Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	C. M. Baglin[1], E. A. Mccutchan[2], S. Basunia[1]	NDS 153, 1 (2018)	1-Oct-2018

Q(β^-)=−3458 *17*; S(n)=8457.7 *12*; S(p)=6777.7 *8*; Q(α)=1737.2 *12* 2017Wa10
S(2n)=15324.7 *12*; S(2p)=12350.7 *12* (2017Wa10).
% Abundance: 2.982 *6* (from compilation by 2008De16).
Other Reactions:
^{186}W(n,4p13nγ): 2000Ya22: E(n)=250-600 MeV; 4 HPGe detectors; measured Eγ, $\gamma\gamma$ coin; tentatively observed 296γ and 390γ cascade connecting J=2, 4 and 6 members of g.s. band.
Muonic atoms: 1975Ze04: Measured muonic x ray spectra; deduced isotope shift and intrinsic Q=7.80 *30* (which implies Q(84 level)=2.23 *9*, based on rotational model).
Isotope shifts, hfs: see, e.g., 2003Ba90, 2002Zi04, 2001Lo30, 1991Ji06, 1991Ki14, 1991Ma48.
Study of order-to-chaos transition In ^{170}Yb: 2006Le41.
Measurement of level density and radiative strength function: 2004Ag05.

^{170}Yb Levels

For discussions of rotational band configurations see, e.g., 1972Ca21, 1981Wa14, 1985SuZX, 1994Go29, 1998Ar08.

Cross Reference (XREF) Flags

A	^{170}Tm β^- decay	E	^{168}Er(α,2nγ)	I	Coulomb excitation
B	^{170}Lu ε decay	F	^{169}Yb(n,γ) E=res	J	^{171}Yb(d,t)
C	^{174}Hf α decay	G	^{170}Er(α,4nγ)	K	^{171}Yb(^{3}He,$\alpha\gamma$)
D	^{160}Gd(^{14}C,4nγ)	H	^{170}Yb(d,d′)	L	^{172}Yb(p,t)

E(level)[†]	J$^\pi$[‡]	T$_{1/2}$[#]	XREF	Comments
0.0[a]	0+[b]	stable	ABCDE GHIJ L	
84.25468[a] *8*	2+[b]	1.61 ns *2*	AB DE GHIJ L	μ=+0.675 *12* (1968Mu01); Q=2.1 *4* (1971Pl03) μ: from 1968Mu01, Mossbauer effect. Other: +0.67 *4* (1965Ti02). Q: from Q(^{172}Yb)/Q(^{170}Yb)=1.020 *12* (1971Pl03, Mossbauer effect). J$^\pi$: E2 84γ to 0$^+$. T$_{1/2}$: weighted average of 1.60 ns *2* (1972Gr05), 1.8 ns *3* (1967Ba27), and 1.62 ns *2* (2017Ka10). Others: 1.58 ns *5* (Coulomb excitation), 1.66 ns *9* from B(E2), 1.58 ns *7* from $\gamma\gamma$(t) in ^{170}Lu ε decay.
277.43[a] *4*	4+[b]	98[@] ps *4*	B DE GHIJ L	J$^\pi$: stretched E2 193γ to 2$^+$; band assignment.
573.30[a] *8*	6+[b]	13[@] ps *3*	DE GHIJ L	J$^\pi$: stretched E2 296γ to 4$^+$; band assignment.
963.32[a] *10*	8+[b]	2.97 ps *25*	DE G I	J$^\pi$: stretched E2 390γ to 6$^+$; band assignment.
1069.35[c] *6*	0+		B J L	J$^\pi$: E2 985γ to 2$^+$; J=0 from $\gamma\gamma(\theta)$ in ^{170}Lu ε decay; L(p,t)=0.
1138.55[c] *3*	2+	2.1 ps *4*	B I	J$^\pi$: E2 1139γ to 0$^+$. T$_{1/2}$: from B(E2)=0.030 *6* in Coulomb excitation and adopted branching.
1145.72[d] *5*	2+	0.83 ps *16*	B HIJ L	J$^\pi$: E2 1146γ to 0$^+$. T$_{1/2}$: from B(E2)=0.077 *15* in Coulomb excitation and adopted branching.
1225.35[e] *6*	(3)+		B J L	J$^\pi$: E2 1141γ to 2$^+$; E2,M1 948γ to 4$^+$; E1,E2 1921γ from 1$^+$; J=3 from band assignment.
1228.84 *10*	0+	0.51 ps *10*	B I	J$^\pi$: E0 1228γ to 0$^+$; L(p,t)=0.
1258.46[h] *14*	4−[i]	370 ns *15*	E G	J$^\pi$: E2+M1 87γ from 5$^-$; $\gamma(\theta)$ of E1 981G to 4$^+$ in (α,2nγ). T$_{1/2}$: from γ(t) measurement in (α,2nγ).
1292.4[c] *7*	(4)+		E GH J	XREF: H(1300). J$^\pi$: M1(+E2) 1015γ to 4$^+$; band structure in (α,2nγ) and (α,4nγ).

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Adopted Levels, Gammas (continued)

^{170}Yb Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$[#]	XREF	Comments
1306.39 *5*	2^+		B I	Jπ: 1222γ to 2^+ has E0 component; E2 1029γ to 4^+.
1329.31[d] *20*	$(4)^+$		E GHIJ L	Jπ: E2(+M1) 1052γ to 4^+; band assignment.
1345.18[j] *9*	5^-[i]		E G J L	Jπ: E1 1068γ to 4^+ and E1 772γ to 6^+.
1364.53[q] *4*	1^-		B J L	Jπ: E1 1365γ to 0^+.
1397.05[q] *13*	$(3)^-$		B H J L	Jπ: E1 1119γ to 4^+; M1,E2 967γ from 1^-. Jπ supported by σ for E=1398 *5* doublet In (p,t) and E=1400 or 1398 levels In (d,d′) and (d,t). However, log *ft*=9.5 from 0^+ is too low for a ΔJ=3 branch.
1408.73[o] *20*	$(4)^+$		E G	Jπ: E2(+M1) 1132γ to 4^+; $K^\pi=(4)^+$ bandhead.
1425.24[r] *4*	$(2)^-$		B	Jπ: 1^-,2^- based on E1 287γ to 2^+ and M1 938γ from 1^-; band assignment (1999GrZV) requires J=2.
1437.53[a] *13*	10^+[b]	1.16 ps *8*	DE G I	Jπ: stretched E2 474γ to 8^+; band assignment.
1450.35[h] *13*	6^-[i]		E G	Jπ: E2 192γ to 4^-; D+Q 105γ to 5^-; D+Q 123γ from 7^-.
1459.75[e] *18*	$(5)^+$		E G J	Jπ: E2(+M1) 1182γ to 4^+; possible γ to 6^+; band structure.
1479.91 *6*	0^+		B J L	Jπ: J=0 from γγ(θ) in ^{170}Lu ε decay; E2 1397γ to 2^+; L(p,t)=0.
1510.2[q] *5*	(5^-)		E G	Jπ: γ to 4^+; $K^\pi=1^-$ band assignment.
1512.37 *4*	1^-		B J L	Jπ: E1 1512γ to 0^+.
1521.31[c] *14*	6^+		E G	Jπ: M1 948γ to 6^+; stretched E2 1244γ to 4^+.
1528.74[p] *18*	5^+		E G	Jπ: M1(+E2) 955γ to 6^+ from γ(θ) in (α,2nγ); M1+E2 1251γ to 4^+.
1534.57 *4*	2^+		B J L	Jπ: E2 1534γ to 0^+.
1552			J	
1566.38 *8*	0^+		B J L	Jπ: E0 transitions to 0^+; L(p,t)=0.
1572.73[j] *11*	7^-[i]		E GH	Jπ: 228γ E2 to 5^-; E1 609γ to 8^+.
1573.10[r] *20*	(4^-)		G	
1601.33[d] *17*	6^+		E G L	Jπ: ΔJ=0 E2(+M1) 1028γ to 6^+ from γ(θ) in (α,2nγ).
1634.84 *8*	(1^+)		B L	Jπ: 1635γ to 0^+ g.s. is M1(+E2) or E1 based on separate α(K)exp data; Δπ=no 1551γ to 2^+, but γ may be a doublet (see ^{170}Lu ε decay dataset).
1658.06 *9*	$(2)^+$		B J l	Jπ: 1381γ to 4^+; M1 865γ from 1^+.
1660.26[f] *14*	(5^-)		E G l	Jπ: (E1) 1087γ to 6^+; D 1383γ to 4^+ from γ(θ) in (α,2nγ). However, (4^+) suggested in (p,t).
1669.03[o] *17*	6^+		E G	Jπ: ΔJ=0 E2(+M1) 1096γ to 6^+; 260γ to $(4)^+$.
1690			J	
1712.41[q] *21*	(7^-)		E G L	Jπ: ΔJ=1 1139γ to 6^+; band assignment in (α,2nγ), (α,4nγ).
1715.95[h] *4*	8^-[i]		E G	Jπ: E2 265γ to 6^-; D+Q 143γ to 7^-; band assignment.
1717.95 *4*	$(2)^-$		B	Jπ: E1 572γ to 2^+; log *ft*=9.4 from 0^+; E1 493γ to $(3)^+$.
1762.63[g] *22*	(6^-)		E G J	XREF: J(1774). Jπ: ΔJ=1 102γ to $5^{(-)}$; band assignment.
1780.55[e] *15*	$(7)^+$		E G	Jπ: M1(+E2) 817γ to 8^+; 321γ to $(5)^+$.
1783	(3^-)[&]		H L	E(level): from (d,d′); 1780 *5* for doublet in (p,t).
≈1789	(3^-)[&]		J	E(level): may be same level as seen in (d,d′) at 1783 and in (p,t) at 1780 *5*; however, E from (d,t) is, typically,≈6 keV low, so it does not appear to be consistent with those.
1793.37[r] *18*	(6^-)		G	
1803.39[c] *14*	$(8)^+$		E G	Jπ: M1 840γ to 8^+; 1230γ to 6^+; band assignment.
1835.06[p] *21*	$7^{(+)}$		E G	Jπ: D 1261γ to 6^+; D 872γ to 8^+; band assignment.
1838.2 *3*	$(2)^+$		B J L	XREF: J(1829). Jπ: M1(+E2+E0) 1754γ TO 2^+. However, log *ft* is only≈10.0 from 0^+.
1851.23[k] *16*	6^-	<0.2 ns	E G	Jπ: ΔJ=1 for M1+E2 506γ to 5^-; M1+E2 401γ to 6^-. $T_{1/2}$: from γ(t) measurement in (α,2nγ).
1871 *5*			L	
1872.09[j] *14*	9^-[i]		E G	Jπ: E1 909γ to 8^+; E2 299γ to 7^-; 434γ to 10^+; band assignment.
1903.14[f] *14*	7^-		E G	Jπ: E1 939γ to 8^+; E1 1330γ to 6^+.

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Adopted Levels, Gammas (continued)

^{170}Yb Levels (continued)

E(level)[†]	J^{π}[‡]	$T_{1/2}$[#]	XREF	Comments
1911			J	
1954.13[d] *17*	8^+		E G	J^{π}: ΔJ=0 M1+E2 991γ to 8^+.
1964.64[l] *22*	(7^-)		E GH	J^{π}: intraband ΔJ=1 D+Q 113γ to 6^-; $K^{\pi}=6^-$ band member in (α,2nγ), (α,4nγ).
1971 *10*			J L	XREF: J(1963). E(level): from (p,t).
1983.36[a] *17*	12^+[b]	0.77 ps *6*	DE G I	J^{π}: stretched E2 546γ to 10^+; $K^{\pi}=0^+$ g.s. band member.
1985.64 *9*	$1^-,2^-$		B	J^{π}: E1 1901γ to 2^+; log *ft*=9.2 from 0^+.
2001 *10*			J L	XREF: J(2000). E(level): for doublet in (p,t).
2005.43[q] *18*	$(9)^-$		E G	J^{π}: γ(θ) of E1 1043γ to 8^+ in (α,2nγ) favors ΔJ=1; band assignment.
2009.35[o] *17*	8^+		E G	J^{π}: E2(+M1), ΔJ=0 1046γ to 8^+.
2039.85 *8*	1^+		B	J^{π}: M1 2040γ to 0^+.
2044.64[g] *17*	(8^-)		E G	J^{π}: ΔJ=(1) 142γ(θ) to 7^-; (Q) intraband 282γ to (6^-); band assignment.
2047 *7*			L	
2052.59 *7*	$0^-,1^-,2^-$		B	J^{π}: M1 540γ to 1^-.
2056.73[h] *15*	10^-[i]		E G	J^{π}: stretched E2 341γ to 8^-; 185γ to 9^-; band structure.
2088	0^+		L	J^{π}: L(p,t)=0.
2096.81[r] *18*	(8^-)		G	
2098.5[k] *3*	(8^-)		E G	J^{π}: ΔJ=1 from 134γ(θ) to (7^-); band assignment.
2115.90 *7*	1^-		B H J	J^{π}: (E1) 2116γ to 0^+; E1 2032γ to 2^+; log *ft*=9.1 from 0^+.
2126.14 *5*	1^-		B	J^{π}: E1 2126γ to 0^+.
2135.33[c] *15*	10^+		E G	J^{π}: M1 698γ to 10^+; stretched Q 1172γ to 8^+; band structure.
2137 *12*			L	
2170.04[e] *19*	(9^+)		G	
2171? *7*	(2^+)[&]		L	
2186	0^+		L	J^{π}: L(p,t)=0.
2189.65[m] *17*	7^-	2.5 ns *3*	E G	J^{π}: ΔJ=1 M1(+E2) 338γ to 6^-; stretched E2 845γ to 5^-; E2(+M1) 739γ to 6^-; band structure. $T_{1/2}$: from γ(t) in (α,2nγ).
2200.91 *9*	$1^-,2^-$		B	J^{π}: E1 2117γ to 2^+; log *ft*=8.8 from 0^+.
2220.69[f] *15*	$(9)^-$		E G	J^{π}: ΔJ=1 1258γ to 8^+; 783γ to 10^+.
2229 *7*	0^+		L	J^{π}: L(p,t)=0.
2242.00[j] *16*	11^-[i]		E G	J^{π}: stretched E2 370γ to $(9)^-$; E1 804γ to 10^+.
2249 *7*			L	
2253.5[l] *3*	(9^-)		E G	J^{π}: ΔJ=1 155γ(θ) to (8^-); $K^{\pi}=6^-$ band assignment.
2268.08 *17*	1^-		B	J^{π}: E1 2268γ to 0^+.
2275.49 *5*	1^-		B l	XREF: l(2281). J^{π}: E1 2275γ to 0^+.
2289.37 *10*	1^+		B l	XREF: l(2281). J^{π}: M1 γ to 0^+.
2328.0? *4*	(0^+)		B L	J^{π}: possible E0 2328-keV transition to 0^+ g.s.; possible γ to 2^+; log *ft*≈9.7 from 0^+.
2341.6[n] *3*	(8^-)		E G	J^{π}: ΔJ=1 152γ to 7^-; band assignment.
2351.71 *6*	$0^-,1^-,2^-$		B L	J^{π}: M1 987γ to 1^-; log *ft*=8.0, log $f^{1u}t$=8.65 *4* from 0^+.
2364.06 *4*	1^-		B	J^{π}: E1 2364γ to 0^+.
2367.65 *5*	$(1)^-$		B	J^{π}: M1 242γ to 1^-; log $f^{1u}t$<8.5 from 0^+; 1061γ to 2^+.
2372.83[d] *19*	10^+		E G	J^{π}: stretched Q 418γ to 8^+; M1+E2 935γ to 10^+.
2388.06[q] *18*	$(11)^-$		E G	J^{π}: ΔJ=1 E1 951γ to 10^+; band assignment.
2398.51[g] *19*	(10^-)		E G	J^{π}: ΔJ=1 178γ to $(9)^-$; intraband 354γ to (8^-).
2399	0^+		L	J^{π}: L(p,t)=0.
2400.10 *6*	1^-		B L	XREF: L(2390). J^{π}: E1 2400γ to 0^+.

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Adopted Levels, Gammas (continued)

^{170}Yb Levels (continued)

E(level)[†]	J$^\pi$[‡]	XREF	Comments
2412.39[o] *19*	$(10)^+$	E G	J$^\pi$: M1,E2 975γ to 10$^+$; ΔJ=0,2 404γ to 8$^+$; band assignment.
2429.0[k] *3*	(10^-)	E G	J$^\pi$: 175.4γ to (9$^-$), 330.7γ to (8$^-$); band structure.
2429.05 *11*	$1^+,2^+$	B	J$^\pi$: M1 2345γ to 2$^+$; M1 712γ from 1.
2436.01 *11*	$(2,3)^-$	B L	J$^\pi$: E1 2352γ to 2$^+$; 2158γ to 4$^+$.
2460.55 *23*	(10^-)	G	
2473.69[h] *19*	12^-[i]	E G	J$^\pi$: E2 417γ to 10$^-$; γ to 11$^-$; band structure in (α,2nγ).
2477.8[r] *3*	(10^-)	G	
2496.20 *5*	1^-	B L	J$^\pi$: E1 2496γ to 0$^+$.
2498.19 *7*	$0^-,1^-,2^-$	B	J$^\pi$: M1 1134γ to 1$^-$.
2501	0^+	L	J$^\pi$: L(p,t)=0.
2523.07 *14*	1^+	B	J$^\pi$: M1 2523γ to 0$^+$.
2524.27[c] *17*	12^+	E G	J$^\pi$: M1(+E2) 541γ to 12$^+$; stretched Q 1087γ to 10$^+$.
2525.1[m] *3*	(9^-)	E G	J$^\pi$: 183.6γ to (8$^-$), 335.4γ to 7$^-$; band assignment.
2536.97 *6*	1^-	B L	J$^\pi$: E1 2537γ to 0$^+$; π supported by E2 612γ from 1$^-$ and M1(+E2) 587γ from 1$^-$. However, M1 498γ to 1$^+$.
2560	0^+	L	J$^\pi$: L(p,t)=0.
2580.35[a] *24*	14^+[b]	DE G	J$^\pi$: stretched E2 597γ to 12$^+$; band structure in (α,2nγ), (α,4nγ).
2595 *7*		L	
2603.60[f] *21*	(11^-)	E G	J$^\pi$: 205γ to (10$^-$); 382γ to (9)$^-$; band assignment.
2603.8[e] *3*	(11^+)	E G	J$^\pi$: Q 433.8γ to (9$^+$); K^π=2$^+$ band assignment.
2661.02 *12*	1^+	B	J$^\pi$: M1,E2 2661γ to 0$^+$; log *ft*=8.7 from 0$^+$.
2667.19 *4*	$1^{(+)}$	B	J$^\pi$: M1 1598γ to 0$^+$; π supported by mult for 1010γ, 1438γ, 1522γ. However, E1 2583γ to 2$^+$ and (M1) 152γ from π=− 2819.
2678 *7*		L	
2680.75[j] *19*	13^-[i]	E G L	J$^\pi$: E2 439γ to (11)$^-$; D 698γ to 12$^+$; band structure in (α,xnγ).
2732.3[n] *3*	(10^-)	E G	J$^\pi$: 207γ to (9$^-$); 391γ to (8$^-$); K$^\pi$=7$^-$ band assignment.
2748.08 *5*	1^-	B	J$^\pi$: E1 2748γ to 0$^+$.
2768.34 *8*	$0^-,1^-$	B	J$^\pi$: M1 1404γ to 1$^-$; log *ft*=7.9, log $f^{1u}t$=8.1 from 0$^+$.
2775.66 *8*	1^-	B	J$^\pi$: E1 2691γ to 2$^+$; log *ft*=7.6, log $f^{1u}t$=7.7 from 0$^+$.
2783.12 *10*	1^+	B	J$^\pi$: M1 2783γ to 0$^+$; M1 2699γ to 2$^+$; however, M1 1419γ to 1$^-$.
2815.73[g] *23*	(12^-)	E G	J$^\pi$: 417γ to (10$^-$); 212γ to (11$^-$); band structure.
2819.77 *4*	$0^-,1^-$	B	J$^\pi$: M1 324γ to 1$^-$; (M2) 2736γ to 2$^+$ favors J=0; mixed multipolarity for 531γ and possibly for the 1308γ and 1565γ favor J=1.
2826.8[d] *3*	(12^+)	E G	J$^\pi$: stretched Q 454γ to 10$^+$; K$^\pi$=2$^+$ band assignment.
2847.0?[k] *11*	(12^-)	G	
2854	0^+	L	J$^\pi$: L(p,t)=0.
2855.61[q] *21*	(13^-)	E G	J$^\pi$: 873γ to 12$^+$; band assignment.
2859.2[o] *3*	(12^+)	G	
2927.2[r] *4*	(12^-)	G	
2929.60 *8*	1^-	B	J$^\pi$: E1 2930γ to 0$^+$; E1 1860γ to 0$^+$.
2938.6 *3*	$12^{(-)}$	G	
2939.73 *5*	1^-	B	J$^\pi$: E1 1405γ to 2$^+$; however, 1305γ to (1$^+$) is M1,E2.
2945	0^+	L	J$^\pi$: L(p,t)=0.
2947.84 *6*	1^-	B	J$^\pi$: E1 2948γ to 0$^+$; E1 1810γ to 2$^+$.
2956.55 *11*	1^+	B	J$^\pi$: log *ft*=8.0 from 0$^+$; 2957γ to 0$^+$; M1 2873γ to 2$^+$.
2959.4[m] *3*	(11^-)	E G	J$^\pi$: 227γ to (10$^-$); stretched Q 434γ to (9$^-$); band assignment.
2965.66 *8*	1^+	B	J$^\pi$: M1 2966γ to 0$^+$; however, M1 467γ to π=− 2498 and M1,E2 1601γ to π=− 1365.
2966.42[h] *22*	14^-[i]	E G	J$^\pi$: E2 493γ to 12$^-$; K$^\pi$=4$^-$ band member.
2969.45 *13*	1^-	B	J$^\pi$: 2970γ to 0; M1 917γ to π=− 2053.
2975.32 *11*	1^-	B	J$^\pi$: M1 1611γ to 1$^-$; M1(+E0) 859γ to 1$^-$. However, weak M1(+E2) 1746γ to 0$^+$.
2986.67[c] *21*	(14^+)	G	J$^\pi$: stretched Q intraband 462γ to (12)$^+$; 1003γ to 12$^+$.
2995	0^+	L	J$^\pi$: L(p,t)=0.
3007.6 *3*	1^-	B	J$^\pi$: E1 2923γ to 2$^+$; log *ft*=8.2, log $f^{1u}t$=8.0 from 0$^+$.

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Adopted Levels, Gammas (continued)

^{170}Yb Levels (continued)

E(level)[†]	J^{π}[‡]	XREF	Comments
3027	0^+	L	J^{π}: L(p,t)=0.
3042.46 *17*	1^+	B	J^{π}: M1 3043γ to 0^+.
3049.95[f] *24*	(13^-)	E G	J^{π}: 234γ to (12^-); 446γ to (11^-); band assignment.
3065.36 *12*	1^+	B	J^{π}: E2,M1 1996γ to 0^+.
3067.0[e] *4*	(13^+)	G	
3067.62 *10*	1^-	B	J^{π}: 3067.0γ to 0^+; M1 1703γ to 1^-.
3070.52 *19*	0,1	B	J^{π}: log *ft*=8.1, log $f^{1u}t$=7.75 from 0^+.
3077	0^+	L	J^{π}: L(p,t)=0.
3091.93 *11*	1	B	J^{π}: M1 596γ to 1^-; M1 692γ to 1^-. Inconsistent with (E2(+M1)) 3008γ to 2^+ and E2(+M1) or E1+M2 3092γ to 0^+.
3099.64 *9*	$1^{(-)}$	B	J^{π}: E1 2030γ to 0^+; however, π=+ based on E2 3100γ to 0^+ g.s. and (M1) 1620γ and (M1) 1954γ to 2^+.
3108	0^+	L	J^{π}: L(p,t)=0.
3115.58 *11*	1^-	B	J^{π}: E1 3115γ to 0^+.
3123.94 *12*	1^-	B	J^{π}: E1 2054γ to 0^+.
3131.10 *16*	1^+	B	J^{π}: log *ft*=7.9, log $f^{1u}t$=7.4 from 0^+; (M1) 3046.9γ to 0^+; E2,M1 1993γ to 2^+.
3140.60 *13*	(1)	B	J^{π}: weak 3140γ to 0^+, M1 712γ to $1^+,2^+$, and M1+E2 480γ to 1^+; inconsistent with M1 1776γ to 1^-.
3146.03 *9*	1^+	B	J^{π}: M1,E2 3146γ to 0^+.
3149.09 *9*	1^-	B	J^{π}: E1 3149γ to 0^+.
3150	0^+	L	J^{π}: L(p,t)=0.
3153	0^+	L	J^{π}: L(p,t)=0.
3161.02 *17*	(1^-)	B	J^{π}: (E1) 3161γ to 0^+.
3165.59 *9*	1^-	B	J^{π}: E1 3165γ to 0^+. However, (M1,E2) 1686γ to 0^+.
3169.59 *12*	1^-	B	J^{π}: 3169.6γ to 0^+, M1 401.3γ to $0^-,1^-$ 2783.
3179.76 *16*	1^-	B	J^{π}: E1 3096γ to 2^+.
3186.2[j] *4*	15^-[i]	E G	J^{π}: E2 505γ to 13^-; 4^- band member.
3186.66 *13*	(1^-)	B	J^{π}: M1 1061γ to 1^-; 3102γ to 2^+; doubly-placed 751γ to $(2,3)^-$. However, M1 758γ TO π=+ 2429.
3195.1[a] *3*	16^+[b]	DE G	J^{π}: E2 615γ to (14^+); band assignment.
3195.58 *8*	1^-	B	J^{π}: E1,E2 3196γ to 0^+; M1 448γ to 1^-; log *ft*=7.3, log $f^{1u}t$=6.6 from 0^+. However, (M1) 1967γ to 0^+.
3202.1[n] *4*	(12^-)	E G	J^{π}: 242.5γ to (11^-), 469.9γ to (10^-); band structure.
3202.94 *13*	1^+	B	J^{π}: M1 3202γ to 0^+.
3213.27 *13*	1^-	B	J^{π}: E1 2144γ to 0^+.
3258.18 *10*	1^+	B	J^{π}: M1 3173γ to 2^+; however, M1 822γ to $(2,3)^-$.
3268.91 *15*	$1^{(+)}$	B	J^{π}: M1 3184γ to 2^+; however, M1 449γ to $0^-,1^-$.
3274.17 *14*	1^-	B	J^{π}: E1 3274γ to 0^+, E1 3190γ to 2^+, and E1 1235γ to 1^+. The J^{π} assignment, however, is in disagreement with M1(+E2) 491γ to 1^+.
3291.82 *21*	1^+	B	J^{π}: E2,M1 2063γ to 0^+; however, weak E1 3291γ to 0^+ g.s.
3296.5[g] *3*	(14^-)	G	
3301.95 *11*	1^+	B	J^{π}: M1 2232.7γ to 0^+, M1 518.9γ to 1^+. J^{π} assignment is, however, in disagreement with M1 806γ 1^-.
3307.3[d] *4*	(14^+)	E G	J^{π}: stretched Q 481γ to (14^+); band structure in (α,2nγ), (α,4nγ).
3314.42 *11*	1	B	J^{π}: (M1) 3314γ to 0^+ and (M1) 1748γ to 0^+ give 1^+; however, π=− from E1 3230γ TO 2^+, and M1+E2+E0 963γ TO $1^-,2^-$.
3325	0^+	L	J^{π}: L(p,t)=0.
3333.2?[o] *11*	(14^+)	G	
3366.40 *11*	1	B	J^{π}: log *ft*=6.5, log $f^{1u}t$=5.3 from 0^+; 1799γ to 0^+. M1 301γ to 1^+, E2 598γ to $0^-,1^-$ give conflicting π assignments.
3384.87 *17*	1^-	B	J^{π}: E1 2315γ to 0^+.
3401.7[q] *3*	(15^-)	E G	J^{π}: band structure in (α,4nγ).
3423.2? *8*	(0^-)	B	J^{π}: possible M1+E2+E0 or M2 3339γ to 2^+.
3437.8[r] *6*	(14^-)	G	

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Adopted Levels, Gammas (continued)

^{170}Yb Levels (continued)

E(level)[†]	Jπ[‡]	XREF	Comments
3466.8?[m] 8	(13⁻)	G	
≈3500		L	Jπ: E and excitation probability fit systematics for 5⁻ and 7⁻ doublets observed to be strongly excited in (p,t) for neighboring nuclei.
3533.8[h] 3	16⁻[i]	E G	Jπ: E2 567γ to 14⁻; 4⁻ band member.
3547.3[c] 3	(16⁺)	G	Jπ: intraband 561γ to (14⁺); band assignment.
3558.1[e] 4	(15⁺)	G	
3567.4[f] 3	(15⁻)	G	
3742.1[n] 4	(14⁻)	G	
3756.5[j] 4	(17⁻)[i]	E G	Jπ: E2 570γ to (15⁻); band structure.
3806.8[a] 4	18⁺[b]	DE G	Jπ: E2 612γ to (16⁺); band assignment.
3833.3[d] 4	(16⁺)	G	
3842.3[g] 6	(16⁻)	G	
3844.2?[o] 15	(16⁺)	G	
4011.8[r] 12	(16⁻)	G	
4017.6[q] 6	(17⁻)	G	
4065.1?[e] 11	(17⁺)	G	
4174.0[h] 4	18⁻[i]	G	
4207.1[c] 5	(18⁺)	G	Jπ: intraband 659γ to (16⁺); 1012γ to 16⁺; band assignment.
4390.3[j] 5	19⁻[i]	G	
4436.5[a] 7	20⁺[b]	E G	Jπ: (E2) 631γ to 18⁺; Kπ=0⁺ g.s. band assignment.
4885.9[h] 7	20⁻[i]	G	
5084.8[j] 5	21⁻[i]	G	

[†] From least-squares fit to adopted Eγ.

[‡] For levels observed only in (α,4nγ), Jπ is based on DCO ratio data and probable band structure deduced in that reaction.

[#] From Doppler-broadened lineshape analyses in Coulomb excitation, unless noted otherwise.

[@] from γγ(t) in (α,2nγ).

[&] Based on measured σ(θ), comparison to Nilsson-model prediction, and band configuration analysis in ^{170}Er(d,d′), ^{171}Yb(d,t) or ^{172}Yb(p,t).

[a] Band(A): Kπ=0⁺ g.s. band. Rotational parameters: α=14.1, β=−0.012.

[b] Definite Jπ assigned to members of g.s. band based on smooth progression of level energies and independently-established Jπ(g.s.)=0⁺ and E2 multipolarity for J=2 to 0 84γ.

[c] Band(B): Kπ=0⁺, α=0 β band. Rotational parameters: α=11.6, β=−0.021. Sharp rise in alignment at low rotational frequency probably indicates a change from vibrational to two-quasiparticle character as states gradually mix with low-spin members of $(\nu\ i_{13/2})^2$ band. However, 2001Ga02 suggest that the J=0, 1069 level is not a good β-vibration candidate.

[d] Band(C): Kπ=2⁺, α=0 γ band. Rotational parameters: α=13.0, β=−0.011. Small alignment at low spin. At higher frequencies, vibrational states probably mix with two-quasiparticle (ν 5/2[512])⊗(ν 1/2[521]) band.

[e] Band(c): Kπ=2⁺, α=1 γ band. Rotational parameters: α=13.6, β=−0.016. Small alignment at low spin. At higher frequencies, vibrational states probably mix with two-quasiparticle (ν 5/2[512])⊗(ν 1/2[521]) band.

[f] Band(d): Kπ=(3)⁻, α=1. Rotational parameters: α=9.3, β=−0.0003. Signature partner of Kπ=3⁻, α=0 band. See comments on that band. J=3 member not yet identified.

[g] Band(D): Kπ=(3)⁻, α=0. Rotational parameters: α=9.5, β=−0.0014. Bandhead energy very close to that calculated for the (ν 7/2[633])-(ν 1/2[521]) configuration; assignment supported by absence of a $(\nu\ i_{13/2})^2$ crossing in kinematic moment of inertia and by in-band transition strength ratios (B(M1)(cascade)/B(E2)(crossover)) (1998Ar08). Probable admixture with Kπ=1⁻ (1981Wa14). J=4 member not yet identified.

[h] Band(E): Kπ=4⁻, α=0. Rotational parameters: α=8.7, β=+0.0024. Configuration (ν 7/2[633])+(ν 1/2[521]) supported by

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Adopted Levels, Gammas (continued)

^{170}Yb Levels (continued)

two-quasiparticle plus rotor calculations, by large splitting from signature partner (as in 7/2[633] band in ^{171}Yb), by similarity of kinematic moment of inertia plot to that for (ν 7/2[633])+(ν 1/2[521]) band in ^{172}Yb, by alignment (which is close to sum of alignments for 7/2[633] and 1/2[521] bands in ^{171}Yb and ^{169}Tm), and by in-band transition strength ratios (B(M1)(cascade)/B(E2)(crossover)) (1998Ar08).

[i] Definite J$^{\pi}$ assigned to members of (ν 7/2[633])+(ν 1/2[521]) band based on smooth progression of level energies and independently-established J$^{\pi}$(1258)=4^{-} and multipolarity of M1+E2 for J=5 to 4 87γ.

[j] Band(e): K$^{\pi}$=4^{-}, α=1. Rotational parameters: α=8.7, β=+0.0008. Signature partner of K$^{\pi}$=4^{-}, α=0 band. See comments on that band.

[k] Band(F): K$^{\pi}$=6^{-}, α=0. Rotational parameters: α=8.0, β=+0.0065. Configuration (ν 7/2[633])+(ν 5/2[512]) consistent with observed alignment and with behavior of ^{172}Yb band with same configuration.

[l] Band(f): K$^{\pi}$=6^{-}, α=1. Rotational parameter: α=8.5. Configuration (ν 7/2[633])+(ν 5/2[512]) consistent with observed alignment and with behavior of ^{172}Yb band with same configuration.

[m] Band(g): K$^{\pi}$=7^{-}, α=1. Rotational parameters: α=9.6, β=+0.0063. Signature partner of K$^{\pi}$=7^{-}, α=0 band. See comments on that band.

[n] Band(G): K$^{\pi}$=7^{-}, α=0. Rotational parameters: α=10.3, β=−0.00075. Configuration (π 7/2[523])+(π 7/2[404]) consistent with observed alignment and with in-band transition strength ratios (B(M1)(cascade)/B(E2)(crossover)) for J=9, 10, 11 (1998Ar08).

[o] Band(H): K$^{\pi}$=(3)$^{+}$ band, α=0. Rotational parameters: α=12.3, β=−0.0145. Band's decay characteristics imply K≤4; probably analogous (based on comparison of kinetic moment of inertia plots) to a K$^{\pi}$=3^{+} band in ^{172}Yb which includes the (ν 5/2[512])+(ν 1/2[521]) configuration. 1998Ar08 suggest that configuration for this band also. However, postulated in 1993Wu03 to be $\gamma\gamma$ vibrational band (K=4). J=3 member not yet identified.

[p] Band(h): K$^{\pi}$=(3)$^{+}$, α=1 (1998Ar08). Signature partner of the K$^{\pi}$=(3)$^{+}$, α=0 band. See comments on that band.

[q] Band(i): K$^{\pi}$=1^{-}, α=1 octupole band. K$^{\pi}$=3^{-} admixture. Probable dominant configuration (ν 7/2[633])-(ν 5/2[512]). Assignment supported by large B(E3) for J=3 member of this band and by observed alignment relative to g.s. band of ≈ 3$\hbar\omega$. Large energy splitting relative to signature partner is observed, as expected (1998Ar08).

[r] Band(I): K$^{\pi}$=(1)$^{-}$, α=0 octupole band. Possible signature partner of K$^{\pi}$=1^{-}, α=1 octupole band (1998Ar08). Large energy splitting relative to signature partner is observed, as expected.

$\gamma(^{170}$Yb)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[‡]	α[c]	Comments
84.25468	2^+	84.25474 *8*	100	0.0	0^+	E2	6.28	B(E2)(W.u.)=201 *6* E_γ: from ^{170}Tm β^- decay. Mult.: from α(K)exp and subshell ratios in ^{170}Tm β^- decay.
277.43	4^+	193.13 *5*	100	84.25468	2^+	E2	0.302	
573.30	6^+	295.86 *9*	100	277.43	4^+	E2[&]	0.0771	E_γ: weighted average from (α,4nγ) and (α,2nγ).
963.32	8^+	390.06 *9*	100	573.30	6^+	E2[&]	0.0345	B(E2)(W.u.)=3.6×10^2 *3* E_γ: weighted average from (α,4nγ) and (α,2nγ).
1069.35	0^+	985.10 *10*	100	84.25468	2^+	E2		
		1069.4		0.0	0^+	E0		
1138.55	2^+	1054.28 *5*	100 *3*	84.25468	2^+	E2		
		1138.65 *10*	75.7 *23*	0.0	0^+	E2		B(E2)(W.u.)=1.08 *21*
1145.72	2^+	868.10 *20*	3.6 *4*	277.43	4^+	(E2)		B(E2)(W.u.)=0.48 *11*
		1061.39 *10*	100 *3*	84.25468	2^+	E2		B(E2)(W.u.)=4.8 *10*
		1145.80 *20*	83 *3*	0.0	0^+	E2		B(E2)(W.u.)=2.7 *6*
1225.35	$(3)^+$	947.80 *15*	30.7 *9*	277.43	4^+	E2,M1		
		1141.30 *20*	100 *3*	84.25468	2^+	E2		
1228.84	0^+	160.2		1069.35	0^+	E0		
		1144.65 *20*	100 *3*	84.25468	2^+	E2		B(E2)(W.u.)=10.1 *21*
		1228.9		0.0	0^+	E0		ce(K)/ce=0.87. I(ce(K))/I(1145γ)=0.0027 from ^{170}Lu ε decay. ρ^2(E0)=0.027 *5* (evaluation in 1999Wo07).
1258.46	4^-	981.1[@] *2*	100	277.43	4^+	E1[&]		B(E1)(W.u.)=6.3×10^{-10} *3*
1292.4	$(4)^+$	1015.0 *7*	100	277.43	4^+	M1(+E2)[&]		E_γ: weighted average of 1014.7 *2* in (α,4nγ) and 1016.7 *5* in (α,2nγ).
1306.39	2^+	1028.80 *10*	100 *3*	277.43	4^+	E2		
		1222.3 *3*	79 *3*	84.25468	2^+	E0+E2+M1	0.013	α: estimated from α(K)exp.
		1306.30 *20*	61 *3*	0.0	0^+	(E2)		
1329.31	$(4)^+$	1051.8[a] *2*	100	277.43	4^+	E2(+M1)[&]		
1345.18	5^-	86.8[a] *2*	13 *5*	1258.46	4^-	E2+M1[&]	5.3 *3*	Iγ: unweighted average of 8.0 *8* and 18.7 *13* from (α,4nγ) and (α,2nγ), respectively. δ: −0.42 *7* or −1.63 *20* from (α,2nγ). α: for range of δ allowed by $\gamma(\theta)$.
		771.8[@] *1*	33.2[a] *16*	573.30	6^+	E1[&]		
		1067.8[@] *1*	100[a] *4*	277.43	4^+	E1[&]		
1364.53	1^-	1280.25 *10*	100 *3*	84.25468	2^+	E1		
		1364.60 *10*	56.5	0.0	0^+	E1		
1397.05	$(3)^-$	1119.40 *20*	57.1 *17*	277.43	4^+	E1		
		1312.9 *3*	100 *6*	84.25468	2^+			
1408.73	$(4)^+$	1131.3[a] *2*	100	277.43	4^+	E2(+M1)[&]		
1425.24	$(2)^-$	118.80 *15*	1.02 *10*	1306.39	2^+	[E1]	0.217	

Adopted Levels, Gammas (continued)

$\gamma(^{170}$Yb) (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[‡]	α[c]	Comments
1425.24	(2)$^-$	286.60 *5*	14.3 *4*	1138.55	2$^+$	E1	0.0223	
		1341.20 *10*	100 *3*	84.25468	2$^+$	(E1)		
1437.53	10$^+$	474.2[a] *2*	100	963.32	8$^+$	E2[&]	0.0204	B(E2)(W.u.)=356 *25*
1450.35	6$^-$	105.2[a] *2*	89[a] *6*	1345.18	5$^-$	(M1+E2)	2.78 *15*	Mult.: D+Q from $\gamma(\theta)$ in (α,2nγ); δ larger than typical for E1+M2. δ: −0.41 *5* or −1.75 *15* from (α,2nγ).
		191.9[a] *2*	100[a] *6*	1258.46	4$^-$	E2[&]	0.308	
1459.75	(5)$^+$	887.0 *5*	33 *9*	573.30	6$^+$			E_γ,I_γ: weighted average from (α,2nγ) and (α,4nγ).
		1182.2[a] *2*	100[a] *18*	277.43	4$^+$	E2+M1		Mult.: E2(+M1) from (α,2nγ); D from (α,4nγ).
1479.91	0$^+$	251.0		1228.84	0$^+$	E0		ce(K)/ce=0.87. I(ce(K))/I(1396γ)=0.0051 from ^{170}Lu ε decay.
		410.5		1069.35	0$^+$	E0		ce(K)/ce=0.87. I(ce(K))/I(1396γ)=0.00103 from ^{170}Lu ε decay.
		1395.65 *10*	100 *3*	84.25468	2$^+$	E2		
		1479.9		0.0	0$^+$	E0		ce(K)/ce=0.87. I(ce(K))/I(1396γ)=0.0133 from ^{170}Lu ε decay.
1510.2	(5$^-$)	1232.8[a] *5*	100	277.43	4$^+$	(D)[b]		
1512.37	1$^-$	1428.08 *10*	100 *3*	84.25468	2$^+$	E1		
		1512.50 *10*	73.2 *20*	0.0	0$^+$	E1		
1521.31	6$^+$	228.2[af] *5*	11[a] *4*	1292.4	(4)$^+$			
		948.0[a] *2*	79 *17*	573.30	6$^+$	M1[&]		I_γ: weighted average of 52 *15* from (α,2nγ) and 96 *13* from (α,4nγ).
		1243.6[a] *2*	100 *20*	277.43	4$^+$	E2[&]		I_γ: weighted average from (α,2nγ) and (α,4nγ).
1528.74	5$^+$	955.3 *4*	41 *10*	573.30	6$^+$	M1(+E2)[&]		E_γ,I_γ: weighted average from (α,2nγ) and (α,4nγ).
		1251.3[a] *2*	100[a] *21*	277.43	4$^+$	M1+E2[&]		
1534.57	2$^+$	228.05 *15*	2.29 *14*	1306.39	2$^+$	E0+M1+E2	≈0.65	α: adopted value estimated from α(K)exp in ^{170}Lu ε decay.
		388.80 *10*	5.71 *17*	1145.72	2$^+$	M1(+E0+E2)	0.081	α: if M1.
		395.95 *10*	12.0 *3*	1138.55	2$^+$	M1(+E0+E2)	0.077	α: if M1.
		1257.20 *10*	87 *3*	277.43	4$^+$			
		1450.20 *10*	100 *3*	84.25468	2$^+$	E0+M1+E2		
		1534.55 *10*	58.3 *17*	0.0	0$^+$	E2		
1566.38	0$^+$	201.75 *15*	2.59 *22*	1364.53	1$^-$	[E1]	0.0542	
		337.5		1228.84	0$^+$	E0		ce(K)/ce=0.87. I(ce(K))/I(1482γ)=0.00111 from ^{170}Lu ε decay.
		497.0		1069.35	0$^+$	E0		ce(K)/ce=0.87. I(ce(K))/I(1482γ)=0.0032 from ^{170}Lu ε decay.
		1482.15 *10*	100 *4*	84.25468	2$^+$	(E2)		
		1566.4		0.0	0$^+$	E0		ce(K)/ce=0.87. I(ce(K))/I(1482γ)=0.0061 from ^{170}Lu ε decay.
1572.73	7$^-$	122.6[a] *5*	6.5[a] *14*	1450.35	6$^-$	(M1+E2)	1.69 *20*	I_γ: other: 10.2 *17* in (α,2nγ). Mult.: D+Q from $\gamma(\theta)$ in (α,2nγ); δ larger than typical for E1+M2. δ: −0.37 *7* or −1.95 *25* from (α,2nγ).
		227.5[a] *2*	21.0[a] *14*	1345.18	5$^-$	E2[&]	0.176	

From ENSDF

$^{170}_{70}$Yb$_{100}$-9

$\gamma(^{170}Yb)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[‡]	δ[#]	α[c]	Comments
1572.73	7⁻	609.2[a] 2	34.1[a] 22	963.32	8⁺	E1[&]			I_γ: other: 20 3 in (α,2nγ).
		999.5[@] 1	100[a] 4	573.30	6⁺	(E1)[&]			
1573.10	(4⁻)	1295.7[a] 2	100	277.43	4⁺				
1601.33	6⁺	271.6[a] 5	7[a] 4	1329.31	(4)⁺				
		1028.1[a] 2	100[a] 21	573.30	6⁺	E2(+M1)[&]	>1.5		
1634.84	(1⁺)	1550.55 10	100 3	84.25468	2⁺	(M1)			
		1634.8 3	21.0 8	0.0	0⁺	(M1)			
1658.06	(2)⁺	1380.80 20	100 13	277.43	4⁺				
		1573.60 25	74 4	84.25468	2⁺				
1660.26	(5⁻)	1086.8[a] 2	100[a] 10	573.30	6⁺	(E1)[&]			
		1382.9[a] 2	100[a] 12	277.43	4⁺	(E1)			Mult.: D from (α,2nγ); $\Delta\pi$ from level scheme.
1669.03	6⁺	260.4[a] 5	15[a] 7	1408.73	(4)⁺				
		1095.8[a] 2	100[a] 19	573.30	6⁺	E2(+M1)[&]			
1712.41	(7⁻)	1139.1[a] 2	100	573.30	6⁺	D[b]			
1715.95	8⁻	143.2[a] 2	42[a] 3	1572.73	7⁻	(M1+E2)		1.03 19	I_γ: other: 28.3 22 in (α,2nγ). Mult.: D+Q from $\gamma(\theta)$ in (α,2nγ); δ larger than typical for E1+M2. δ: −0.51 6 or −1.50 20 from (α,2nγ).
		265.4[a] 2	100.0[a] 9	1450.35	6⁻	E2[&]		0.1077	
1717.95	(2)⁻	205.55 20	0.63 5	1512.37	1⁻	(M1+E2)		0.34 10	
		292.55[e] 20	<0.43[e]	1425.24	(2)⁻	[M1,E2]		0.12 5	
		492.58 5	45.4 14	1225.35	(3)⁺	E1			
		572.20 5	100 3	1145.72	2⁺	E1			
		579.40 5	35.7 11	1138.55	2⁺	E1			
1762.63	(6⁻)	102.4[a] 5	100	1660.26	(5⁻)	(M1)			Mult.: D from (α,2nγ); $\Delta\pi$=(No) from level scheme.
1780.55	(7)⁺	320.7 4	6.4 23	1459.75	(5)⁺				E_γ,I_γ: weighted average from (α,2nγ) and (α,4nγ).
		817.1[a] 2	18.1[a] 25	963.32	8⁺	M1(+E2)[&]			
		1207.0[a] 2	100[a] 13	573.30	6⁺	D[b]			
1793.37	(6⁻)	132.9[a] 2	23[a] 7	1660.26	(5⁻)				
		220.5[a] 5	27[a] 10	1573.10	(4⁻)	Q[b]			
		1220.2 5	100 33	573.30	6⁺				
1803.39	(8)⁺	281.8[a] 2	18[a] 5	1521.31	6⁺				
		840.1[a] 2	100[a] 10	963.32	8⁺	M1[&]		0.01101	
		1230.3[a] 2	63[a] 9	573.30	6⁺				I_γ: other: 91 18 in (α,2nγ).
1835.06	7⁽⁺⁾	306.1[a] 5	10 6	1528.74	5⁺				
		871.8[aa] 2	100[a] 11	963.32	8⁺	D[b]			Eγ=870.6 5 in (α,2nγ). I(872γ)/I(1261γ)=2.3 3 in (α,4nγ) but 0.35 13 in (α,2nγ).
		1261[a] 1	31[a] 7	573.30	6⁺	D[b]			I_γ: see comment on 870.6γ.
1838.2	(2)⁺	1753.9[f] 3	100 5	84.25468	2⁺	M1(+E2+E0)			

$^{170}_{70}Yb_{100}$-10

Adopted Levels, Gammas (continued)

γ(^{170}Yb) (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[‡]	δ[#]	α[c]	Comments
1838.2	(2)$^+$	1838.2[ef] 5	<97[e]	0.0	0$^+$				
1851.23	6$^-$	400.9[a] 2	46[a] 5	1450.35	6$^-$	M1+E2[&]	0.7 +6−4	0.059 13	B(M1)(W.u.)>1.5×10^{-4} I_γ: other: 20.4 20 from (α,2nγ).
		505.9[a] 2	100[a] 10	1345.18	5$^-$	M1+E2[&]	0.9 +6−4	0.030 6	B(M1)(W.u.)>0.00012; B(E2)(W.u.)>0.12
1872.09	9$^-$	156.4[a] 2	11.7[a] 14	1715.95	8$^-$	D[b]			
		299.2[a] 2	60.0[a] 21	1572.73	7$^-$	E2[&]		0.0745	
		434.2[@f] 5	8 3	1437.53	10$^+$				I_γ: from (α,2nγ); γ absent in (α,4nγ).
		908.8[a] 2	100[a] 3	963.32	8$^+$	E1[&]			
1903.14	7$^-$	141.0[a] 5	4.9[a] 24	1762.63	(6$^-$)				
		234.4[@f] 5	14 7	1669.03	6$^+$				I_γ: from (α,2nγ); γ absent in (α,4nγ).
		243.3 4	24[a] 7	1660.26	(5$^-$)	Q[b]			E_γ: weighted average from (α,2nγ) and (α,4nγ).
		939.6[a] 2	43[a] 7	963.32	8$^+$	E1[&]			I_γ: weighted average of 36 7 from (α,2nγ) and 49 7 from (α,4nγ).
		1329.8[a] 2	100[a] 12	573.30	6$^+$	E1[&]			
1954.13	8$^+$	352.8[a] 2	27[a] 7	1601.33	6$^+$	Q[b]			
		990.8[a] 2	100[a] 11	963.32	8$^+$	M1+E2[&]			
1964.64	(7$^-$)	113.6[a] 5	54 8	1851.23	6$^-$	(M1+E2)			I_γ: weighted average of 50 17 from (α,4nγ) and 55 9 from (α,2nγ). Mult.: D+Q from (α,2nγ); $\Delta\pi$=(No) from level scheme.
		514.3[a] 2	100[a] 17	1450.35	6$^-$				
1983.36	12$^+$	545.7[a] 2	100	1437.53	10$^+$	E2		0.01433	B(E2)(W.u.)=268 21 Mult.: Q from (α,4nγ); not M2 from RUL.
1985.64	1$^-$,2$^-$	560.55 15	2.8 4	1425.24	(2)$^-$	M1		0.0305	
		621.40[e] 15	<8.1[e]	1364.53	1$^-$	[M1]		0.0235	
		1901.35 15	100 4	84.25468	2$^+$	E1			
		1985.5[e] 3	<13.3[e]	0.0	0$^+$				
2005.43	(9)$^-$	292.9[a] 5	5.8[a] 19	1712.41	(7$^-$)				
		1042.1[a] 2	100[a] 9	963.32	8$^+$	E1[&]			
2009.35	8$^+$	340.4[a] 2	20[a] 4	1669.03	6$^+$				I_γ: other: 50 20 in (α,2nγ).
		1046.0[a] 2	100[a] 11	963.32	8$^+$	E2(+M1)[&]			
2039.85	1$^+$	675.45 20	0.42 3	1364.53	1$^-$				
		901.40[e] 20	<2.8[e]	1138.55	2$^+$				
		970.20[e] 20	<4.5[e]	1069.35	0$^+$	(M1)			
		1955.65 15	52.5 18	84.25468	2$^+$	M1+E2			
		2040.00 15	100 4	0.0	0$^+$	M1			
2044.64	(8$^-$)	141.5[a] 2	88[a] 8	1903.14	7$^-$	(D+Q)			I_γ: other: 30 10 in (α,2nγ).
		281.9[a] 2	100[a] 13	1762.63	(6$^-$)	(Q)			
2052.59	0$^-$,1$^-$,2$^-$	540.15 10	100 4	1512.37	1$^-$	M1		0.0336	
		688.00 8	96 3	1364.53	1$^-$	M1		0.0181	

$^{170}_{70}Yb_{100}$-11

$\gamma(^{170}Yb)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[‡]	δ[#]	α[c]	Comments
2056.73	10^-	184.6[a] *2*	17.8[a] *18*	1872.09	9^-	D[&]			
		341.0[@] *1*	100.0[a] *18*	1715.95	8^-	E2[&]		0.0506	
2096.81	(8^-)	303.3[a] *2*	100[a] *19*	1793.37	(6^-)	Q[b]			
		334.4[a] *5*	<16[a]	1762.63	(6^-)				
		1133.6[a] *2*	69[a] *9*	963.32	8^+				
2098.5	(8^-)	133.9[a] *2*	100[a] *12*	1964.64	(7^-)	D[&]			
		247.0[a] *5*	29[a] *12*	1851.23	6^-				
2115.90	1^-	457.90 *15*	5.9 *5*	1658.06	$(2)^+$	(E1+M2)	0.36 *7*	0.026 *7*	Mult.: α(K)exp In ε decay implies E2(+M1) or E1+M2 with δ=0.36 *7*; level scheme requires $\Delta\pi$=yes.
		970.20[e] *20*	<32[e]	1145.72	2^+				
		2031.70 *20*	100 *3*	84.25468	2^+	E1			
		2116.0	43 *5*	0.0	0^+	E1			
2126.14	1^-	614.00[e] *20*	<0.16[e]	1512.37	1^-				
		645.80 *20*	0.23 *1*	1479.91	0^+				
		700.80 *20*	0.530 *15*	1425.24	$(2)^-$	M1		0.01732	
		819.50 *20*	0.530 *15*	1306.39	2^+				
		980.30 *20*	2.20 *23*	1145.72	2^+				α(K)exp in Lu ε decay is inconsistent with placement.
		988.5	2.27 *23*	1138.55	2^+				
		2041.88 *10*	100 *3*	84.25468	2^+	E1			
		2126.11 *10*	84 *3*	0.0	0^+	E1			
2135.33	10^+	331.9[a] *2*	44[a] *12*	1803.39	$(8)^+$	Q[b]			
		697.8[a] *2*	100[a] *18*	1437.53	10^+	M1[&]		0.01751	Mult.: possible E0 component suggested in (α,2nγ).
		1172.3[a] *2*	53[a] *15*	963.32	8^+	Q[b]			I_γ: other: Iγ(1172γ):Iγ(698γ)=117 *33*:100 *33* in (α,2nγ).
2170.04	(9^+)	389.1[a] *2*	100[a] *18*	1780.55	$(7)^+$				
		732.9[a] *2*	7.3[a] *18*	1437.53	10^+				
2189.65	7^-	338.3[a] *2*	100[a] *6*	1851.23	6^-	M1(+E2)[&]		0.08 *4*	
		739.2[a] *5*	18 *6*	1450.35	6^-	E2(+M1)[&]	≥1.1	0.0089 *19*	B(M1)(W.u.)<1.6×10^{-6}; B(E2)(W.u.)>0.00076 I_γ: average of 12 *6* in (α,4nγ), 23 *6* in (α,2nγ).
		844.6[a] *2*	35 *12*	1345.18	5^-	E2[&]			B(E2)(W.u.)=0.0020 *8* I_γ: 35 *12* for γ possibly contaminated by ^{27}Al(n,n′γ) line in (α,2nγ); however, Iγ=110 *10* from (α,4nγ). Reason for discrepancy has not been identified. Mult.: M1,E2 from α(K)exp in (α,2nγ), Q from DCO ratio in (α,4nγ).
2200.91	$1^-,2^-$	1055.23	45 *9*	1145.72	2^+	E1			
		2116.60 *15*	100 *4*	84.25468	2^+	E1			
		2200.9 *3*	10.9 *5*	0.0	0^+				
2220.69	$(9)^-$	175.9[a] *2*	23[a] *3*	2044.64	(8^-)				I_γ: other: 11 *5* in (α,2nγ).
		317.5[a] *2*	25[a] *3*	1903.14	7^-	Q[b]			
		783.1[a] *2*	25[a] *3*	1437.53	10^+	(D)[b]			

$^{170}_{70}Yb_{100}$-12

$\gamma(^{170}Yb)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[#]	α[c]	Comments
2220.69	(9)⁻	1257.6[a] *2*	100[a] *7*	963.32	8⁺	D[b]			
2242.00	11⁻	185.3[a] *2*	10.7[a] *10*	2056.73	10⁻	D[b]			
		369.9[a] *2*	100[a] *3*	1872.09	9⁻	E2[&]		0.0401	
		804.3[a] *2*	94[a] *3*	1437.53	10⁺	E1[&]			
2253.5	(9⁻)	154.9[a] *2*	100[a] *13*	2098.5	(8⁻)	(M1)			Mult.: D from.
		288.8[a] *2*	73[a] *20*	1964.64	(7⁻)				
2268.08	1⁻	1122.5 *3*	8.33 *24*	1145.72	2⁺				
		2183.9 *5*	21.0 *12*	84.25468	2⁺				
		2268.2 *3*	100 *3*	0.0	0⁺	E1			
2275.49	1⁻	850.05 *15*	2.96 *14*	1425.24	(2)⁻				
		910.8 *3*	2.59 *14*	1364.53	1⁻				
		969.05[e] *20*	<3.8[e]	1306.39	2⁺				
		1046.60[e] *25*	<5.8[e]	1228.84	0⁺				
		1137.1 *3*	9.9 *3*	1138.55	2⁺	(E1+M2)	0.57 *16*		Mult.: α(K)exp In ε decay implies E2(+M1) or E1+M2 (δ=0.57 *16*); level scheme requires $\Delta\pi$=yes.
		1206.30 *20*	8.5 *4*	1069.35	0⁺	E1			
		2191.15 *15*	100 *3*	84.25468	2⁺	E1			
		2275.40 *10*	54.6 *17*	0.0	0⁺	E1			
2289.37	1⁺	249.95[e] *20*	<11.6[e]	2039.85	1⁺	[M1,E2]		0.19 *7*	
		2205.3 *4*	80 *3*	84.25468	2⁺				
		2289.2 *4*	100 *5*	0.0	0⁺	M1			
2328.0?	(0⁺)	1181.5[ef] *3*	<149[e]	1145.72	2⁺				
		2243.7[f] *4*	100 *7*	84.25468	2⁺				
		2327.5[f] *3*		0.0	0⁺	E0			
2341.6	(8⁻)	152.0[a] *2*	100	2189.65	7⁻				
2351.71	0⁻,1⁻,2⁻	225.45[e] *20*	<0.40[e]	2126.14	1⁻	[M1,E2]		0.26 *8*	
		235.55[e] *15*	<2.6[e]	2115.90	1⁻	[M1,E2]		0.23 *8*	
		311.80 *20*	0.43 *4*	2039.85	1⁺	[E1]		0.0181	
		366.35[e] *15*	<1.51[e]	1985.64	1⁻,2⁻				
		633.75 *25*	0.54 *3*	1717.95	(2)⁻				
		839.30 *10*	42.4 *12*	1512.37	1⁻	M1		0.01104	
		926.40 *15*	15.7 *5*	1425.24	(2)⁻	E2			
		987.25 *10*	100 *3*	1364.53	1⁻	M1			
2364.06	1⁻	238.25[e] *15*	<0.38[e]	2126.14	1⁻	[M1,E2]		0.22 *8*	
		829.30 *10*	10.1 *3*	1534.57	2⁺	E1			
		851.45 *20*	1.67 *9*	1512.37	1⁻	M1		0.01065	
		884.10 *15*	7.1 *4*	1479.91	0⁺	E1			
		938.75 *8*	32.6 *9*	1425.24	(2)⁻	M1			
		966.85 *20*	2.96 *9*	1397.05	(3)⁻	(E2)			Mult.: M1,E2 from α(K)exp In ε decay; ΔJ=2 from level scheme.
		999.60 *10*	31.5 *9*	1364.53	1⁻	M1			

$^{170}_{70}Yb_{100}$-13

Adopted Levels, Gammas (continued)

γ(^{170}Yb) (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[‡]	α[c]	Comments
2364.06	1⁻	1057.70 *15*	4.40 *14*	1306.39	2⁺	E1		
		1135.2		1228.84	0⁺			
		1218.50 *20*	28.2 *9*	1145.72	2⁺	E1		
		1225.65 *10*	100 *3*	1138.55	2⁺	E1		
		1294.70 *10*	58.8 *19*	1069.35	0⁺	E1		
		2279.9 *2*	3.94 *14*	84.25468	2⁺	E1		
		2364.10 *15*	30.0 *9*	0.0	0⁺	E1		
2367.65	(1)⁻	166.70[e] *20*	<0.20[e]	2200.91	1⁻,2⁻	[M1,E2]	0.64 *15*	
		241.50 *5*	6.62 *19*	2126.14	1⁻	M1	0.283	
		251.75 *10*	1.36 *6*	2115.90	1⁻	[M1,E2]	0.19 *7*	
		649.60[e] *15*	<1.38[e]	1717.95	(2)⁻	[M1]	0.0210	
		855.15 *15*	27.8 *8*	1512.37	1⁻	M1	0.01054	
		942.45 *15*	6.10 *19*	1425.24	(2)⁻	E2		
		1003.20 *10*	100 *3*	1364.53	1⁻	M1,E2		
		1061.35	6.5 *13*	1306.39	2⁺			
2372.83	10⁺	418.7[a] *2*	92[a] *15*	1954.13	8⁺	Q[b]		
		935.3[a] *2*	100[a] *23*	1437.53	10⁺	M1+E2[&]		
2388.06	(11)⁻	382.6[a] *2*	13[a] *3*	2005.43	(9)⁻			
		950.5[a] *2*	100[a] *10*	1437.53	10⁺	E1[&]		
2398.51	(10⁻)	177.8[a] *2*	67[a] *5*	2220.69	(9)⁻	(M1+E2)		I_γ: other: 33 *11* in (α,2nγ). Mult.: intraband D+Q from (α,2nγ).
		353.9[a] *2*	100[a] *5*	2044.64	(8⁻)	Q[b]		
2400.10	1⁻	741.50 *20*	10.7 *3*	1658.06	(2)⁺			
		1330.7[e] *3*	<9.2[e]	1069.35	0⁺			
		2315.9 *2*	50.8 *17*	84.25468	2⁺	E1		
		2400.15 *20*	100 *3*	0.0	0⁺	E1		
2412.39	(10)⁺	403.1[a] *2*	100[a] *19*	2009.35	8⁺	Q[b]		
		974.8[a] *2*	56[a] *13*	1437.53	10⁺	M1,E2[&]		I_γ: Iγ(975γ)/Iγ(403γ)=1.7 *9* in (α,2nγ).
2429.0	(10⁻)	175.4[a] *2*	93[a] *13*	2253.5	(9⁻)			
		330.7[a] *2*	100[a] *13*	2098.5	(8⁻)			
2429.05	1⁺,2⁺	303.20[e] *20*	<4.5[e]	2126.14	1⁻	[E1]	0.0194	
		916.65	100 *9*	1512.37	1⁻	[E1]		
		1290.9 *4*	86 *16*	1138.55	2⁺	(E2)		Mult.: E1 or E2 from α(K)exp In ε decay; level scheme requires Δπ=No.
		2344.9 *5*	45.5 *18*	84.25468	2⁺	M1		
		2429.0 *4*	48 *5*	0.0	0⁺	(M1,E2)		
2436.01	(2,3)⁻	235.55[e] *15*	<87[e]	2200.91	1⁻,2⁻	[M1,E2]	0.23 *8*	
		801.25 *20*	73 *4*	1634.84	(1⁺)			
		901.40[e] *20*	<143[e]	1534.57	2⁺			
		1211.2 *3*	73 *4*	1225.35	(3)⁺	E1		
		2157.7 *5*	20.0 *9*	277.43	4⁺			

$\gamma(^{170}Yb)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[#]	α[c]	Comments
2436.01	(2,3)⁻	2352.3 5	100 4	84.25468	2⁺	E1			
2460.55	(10⁻)	1023.0[a] 2	100	1437.53	10⁺				Mult.: transition interpreted as D (ΔJ=0) in (α,4nγ).
2473.69	12⁻	231.6[a] 2	13.1[a] 21	2242.00	11⁻				
		417.0[a] 2	100.0[a] 21	2056.73	10⁻	E2[&]		0.0287	
2477.8	(10⁻)	381.0[a] 2	100	2096.81	(8⁻)	Q[b]			
2496.20	1⁻	220.90 15	2.37 8	2275.49	1⁻	[M1,E2]		0.28 9	
		369.80 15	3.24 17	2126.14	1⁻				
		983.67 20	39 3	1512.37	1⁻	M1			
		1070.9 3	6.54 22	1425.24	(2)⁻	M1			
		1426.72	56 6	1069.35	0⁺	E1			
		2411.90 15	100 3	84.25468	2⁺	E1			
		2496.15 15	92 3	0.0	0⁺	E1			
2498.19	0⁻,1⁻,2⁻	222.40[e] 15	<4.0[e]	2275.49	1⁻	[M1]		0.355	
		371.90 15	2.96 17	2126.14	1⁻	(M1)		0.0887	
		382.35 10	5.65 22	2115.90	1⁻	(M1)		0.0825	
		1133.60 10	100 3	1364.53	1⁻	M1			
2523.07	1⁺	864.85 25	26.7 13	1658.06	(2)⁺	M1		0.01024	
		1158.5[e] 3	<16.2[e]	1364.53	1⁻				
		1217.30[e] 20	<155[e]	1306.39	2⁺				
		2438.6 3	77 3	84.25468	2⁺	M1			
		2523.0 3	100 3	0.0	0⁺	M1			
2524.27	12⁺	389.2[a] 2	56[a] 6	2135.33	10⁺	Q[b]			E_γ: not reported in (α,2nγ).
		540.6[a] 2	91[a] 16	1983.36	12⁺	M1(+E2)[&]	≤1.0	0.029 5	I_γ: other: 47 7 in (α,2nγ).
		1086.80[a] 20	100[a] 16	1437.53	10⁺	(E2)			Mult.: stretched Q from DCO in (α,4nγ); α(K)exp(1087 doublet) in (α,2nγ) consistent with E1+E2 doublet.
2525.1	(9⁻)	183.6[a] 2	100[a] 8	2341.6	(8⁻)				
		335.4[a] 5	15[a] 8	2189.65	7⁻				
2536.97	1⁻	497.50 15	10.3 3	2039.85	1⁺				Mult.: M1 from α(K)exp in ^{170}Ly ε decay, but E1 is required by level scheme.
		1002.3	100 10	1534.57	2⁺				
		1173.2[e] 4	<33[e]	1364.53	1⁻				
		1230.2 3	83 3	1306.39	2⁺				
		1307.97	87 10	1228.84	0⁺				
		1398.30 20	50 10	1138.55	2⁺				
		1467.50	50 5	1069.35	0⁺				
		2452.7 3	100 3	84.25468	2⁺				Mult.: M1,E2 from α(K)exp in ^{170}Lu ε decay is inconsistent with placement.
		2536.9 4	47 3	0.0	0⁺	E1			
2580.35	14⁺	597.0[a] 2	100	1983.36	12⁺	E2[&]		0.01152	
2603.60	(11⁻)	205.1[a] 2	46[a] 3	2398.51	(10⁻)	D[b]			I_γ: other: 100 33 in (α,2nγ).
		382.9[a] 2	100[a] 5	2220.69	(9)⁻				

$^{170}_{70}Yb_{100}$-15

γ(^{170}Yb) (continued)

E_i(level)	J^{π}_i	E_γ[†]	I_γ[†]	E_f	J^{π}_f	Mult.[‡]	α[c]	Comments
2603.8	(11^{+})	433.8[a] *2*	100	2170.04	(9^{+})	Q[b]		E_γ: doubly placed in (α,2nγ).
2661.02	1^{+}	225.45[e] *20*	<3.0[e]	2436.01	$(2,3)^{-}$	[E1]	0.0407	
		296.70[e] *20*	<3.7[e]	2364.06	1^{-}	[E1]	0.0205	
		621.40[e] *15*	<21[e]	2039.85	1^{+}	[M1]	0.0235	
		1181.5[e] *3*	<24[e]	1479.91	0^{+}			
		2576.8 *4*	34 *6*	84.25468	2^{+}	M1,E2		
		2661.0 *3*	100 *6*	0.0	0^{+}	(M1)		
2667.19	$1^{(+)}$	231.15[e] *20*	<4.7[e]	2436.01	$(2,3)^{-}$	[E1]	0.0382	
		238.25[e] *15*	<13.2[e]	2429.05	$1^{+},2^{+}$	[M1,E2]	0.22 *8*	
		303.20[e] *20*	<3.2[e]	2364.06	1^{-}	[E1]	0.0194	
		1009.5 *3*	28.4 *16*	1658.06	$(2)^{+}$	M1		
		1132.86	48 *5*	1534.57	2^{+}			
		1187.5 *3*	32.3 *16*	1479.91	0^{+}			
		1241.95 *20*	35.5 *16*	1425.24	$(2)^{-}$	(E1)		Mult.: E1 or E2 from α(K)exp In ε decay; $\Delta\pi$=(yes) from level scheme.
		1361.1 *3*	81 *8*	1306.39	2^{+}	(E2)		Mult.: E1 or E2 from α(K)exp In ε decay; $\Delta\pi$=(No) from level scheme.
		1438.1 *3*	35.5 *16*	1228.84	0^{+}	M1		
		1521.7 *3*	26 *6*	1145.72	2^{+}	M1,E2		
		1529.0 *3*	52 *5*	1138.55	2^{+}			
		1597.6 *3*	52 *3*	1069.35	0^{+}	M1		
		2582.9 *3*	100 *3*	84.25468	2^{+}			Mult.: E1 from α(K)exp in ^{170}Lu ε decay inconsistent with this placement.
		2667.4 *5*	58 *4*	0.0	0^{+}			Mult.: two α(K)exp measurements In ε decay are mutually inconsistent; they imply mult=E1 (1988DzZW) or M1 (1972Ca21).
2680.75	13^{-}	206.9[a] *5*	4.7[a] *19*	2473.69	12^{-}			
		438.7[a] *2*	100[a] *3*	2242.00	11^{-}	E2[&]	0.0251	
		697.5[a] *2*	49.5[a] *19*	1983.36	12^{+}	D[b]		
2732.3	(10^{-})	207.3[a] *2*	100[a] *10*	2525.1	(9^{-})			
		390.5[a] *2*	42[a] *7*	2341.6	(8^{-})			
2748.08	1^{-}	249.95[e] *20*	<0.23[e]	2498.19	$0^{-},1^{-},2^{-}$	[M1,E2]	0.19 *7*	
		472.50 *15*	0.54 *2*	2275.49	1^{-}	M1	0.0474	
		547.25 *15*	1.86 *9*	2200.91	$1^{-},2^{-}$	M1(+E2)	0.023 *10*	
		762.55 *15*	1.34 *4*	1985.64	$1^{-},2^{-}$	M1	0.01402	
		1113.10 *20*	4.86 *22*	1634.84	(1^{+})			
		1181.5[e] *3*	<2.6[e]	1566.38	0^{+}			
		1213.65 *20*	2.48 *13*	1534.57	2^{+}			
		1235.90 *10*	11.0 *3*	1512.37	1^{-}	M1		
		1268.30 *20*	5.62 *22*	1479.91	0^{+}			
		1323.00 *20*	8.4 *7*	1425.24	$(2)^{-}$	M1		
		1383.60 *20*	9.1 *3*	1364.53	1^{-}			
		1518.9 *3*	2.81 *11*	1228.84	0^{+}			

Adopted Levels, Gammas (continued)

γ(^{170}Yb) (continued)

E$_i$(level)	J$_i^\pi$	E$_\gamma$[†]	I$_\gamma$[†]	E$_f$	J$_f^\pi$	Mult.[‡]	δ[#]	α[c]	Comments
2748.08	1⁻	1602.2 *3*	4.97 *22*	1145.72	2⁺	E1			
		1609.40 *20*	10.4 *5*	1138.55	2⁺	E1			
		1678.60 *20*	10.8 *3*	1069.35	0⁺	E1			
		2663.95 *20*	59.0 *22*	84.25468	2⁺	E1			
		2748.15 *20*	100 *4*	0.0	0⁺	E1			
2768.34	0⁻,1⁻	231.15[e] *20*	<0.66[e]	2536.97	1⁻	[M1,E2]		0.24 *8*	
		339.45[e] *20*	<0.37[e]	2429.05	1⁺,2⁺				
		368.30 *20*	0.91 *5*	2400.10	1⁻	[M1,E2]		0.07 *3*	
		416.50 *20*	0.61 *7*	2351.71	0⁻,1⁻,2⁻	(M1,E2)		0.047 *19*	
		1050.40 *10*	100 *3*	1717.95	(2)⁻	E2			
		1110.7 *3*	1.23 *7*	1658.06	(2)⁺				
		1403.79	20.5 *23*	1364.53	1⁻	M1			
2775.66	1⁻	279.40 *15*	0.95 *6*	2496.20	1⁻	[M1,E2]		0.14 *5*	
		649.60[e] *15*	<2.1[e]	2126.14	1⁻	[M1]		0.0210	
		659.70 *20*	0.48 *3*	2115.90	1⁻	(M1)		0.0202	
		723.05 *20*	0.89 *4*	2052.59	0⁻,1⁻,2⁻				
		1263.45 *20*	13.9 *4*	1512.37	1⁻	M1			
		1350.5 *3*	2.59 *12*	1425.24	(2)⁻				
		1469.10 *20*	4.04 *20*	1306.39	2⁺	E1			
		2691.45 *20*	100 *4*	84.25468	2⁺	E1			
		2775.7 *3*	4.95 *20*	0.0	0⁺				
2783.12	1⁺	656.65[e] *20*	<1.32[e]	2126.14	1⁻				
		1418.7 *3*	3.13 *18*	1364.53	1⁻				Mult.: M1 from α(K)exp in ^{170}Lu ε decay is inconsistent with this placement.
		1636.9[e] *3*	<5.5[e]	1145.72	2⁺				
		1714.4[e] *4*	<2.15[e]	1069.35	0⁺				
		2698.8 *3*	58.9 *22*	84.25468	2⁺	M1			
		2783.00 *20*	100 *4*	0.0	0⁺	M1			
2815.73	(12⁻)	212.1[a] *2*	47[a] *3*	2603.60	(11⁻)	D[b]			
		417.2[a] *2*	100[a] *6*	2398.51	(10⁻)	Q[b]		0.0287	
2819.77	0⁻,1⁻	152.60 *3*	23.9 *8*	2667.19	1$^{(+)}$	[E1]		0.1123	Mult.: α(K)exp In ε decay implies M1, inconsistent with placement.
		283.05 *10*	17.5 *6*	2536.97	1⁻	M1		0.184	
		323.57 *5*	30.2 *10*	2496.20	1⁻	M1		0.1285	
		390.40[e] *15*	4.90[e] *20*	2429.05	1⁺,2⁺	[E1]		0.01061	
		419.65 *5*	43.9 *12*	2400.10	1⁻	M1		0.0646	
		455.50 *10*	11.4 *4*	2364.06	1⁻	M1		0.0521	
		530.50 *10*	8.2 *4*	2289.37	1⁺	(E1+M2)	0.28 +*6*−*7*	0.013 *4*	Mult.: E2 or E1+M2 (δ=0.28 +*6*−*7*) from α(K)exp In ε decay; Δπ=yes from level scheme. Mixed multipolarity inconsistent with level scheme if J(2820)=0.
		544.24 *5*	72.5 *20*	2275.49	1⁻	M1(+E2)		0.024 *10*	Mult.: E2 component inconsistent with decay scheme if J(2820)=0.

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$\gamma(^{170}Yb)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[‡]	α[c]	Comments
2819.77	$0^-,1^-$	618.95[e] 10	<6.7[e]	2200.91	$1^-,2^-$	[M1,E2]	0.017 7	
		693.55 20	2.08 20	2126.14	1^-	M1	0.01778	
		703.85 15	6.67 20	2115.90	1^-	M1	0.01713	
		834.45[e] 10	<9.1[e]	1985.64	$1^-,2^-$			
		1101.70 10	83.5 24	1717.95	$(2)^-$	E2		
		1307.55 10	94 4	1512.37	1^-	M1+E2		Mult.: M1+E2 from α(K)exp In ε decay; mixed multipolarity inconsistent with level scheme if J(2820)=0.
		1455.25 10	100 3	1364.53	1^-	E2(+M1)		Mult.: mixed multipolarity inconsistent with level scheme if J(2820)=0.
		2735.6 6	2.16 20	84.25468	2^+	(M2)		Mult.: M1(+E2+E0) or M2 from α(K)exp In ε decay; $\Delta\pi$=yes from level scheme.
2826.8	(12^+)	454.0[a] 2	100	2372.83	10^+	Q[b]		
2847.0?	(12^-)	418[af] 1	100	2429.0	(10^-)			
2855.61	(13^-)	467.5[a] 2	43[a] 10	2388.06	$(11)^-$	Q[b]		
		872.3[a] 2	100[a] 14	1983.36	12^+	D[b]		
2859.2	(12^+)	446.8[a] 2	100	2412.39	$(10)^+$			
2927.2	(12^-)	449.4[a] 2	100	2477.8	(10^-)	Q[b]		
2929.60	1^-	406.25[e] 15	<1.48[e]	2523.07	1^+	[E1]	0.00968	
		500.50 15	0.59 3	2429.05	$1^+,2^+$			Mult.: α(K)exp In ε decay favors mult=M1, but large uncertainty may render result unreliable. Placement requires E1.
		728.85 20	2.6 5	2200.91	$1^-,2^-$			
		813.55[e] 20	<2.66[e]	2115.90	1^-			
		876.80 25	1.61 8	2052.59	$0^-,1^-,2^-$	M1	0.00990 14	
		1294.74	2.7 3	1634.84	(1^+)			
		1395.03	24 3	1534.57	2^+			
		1449.64	8.1 11	1479.91	0^+			
		1503.9[e] 4	<0.59[e]	1425.24	$(2)^-$			
		1564.97	5.4 5	1364.53	1^-			
		1700.90[e] 20	<8.3[e]	1228.84	0^+			
		1783.3 4	1.45 13	1145.72	2^+			
		1791.7 4	2.10 5	1138.55	2^+			
		1860.30 15	32.5 13	1069.35	0^+	E1		
		2845.30 20	100 5	84.25468	2^+	E1		
		2929.50 20	34.9 17	0.0	0^+	E1		
2938.6	$12^{(-)}$	478.0[a] 2	100[a] 11	2460.55	(10^-)			
		955.3[a] 5	56[a] 22	1983.36	12^+			Mult.: transition interpreted as D (ΔJ=0) in (α,4nγ).
2939.73	1^-	119.90 20	0.27 3	2819.77	$0^-,1^-$	[M1,E2]	1.81 20	
		272.40 15	0.36 4	2667.19	$1^{(+)}$	[E1]	0.0253	
		443.40 15	1.61 5	2496.20	1^-	M1,E2	0.040 16	
		575.95 25	0.77 4	2364.06	1^-	M1	0.0285	
		813.55[ef] 20	<1.75[e]	2126.14	1^-			

$\gamma(^{170}Yb)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[‡]	α[c]	Comments
2939.73	1^-	954.30[e] *15*	<9.1[e]	1985.64	$1^-,2^-$			
		1304.85 *20*	3.89 *14*	1634.84	(1^+)			Mult.: α(K)exp implies mult=M1,E2, inconsistent with placement.
		1373.50 *20*	6.6 *6*	1566.38	0^+	E1		
		1405.15 *10*	100 *3*	1534.57	2^+	E1		
		1427.27	12.9 *14*	1512.37	1^-			
		1459.85 *10*	41.6 *13*	1479.91	0^+	E1		
		1514.60 *20*	21.6 *9*	1425.24	$(2)^-$	M1		
		1575.10 *20*	19.8 *5*	1364.53	1^-	M1		
		1633.3[e] *3*	<2.4[e]	1306.39	2^+			
		1714.4[e] *4*	<0.85[e]	1225.35	$(3)^+$			
		2855.4 *3*	12.6 *5*	84.25468	2^+	E1		
		2939.65 *20*	59 *4*	0.0	0^+	E1		
2947.84	1^-	199.65[e] *15*	<1.28[e]	2748.08	1^-	[M1]	0.478	
		410.55 *15*	1.3 *3*	2536.97	1^-			
		746.90 *20*	3.95 *12*	2200.91	$1^-,2^-$	M1	0.01476	
		895.00 *25*	3.14 *17*	2052.59	$0^-,1^-,2^-$	(M1,E2)		
		1313.03	5.8 *6*	1634.84	(1^+)			
		1413.20 *20*	28.5 *20*	1534.57	2^+			
		1435.40 *20*	32.0 *12*	1512.37	1^-	M1		
		1467.93	11.6 *12*	1479.91	0^+	E1		
		1583.3 *3*	7.6 *3*	1364.53	1^-	M1		
		1641.30 *20*	40.1 *12*	1306.39	2^+	E1		
		1719.10 *20*	18.9 *6*	1228.84	0^+	E1		
		1802.25 *15*	20.4 *6*	1145.72	2^+	E1		
		1809.50 *15*	100 *3*	1138.55	2^+	E1		
		1878.65 *15*	71.5 *23*	1069.35	0^+	E1		
		2863.6 *3*	16.7 *6*	84.25468	2^+	E1		
		2947.80 *20*	75 *4*	0.0	0^+	E1		
2956.55	1^+	1531.30 *20*	100 *4*	1425.24	$(2)^-$			
		1592.05 *20*	77.5 *25*	1364.53	1^-	(E1)		Mult.: E1, E2 from α(K)exp In ε decay; $\Delta\pi$=yes from level scheme.
		1731.3[e] *4*	<5.8[e]	1225.35	$(3)^+$			
		1818.8 *5*	11.8 *13*	1138.55	2^+	M1		
		1887.1[e] *5*	<21[e]	1069.35	0^+			
		2872.5 *4*	42.0 *20*	84.25468	2^+	M1		
		2956.6 *4*	47.5 *15*	0.0	0^+	(M1)		
2959.4	(11^-)	227.0[a] *2*	57[a] *4*	2732.3	(10^-)			
		434.4[a] *2*	100[a] *13*	2525.1	(9^-)	Q[b]		
2965.66	1^+	467.35 *15*	1.76 *9*	2498.19	$0^-,1^-,2^-$	[E1]		Mult.: M1 from α(K)exp In ε decay; inconsistent with placement.
		565.80[e] *15*	<1.05[e]	2400.10	1^-			
		614.00[e] *20*	<0.76[e]	2351.71	$0^-,1^-,2^-$			
		1330.7[e] *3*	<3.0[e]	1634.84	(1^+)			
		1486.0 *3*	3.58 *18*	1479.91	0^+			

Adopted Levels, Gammas (continued)

γ(^{170}Yb) (continued)

E$_i$(level)	J$^\pi_i$	E$_\gamma$†	I$_\gamma$†	E$_f$	J$^\pi_f$	Mult.‡	α^c	Comments
2965.66	1$^+$	1540.4 *3*	6.8 *4*	1425.24	(2)$^-$			
		1601.2 *3*	9.3 *4*	1364.53	1$^-$			Mult.: M1,E2 from α(K)exp In ε decay; placement requires E1.
		1659.9 *5*		1306.39	2$^+$			
		1736.6[e] *3*	<3.6[e]	1228.84	0$^+$			
		1820.7 *5*	1.25 *14*	1145.72	2$^+$	M1		
		1896.5[e] *3*	<4.6[e]	1069.35	0$^+$			
		2881.40 *20*	58 *3*	84.25468	2$^+$	M1		
		2965.6 *2*	100 *5*	0.0	0$^+$	M1		
2966.42	14$^-$	285.7[a] *2*	15.2[a] *25*	2680.75	13$^-$			
		492.7[a] *2*	100[a] *4*	2473.69	12$^-$	E2[b]	0.0185	
2969.45	1$^-$	916.90	23.1 *23*	2052.59	0$^-$,1$^-$,2$^-$	M1		
		1457.12 *15*	58 *6*	1512.37	1$^-$	(E2)		Mult.: E1 or E2 from α(K)exp In ε decay; Δπ=No from level scheme.
		1662.8 *3*	22.0 *12*	1306.39	2$^+$	(E1)		Mult.: E1 or E2 from α(K)exp In ε decay; Δπ=yes from level scheme.
		2885.1 *3*	100 *4*	84.25468	2$^+$	(E1)		Mult.: E1 or E2 from α(K)exp In ε decay; Δπ=yes from level scheme.
		2969.7 *5*	9.2 *11*	0.0	0$^+$			
2975.32	1$^-$	539.05[e] *15*	<6.1[e]	2436.01	(2,3)$^-$			
		859.45 *20*	13.5 *10*	2115.90	1$^-$	M1(+E0)		
		1463.3 *3*	16.7 *21*	1512.37	1$^-$	M1		
		1549.92	26 *3*	1425.24	(2)$^-$			
		1610.70 *15*	100 *5*	1364.53	1$^-$	M1		
		1746.3 *3*	7.1 *4*	1228.84	0$^+$			Mult.: M1(+E2) from α(K)exp In ε decay, inconsistent with level scheme.
		1836.7[e] *5*	<14.9[e]	1138.55	2$^+$			
		2976.4 *11*		0.0	0$^+$			
2986.67	(14$^+$)	462.4[a] *2*	43[a] *7*	2524.27	12$^+$	Q[b]		
		1003.3[a] *2*	100[a] *12*	1983.36	12$^+$			
3007.6	1$^-$	955.22[d] *24*		2052.59	0$^-$,1$^-$,2$^-$			
		1021.5[d] *3*		1985.64	1$^-$,2$^-$			
		1778.8[e] *4*	<14.75[e]	1228.84	0$^+$			
		2923.3 *3*	100 *5*	84.25468	2$^+$	E1		
		3007.5[e] *3*	76[e] *4*	0.0	0$^+$			
3042.46	1$^+$	1507.80 *20*	67 *10*	1534.57	2$^+$			
		1736.6[e] *3*	<66[e]	1306.39	2$^+$			
		1896.5[e] *3*	<86[e]	1145.72	2$^+$			
		1904.6[e] *5*	<31[e]	1138.55	2$^+$			
		2958.1 *4*	67 *3*	84.25468	2$^+$			
		3042.8 *4*	100 *5*	0.0	0$^+$	M1		
3049.95	(13$^-$)	234.3[a] *2*	45[a] *5*	2815.73	(12$^-$)			
		446.4[a] *2*	100[a] *9*	2603.60	(11$^-$)	Q[b]		
3065.36	1$^+$	296.70[e] *20*	<10[e]	2768.34	0$^-$,1$^-$	[E1]	0.0205	
		404.00[e] *15*	<18[e]	2661.02	1$^+$	[M1]	0.0714	

$\gamma(^{170}$Yb) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[c]	Comments
3065.36	1^+	863.7 *3*		2200.91	$1^-,2^-$			
		1012.3[e] *3*	<16[e]	2052.59	$0^-,1^-,2^-$			
		1498.8 *3*	42.2 *22*	1566.38	0^+			
		1585.8[e] *4*	<11[e]	1479.91	0^+			
		1700.90[e] *20*	<167[e]	1364.53	1^-			
		1758.95 *20*	100 *3*	1306.39	2^+	E2		
		1836.7[e] *5*	<79[e]	1228.84	0^+			
		1995.8 *3*	100 *4*	1069.35	0^+	(M1)		Mult.: E2,M1 from α(K)exp In ε decay; not ΔJ=2 from level scheme.
		2981.5 *5*	39 *4*	84.25468	2^+			
3067.0	(13^+)	463.2[a] *2*	100	2603.8	(11^+)	Q[b]		
3067.62	1^-	406.25[e] *15*	<19[e]	2661.02	1^+	[E1]	0.00968 *14*	
		700.15 *20*	16.3 *5*	2367.65	$(1)^-$	(M1)	0.01736	
		792.00 *15*	82 *4*	2275.49	1^-	E2		
		1082.1 *3*	20.0 *21*	1985.64	$1^-,2^-$	M1		
		1410.4 *4*	100 *11*	1658.06	$(2)^+$			
		1703.3 *3*	66.7 *21*	1364.53	1^-	M1		
		1761.4[e] *3*	<37[e]	1306.39	2^+			
		1838.2[e] *5*	<34[e]	1228.84	0^+			
		1998.4[e] *5*	<17.5[e]	1069.35	0^+			
		2983.1 *4*	60 *4*	84.25468	2^+			Mult.: α(K)exp In ε decay implies M2 or M1+E2+E0, neither of which is consistent with level scheme.
		3067.0 *3*	91 *7*	0.0	0^+			
3070.52	0,1	574.2 *3*		2496.20	1^-			
		670.35[e] *20*	<73[e]	2400.10	1^-			
		802.40[e] *20*	<64[e]	2268.08	1^-			
		954.30[e] *15*	<430[e]	2115.90	1^-			
		1558.4 *3*		1512.37	1^-			
		1645.4[e] *4*	<37[e]	1425.24	$(2)^-$			
		1706.0[e] *3*	<100[e]	1364.53	1^-			
		1925.1 *7*		1145.72	2^+			
		1932.6[d] *7*		1138.55	2^+			
		2985.9 *4*	100 *7*	84.25468	2^+			
3091.93	1	595.70 *15*	20.6 *6*	2496.20	1^-	M1	0.0261	
		691.75 *20*	10.9 *4*	2400.10	1^-	M1	0.0179	
		802.40[e] *20*	<23[e]	2289.37	1^+			
		965.52[d] *26*		2126.14	1^-			
		3007.5[e] *3*	<94[e]	84.25468	2^+			Mult.: E2(+M1) from α(K)exp for doubly-placed γ In ε decay is inconsistent with both placements.
		3091.9 *3*	100 *6*	0.0	0^+			Mult.: E2(+M1) or E1+M2 from α(K)exp In ε decay; adopted level scheme requires pure ΔJ=1.

$^{170}_{70}$Yb$_{100}$-21

Adopted Levels, Gammas (continued)

$\gamma(^{170}Yb)$ (continued)

E_i(level)	J^π_i	E_γ†	I_γ†	E_f	J^π_f	Mult.‡	α[c]	Comments
3099.64	$1^{(-)}$	134.05 *15*	4.4 *5*	2965.66	1^+	[E1]	0.1579	
		670.35[e] *20*	<13.7[e]	2429.05	$1^+,2^+$	[E1]		
		1565.08	70 *3*	1534.57	2^+			
		1619.7 *3*	31.3 *16*	1479.91	0^+			Mult.: M1(+E2) from α(K)exp In ε decay; however, level scheme requires E1.
		1793.8 *3*	31.3 *16*	1306.39	2^+	E1		
		1954.0 *3*	56 *3*	1145.72	2^+			Mult.: (M1) from α(K)exp In ε decay; however, level scheme requires E1.
		1960.8 *3*	100 *3*	1138.55	2^+	(E1)		
		2030.15 *20*	100 *6*	1069.35	0^+	E1		
		3015.1 *3*	86 *4*	84.25468	2^+	E1		
		3099.55 *25*	67 *4*	0.0	0^+			Mult.: E2 from α(K)exp In ε decay; inconsistent with adopted J^π.
3115.58	1^-	339.45[e] *20*	<0.28[e]	2775.66	1^-			
		618.95[e] *10*	<5.9[e]	2496.20	1^-	[M1,E2]	0.017 *7*	
		678.8[d] *3*		2436.01	$(2,3)^-$			
		752.3 *3*		2364.06	1^-			
		1603.8[d] *5*		1512.37	1^-			
		1887.1[e] *5*	<3.0[e]	1228.84	0^+			
		1977.4[e] *5*	<3.0[e]	1138.55	2^+			
		2046.5 *5*	<2.1	1069.35	0^+			
		3030.95 *20*	100 *5*	84.25468	2^+	E1		
		3115.20 *25*	57 *3*	0.0	0^+	E1		
3123.94	1^-	166.70[e] *20*	<5.4[e]	2956.55	1^+	[E1]	0.0890	
		340.90[e] *15*	<12.7[e]	2783.12	1^+	[E1]	0.01461	
		587.15 *15*	24 *4*	2536.97	1^-	M1(+E2)	0.020 *8*	
		756.15 *20*	16.1 *7*	2367.65	$(1)^-$	M1	0.01431	
		834.45[e] *10*	<83[e]	2289.37	1^+			
		1985.5[e] *3*	<63[e]	1138.55	2^+			
		2054.4 *3*	100 *4*	1069.35	0^+	E1		
		3123.0 *6*	15.0 *14*	0.0	0^+			
3131.10	1^+	695.2 *3*		2436.01	$(2,3)^-$			
		1078.3 *4*	100 *27*	2052.59	$0^-,1^-,2^-$			
		1651.4 *4*	91 *3*	1479.91	0^+	(M1)		
		1706.0[e] *3*	<160[e]	1425.24	$(2)^-$			
		1824.6 *5*	91 *9*	1306.39	2^+			
		1985.5[e] *3*	<235[e]	1145.72	2^+			
		1992.7 *5*	53.3 *27*	1138.55	2^+	E2,M1		
		2061.3 *5*	41.3 *20*	1069.35	0^+	(M1)		
		3046.9 *5*	100 *11*	84.25468	2^+	(M1)		Mult.: α(K)exp In ε decay exceeds α(K)(M1) significantly; level scheme inconsistent with M1+E0 or M2.
		3130.9 *7*	33 *5*	0.0	0^+	(M1)		Mult.: M1(+E2) from α(K)exp In ε decay; E2 component is inconsistent with level scheme.

$^{170}_{70}Yb_{100}$-22

Adopted Levels, Gammas (continued)

γ(^{170}Yb) (continued)

E$_i$(level)	J$^\pi_i$	E$_\gamma$[†]	I$_\gamma$[†]	E$_f$	J$^\pi_f$	Mult.[‡]	α[c]	Comments
3140.60	(1)	479.50 *15*	11.7 *5*	2661.02	1^+	M1+E2	0.033 *13*	
		711.65 *15*	27.8 *9*	2429.05	$1^+,2^+$	M1	0.01667	
		1776.1 *3*	100 *3*	1364.53	1^-	M1		
		3139.6 *8*	1.13 *26*	0.0	0^+			
3146.03	1^+	170.80[e] *20*	<3.2[e]	2975.32	1^-			
		478.80 *10*	50 *6*	2667.19	$1^{(+)}$	M1	0.0458	
		622.75 *20*	22.0 *16*	2523.07	1^+	M1	0.0233	
		709.9 *4*		2436.01	$(2,3)^-$			
		1107.1 *5*		2039.85	1^+	(M1+E2+E0)		
		1633.3[e] *3*	<54[e]	1512.37	1^-			
		1667.1[e] *4*	<29[e]	1479.91	0^+			
		1917.7 *5*	20.0 *10*	1228.84	0^+			
		1920.7 *3*	84 *3*	1225.35	$(3)^+$	(E2)		Mult.: E1,E2 from α(K)exp In ε decay; not E1 from level scheme.
		2007.3 *5*	11.2 *16*	1138.55	2^+	(E2)		Mult.: E1,E2 from α(K)exp In ε decay; not E1 from level scheme.
		3062.1 *3*	92 *8*	84.25468	2^+	M1,E2		
		3146.1 *4*	100 *8*	0.0	0^+	(M1)		Mult.: M1,E2 from α(K)exp In ε decay; not E2 from level scheme.
3149.09	1^-	329.3 *2*	4.5 *4*	2819.77	$0^-,1^-$	M1	0.1226	
		366.35[e] *15*	<10.0[e]	2783.12	1^+			
		612.15 *15*	16.6 *5*	2536.97	1^-	E2	0.01086	
		652.65 *20*	6.6 *5*	2496.20	1^-	M1	0.0207	
		873.85[e] *25*	<5.9[e]	2275.49	1^-			
		1614.7 *3*	14.6 *7*	1534.57	2^+			
		1636.9[e] *3*	<22.1[e]	1512.37	1^-			
		1784.7 *4*	16 *3*	1364.53	1^-	M1(+E2)		
		1842.8 *5*	20.5 *13*	1306.39	2^+	(E1)		Mult.: E1,E2 from α(K)exp In ε decay; not E2 from level scheme.
		3064.8 *3*	100 *4*	84.25468	2^+	E1		
		3149.4 *4*	40 *4*	0.0	0^+	E1		
3161.02	(1^-)	340.90[e] *15*	<35.5[e]	2819.77	$0^-,1^-$	[M1]	0.1118	
		809.25 *20*	62 *3*	2351.71	$0^-,1^-,2^-$			
		1503.9[e] *4*	<22[e]	1658.06	$(2)^+$			
		1648.7[e] *3*	<36[e]	1512.37	1^-			
		1736.6[e] *3*	<99[e]	1425.24	$(2)^-$			
		1796.3 *5*	40.0 *20*	1364.53	1^-			
		1855.0 *5*	35 *4*	1306.39	2^+			
		1932.6[d] *7*		1228.84	0^+			
		3076.8 *11*		84.25468	2^+			
		3161.1 *5*	100 *10*	0.0	0^+	(E1)		
3165.59	1^-	1630.5 *3*	46.3 *11*	1534.57	2^+	(E1)		Mult.: E1,E2 from α(K)exp In ε decay; not E2 from level scheme.
		1653.2 *4*	9.9 *5*	1512.37	1^-	M1+E2+E0		
		1685.6 *3*	27 *3*	1479.91	0^+			Mult.: α(K)exp In ε decay favors M1,E2; level scheme requires Δπ=yes.
		1740.7 *3*	37.9 *13*	1425.24	$(2)^-$	E2(+M1)		

$^{170}_{70}$Yb$_{100}$-23

Adopted Levels, Gammas (continued)

γ(^{170}Yb) (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[‡]	α[c]	Comments
3165.59	1^-	1859.20 *20*	95 *15*	1306.39	2^+			
		1936.9 *3*	100 *3*	1228.84	0^+	E1		
		2019.7 *3*	28.4 *21*	1145.72	2^+	(E1)		
		2027.2 *3*	77 *3*	1138.55	2^+	(E1)		
		2096.3 *2*	65.3 *21*	1069.35	0^+	E1		
		3165.3 *4*	46 *4*	0.0	0^+	E1		
3169.59	1^-	386.45 *20*	40 *3*	2783.12	1^+	[E1]	0.01087	
		401.30 *20*	38 *12*	2768.34	$0^-,1^-$	M1	0.0726	
		674.1 *3*		2496.20	1^-			
		802.40[e] *20*	<154[e]	2367.65	$(1)^-$			
		879.65 *25*	100 *5*	2289.37	1^+			
		901.40[e] *20*	<314[e]	2268.08	1^-			
		1603.8[d] *5*		1566.38	0^+			
		3085.4 *6*	66 *4*	84.25468	2^+			
		3169.6 *8*	20 *3*	0.0	0^+			
3179.76	1^-	404.00[e] *15*	<4.7[e]	2775.66	1^-	[M1]	0.0714	
		656.65[e] *20*	<4.1[e]	2523.07	1^+			
		681.50 *25*	2.43 *14*	2498.19	$0^-,1^-,2^-$	(M1)	0.0186	
		1053.7	35 *7*	2126.14	1^-			
		1645.4[e] *4*	<6.2[e]	1534.57	2^+			
		1667.1[e] *4*	<10.1[e]	1512.37	1^-			
		3095.50 *20*	100 *6*	84.25468	2^+	E1		
		3179.8 *7*	5.3 *6*	0.0	0^+			
3186.2	15^-	220[af] *1*	<4.2[a]	2966.42	14^-			
		505.4 *3*	100 *4*	2680.75	13^-	E2[&]	0.01736	E_γ: unweighted average of 505.1 *1* in (α,2nγ) and 505.7 *2* in (α,4nγ).
3186.66	(1^-)	750.95[e] *20*	<15.6[e]	2436.01	$(2,3)^-$	[M1,E2]	0.011 *4*	
		757.60 *15*	46.4 *18*	2429.05	$1^+,2^+$			Mult.: M1 from α(K)exp In ε decay is inconsistent with placement.
		1060.58 *20*	100 *9*	2126.14	1^-	M1		
		1674.2 *3*	63.6 *18*	1512.37	1^-	M1,E2		
		1761.4[e] *3*	<19.1[e]	1425.24	$(2)^-$			
		3102.1 *6*	6.0 *6*	84.25468	2^+			
3195.1	16^+	614.8[a] *2*	100	2580.35	14^+	E2[&]	0.01075	
3195.58	1^-	427.20 *20*	4.9 *8*	2768.34	$0^-,1^-$	M1(+E2+E0)	≈0.114	α: adopted value estimated from α(K)exp in ^{170}Lu ε decay.
		447.65 *10*	40.3 *13*	2748.08	1^-	M1	0.0546	
		534.65 *15*	5.64 *26*	2661.02	1^+			
		658.20 *20*	5.6 *5*	2536.97	1^-			
		1068.8 *4*	3.08 *26*	2126.14	1^-			
		1155.3[e] *3*	<20.5[e]	2039.85	1^+			
		1682.7 *3*	31 *10*	1512.37	1^-			
		1770.4 *4*	6.4 *6*	1425.24	$(2)^-$	M1		

$^{170}_{70}$Yb$_{100}$-24

$\gamma(^{170}$Yb) (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[‡]	α[c]	Comments
3195.58	1^-	1888.7[e] *5*	<21.5[e]	1306.39	2^+			
		1966.8 *5*	16.7 *13*	1228.84	0^+			Mult.: E2,M1 from α(K)exp In ε decay; inconsistent with adopted level scheme.
		2057.1[e] *4*	<22.7[e]	1138.55	2^+			
		3111.5 *3*	100 *5*	84.25468	2^+	(E1)		
		3195.3 *4*	51 *5*	0.0	0^+	(E1)		Mult.: Possible doublet; α(K)exp lies midway between α(K)(E1) and α(K)(E2); adopted $\Delta\pi$=yes.
3202.1	(12^-)	242.5[a] *2*	100[a] *13*	2959.4	(11^-)			
		469.9[a] *2*	60[a] *13*	2732.3	(10^-)			
3202.94	1^+	535.95 *15*	12.7 *6*	2667.19	$1^{(+)}$			
		678.8[d] *3*		2523.07	1^+			
		706.5 *5*	100 *9*	2496.20	1^-	E1		
		802.40[e] *20*	<47[e]	2400.10	1^-			
		1086.9[e] *3*	<47[e]	2115.90	1^-			
		1162.4 *3*	55 *3*	2039.85	1^+	M1,E2		
		1217.30[e] *20*	<273[e]	1985.64	$1^-,2^-$			
		1636.9[e] *3*	<75[e]	1566.38	0^+			
		1838.2[e] *5*	<59[e]	1364.53	1^-			
		1896.5[e] *3*	<78[e]	1306.39	2^+			
		1977.4[e] *5*	<52[e]	1225.35	$(3)^+$			
		2057.1[e] *4*	<54[e]	1145.72	2^+			
		3119.2 *6*	27 *9*	84.25468	2^+			
		3202.4 *5*	91 *9*	0.0	0^+	M1		
3213.27	1^-	170.80[e] *20*	<5.0[e]	3042.46	1^+			
		238.25[e] *15*	<26[e]	2975.32	1^-	[M1,E2]	0.22 *8*	
		465.50 *15*	15.0 *13*	2748.08	1^-	M1+E0		
		861.8[d] *4*		2351.71	$0^-,1^-,2^-$			
		1012.3[e] *3*	<20.0[e]	2200.91	$1^-,2^-$			
		1086.9[e] *3*	<49[e]	2126.14	1^-			
		1173.2[e] *4*	<63[e]	2039.85	1^+			
		1700.90[e] *20*	<194[e]	1512.37	1^-			
		1847.7 *7*		1364.53	1^-			
		1983.9 *5*	35.6 *19*	1228.84	0^+			
		2143.5 *3*	100 *4*	1069.35	0^+	E1		
		3128.1 *5*	56 *6*	84.25468	2^+	E1		
		3212.2 *8*	9.4 *9*	0.0	0^+			
3258.18	1^+	142.50 *15*	8.6 *8*	3115.58	1^-	[E1]	0.1344	
		292.55[e] *20*	<4.9[e]	2965.66	1^+	[M1,E2]	0.12 *5*	
		301.85 *20*	5.3 *6*	2956.55	1^+	[M1]	0.1548	
		590.85[e] *15*	<34[e]	2667.19	$1^{(+)}$			
		822.30 *15*	100 *4*	2436.01	$(2,3)^-$			Mult.: M1 from α(K)exp In ε decay; E1 required by placement.

$^{170}_{70}$Yb$_{100}$-25

γ(^{170}Yb) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[c]	Comments
3258.18	1^+	858.1 *3*		2400.10	1^-			
		969.05[e] *20*	<56[e]	2289.37	1^+			
		1204.8 *3*	16.3 *8*	2052.59	$0^-,1^-,2^-$			
		1692.0 *4*		1566.38	0^+			
		1832.4[e] *4*	<22.5[e]	1425.24	$(2)^-$			
		1893.7 *5*	38.8 *20*	1364.53	1^-			
		3173.4 *7*	12.2 *12*	84.25468	2^+	M1		
		3258.2 *8*	10.2 *10*	0.0	0^+	M1,E2		
3268.91	$1^{(+)}$	449.25 *20*	7.4 *7*	2819.77	$0^-,1^-$	[E1]		Mult.: M1 from α(K)exp In ε decay; level scheme requires E1.
		1633.3[e] *3*	<63[e]	1634.84	(1^+)			
		1734.4 *5*		1534.57	2^+			
		1904.6[e] *5*	<21[e]	1364.53	1^-			
		1962.5 *3*	100 *3*	1306.39	2^+	E2(+M1)		
		3183.6 *5*	65 *7*	84.25468	2^+	M1		
3274.17	1^-	490.95 *15*	40.0 *12*	2783.12	1^+	[E1]		Mult.: M1(+E2) from α(K)exp In ε decay; level scheme requires E1.
		750.95[e] *20*	<69[e]	2523.07	1^+			
		873.85[e] *25*	<26[e]	2400.10	1^-			
		1158.5[e] *3*	<39[e]	2115.90	1^-			
		1234.5 *3*	40.0 *20*	2039.85	1^+	E1		
		1761.4[e] *3*	<84[e]	1512.37	1^-			
		1909.7 *5*	36.0 *20*	1364.53	1^-	M1,E2		
		3190.3 *5*	100 *10*	84.25468	2^+	E1		
		3274.2 *5*	80 *8*	0.0	0^+	E1		
3291.82	1^+	199.65[e] *15*	<14[e]	3091.93	1	[E1]	0.0557	
		861.8[d] *4*		2429.05	$1^+,2^+$			
		1252.1 *4*		2039.85	1^+			
		1633.3[e] *3*	<85[e]	1658.06	$(2)^+$			
		1778.8[e] *4*	<37[e]	1512.37	1^-			
		1985.5[e] *3*	<111[e]	1306.39	2^+			
		2063.2 *3*	100 *3*	1228.84	0^+	(M1)		Mult.: M1,E2 from α(K)exp In ε decay; pure ΔJ=1 required by adopted level scheme.
		2152.9 *5*	27.2 *13*	1138.55	2^+			
		3206.8 *8*	19.0 *19*	84.25468	2^+	M1,E2		
		3291.4 *7*	6.3 *6*	0.0	0^+			Mult.: E1 from α(K)exp In ε decay; level scheme requires M1.
3296.5	(14^-)	246.7[a] *2*	23[a] *5*	3049.95	(13^-)			
		480.7[a] *2*	100[a] *9*	2815.73	(12^-)			
3301.95	1^+	209.90 *20*	5.1 *5*	3091.93	1			
		518.90 *15*	6.8 *3*	2783.12	1^+	M1	0.0372	
		805.85 *25*	12 *3*	2496.20	1^-			Mult.: α(K)exp In ε decay favors M1; decay scheme requires E1.
		901.40[e] *20*	<48[e]	2400.10	1^-			
		1034.2 *3*	18 *6*	2268.08	1^-			
		1667.1[e] *4*	<22[e]	1634.84	(1^+)			

$^{170}_{70}Yb_{100}$-26

Adopted Levels, Gammas (continued)

$\gamma(^{170}$Yb) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[c]	Comments
3301.95	1^+	1767.2 3	55 3	1534.57	2^+	M1,E2		
		1876.2 3	100 6	1425.24	$(2)^-$	E1		
		2232.7 5	10.8 5	1069.35	0^+	M1		
		3218.4 9	1.5 3	84.25468	2^+			
		3302.4 7	8.0 8	0.0	0^+	(M1)		
3307.3	(14^+)	480.5[a] 2	100	2826.8	(12^+)	Q[b]		
3314.42	1	222.40[e] 15	<207[e]	3091.93	1	[M1]	0.355	
		339.45[e] 20	<18[e]	2975.32	1^-			
		366.35[e] 15	<124[e]	2947.84	1^-			
		374.55 20	22.2 22	2939.73	1^-			
		384.85 15	71 3	2929.60	1^-	M1(+E2+E0)		
		539.05[e] 15	<131[e]	2775.66	1^-			
		565.80[e] 15	<66[e]	2748.08	1^-			
		962.85 25	38 4	2351.71	$0^-,1^-,2^-$	M1+E2+E0		
		1046.60[e] 25	<456[e]	2268.08	1^-			
		1747.8 4	56 6	1566.38	0^+	(M1)		
		1888.7[e] 5	<187[e]	1425.24	$(2)^-$			
		2086.4 5	100 4	1228.84	0^+			
		3229.5 8	33 3	84.25468	2^+	E1		
		3314.1 7	62 7	0.0	0^+	(M1)		Mult.: M1,E2 from α(K)exp In ε decay; E2 not consistent with ε feeding of parent level.
3333.2?	(14^+)	474[af] 1	100	2859.2	(12^+)			
3366.40	1	300.60 20	13.9 14	3065.36	1^+	M1	0.1565	
		390.40[e] 15	<181[e]	2975.32	1^-			
		590.85[e] 15	<116[e]	2775.66	1^-			
		598.15 15	100 4	2768.34	$0^-,1^-$	E2	0.01147	
		965.52[d] 26		2400.10	1^-			
		1240.7 3	51 3	2126.14	1^-			
		1648.7[e] 3	<49[e]	1717.95	$(2)^-$			
		1731.3[e] 4	<32[e]	1634.84	(1^+)			
		1799.3 5	40 3	1566.38	0^+			
		1832.4[e] 4	<76[e]	1534.57	2^+			
		1887.1[e] 5	<118[e]	1479.91	0^+			
		2219.4 6		1145.72	2^+			
		2228.6 3		1138.55	2^+			
		3282.1 8	6.9 14	84.25468	2^+	E1,E2		
3384.87	1^-	636.80 20	63 10	2748.08	1^-	M1,E2	0.016 6	
		861.8[d] 4		2523.07	1^+			
		955.22[d] 24		2429.05	$1^+,2^+$			
		1021.5[d] 3		2364.06	1^-			

$^{170}_{70}$Yb$_{100}$-27

Adopted Levels, Gammas (continued)

$\gamma(^{170}Yb)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[‡]	α[c]	Comments
3384.87	1^-	1667.1[e] *4*	<91[e]	1717.95	$(2)^-$			
		1904.6[e] *5*	<58[e]	1479.91	0^+			
		2246.8 *5*	31.3 *19*	1138.55	2^+			
		2315.1 *4*	100 *5*	1069.35	0^+	E1		
		3385.0 *8*	5.0 *13*	0.0	0^+			
3401.7	(15^-)	546.1[a] *5*	53[a] *26*	2855.61	(13^-)			E_γ: other: 543.1 *5* in (α,2nγ).
		821.4[a] *2*	100[a] *16*	2580.35	14^+	D[b]		
3423.2?	(0^-)	1155.3[ef] *3*	71[e] *5*	2268.08	1^-			Mult.: (M1) for doubly-placed line.
		1585.8[ef] *4*	19.1[e] *19*	1838.2	$(2)^+$			
		1706.0[ef] *3*	100[e] *14*	1717.95	$(2)^-$			Mult.: (M1) for multiply-placed line.
		1998.4[ef] *5*	38[e] *10*	1425.24	$(2)^-$			Mult.: (M1,E2) for doubly-placed line.
		3338.9[f] *8*	3.8 *10*	84.25468	2^+	(M2)		Mult.: M1+E2+E0 or M2 from α(K)exp In ε decay; ε feeding of parent level favors the latter.
3437.8	(14^-)	510.6[a] *5*		2927.2	(12^-)			
3466.8?	(13^-)	265[af] *1*	50[a] *20*	3202.1	(12^-)			
		507[af] *1*	100[a] *20*	2959.4	(11^-)			
3533.8	16^-	567.4[a] *2*	100	2966.42	14^-	E2[b]	0.01302	E_γ: other: 565.1 *5* for weak γ in (α,2nγ).
3547.3	(16^+)	560.6[a] *5*	56[a] *31*	2986.67	(14^+)			
		966.9[a] *2*	100[a] *13*	2580.35	14^+			
3558.1	(15^+)	491.1[a] *2*	100	3067.0	(13^+)			
3567.4	(15^-)	270.8[a] *2*	36[a] *9*	3296.5	(14^-)			
		517.4[a] *2*	100[a] *18*	3049.95	(13^-)			
3742.1	(14^-)	540.0[a] *2*	100	3202.1	(12^-)			
3756.5	(17^-)	570.3[a] *2*	100	3186.2	15^-	E2[b]	0.01286	
3806.8	18^+	611.7[a] *2*	100	3195.1	16^+	E2[&]	0.01087	
3833.3	(16^+)	526.0[a] *2*	100	3307.3	(14^+)			
3842.3	(16^-)	545.8[a] *5*	100	3296.5	(14^-)			
3844.2?	(16^+)	511[af] *1*	100	3333.2?	(14^+)			
4011.8	(16^-)	574[a] *1*	100	3437.8	(14^-)			
4017.6	(17^-)	616.0[a] *5*	100[a] *50*	3401.7	(15^-)			
		822[a] *1*	<50[a]	3195.1	16^+			
4065.1?	(17^+)	507.0[af] *10*	100	3558.1	(15^+)			
4174.0	18^-	640.2[a] *2*	100	3533.8	16^-			
4207.1	(18^+)	659.4[a] *5*	50[a] *33*	3547.3	(16^+)			
		1012.4[a] *5*	100[a] *33*	3195.1	16^+			
4390.3	19^-	633.8[a] *2*	100	3756.5	(17^-)			
4436.5	20^+	629.7[a] *5*	100	3806.8	18^+	(E2)[&]	0.01016	
4885.9	20^-	711.9[a] *5*	100	4174.0	18^-			
5084.8	21^-	694.5[a] *2*	100	4390.3	19^-			

Adopted Levels, Gammas (continued)

γ(^{170}Yb) (continued)

[†] From ^{170}Lu ε decay, unless noted otherwise.
[‡] From α(K)exp in ^{170}Lu ε decay, except as noted.
[#] From (α,2nγ), except as noted.
[@] From ^{168}Er(α,2nγ).
[&] From α(K)exp and/or $\gamma(\theta)$ in (α,2nγ). RUL has been used to eliminate M2 for some stretched Q transitions, assuming $T_{1/2}\leq5$ ns (1981Wa14) (based on observation of prompt $\gamma\gamma$ coin).
[a] From ^{168}Er(α,4nγ).
[b] From (α,4nγ). Based on $\gamma(\theta)$ for transitions detected in prompt coin in 1981Wa14 ($T_{1/2}\leq5$ ns) and/or measured DCO ratios.
[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.
[e] Multiply placed with undivided intensity.
[f] Placement of transition in the level scheme is uncertain.

$^{170}_{70}$Yb$_{100}$-29

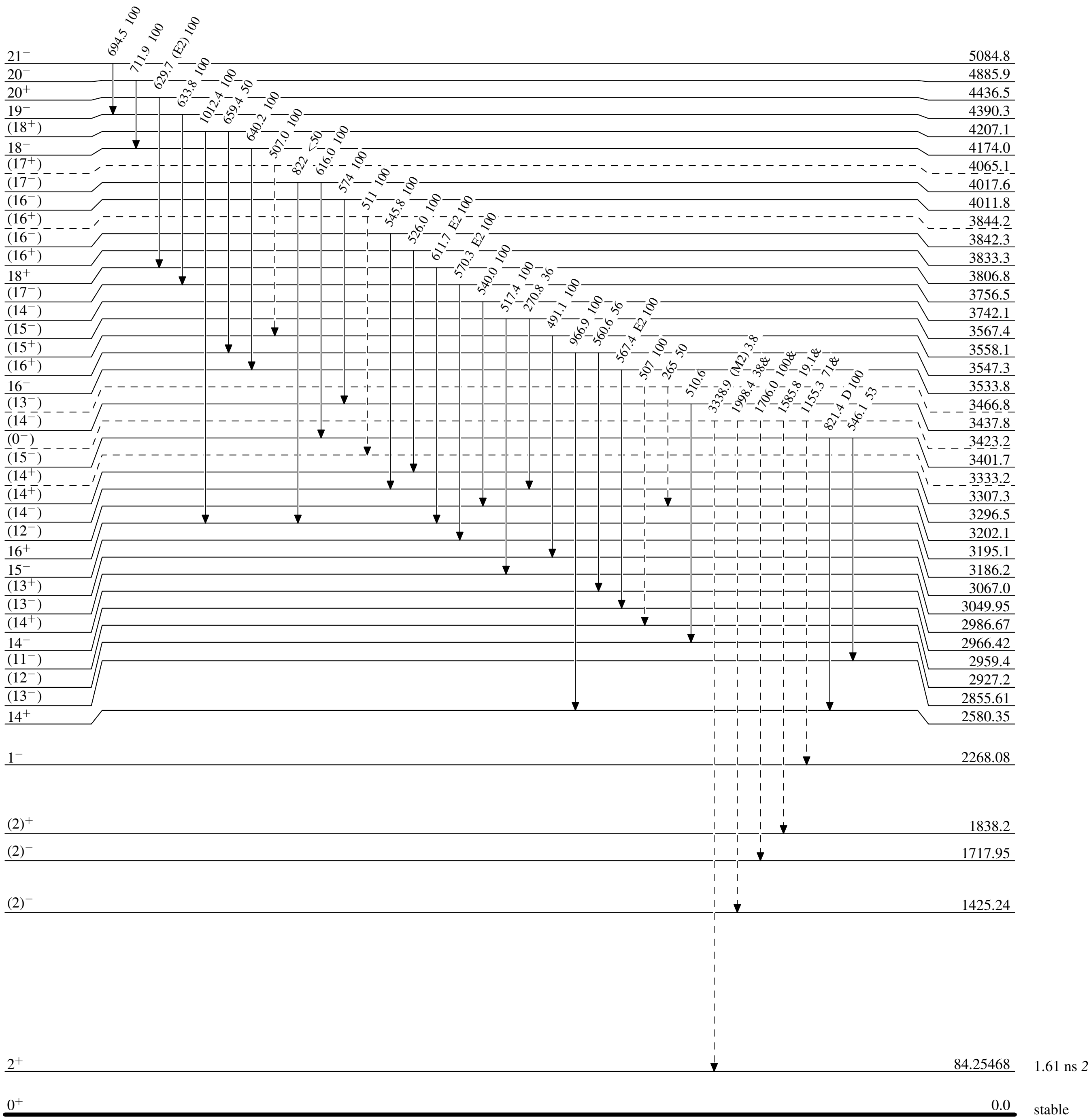
Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given

Legend

γ Decay (Uncertain)

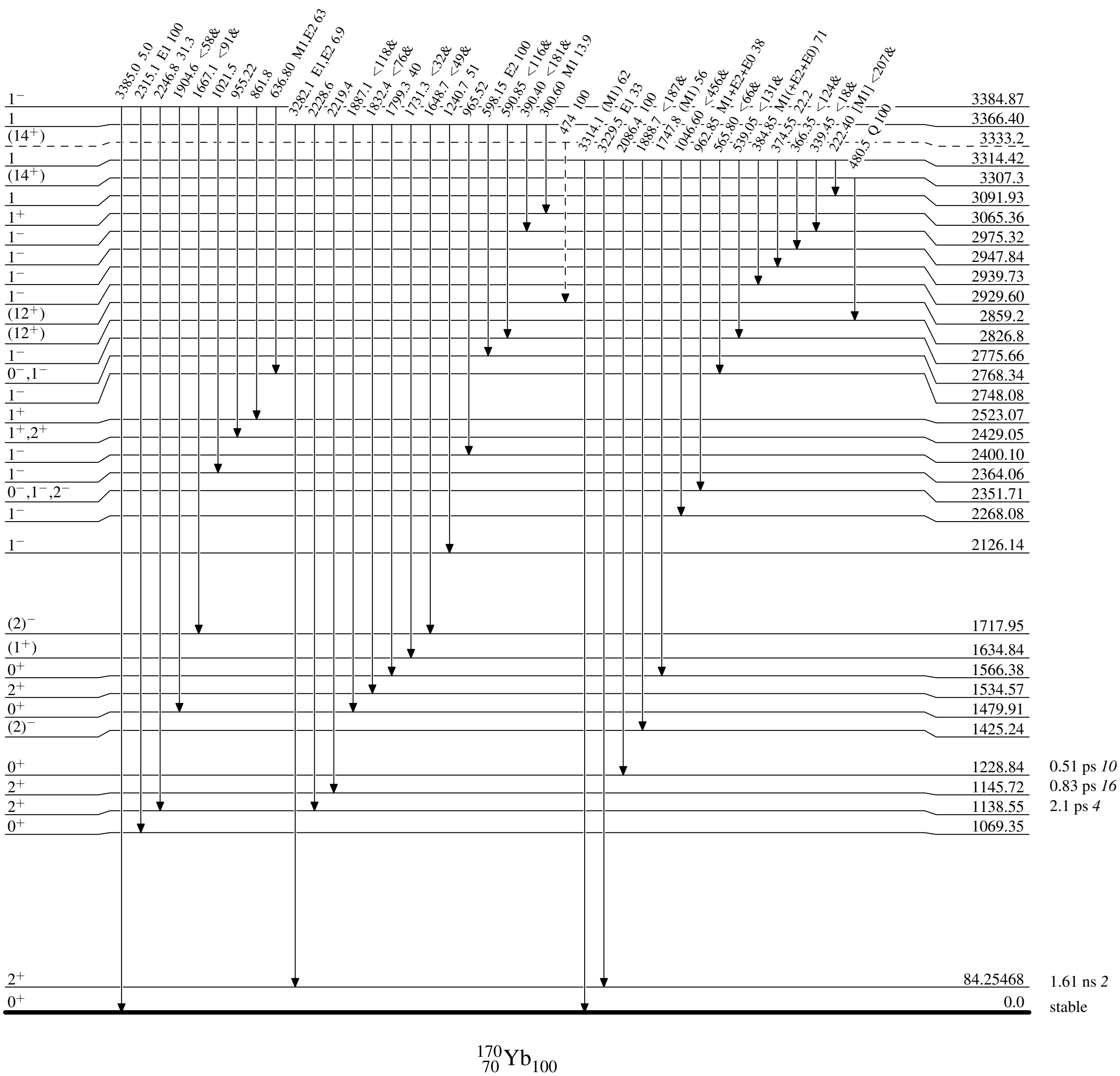


$^{170}_{70}Yb_{100}$

Adopted Levels, Gammas

Level Scheme (continued)

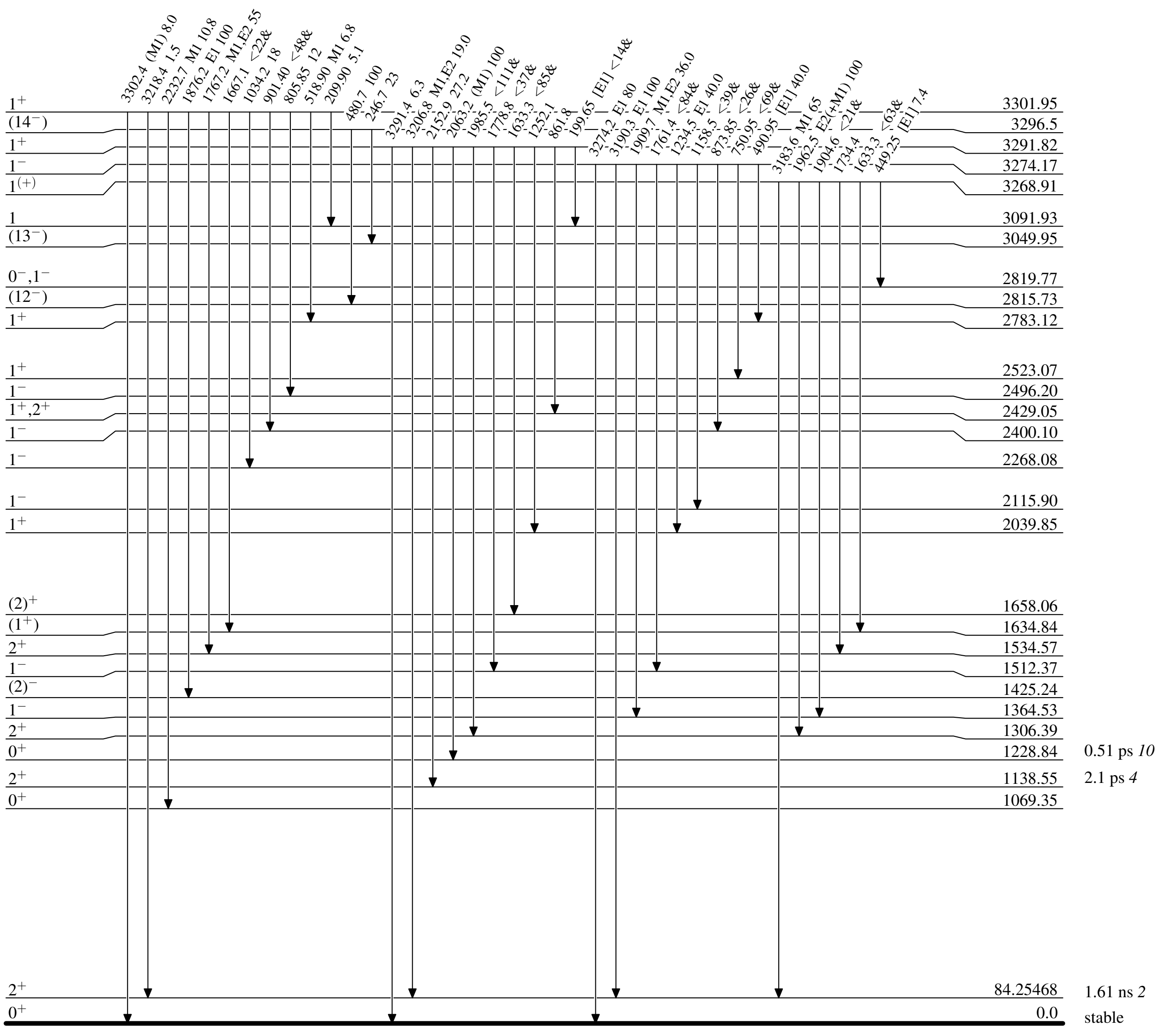
Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given



Adopted Levels, Gammas

Level Scheme (continued)

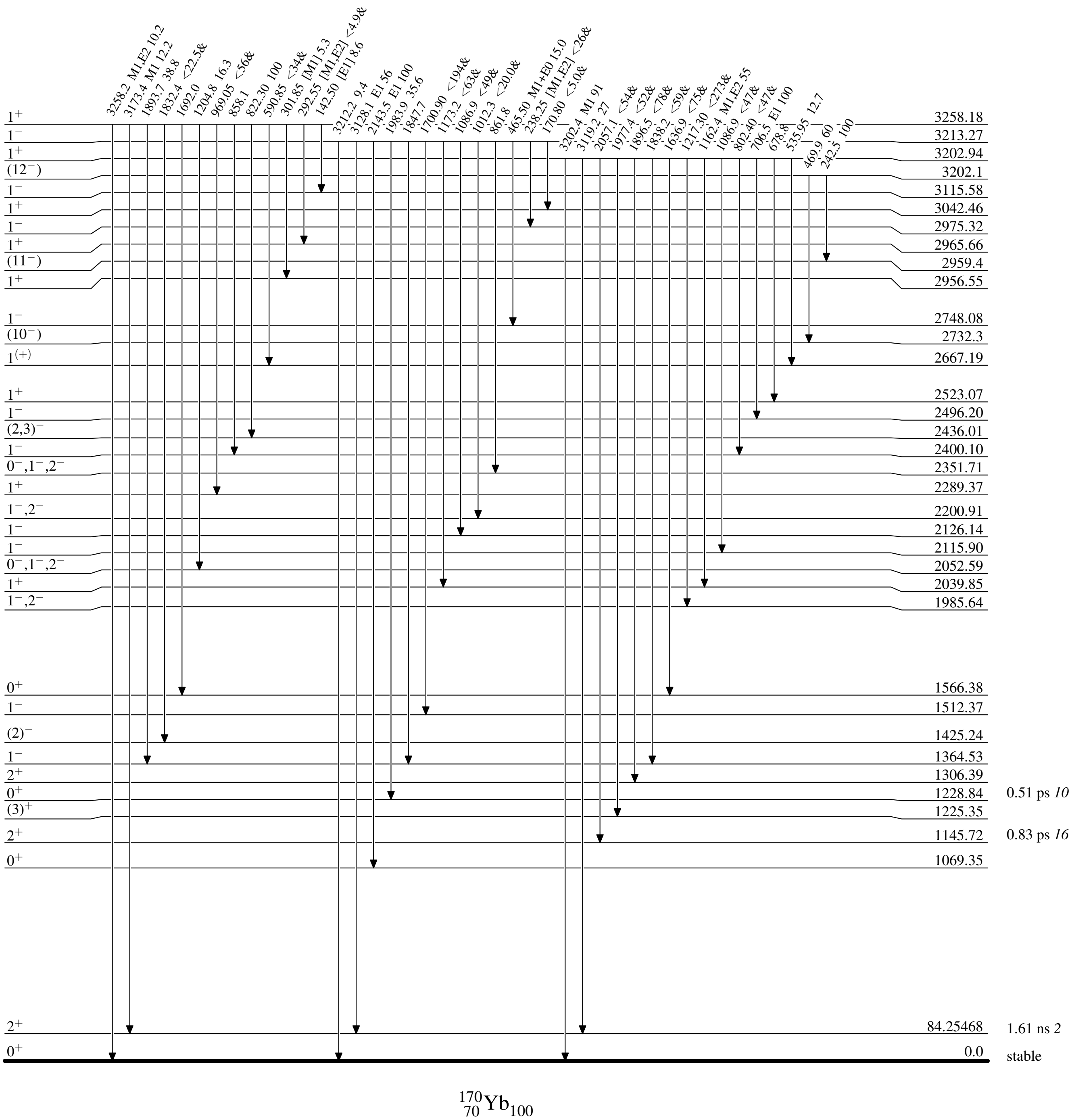
Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given



Adopted Levels, Gammas

Level Scheme (continued)

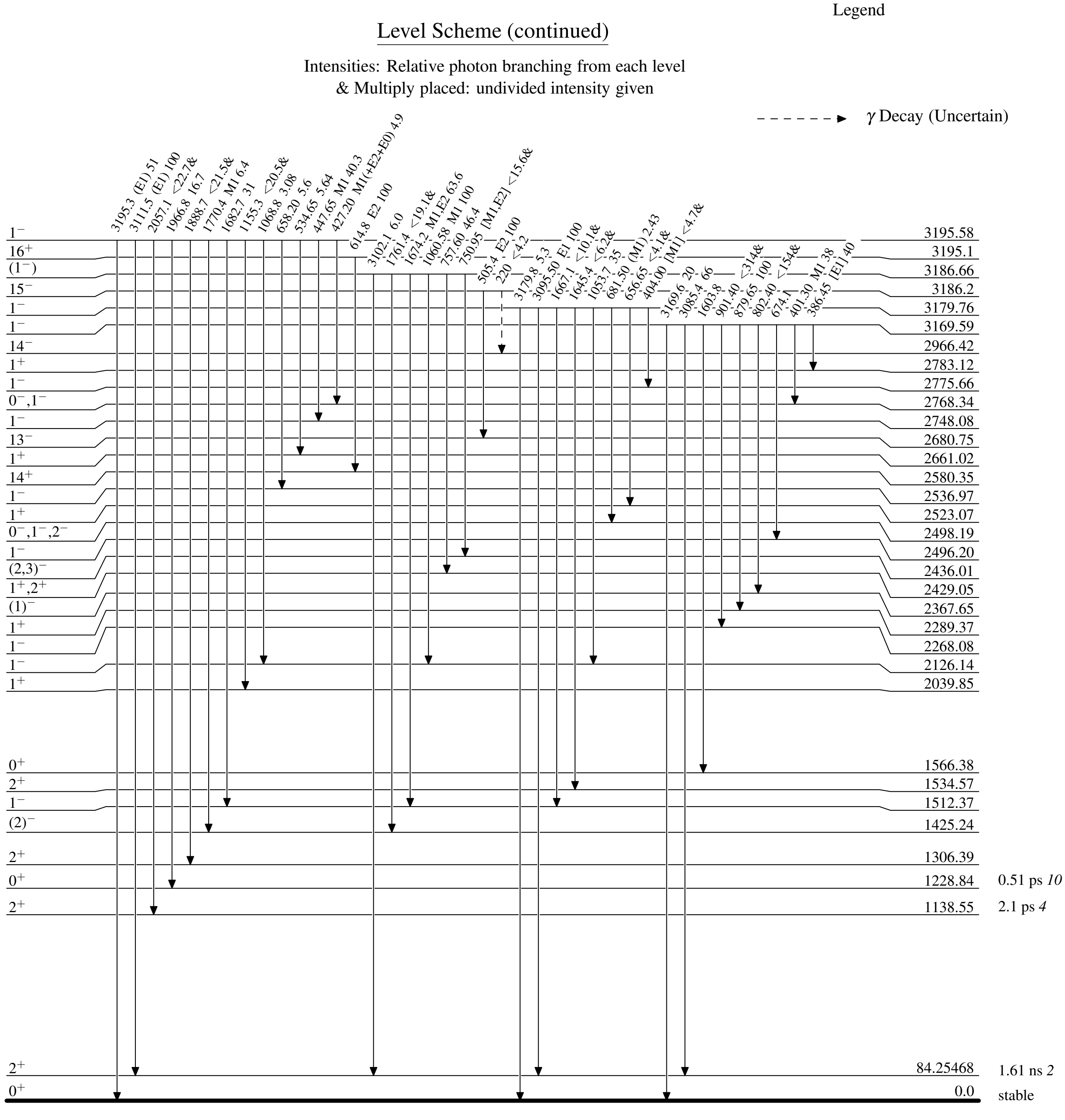
Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given



Adopted Levels, Gammas

Level Scheme (continued)

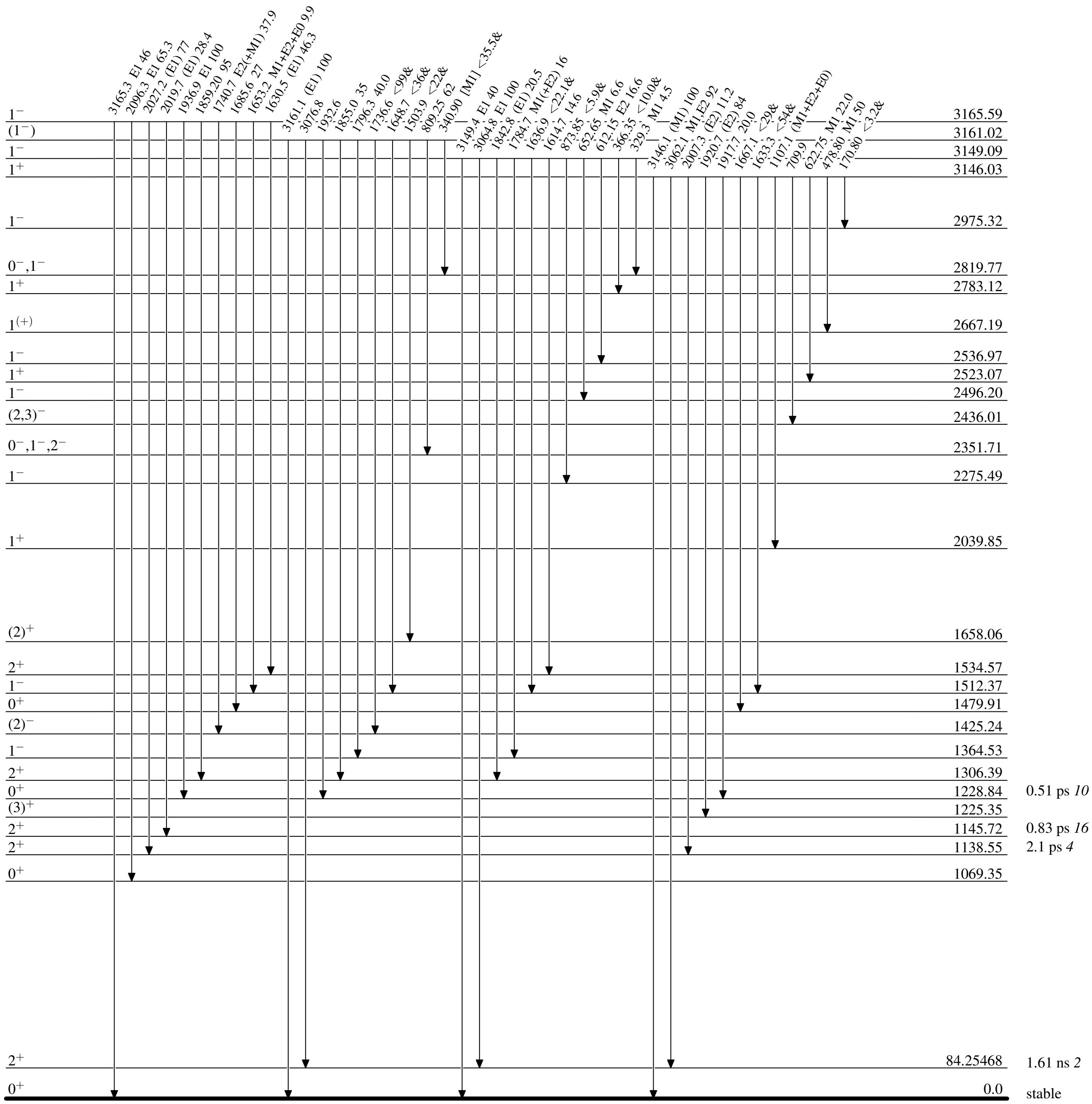
Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given

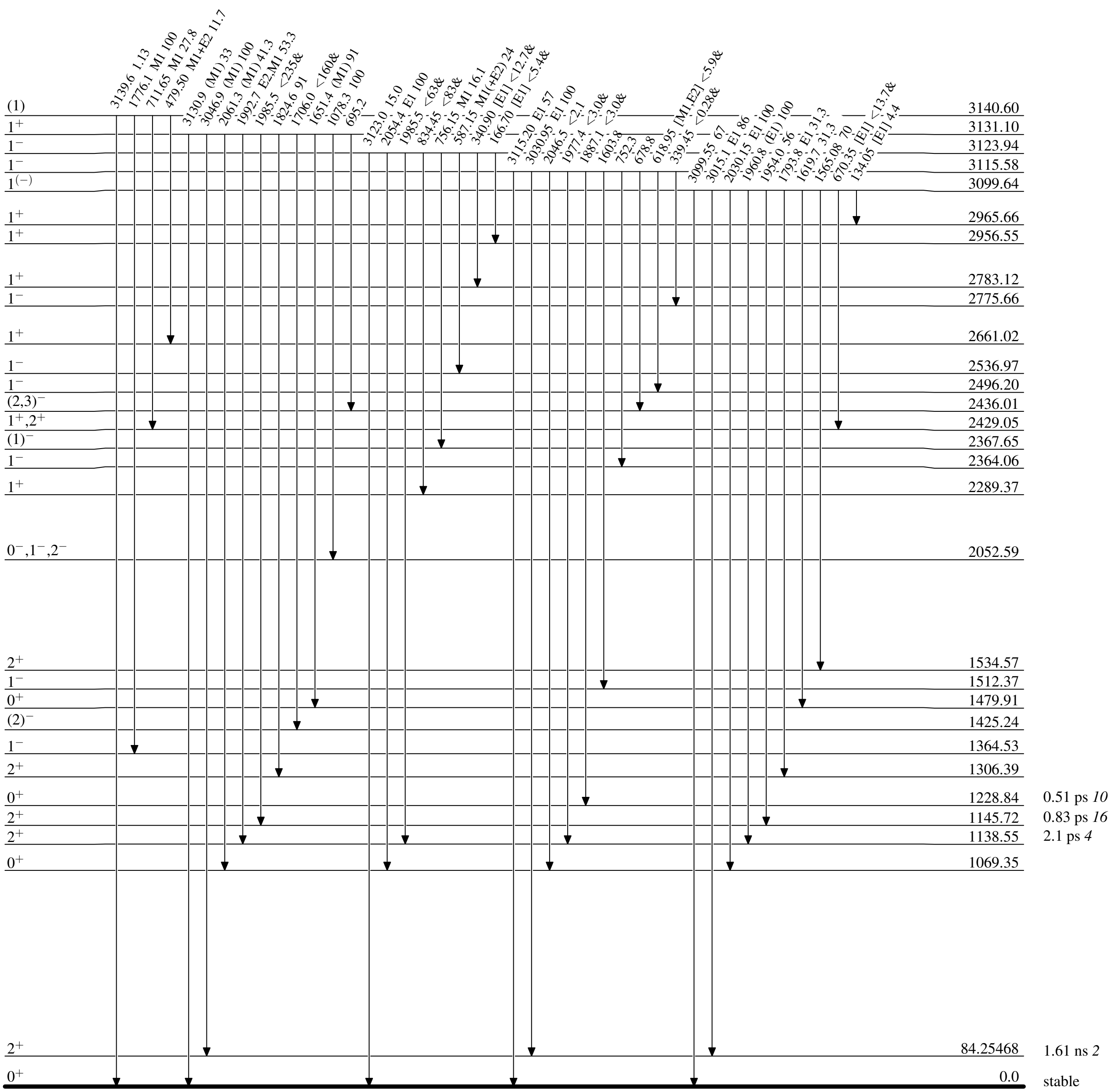


$^{170}_{70}Yb_{100}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given

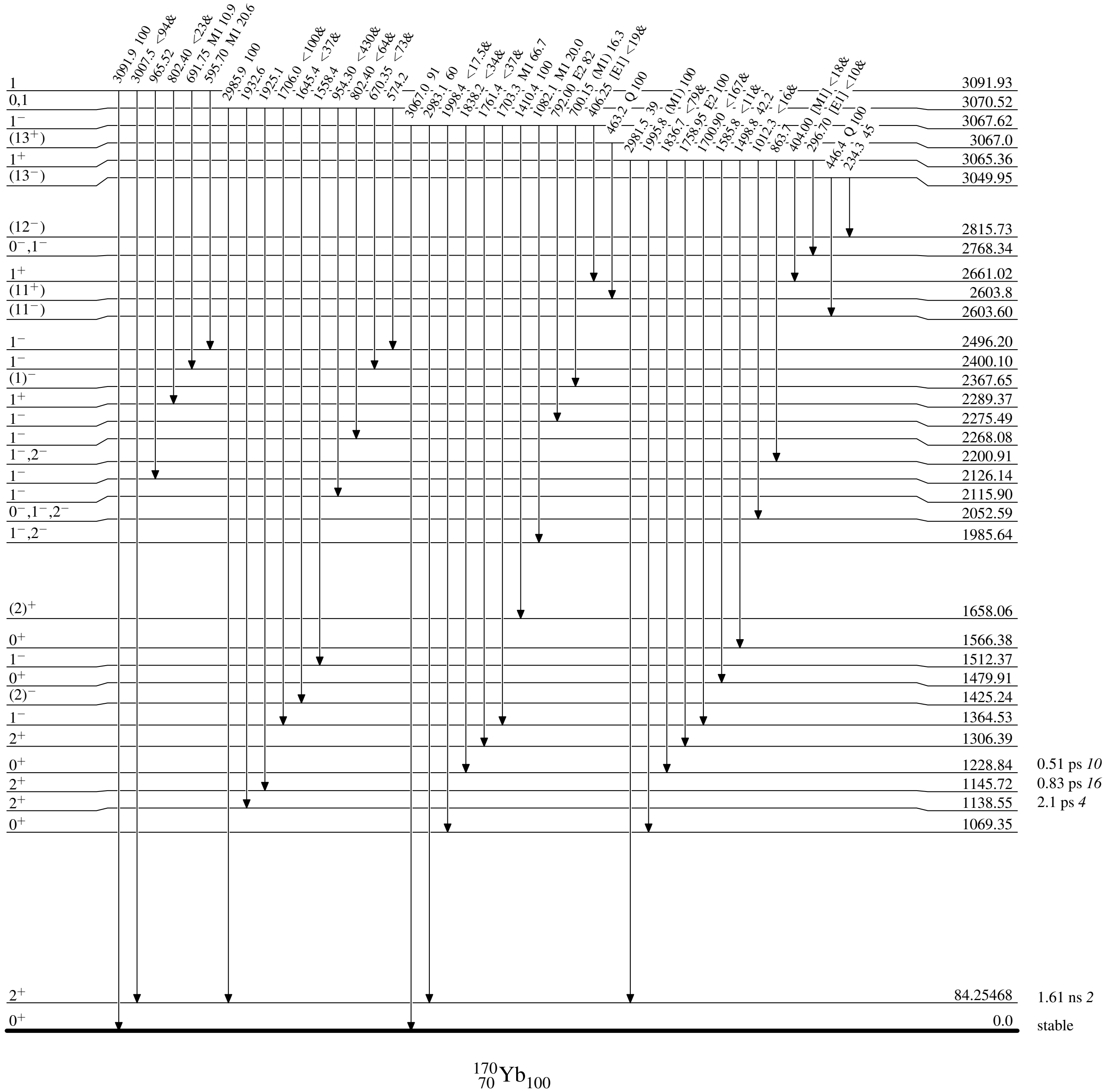


$^{170}_{70}Yb_{100}$

Adopted Levels, Gammas

Level Scheme (continued)

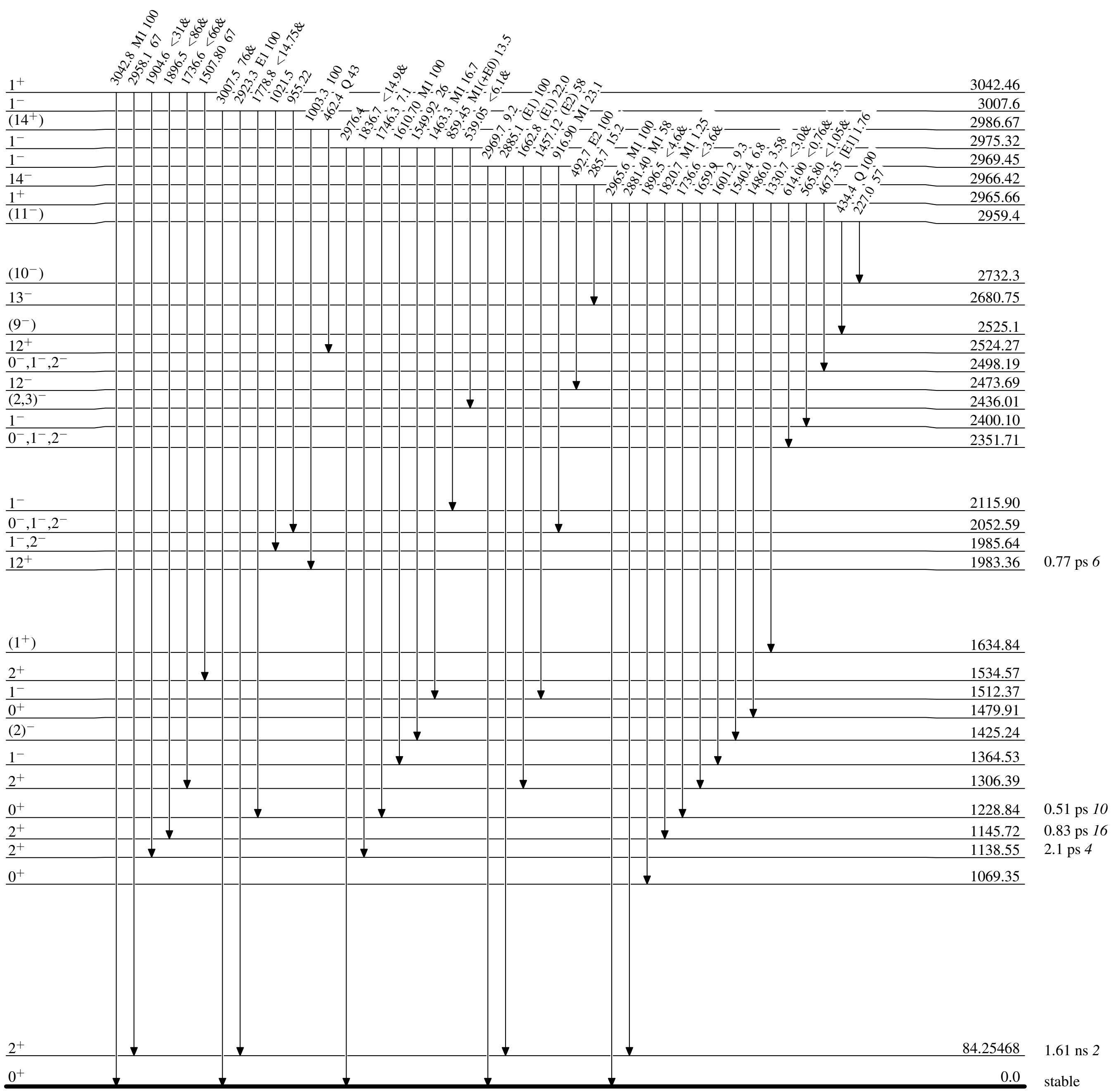
Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given



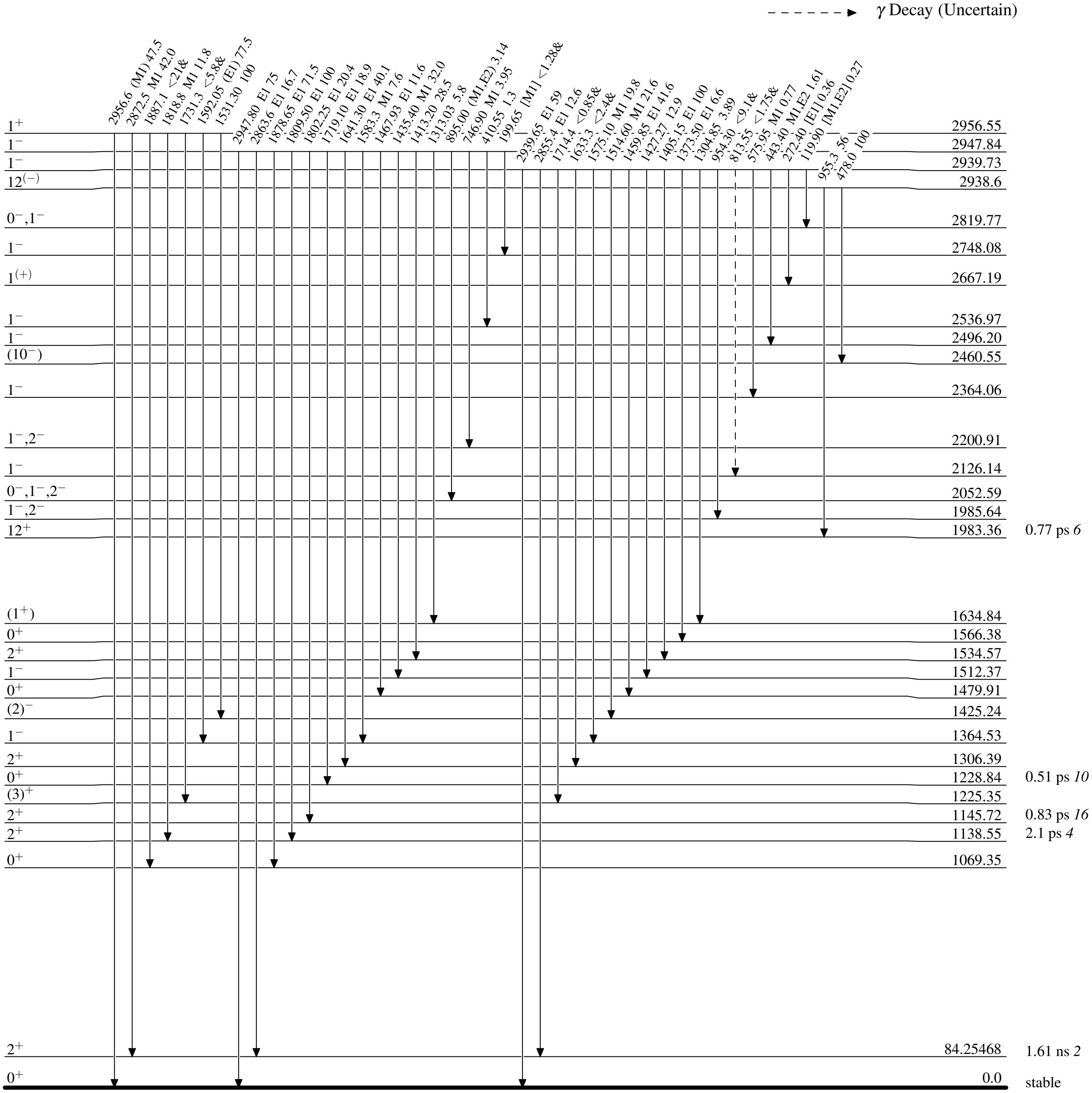
$^{170}_{70}Yb_{100}$

Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given



$^{170}_{70}Yb_{100}$

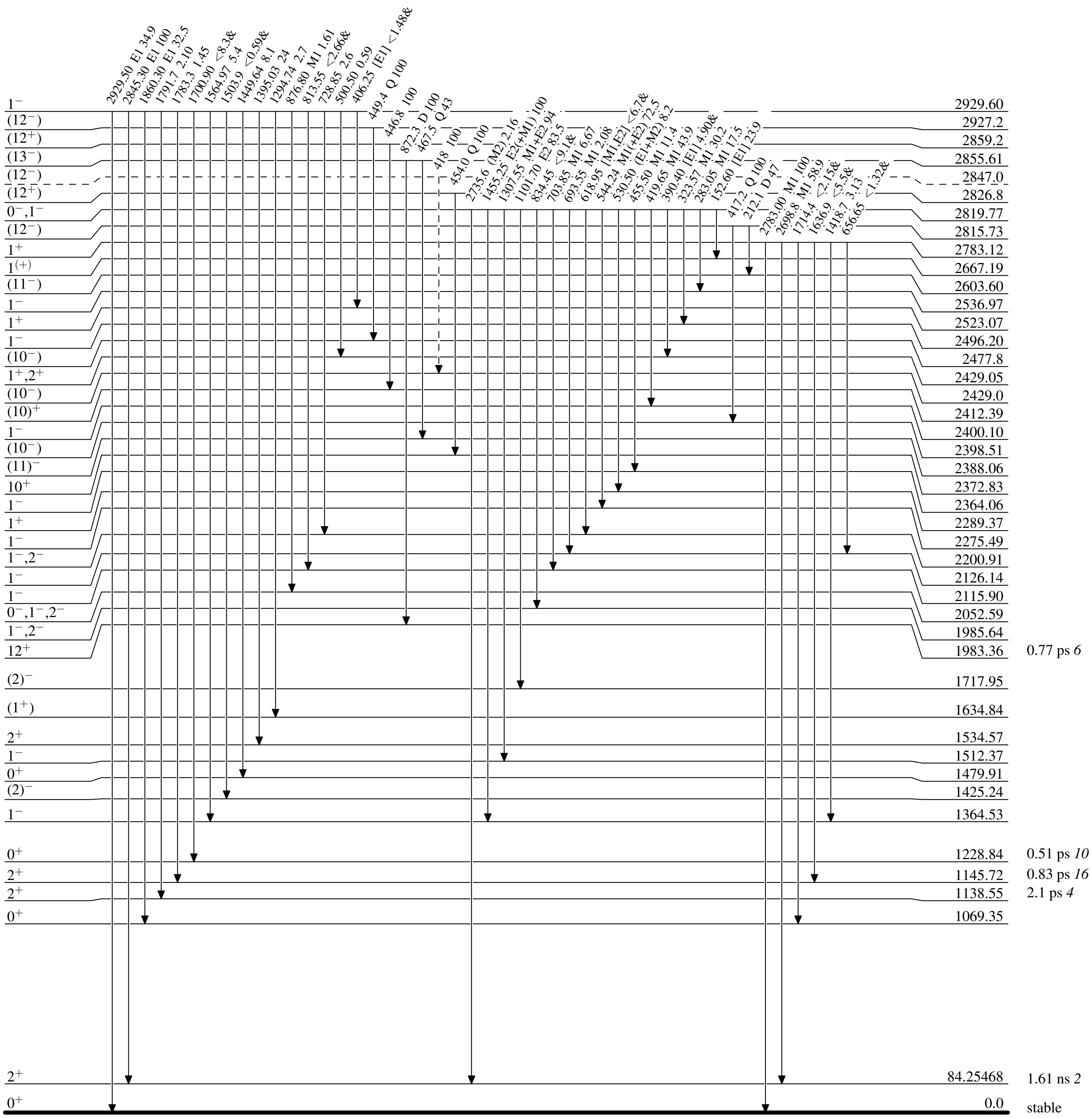
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given

γ Decay (Uncertain)

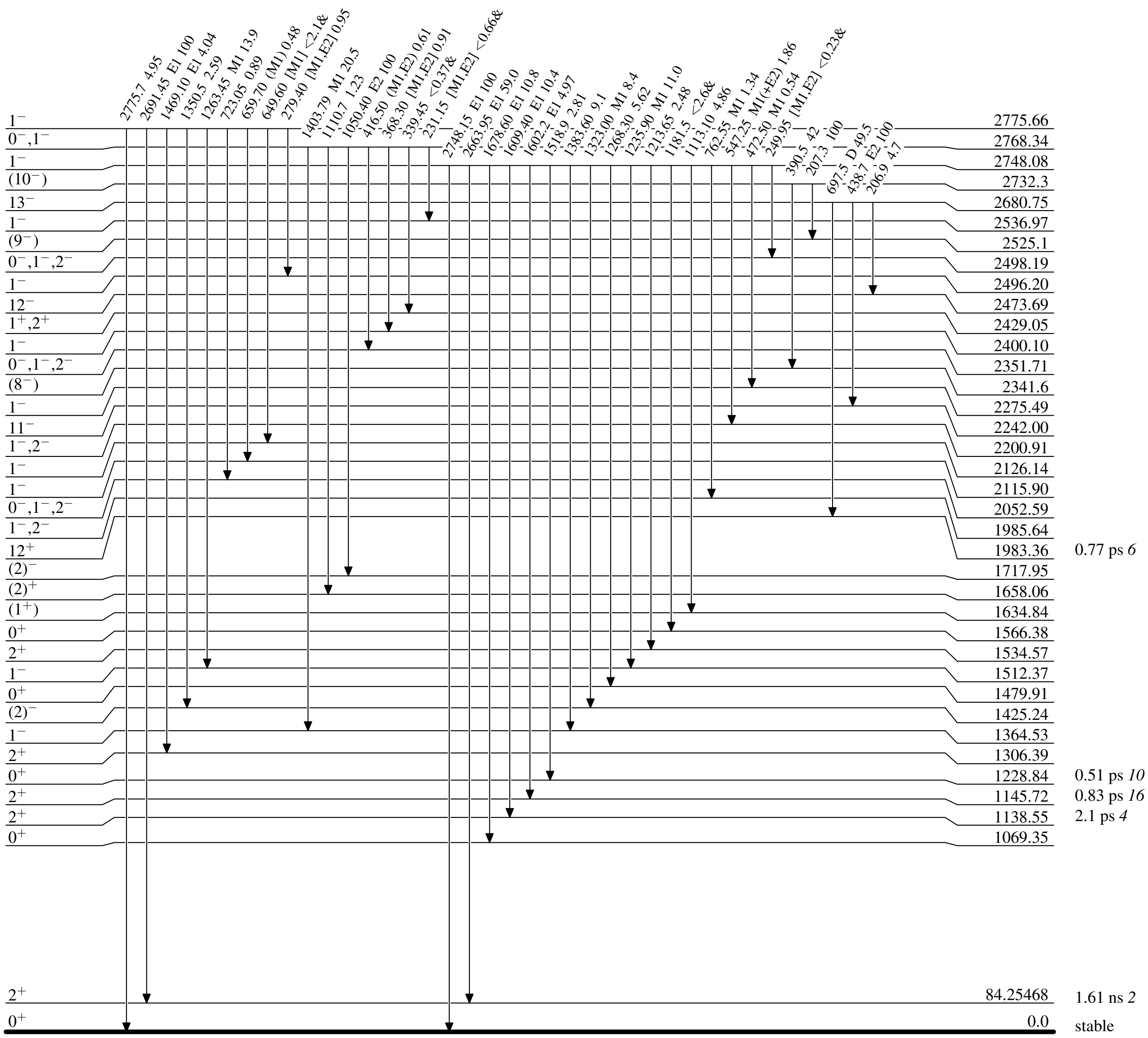


$^{170}_{70}Yb_{100}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given

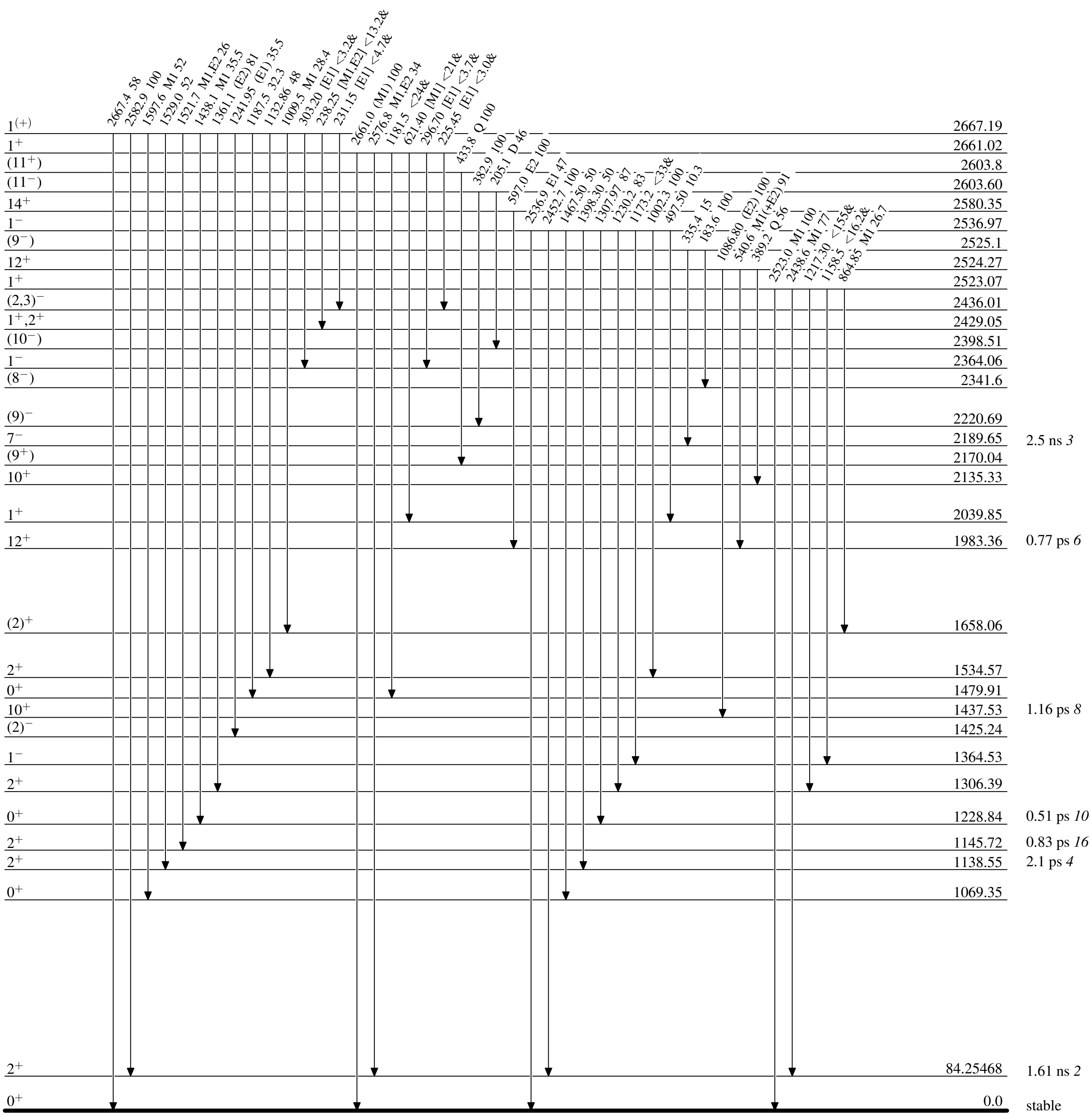


$^{170}_{70}Yb_{100}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given

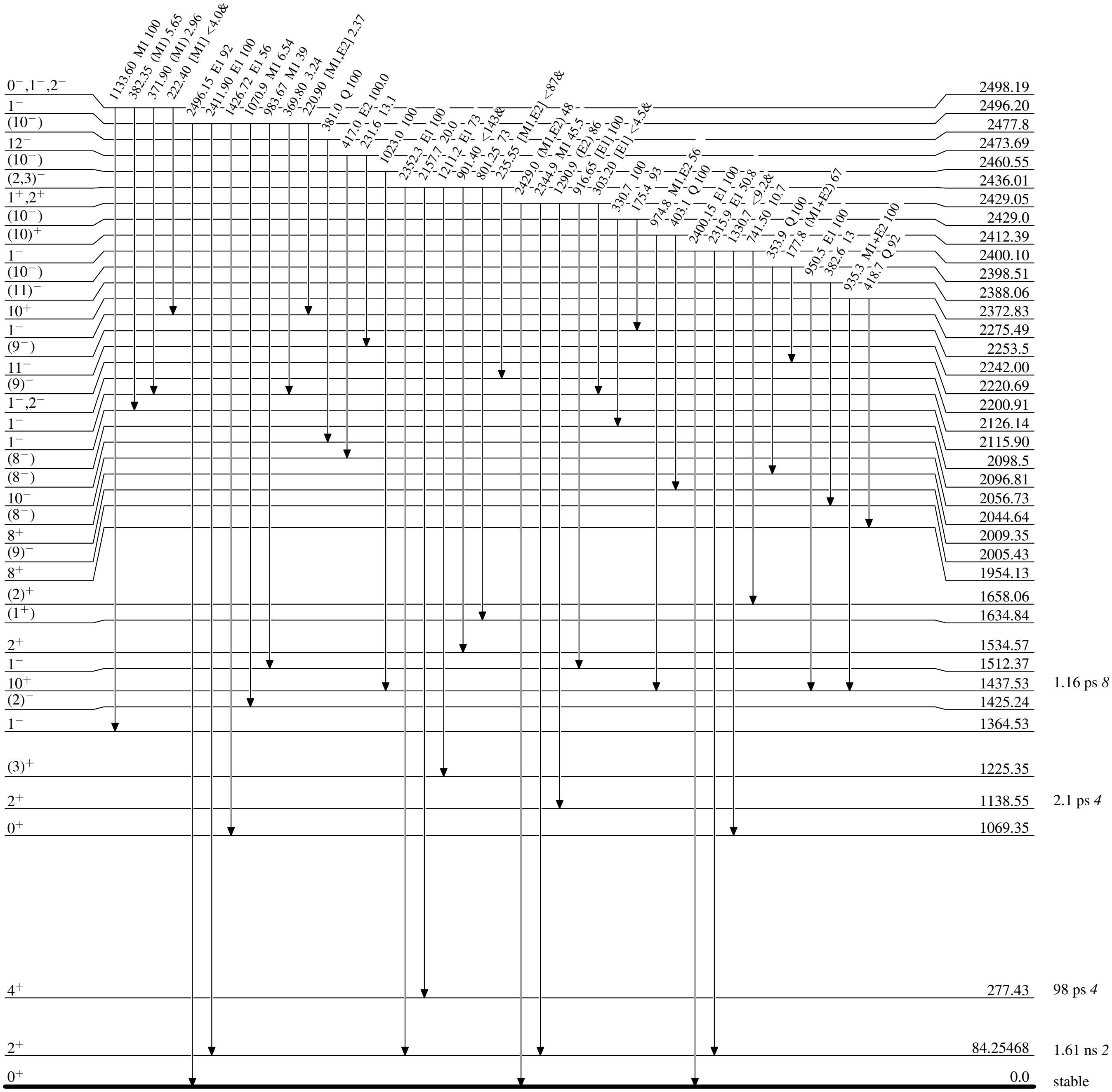


$^{170}_{70}Yb_{100}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given



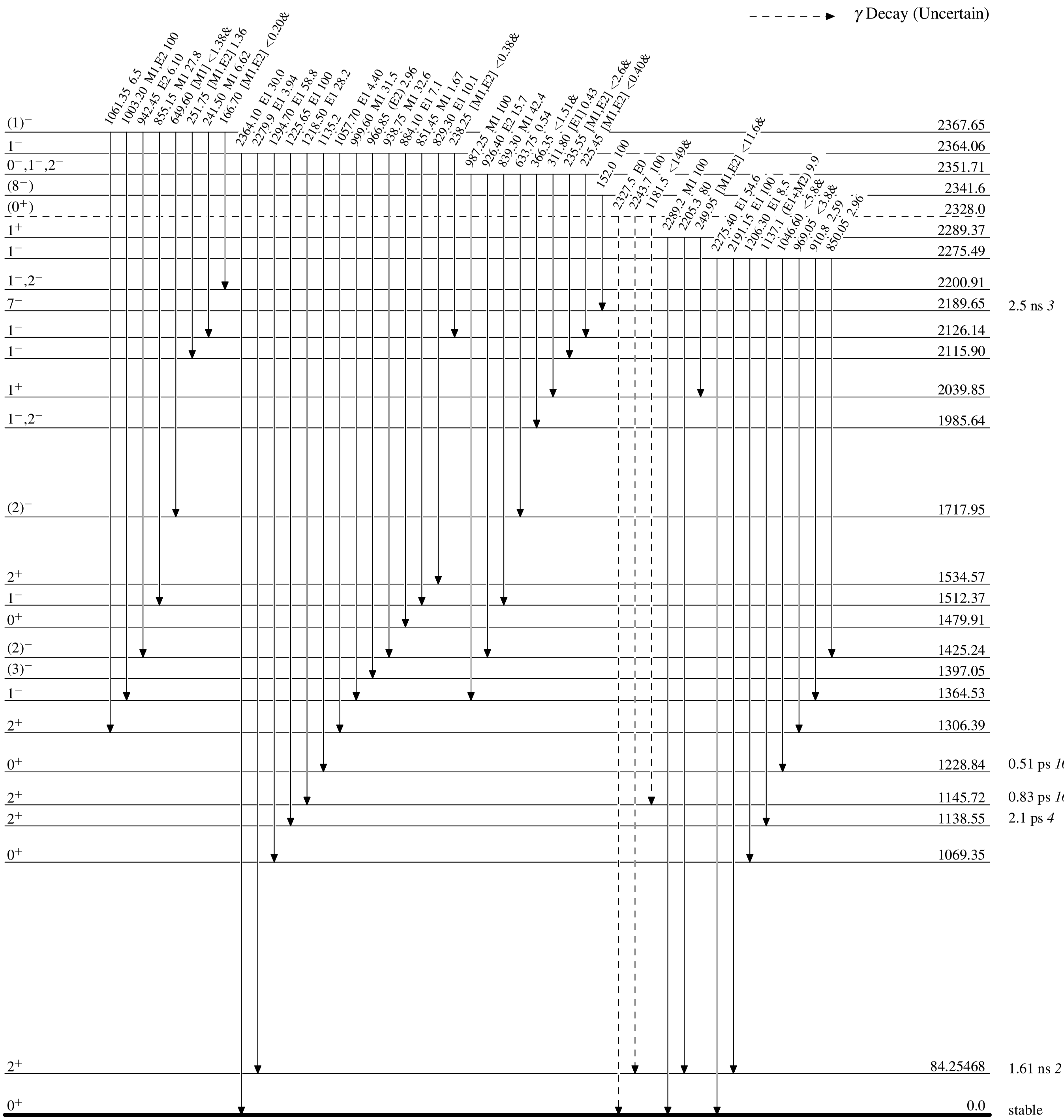
$^{170}_{70}Yb_{100}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given

Legend

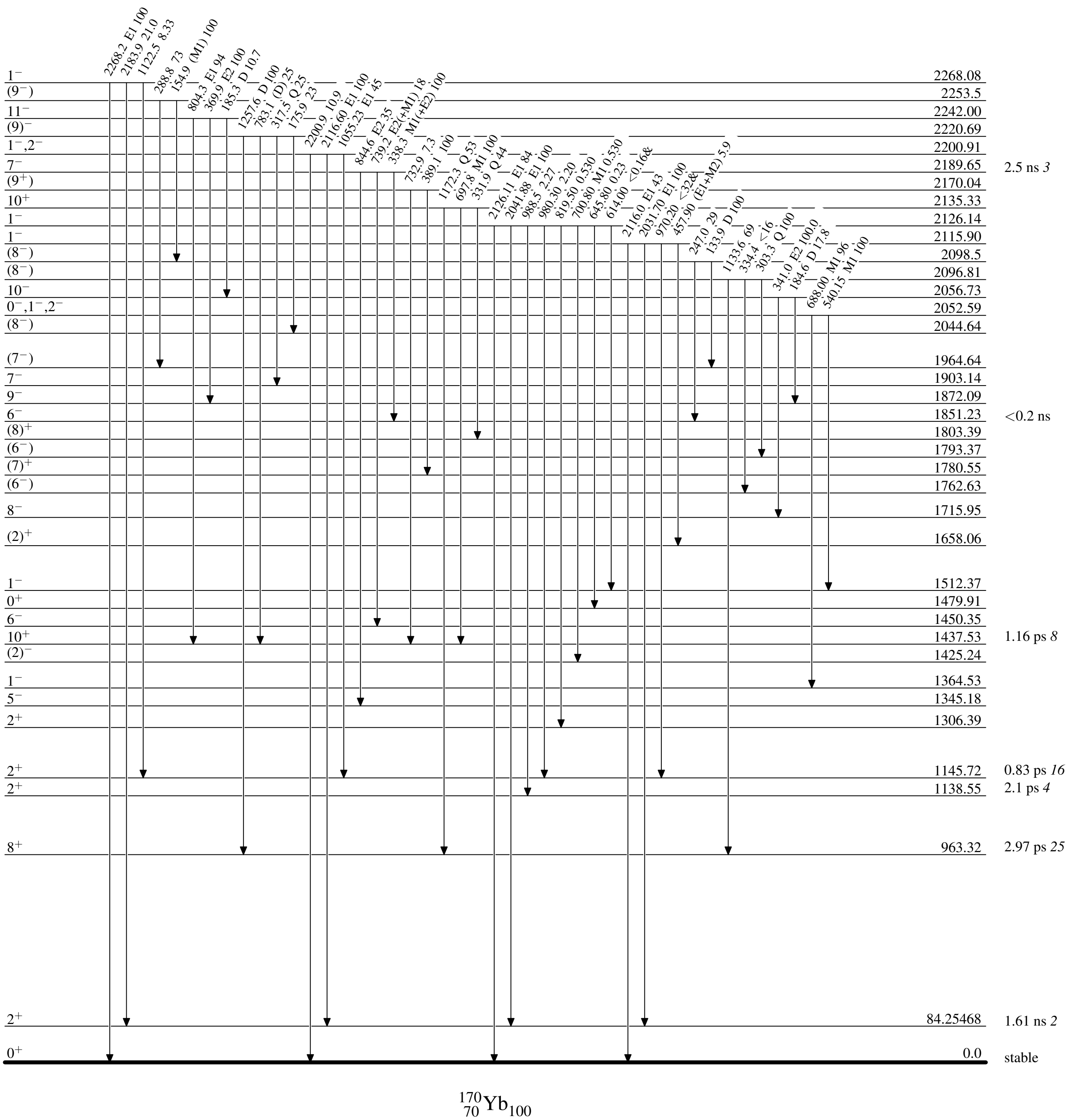


$^{170}_{70}Yb_{100}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given

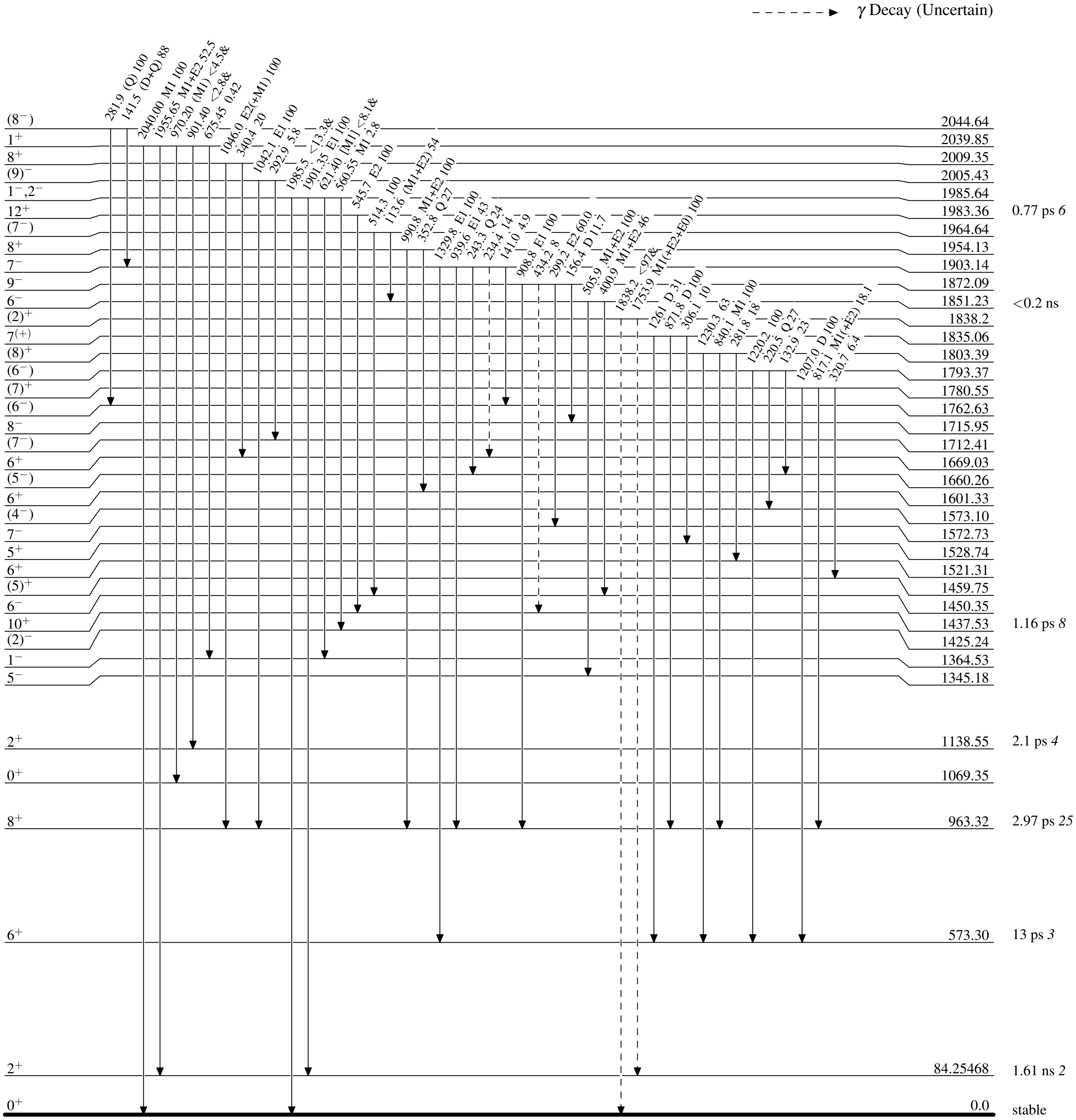


Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given



$^{170}_{70}Yb_{100}$

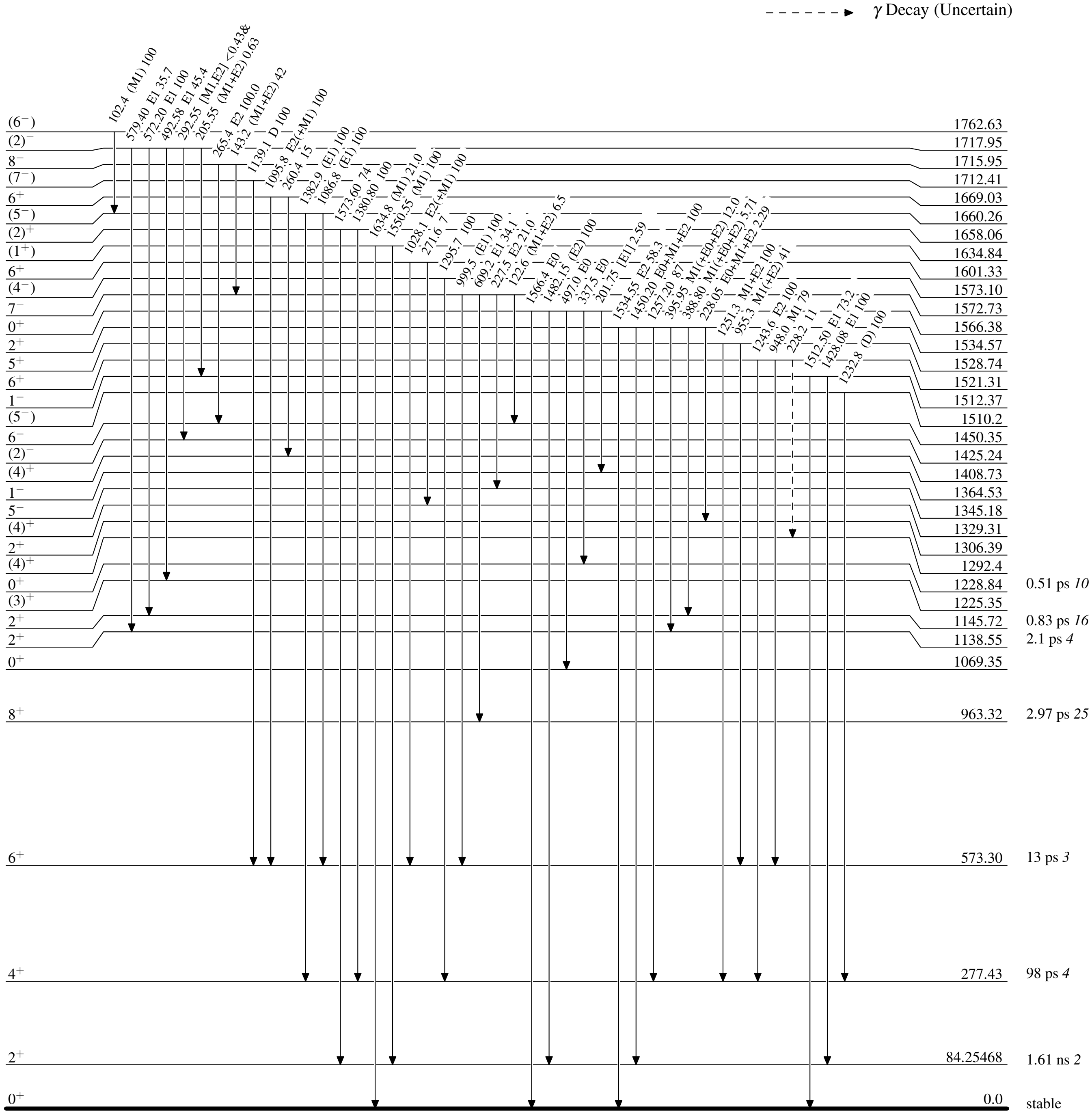
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given

γ Decay (Uncertain)

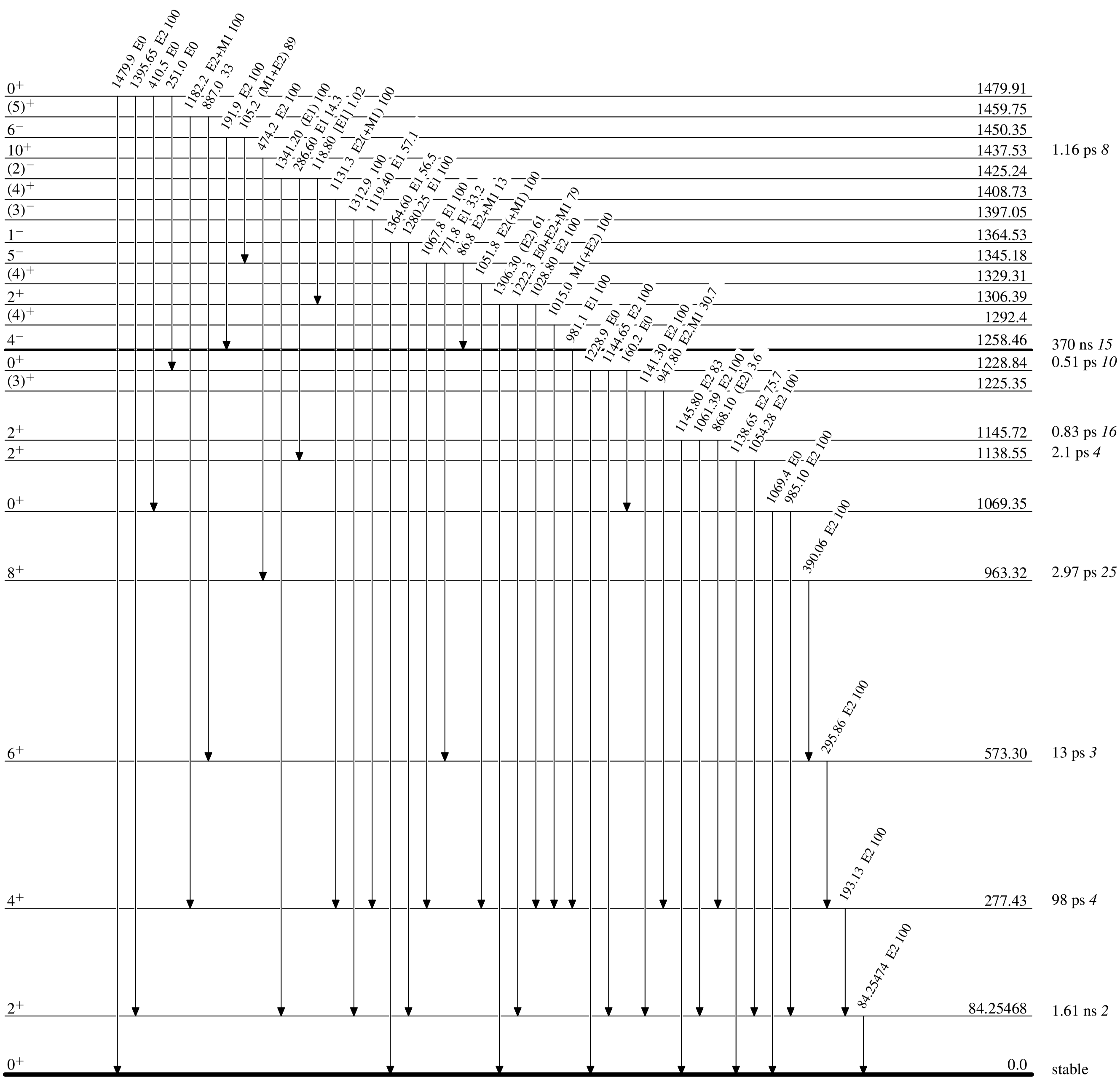


$^{170}_{70}Yb_{100}$

Adopted Levels, Gammas

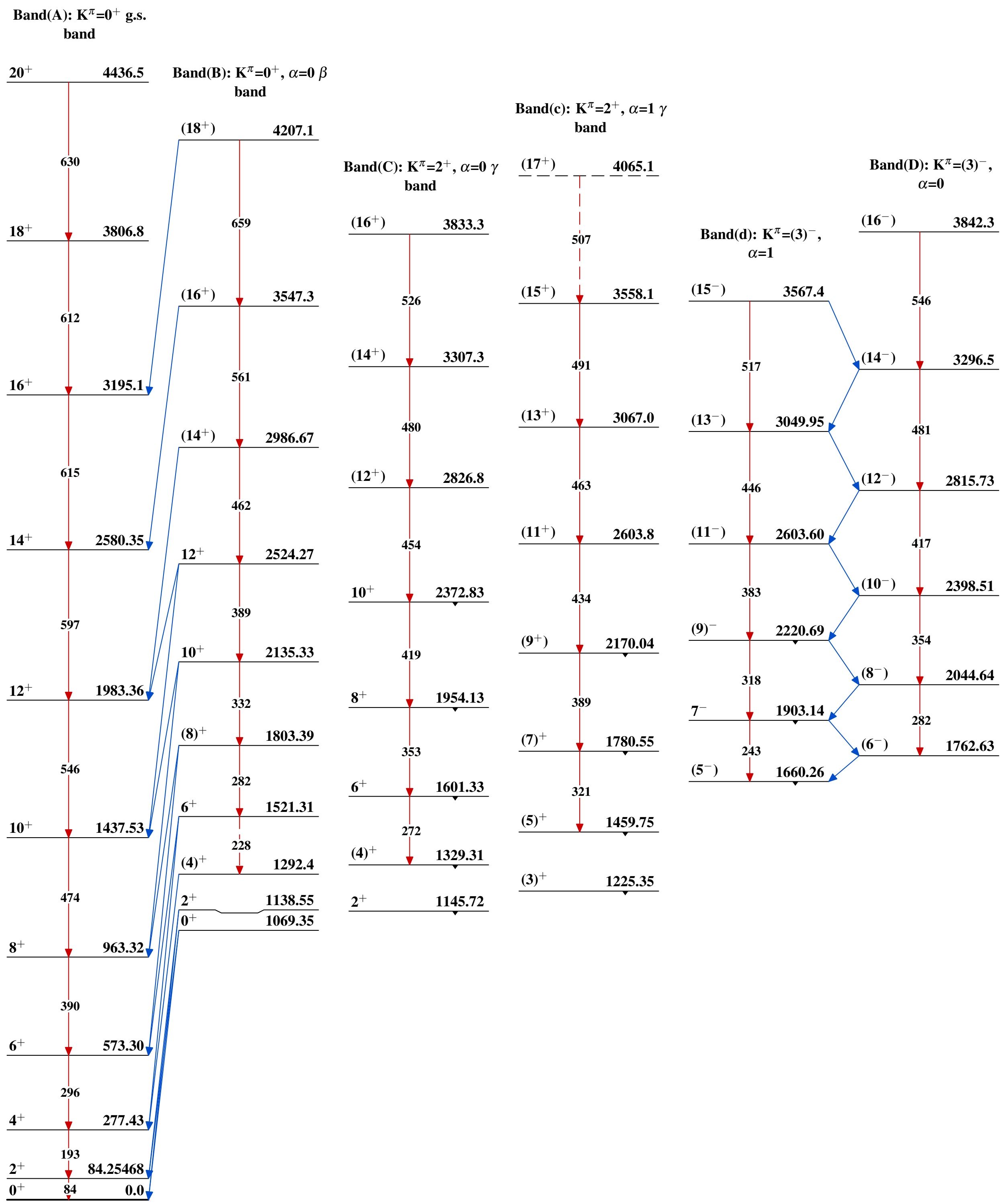
Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given



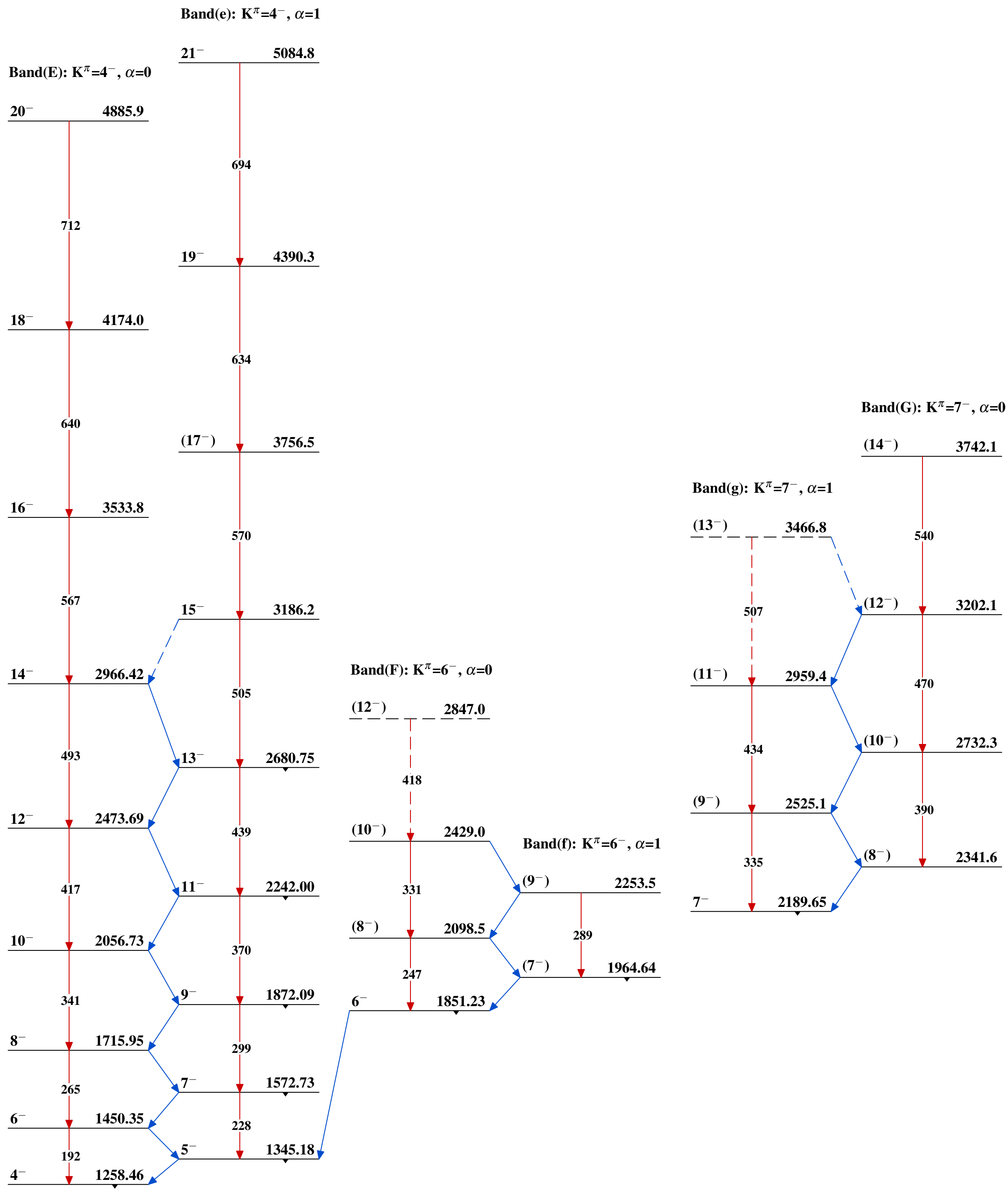
$^{170}_{70}Yb_{100}$

Adopted Levels, Gammas



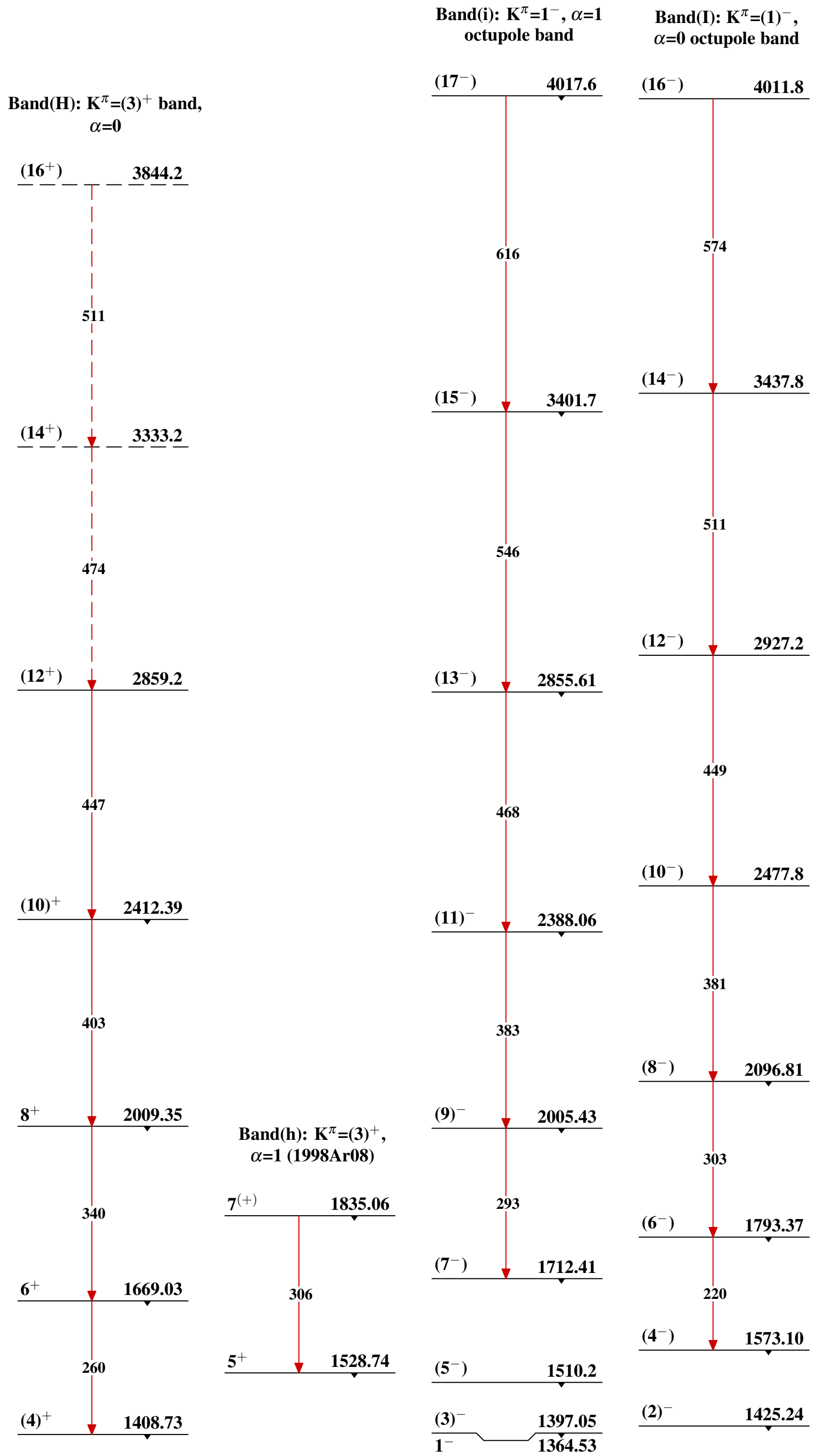
$^{170}_{70}Yb_{100}$

Adopted Levels, Gammas (continued)



$^{170}_{70}Yb_{100}$

Adopted Levels, Gammas (continued)



$^{170}_{70}Yb_{100}$