ka01 used 181.5γ (mult=E2).
[&] From γ(θ,T) (1984Kr14) when value is given with sign(δ). The values without sign(δ) are from εK(exp) (generally from 1978Bo18).
[a] From subshell ratios: L1/L2=0.0661 *7*, L2/L3=0.995 *7* (1979Bu21). L1/L2=0.069 *3*, L1/L3=0.068 *3*, L2/L3=0.998 *35*, M1/M2=0.057 *2*, M2/M3=0.97 *1* (1968Ka01). L3/M3=3.95 *8*, M1/M3=0.0595 *18*, M2/M3=0.946 *13*, (M4+M5)/M3=0.0187 *26*, N1/M3=0.011 *4*, N2/M3=0.226 *7*, N3/M3=0.227 *6*, O1/M3=0.010 *3*, (O2+O3)/M3=0.048 *3*, (O1+O2+O3)/M3=0.058 *4*, (N1+N2+N3)/(O1+O2+O3)= 7.9 *6* (1980Bu28). Others: 1968Ka01, 1961Ha23, 1962Br40, 1960Tu01, 1960Pl03, 1960Io01. α(L2)exp=2.8 *1*.
[b] For absolute intensity per 100 decays, multiply by 0.625 *25*.
[c] 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.
[d] Multiply placed with undivided intensity.
[e] Multiply placed with intensity suitably divided.
[f] Placement of transition in the level scheme is uncertain.
[x] γ ray not placed in level scheme.

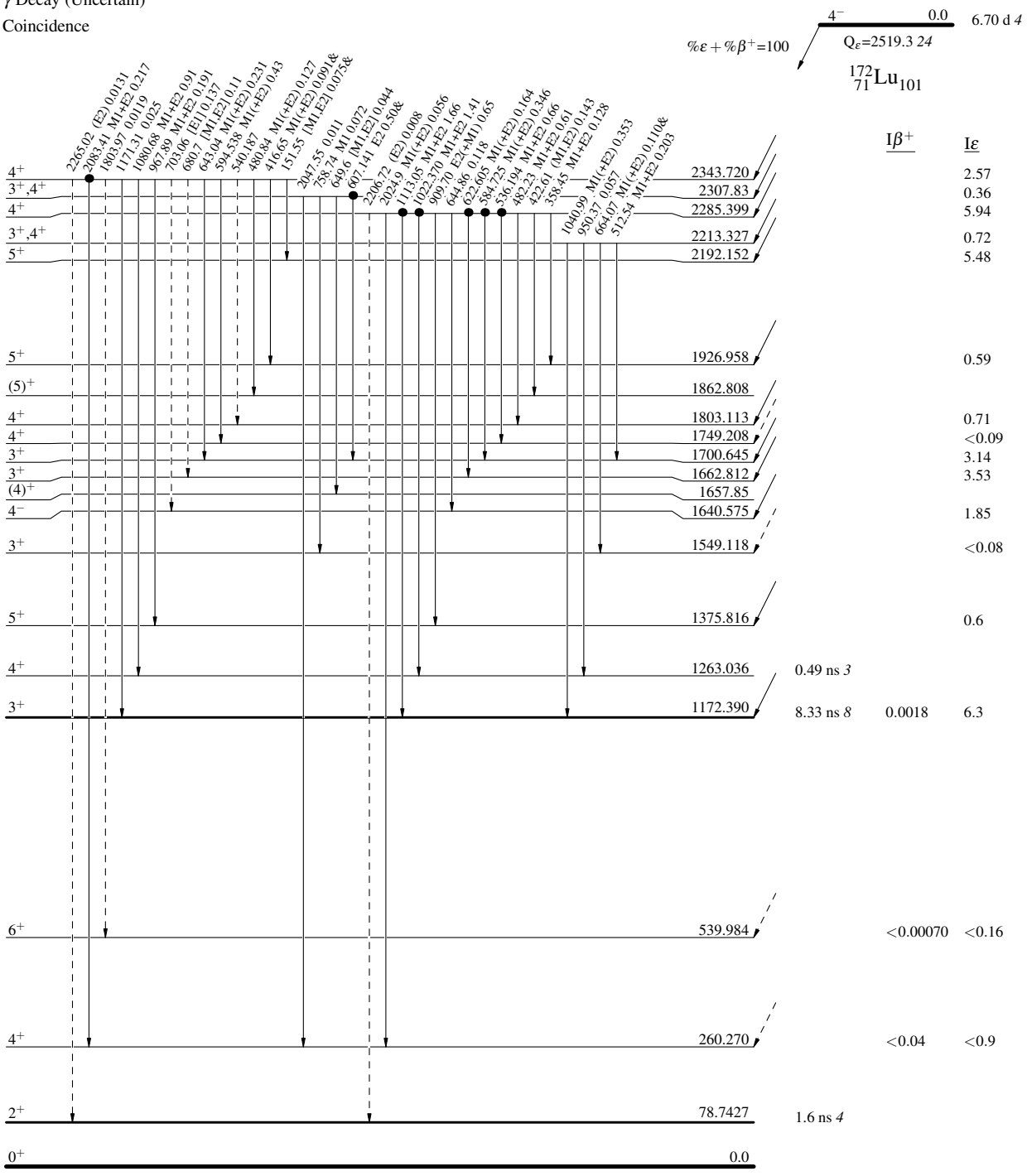
$^{172}_{70}Yb_{102}$-21

^{172}Lu ε decay (6.70 d) 1978Bo18,1978Hn01,1984Kr14

Decay Scheme

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

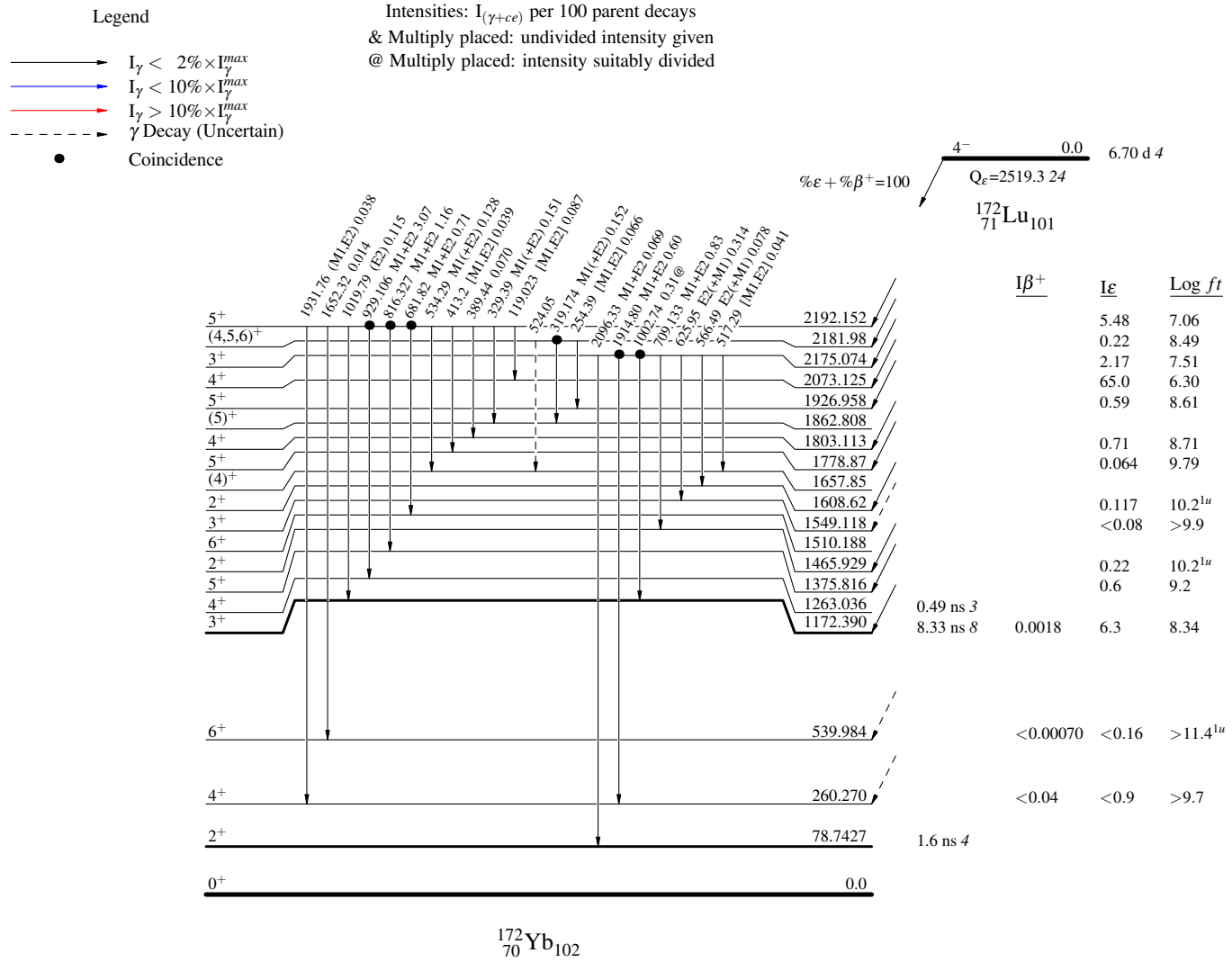
Legend
- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$
- γ Decay (Uncertain)
- Coincidence



^{172}Lu ε decay (6.70 d) 1978Bo18,1978Hn01,1984Kr14

Decay Scheme (continued)

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

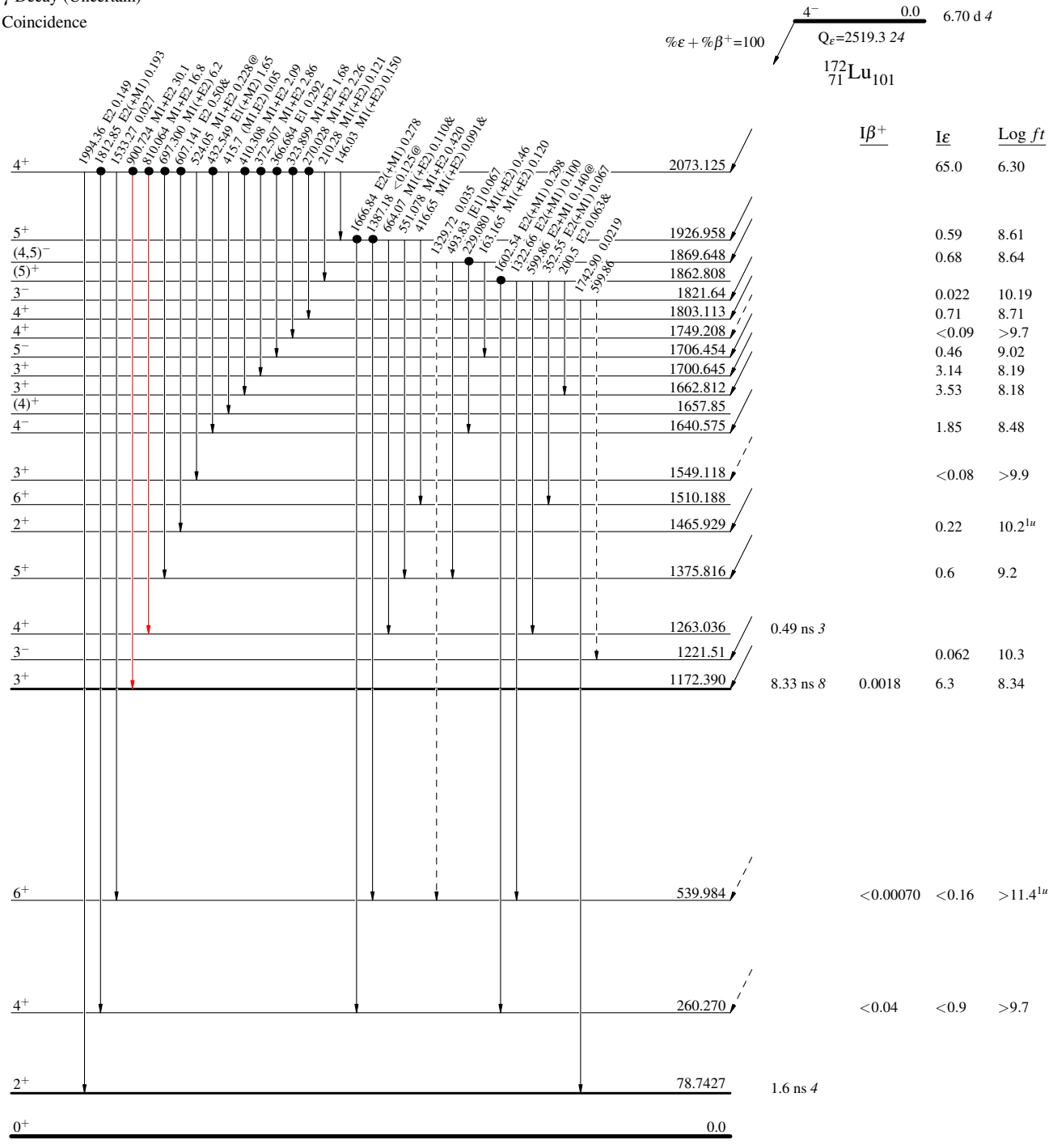


^{172}Lu ε decay (6.70 d) 1978Bo18,1978Hn01,1984Kr14

Decay Scheme (continued)

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

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

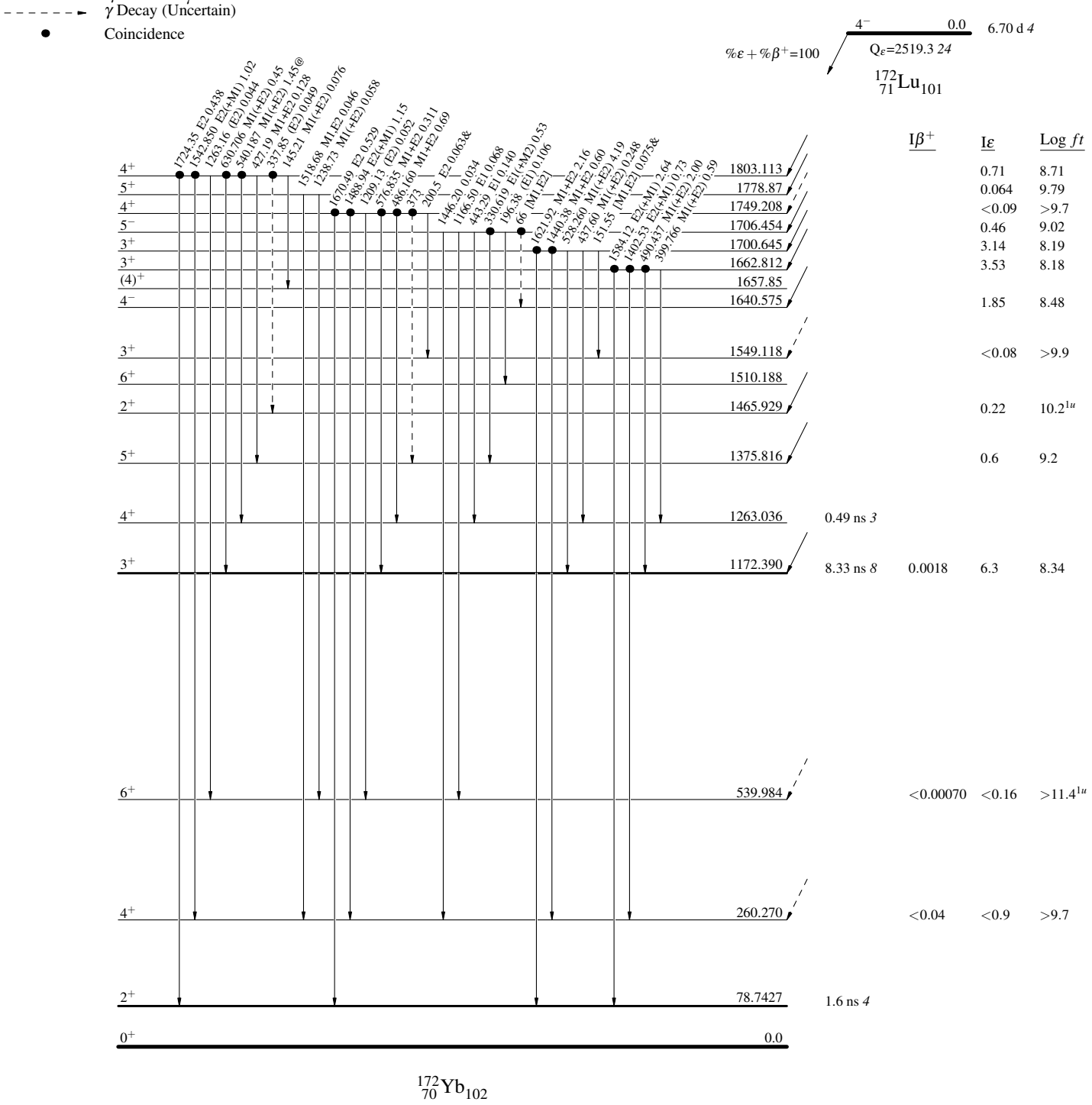


$^{172}_{70}Yb_{102}$

^{172}Lu ε decay (6.70 d) 1978Bo18,1978Hn01,1984Kr14

Decay Scheme (continued)

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

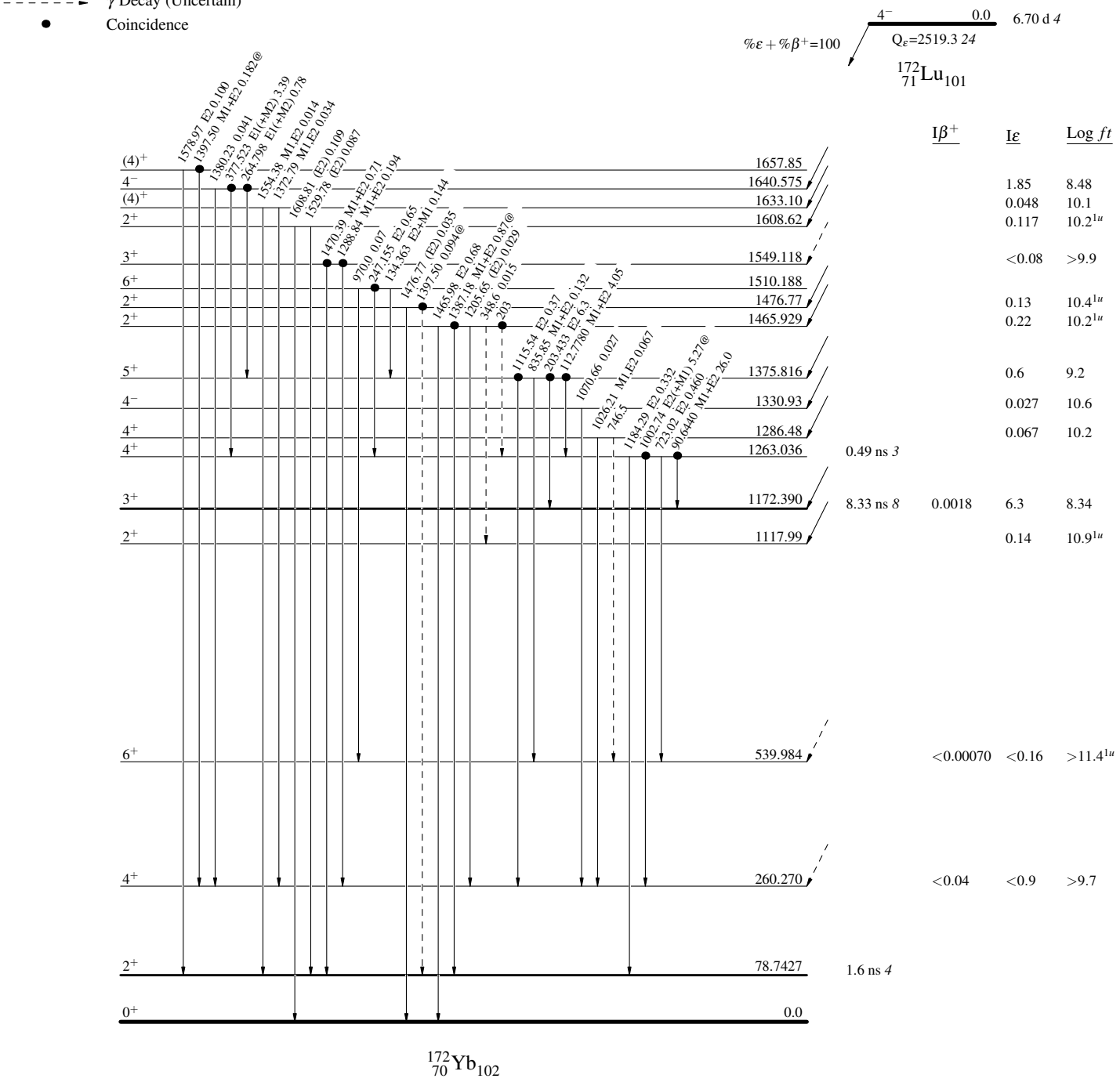


$^{172}_{70}Yb_{102}$

^{172}Lu ε decay (6.70 d) 1978Bo18,1978Hn01,1984Kr14

Decay Scheme (continued)

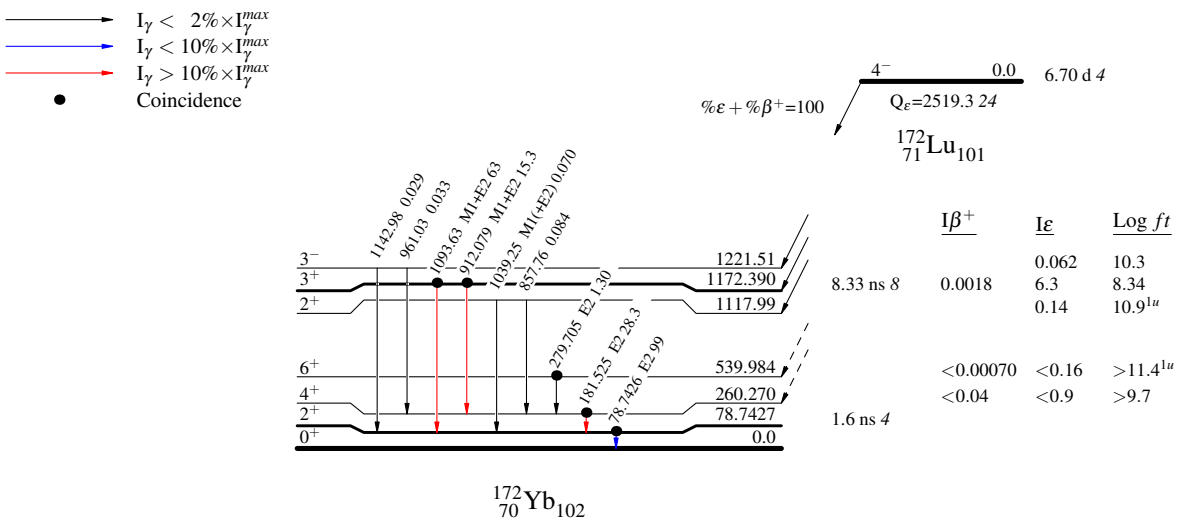
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided



^{172}Lu ε decay (6.70 d) 1978Bo18,1978Hn01,1984Kr14

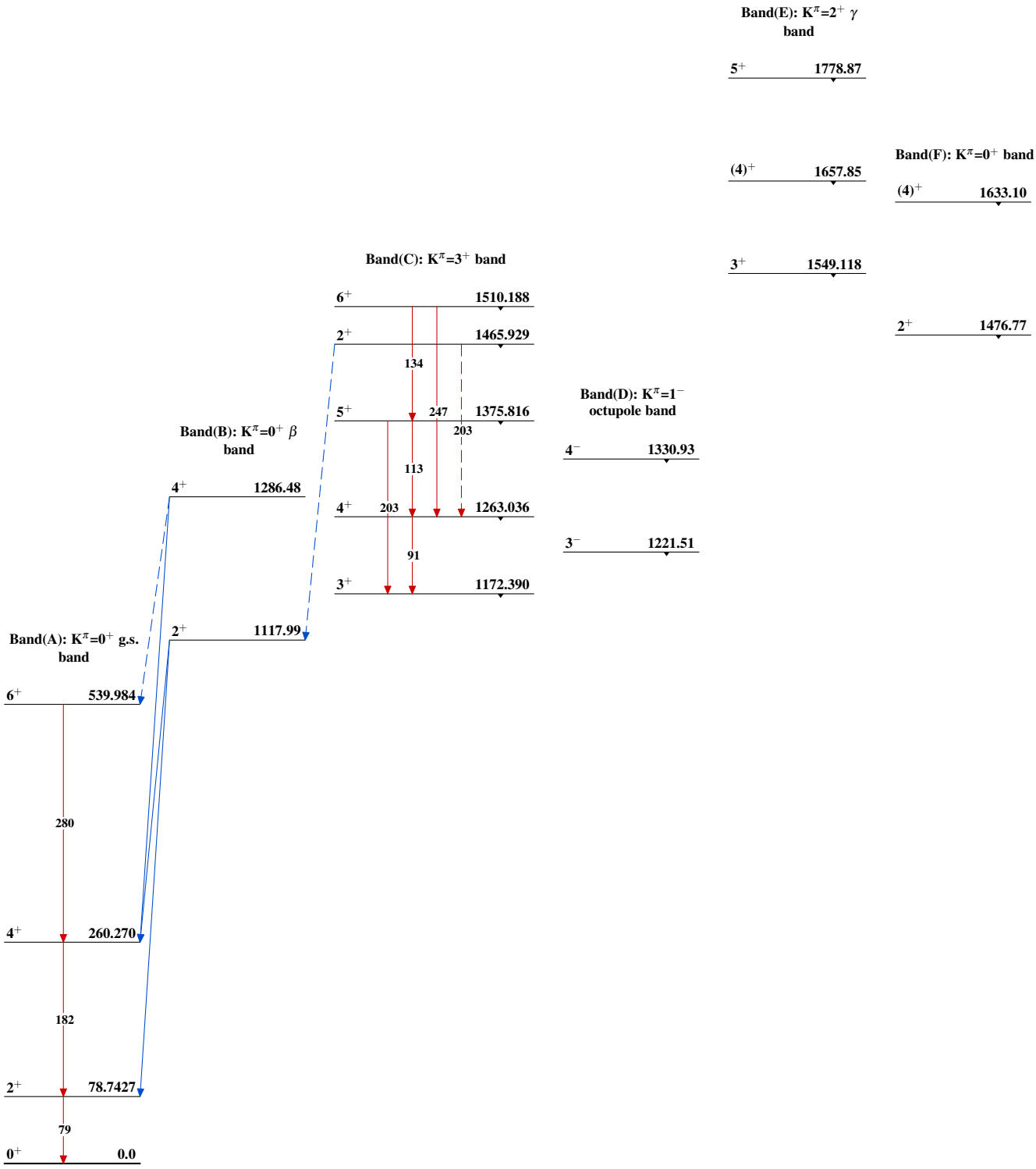
Decay Scheme (continued)

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



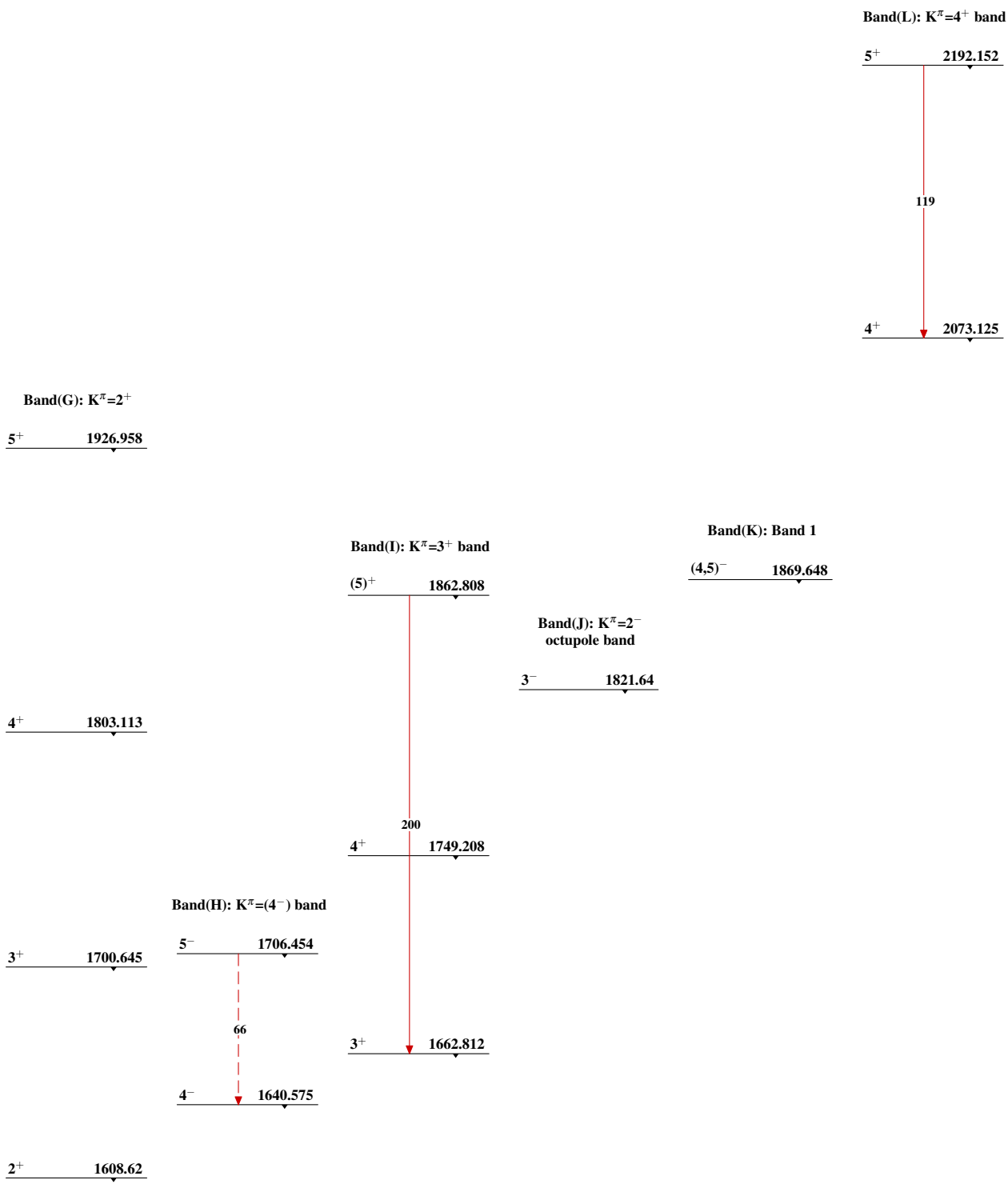
	Iβ⁺	Iε	Log *ft*
		0.062	10.3
8.33 ns *8*	0.0018	6.3	8.34
		0.14	10.9[1u]
	<0.00070	<0.16	>11.4[1u]
	<0.04	<0.9	>9.7

^{172}Lu ε decay (6.70 d) 1978Bo18,1978Hn01,1984Kr14



$^{172}_{70}Yb_{102}$

^{172}Lu ε decay (6.70 d) 1978Bo18,1978Hn01,1984Kr14 (continued)



$^{172}_{70}Yb_{102}$

^{172}Lu ε decay (6.70 d) 1978Bo18,1978Hn01,1984Kr14 (continued)

$^{172}_{70}Yb_{102}$