Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	F. G. Kondev	NDS 159, 1 (2019)	30-Aug-2019

Q(β^-)=496.8 *8*; S(n)=7072.89 *16*; S(p)=6181.5 *12*; Q(α)=1447 *5* 2017Wa10

^{177}Lu Levels

Cross Reference (XREF) Flags

A	^{177}Lu IT decay (160.4 d)	E	^{176}Yb(^{3}He,d),(α,t)
B	^{177}Yb β^- decay	F	^{178}Hf(t,α)
C	^{176}Lu(n,γ) E=thermal	G	(HI,xnγ)
D	^{176}Lu(d,p)		

E(level)[x]	J$^\pi$	T$_{1/2}$	XREF	Comments
0.0[†]	7/2$^+$	6.6443 d *9*	ABCDEFG	%β^-=100 μ=+2.2384 *14*; Q=+3.39 *3* J$^\pi$: 7/2, atomic beam (1962Pe07) and collinear laser spectroscopy (1998Ge13); π from L=4 in ^{176}Yb(^{3}He,d),(α,t). T$_{1/2}$: Weighted average of 6.645 d *30* (1982La25), 6.65 d *1* (2001Zi01), 6.646 d *5* (2001Sc23), 6.6475 d *20* (2004Sc04), 6.6465 d *50* (2011Po07), 6.639 d *9* (2012Ko24), and 6.6430 d *11* (2017FeZZ), deduced when the half-life of the ^{177}Lu IT decay (160.4 d) has been taken into account. Other: 6.660 d *17* (2016Lu16). Other values where the half-life of the ^{177}Lu IT decay (160.4 d) has not been taken into account: 6.645 *3* (2016Dr15), 6.681 d *6* (2012Re25), 6.709 d *1* (2008Ca13, HPGe γ-ray spectrometry), 6.680 *6* (2008Ca13, β spectrometry), 6.7479 d *7* (1990Ab02), 6.71 d *1* (1972Em01), 6.74 d *4* (1960Sc19), and 6.75 d *5* (1958Be41). μ: From 1998Ge13, 2014StZZ (recalibrated from the atomic beam data). Others: 2.239 *11* (atomic beam; 1975Mu15) and 2.239 *7* (collinear laser spectroscopy; 1998Ge13). Q: From 1998Ge13 (collinear laser spectroscopy), recommended in 2016St14. Others: +3.39 *2* (1962Pe07) and +3.39 *2* (1996Ko26). Δ<r^2>(170,177)=+0.48 *5* (1998Ge13). configuration: π7/2[404] (g$_{7/2}$) Nilsson configuration. Based on the observed in-band properties, such as alignment and g$_K$-g$_R$ values, comparison between the measured μ and Nilsson model predictions, and systematics of structures in neighboring nuclei.
121.6214[†] *4*	9/2$^+$	0.117 ns *4*	ABCDEFG	μ=+2.2 *8* XREF: E(123)F(123). J$^\pi$: L=4 in ^{176}Yb(^{3}He,d),(α,t); 121.65γ M1+E2 to 7/2$^+$; band assignment. T$_{1/2}$: Weighted average of 0.116 ns *8* (1965Sc01) and 0.118 ns *5* (1979Be54). Other: 0.26 ns *3* (1963Li05). μ: Integral perturbed angular correlations (1973Il02,2014StZZ).
150.3984[‡] *10*	9/2$^-$	133.1 ns *24*	ABC EFG	μ=+5.5 *3* XREF: E(153)F(153). J$^\pi$: L=5 in ^{176}Yb(^{3}He,d),(α,t); 150.399γ E1 to 7/2$^+$. T$_{1/2}$: Weighted average of 122 ns *5* (1955De18), 130 ns *20* (1949Mc41), and 136.6 ns *28* (2002DrZZ,2002McZY). Other: 94 ns *14* (1974Iv02). μ: Differential perturbed angular correlations (1977Ne11,2014StZZ). configuration: π 9/2[514] (h$_{11/2}$) Nilsson configuration. Based on the observed in-band properties, such as alignment and g$_K$-g$_R$ values, comparison between the measured μ and Nilsson model predictions, and systematics of structures in neighboring nuclei.

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Adopted Levels, Gammas (continued)

^{177}Lu Levels (continued)

E(level)[x]	Jπ	$T_{1/2}$	XREF	Comments
268.7852[†] *5*	11/2$^+$		ABCD G	Jπ: 147.1637γ M1+E2 to 9/2$^+$, 268.7847γ E2 to 7/2$^+$; band assignment.
289.0140[‡] *13*	11/2$^-$		ABC EFG	XREF: E(291)F(293). Jπ: L=5 in ^{176}Yb(^{3}He,d),(α,t); 138.616γ M1+E2 to 9/2$^-$; band assignment.
440.6431[†] *6*	13/2$^+$		ABCD G	Jπ: 171.8574γ M1+E2 to 11/2$^+$, 319.0210γ E2 to 9/2$^+$; band assignment.
451.5139[‡] *13*	13/2$^-$		ABC G	Jπ: 162.500γ M1+E2 to 11/2$^-$, 301.115γ E2 to 9/2$^-$ level; band assignment.
457.9568[#] *14*	5/2$^+$	≤0.45 ns	BC EFG	XREF: E(460)F(461). Jπ: L=2 in ^{176}Yb(^{3}He,d),(α,t); 336.335γ E2 to 9/2$^+$, 457.964γ M1(+E2) to 7/2$^+$; $T_{1/2}$: From 1996Pe05. Others:≤0.8 ns (1971Ma45) and<4.2 ns (2002McZY). configuration: π5/2[402] ($d_{5/2}$) Nilsson configuration. Based on the observed in-band properties, such as alignment and g_K-g_R values, and systematics of structures in neighboring nuclei.
552.0960[#] *13*	7/2$^+$		BC E G	XREF: E(554). Jπ: 94.140γ M1 to 5/2$^+$ level, 283.33γ to 11/2$^+$; band assignment.
569.6721[@] *15*	1/2$^+$	155 μs *7*	C efG	XREF: e(576)f(574). Jπ: L=0+2 for 1/2$^+$, 3/2$^+$ doublet in ^{176}Yb(^{3}He,d),(α,t); 111.715γ E2 to 5/2$^+$; configuration assignment. $T_{1/2}$: Weighted average of 150 μs *10* (1970Fl09) and 160 μs *10* (1965He06). configuration: π1/2[411] ($d_{3/2}$) Nilsson configuration. Based on the observed in-band properties, such as alignment and large signature splitting, and systematics of structures in neighboring nuclei.
573.6203[@] *14*	3/2$^+$	3.5 ns *10*	C efG	XREF: e(576)f(574). Jπ: L=0+2 for 1/2$^+$, 3/2$^+$ doublet in ^{176}Yb(^{3}He,d),(α,t); 115.665γ M1 to 5/2$^+$ and 573.6γ to 7/2$^+$; band assignment. $T_{1/2}$: From 1972Ma54.
636.2035[†] *7*	15/2$^+$		A CD G	XREF: D(633?). Jπ: 195.5602γ M1+E2 to 13/2$^+$, 367.4174γ E2 to 11/2$^+$ level; band assignment.
637.1126[‡] *16*	15/2$^-$		A C G	Jπ: 185.599γ M1(+E2) to 13/2$^-$, 348.098γ E2 to 11/2$^-$; band assignment.
671.9408[#] *13*	9/2$^+$		BC G	Jπ: 119.845γ M1+E2 to 7/2$^+$, 231.262γ to 13/2$^+$; band assignment.
709.4074[@] *15*	5/2$^+$		C FG	Jπ: Comparison of measured (t,α) cross section in ^{178}Hf(t,α) with calculated DWBA values. For the corresponding spectroscopic factor see 1992Bu12; 135.788γ M1+E2 to 3/2$^+$, 139.735γ to 1/2$^+$; band assignment.
720.7963[@] *16*	7/2$^+$		C G	Jπ: 147.175γ E2 to 3/2$^+$; band assignment.
761.7063[&] *14*	5/2$^-$	33 ns *2*	C E G	XREF: E(765). Jπ: L=3 in ^{176}Yb(^{3}He,d),(α,t); 188.086γ E1 to 3/2$^+$; 761.708γ E1 to 7/2$^+$. $T_{1/2}$: Unweighted average of 35.0 ns *9* (2016De30), 29 ns *4* (2002McZY) and 35 ns *3* (1972Ma54). configuration: π1/2[541] ($h_{9/2}$) Nilsson configuration. Based on the observed in-band properties, such as large alignment and large signature splitting, and systematics of structures in neighboring nuclei.
761.863[r] *18*	(3/2$^+$)		C	Jπ: 761.52γ E2 to 7/2$^+$; band assignment. configuration: $K^π$=3/2$^+$: π7/2[404] − K=2 gamma vibration phonon. The assignment is tentative.
795.218[&] *4*	(1/2$^-$)		C E G	XREF: E(798). Jπ: 221.600γ to 1/2$^+$ and 225.53γ to 3/2$^+$; band assignment.
811.4396[&] *22*	9/2$^-$	1.0 ns *1*	C EFG	XREF: E(814)F(812). Jπ: L=5 in ^{176}Yb(^{3}He,d),(α,t); 49.740γ E2 to 5/2$^-$; 689.824γ E1 to 9/2$^+$; band assignment. $T_{1/2}$: From 1996Pe05.
816.6951[#] *14*	11/2$^+$		C G	Jπ: 144.755γ M1(+E2) to 9/2$^+$, 264.600γ E2 to 7/2$^+$; band assignment.

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Adopted Levels, Gammas (continued)

^{177}Lu Levels (continued)

E(level)[x]	Jπ	$T_{1/2}$	XREF	Comments
823.046[r] *11*	(5/2+)		C	Jπ: 822.5γ M1(+E2) to 7/2+ level; band assignment.
832[y]			E	
844.9109[‡] *17*	17/2−		A C G	Jπ: 207.799γ M1(+E2) to 15/2−, 393.395γ E2 to 13/2−; band assignment.
854.3074[†] *7*	17/2+		A C G	Jπ: 218.1038γ M1+E2 to 15/2+, 413.6637γ E2 to 13/2+; band assignment.
907.737[r] *18*	(7/2+)		C	Jπ: 145.874γ E2 to 3/2+; band assignment.
956.411[&] *17*	(3/2)−		C efG	XREF: e(959)f(959)G(953). Jπ: L=1 in ^{176}Yb(^{3}He,d),(α,t); 161.40γ to (1/2−), 194.612γ to 3/2−; band assignment.
956.6663[@] *18*	9/2+		C fG	XREF: f(959). Jπ: 235.869γ M1(+E2) to 7/2+, 247.262γ E2 to 5/2+; band assignment.
957.3128[&] *24*	13/2−		C G	Jπ: 145.874γ E2 to 9/2−, 321.077γ to 15/2+; band assignment.
970.1757[d] *24*	23/2−	160.4 d *3*	A D G	%β−=77.30 *8*; %IT=22.70 *8* μ=2.320 *14*; Q=5.71 *5* XREF: D(972). Jπ: 115.8682γ E3 to 17/2+. $T_{1/2}$: Weighted average (external uncertainty) of 160.10 d *8* (1975Wa19), 160.07 d *12* (2008Ca13) and 160.95 d 10 (1967Ne05). 2008Ca13: Measurements were carried out by γ-ray spectrometry during a time interval of 420 days. A value of $T_{1/2}$=150.33 d *10* was obtained using β spectrometry using liquid-scintillator counter. 1975Wa19: 160.10 d *8*, weighted average of 160.50 d *18*, 159.90 d *10* and 160.30 d *16* values obtained by carrying out measurements during a 3-year period with 3 mass-separated samples. Measurements were carried out using a beta-proportional counter. These results supersede the previous ones of 161.3 d *4*, 160.6 d *4* and 160.8 d *4* (1973Ch18), where the same sources were used, but the measurements were carried out during a 12-month period. 1967Ne05: 161.95 d *10*, weighted average of 160.4 d *2*, 161.4 d *2*, 161.8 d *4*, 160.8 d *2*, and 161.0 d *3* values obtained by carrying out measurements during a 3-year period with 5 chemically-purified samples, produced via the ^{176}Lu(n,γ) reaction. One of the samples was measured using a beta-proportional counter and the others via γ-ray spectrometry using NaI detectors, covering different energy ranges. Others: 160.90 d *23* (1973Ch18, superseded by 1975Wa19); 159.5 d *7* (1982La25), 160 d *20* (1965Sy01) and 155 d *5* (1962Jo08). %β− and %IT are from I(γ+ce)(23/2− isomer it decay)=179.1 *7*, weighted average of 179.2 *25* (Iπ=9/2+), 178.5 *15* (Iπ=11/2+), 179.5 *23* (Iπ=13/2+), 179.1 *14* (Iπ=15/2+) and 179.5 *14* (Iπ=17/2+), and I(γ+ce)(23/2− isomer β− decay)=609.8 *17*, weighted average of 610 *11* (Iπ=7/2−), 610 *8* (I=9/2), 610 *5* (I=11/2), 609 *4* (I=13/2), 611.5 *34* (I=15/2), 609.1 *31* (I=17/2), 609 *7* (I=19/2) and 609 *9* (I=21/2). Δ<r2>(170,177)=+0.44 *5* (1998Ge13). μ: Weighted average of 2.308 *11* (1998Ge13, colinear laser spectroscopy) and 2.337 *13* (1996Ko26, NMR resonant-offset technique). Others: 2.74 *21* (1974Kr12) and 2.92 *18* (1975Sc16). Q: From 1998Ge13 using the colinear laser spectroscopy, recommended in 2016St14. Others: 4.23 *67* (1983Oe01) and 5.2 *5* (1996Ko26). configuration: K^{π}=23/2−, π(7/2[404])⊗ν^2(7/2[514],9/2[624]). Based on comparison between the measured μ with Nilsson model predictions and the observed in-band properties, such as alignment and g_K-g_R values.
980.1858[@] *20*	11/2+		C G	Jπ: 163.489γ to 9/2+, 259.390γ E2 to 7/2+; band assignment.
985.2968[#] *17*	13/2+		C G	Jπ: 168.605γ M1(+E2) 11/2+, 313.358γ E2 to 9/2+; band assignment.
1021.195[r] *19*	(9/2+)		C	Jπ: 198.09γ to (5/2+), 1020.2γ to 7/2+; band assignment.
1049.456[w] *9*	9/2−		BC	Jπ: 760.40γ M1+E2 to 11/2−, 1049.2γ to 7/2+; direct feeding in ^{177}Yb β− decay (Jπ=9/2+).

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Adopted Levels, Gammas (continued)

^{177}Lu Levels (continued)

E(level)[x]	Jπ	$T_{1/2}$	XREF	Comments
1073[cz] *3*	(3/2+)		F	Jπ: Comparison of measured (t,α) cross section in ^{178}Hf(t,α) with calculated DWBA values (1992Bu12). configuration: $K^{\pi}=3/2^+$, π3/2[411].
1073.6382[‡] *19*	19/2−		CD G	XREF: D(1073). Jπ: 228.728γ M1(+E2) to 17/2−, 436.552γ E2 to 15/2−; band assignment.
1088.612[&] *5*	7/2−		C G	Jπ: 277.175γ M1(+E2) to 9/2−, 326.890γ to 5/2−; band assignment.
1093.661[†] *6*	19/2+		C G	Jπ: 239.349γ to 17/2+, 457.461γ to 15/2+; band assignment.
1098[y]	(3/2+,5/2+)		E	Jπ: L=(2) in ^{176}Yb(^{3}He,d), (α,t).
1133[cz] *3*	(5/2+)		EF	XREF: E(1126). Jπ: L=(2) in ^{176}Yb(^{3}He,d), (α,t). Comparison of measured (t,α) cross section in ^{178}Hf(t,α) with calculated DWBA values (1992Bu12).
1149.97 *13*	7/2+		B	Jπ: 881.3γ to 11/2+, 691.9γ to 5/2+; γγ(θ) in 1995Ya21; direct feeding in ^{177}Yb β− decay (Jπ=9/2+).
1152.069[r] *18*	(11/2+)		C	Jπ: 244.31γ E2 to (7/2+), 1030.0γ M1(+E2) to 9/2+; band assignment.
1165.605 *13*	9/2−,11/2		BC	Jπ: 1015.27γ to 9/2−, 714.2γ to 13/2−; direct feeding in ^{177}Yb β− decay (Jπ=9/2+).
1176.7986[#] *20*	15/2+		C G	Jπ: 191.503γ M1(+E2) to 13/2+, 360.104γ E2 to 11/2+; band assignment.
1184.4[2]			C	
1187.740[w] *9*	(11/2−)		C EF	XREF: E(1190)F(1191).
1201.644[&] *3*	17/2−		C G	Jπ: 244.332γ E2 to 13/2−; band assignment.
1230.620[o] *18*	11/2+	60 ps *15*	BC G	Jπ: 1080.204γ E1 to 9/2− level, 1231.0γ E2 to 7/2+, 779.3γ to 13/2−; band assignment. $T_{1/2}$: From βγ(Δt) in 1979Be54.
1236.37 *12*	7/2+		B F	XREF: F(1227). Jπ: 1236.8γ to 7/2+, 967.3γ to 11/2+; Jπ=(7/2+) from comparison of measured (t,α) cross section in ^{178}Hf(t,α) with calculated DWBA values. For the corresponding spectroscopic factor see 1992Bu12.
1241.50 *21*	7/2+	25 ps *8*	BC	Jπ: From γγ(θ) in 1995Ya21; 1120.0γ M1+E2 to 9/2+, 783.3γ to 5/2+, 1241.8γ E2+M1 to 7/2+. $T_{1/2}$: From βγ(Δt) in 1979Be54.
1243.0[d] *4*	25/2−		D G	Jπ: 272.8γ to 23/2−; band assignment.
1286.931[&] *4*	11/2−		C e G	XREF: e(1294). Jπ: 329.623γ M1(+E2) to 13/2−; 475.491γ M1(+E2) to 9/2−; band assignment.
1303.0590[@] *21*	13/2+		C e G	XREF: e(1294). Jπ: 322.873γ M1(+E2) to 11/2+; 346.392γ E2 to 9/2+; band assignment.
1305.917[j] *20*	11/2+		CDe G	XREF: e(1294). Jπ: 865.18γ M1(+E2) to 13/2+; 1305.706γ (E2) to 7/2+ level; band assignment.
1319.941[r] *18*	(13/2+)		C	Jπ: 299.002γ (E2) to (9/2+), 1049.55γ M1(+E2) to 11/2+; band assignment.
1322.1[a] *4*	(3/2−)		C	Jπ: 526.9γ M1(+E2) to (1/2−); band assignment. configuration: $K^{\pi}=3/2^-$, π3/2[532]. The assignment is tentative.
1322.184[‡] *3*	21/2−		C G	Jπ: 248.560γ to 19/2−; 477.267γ to 17/2−; band assignment.
1324.4[e] *4*	25/2+	62 ns *4*	G	Jπ: 81.2γ E1 to 25/2−, 354.3γ to 23/2−. $T_{1/2}$: From γγ(t) in 2004Dr06. configuration: $K^{\pi}=25/2^+$, π(9/2[514])⊗ν^2(7/2[514],9/2[624]).
1328[z] *5*	(11/2−)		C eF	XREF: e(1333). Jπ: Comparison of measured (t,α) cross section in ^{178}Hf(t,α) with calculated DWBA values. For the corresponding spectroscopic factor see 1992Bu12.
1336.85[p] *4*	7/2+		BC	Jπ: 1215.22γ M1(+E2) to 9/2+, 1336.8γ M1(+E2) to 7/2+; band

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Adopted Levels, Gammas (continued)

^{177}Lu Levels (continued)

E(level)[x]	Jπ	$T_{1/2}$	XREF	Comments
				assignment. configuration: $K^{\pi}=7/2^+,\pi 9/2[514]\otimes\nu^2(7/2[514],9/2[624])$.
1344.39[q] 5	(11/2+)		C e	XREF: e(1333). Jπ: 1222.2γ M1(+E2) to 9/2+, 902.6γ to 13/2+; band assignment. configuration: $K^{\pi}=11/2^+$. The assignment is tentative.
1344.799[@] 3	15/2+		C e G	XREF: e(1333). Jπ: 364.613γ E2 to 11/2+; band assignment.
1348.6[w] 3	(13/2−)		C e	XREF: e(1333). Jπ: 907.9γ to 13/2+, 1080.21γ to 11/2+; population in ^{176}Lu(n,γ) ($J^{\pi}=13/2^-,15/2^-$).
1352.5[†] 4	21/2+		G	Jπ: 258.7γ to 19/2+; 498.4γ to 17/2+; band assignment.
1356.860[i] 7	15/2+	10.8 ns 5	CD G	Jπ: 720.721γ M1 to the 15/2+; 916.25γ M1 to 13/2+ level; 1088.129γ (E2) to 11/2+; configuration assignment. $T_{1/2}$: Weighted average of 10.8 ns 5 (2016De30), 11.1 ns 21 (2002McZY) and 11 ns 2 (1996Pe05). configuration: $K^{\pi}=15/2^+:\pi 7/2[404]\otimes\nu^2(7/2[514],1/2[510])$. The assignment is tentative.
1388.0[o] 10	(13/2+)		C	Jπ: 1099.0γ to 11/2−; band assignment.
1389.659[#] 3	17/2+		C G	Jπ: 404.361γ E2 to 13/2+; 535.247γ M1(+E2) to 17/2+; band assignment.
1394.48[a] 7	(5/2−)		C E	XREF: E(1390). Jπ: L=3 in ^{176}Yb(^{3}He,d), (α,t); 632.95γ M1(+E2) to 5/2−; band assignment.
1429.4[2]			C E	XREF: E(1431).
1438.3[l] 5	(17/2−)	<13 ns	G	Jπ: 81.4γ to 15/2+; configuration assignment. $T_{1/2}$: From 233γ-(916,1088)γ(Δt) in 2002McZY and two-level fit. configuration: $K^{\pi}=17/2^-$, $\pi(9/2[514])\otimes\nu^2(1/2[510],7/2[514])$ or $\pi(7/2[404])\otimes\nu^2(1/2[510],9/2[624])$.
1443.72[p] 15	9/2+		C	Jπ: 1175.5γ M1(+E2) to 11/2+; 1444.4γ M1(+E2) to 7/2+ level; band assignment.
1454.392[m] 7	(13/2+)		CD	XREF: D(1453). Jπ: 1013.94γ M1(+E2) to 13/2+; 1332.33γ (E2) to 9/2+; band assignment. configuration: $K^{\pi}=13/2^+:\pi 7/2[404]\otimes\nu^2(7/2[514],1/2[521])$.
1465.2[2]			C	
1471.097[j] 18	13/2+		Cd	XREF: d(1473). Jπ: 834.99γ M1(+E2) to 15/2+; 1350.8γ to 9/2+; band assignment.
1480.8[2]			C E	XREF: E(1481).
1488.404 18	(11/2+)		C	Jπ: 336.33γ E2 to (11/2+); 1368.0γ to 9/2+.
1502.682[h] 8	(13/2+)		Cd fG	XREF: d(1503)f(1501). Jπ: 325.884γ M1(+E2) to 15/2+ level; 1381.07γ to 9/2+; band assignment. configuration: $K^{\pi}=13/2^+:\pi 7/2[404]\otimes\nu^2(7/2[514],1/2[510])$.
1505.95[q] 11	(13/2+)		Cd f	XREF: d(1503)f(1501). Jπ: 1065.7γ M1(+E2) to 13/2+; 1237.15γ M1(+E2) to 11/2+; band assignment.
1513[y]			E	
1536.6[d] 4	27/2−		G	Jπ: 293.5γ to 25/2−, 566.4γ to 23/2−; band assignment.
1541[y]			E	
1542.9[&] 5	(21/2−)		G	Jπ: 341.3γ to 17/2−; band assignment.
1544.309[i] 8	(17/2+)	0.8 ns +2−1	CD G	XREF: D(1543). Jπ: 908.035γ M1(+E2) to 15/2+; band assignment. $T_{1/2}$: From 1996Pe05.
1555[z] 5			F	

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Adopted Levels, Gammas (continued)

^{177}Lu Levels (continued)

E(level)[x]	J^π	XREF	Comments
1564.097[&] 4	15/2$^-$	C G	J^π: 277.175γ to 11/2$^-$, 362.459γ M1(+E2) to 17/2$^-$; 709.745γ (E1) to 17/2$^+$; band assignment.
1566.20[o] 12	(15/2$^+$)	C	J^π: 1277.70γ (M2) to 11/2$^-$; 1297.40γ E2 to 11/2$^+$; band assignment.
1573.32[a] 4	(7/2$^-$)	C	J^π: 178.85γ to 5/2$^-$; band assignment.
1573.7[p] 6	(11/2$^+$)	C	J^π: 1132.4γ M1(+E2) to 13/2$^+$; band assignment.
1588.7[‡] 4	23/2$^-$	D G	XREF: D(1587). J^π: 266.6γ to 21/2$^-$; 515.0γ assumed to 19/2$^-$; band assignment.
1591.0[2] 11		C	
1602[y]		E	
1605.8[e] 5	27/2$^+$	G	J^π: 281.3γ to 25/2$^+$; band assignment.
1607.369[m] 23	(15/2$^+$)	CD	XREF: D(1608). J^π: 753.27γ M1(+E2) to 17/2$^+$; band assignment.
1623.250[#] 11	19/2$^+$	C G	J^π: 233.6γ M1(+E2) to 17/2$^+$; 446.4γ to 15/2$^+$; band assignment.
1623.4[s] 7	(9/2$^+$)	C	J^π: 902.6γ to 7/2$^+$; band assignment. configuration: K^π=9/2$^+$:π1/2[411]$\otimes\nu^2$(7/2[514],1/2[510]). The assignment is tentative.
1628.096[a] 17	(9/2$^-$)	C EF	XREF: E(1629)F(1628). J^π: L=5 in ^{176}Yb(^{3}He,d),(α,t); 341.33γ M1(+E2) to 11/2$^-$; band assignment.
1629.7[†] 5	(23/2$^+$)	G	J^π: 536.0γ to 15/2$^+$; band assignment.
1632.771[n] 9	(15/2$^+$)	CD	J^π: 130.089γ to 13/2$^+$, 326.6γ to 11/2$^+$; 275.91 M1(+E2) to 15/2$^+$; band assignment.
1634.74[k] 4	13/2$^+$	C	J^π: 999.4γ M1(+E2) to 15/2$^+$; 1367.0γ M1(+E2) to 11/2$^+$ level; band assignment. configuration: K^π=11/2$^+$. The assignment is tentative.
1640.17[b] 6	(3/2$^-$)	C E	XREF: E(1647). J^π: L=1 in ^{176}Yb(^{3}He,d),(α,t); 688.41γ to 3/2$^-$, 844.96γ to (1/2$^-$); band assignment.
1651[2] 6		C F	
1661.392[j] 24	15/2$^+$	C	J^π: 1025.39γ M1(+E2) to 15/2$^+$; 1220.63γ (M1(+E2))to 13/2$^+$; band assignment.
≈1668[y]		E	
1671.3[l] 7	(19/2$^-$)	G	J^π: 233.4γ to (17/2$^-$); band assignment.
1677.191[h] 8	(15/2$^+$)	CD	XREF: D(1679). J^π: 823.045γ M1(+E2) to 17/2$^+$, 1409.19γ (E2) to 11/2$^+$ level; band assignment.
1678.8? 3		G	
1692.996[q] 24	(15/2$^+$)	C	J^π: 1423.5γ to 11/2$^+$, 1056.3γ M1(+E2) to 15/2$^+$; band assignment.
1706.2[2]		Cd	XREF: d(1711).
1711.9[t] 10	(7/2$^+$)	Cd	XREF: d(1711). J^π: 1138.5γ to 3/2$^+$; band assignment. configuration: K^π=7/2$^+$:π1/2[411]$\otimes\nu^2$(7/2[514],1/2[510]). The assignment is tentative.
1728.899[u] 5	13/2$^+$	C	J^π: 552.102γ M1(+E2) to 15/2$^+$; 1056.79γ (E2) to 9/2$^+$; band assignment.
1733[y]	(7/2)$^-$	E	J^π: L=3 in ^{176}Yb(^{3}He,d), (α,t).
1739.2?		C	
1745.517[@] 12	(17/2$^+$)	Cd	XREF: d(1749). J^π: 355.929γ to 17/2$^+$, 442.47γ to 13/2$^+$; band assignment.
1746.548[i] 8	(19/2$^+$)	Cd G	XREF: d(1749). J^π: 202.239γ to 17/2$^+$, 652.0γ M1(+E2) to 19/2$^+$; band assignment.
1749.1[2]		C	
1756.533[b] 18	(7/2$^-$)	C f	XREF: f(1757). J^π: 945.595γ M1(+E2) to 9/2$^-$, 994.89γ to 5/2$^-$; band assignment.
1757.1[s] 7	(11/2$^+$)	C	J^π: 133.75γ to (9/2$^+$), 1036.3γ to 7/2$^+$; band assignment.
1766[1] 5		DEf	XREF: E(1760)f(1757).
1772.9? 3		G	
1786.38[m] 4	(17/2$^+$)	CD	XREF: D(1787?). J^π: 178.85γ to 15/2$^+$; band assignment.
1804.3[@] 5	(19/2$^+$)	C G	J^π: 459.5γ to 15/2$^+$; band assignment.

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Adopted Levels, Gammas (continued)

^{177}Lu Levels (continued)

E(level)[x]	J$^\pi$	XREF	Comments
1812.335[n] 22	(17/2$^+$)	CD	XREF: D(1814). J$^\pi$: 180.10γ to 15/2$^+$, 958.014γ to 17/2$^+$; band assignment.
1820.69[k] 3	(15/2$^+$)	C	J$^\pi$: 966.47γ M1(+E2) to 17/2$^+$, 1184.14γ M1(+E2) to 15/2$^+$; band assignment.
1821.8[t] 10	(9/2$^+$)	C	J$^\pi$: 180.10γ to (7/2$^+$); band assignment.
1827.68[b] 6	(5/2$^-$)	C	J$^\pi$: 187.505γ to (3/2$^-$), 1065.96γ to 5/2$^-$; band assignment (tentative).
1829.252 8	(19/2$^+$)	C	J$^\pi$: 206.002γ to 19/2$^+$, 652.451γ to 15/2$^+$. Non observation of γ's to levels with J=13/2 would argue against J=17/2.
1841.9 11		CD F	XREF: D(1839).
1850.7[d] 5	29/2$^-$	G	J$^\pi$: 314.1γ to 27/2$^-$, 607.8γ to 25/2$^-$; band assignment.
1852.0 10		Cd	XREF: d(1857).
1859.2 4	(11/2$^-$)	CdE	XREF: d(1857). J$^\pi$: L=(5) in ^{176}Yb(^{3}He,d),(α,t). The assignment is tentative.
1862.1 13		Cd	XREF: d(1857).
1872.2[‡] 4	25/2$^-$	G	J$^\pi$: 283.4γ to 23/2$^-$; 550.0γ to 21/2$^-$; band assignment.
1873.59[h] 3	(17/2$^+$)	Cd	XREF: d(1880). J$^\pi$: 1237.15γ M1(+E2) to 15/2$^+$, 1433.1γ to 13/2$^+$; band assignment.
1882.180[v] 17	(11/2$^+$)	Cde	XREF: d(1880)e(1883). J$^\pi$: 896.0γ to 13/2$^+$, 1065.7γ M1(+E2) to 11/2$^+$; proposed configuration. configuration: K^π=11/2$^+$:π5/2[402]$\otimes\nu^2$(7/2[514],1/2[510]). The assignment is tentative.
1894.6[2]		C f	XREF: f(1897).
1902.2[2]		C	
1907.3[e] 5	29/2$^+$	G	J$^\pi$: 301.4γ to 27/2$^+$, 582.9γ to 25/2$^+$; band assignment.
1912.6[s] 7	(13/2$^+$)	CD	XREF: D(1902). J$^\pi$: 155.917γ to (11/2$^+$), 289.55γ to (9/2$^+$); band assignment.
1919.0[2]		C	
1922.0[†] 7	(25/2$^+$)	G	J$^\pi$: 569.5γ to (21/2$^+$); band assignment.
1925.404[u] 16	15/2$^+$	C	J$^\pi$: 196.41γ to 13/2$^+$, 534.5γ M1(+E2) to 17/2$^+$; band assignment.
1925.7[l] 7	(21/2$^-$)	G	J$^\pi$: 254.0γ to (19/2$^-$); 487.0γ to (17/2$^-$); band assignment.
1935[1] 4		D	
1942.6[2]		C	
1948.0[2] 11		C	
1954.6[t] 10	(11/2$^+$)	C	J$^\pi$: 132.816γ to (9/2$^+$), 242.74γ to (7/2$^+$); band assignment.
1957.167[a] 22	(11/2$^-$)	C	J$^\pi$: 1146.2γ M1(+E2) to 9/2$^-$; band assignment.
1960.3		C e	XREF: e(1964).
1966.9?		C e	XREF: e(1964).
1976.9[&] 7	(25/2$^-$)	D G	XREF: D(1974). J$^\pi$: 434.0γ to (21/2$^-$); band assignment.
1982.7[2]		C	
1991.0[2]		C	
1997.6[2]		CDE	XREF: D(2000)E(1995).
2006.0?[2]		C f	XREF: f(2009).
2012.8?[2]		C f	XREF: f(2009).
2019.7[2]		CD	XREF: D(2018).
2033.4[2]		CD F	XREF: D(2037)F(2037).
2049.5[2]		C E	XREF: E(2047).
2053.392[v] 13	(13/2$^+$)	CD	XREF: D(2057). J$^\pi$: 876.586γ to 15/2$^+$, 1237.15γ M1(+E2) to 11/2$^+$; band assignment.
2077[z] 5		F	
2090.3[s] 7	(15/2$^+$)	CD	XREF: D(2085). J$^\pi$: 177.671γ to (13/2$^+$), 333.148γ to (11/2$^+$); band assignment.
2110.5?[t]	(13/2$^+$)	CD	XREF: D(2108). J$^\pi$: 177.671γ to (11/2$^+$); band assignment.

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Adopted Levels, Gammas (continued)

^{177}Lu Levels (continued)

E(level)[x]	J$^\pi$	T$_{1/2}$	XREF	Comments
2116.9[2]			C	
2134.4[2]			C	
2142[1] 3			D	
2155.00[u] 4	17/2$^+$		C	J$^\pi$: 977.4γ M1(+E2) to 15/2$^+$, 1171.5γ E2 to 13/2$^+$; band assignment.
2158[z] 5			EF	XREF: E(2164).
2173.7[‡] 6	(27/2$^-$)		G	J$^\pi$: 585.0γ to 23/2$^-$; band assignment.
2184.9[d] 5	31/2$^-$		G	J$^\pi$: 334.4γ to 29/2$^-$, 648.3γ to 27/2$^-$; band assignment.
2185.2 6			DE	XREF: E(2184).
2200.5[l] 7	(23/2$^-$)		G	J$^\pi$: 274.0γ to (21/2$^-$), 530.0γ to (19/2$^-$); band assignment.
2206.1[2]			CD	XREF: D(2209).
2228.9[e] 6	31/2$^+$		G	J$^\pi$: 321.4γ to 29/2$^+$, 623.1γ to 27/2$^+$; band assignment.
2230[z] 5			F	
2248.001[v] 24	(15/2$^+$)		CD	XREF: D(2241). J$^\pi$: 857.8γ M1(+E2) to 17/2$^+$ level, 1262.2γ M1(+E2) to 13/2$^+$, 1429.0γ (E2) to 11/2$^+$ level; band assignment.
2278[1]			D	
2294[z] 5			F	
2345.3[@] 12	(23/2$^+$)		G	J$^\pi$: 541γ to (19/2$^+$).
2373[1] 3			D	
2417[1] 4			D	
2427[y]			E	
2497.9[&] 9	(29/2$^-$)		G	J$^\pi$: 521.0γ to (25/2$^-$); band assignment.
2539.0[d] 5	33/2$^-$		G	J$^\pi$: 353.8γ to 31/2$^-$, 688.4γ to 29/2$^-$; band assignment.
2605[1] 3			D	
2637[1] 4			D	
2668[1] 3			D	
2771.7[f] 5	33/2$^+$	625 ns 62	G	J$^\pi$: 542.6γ to 31/2$^+$, 864.4γ to 29/2$^+$; proposed configuration. T$_{1/2}$: From $\gamma\gamma$(t) in 2004Dr06. configuration: K^π=33/2$^+$, π^3(1/2[411],7/2[404],9/2[514])⊗ ν^2(7/2[514],9/2[624]).
2911.7[d] 6	35/2$^-$		G	J$^\pi$: 372.8γ to 33/2$^-$, 726.8γ to 31/2$^-$; band assignment.
3128.0[f] 6	35/2$^+$		G	J$^\pi$: 356.1γ to 33/2$^+$; band assignment.
3303.7[d] 6	37/2$^-$		G	J$^\pi$: 392.2γ to 35/2$^-$, 764.6γ to 33/2$^-$; band assignment.
3505.4[f] 8	37/2$^+$		G	J$^\pi$: 377.4γ to 35/2$^+$; band assignment.
3530.4[g] 6	39/2$^-$	6 μs 2	G	%IT=100 J$^\pi$: 226.7γ M1 to 37/2$^-$, 618.7γ to 35/2$^-$; proposed configuration. T$_{1/2}$: From $\gamma\gamma$(t), pulsed beam, private communication from G.D. Dracoulis (ANU), quoted in 2015Ko14. Others: β^--decaying, K^π=39/2$^-$ isomer (T$_{1/2}$=7 m 2) was proposed in 2004Al04, 2002AlZX, and 2002AlZY using a two isomers fit to the growth of γ-ray intensity as a function of time for transitions following the decay of the K^π=37/2$^-$ isomer (T$_{1/2}$=51.4 m 5) in ^{177}Hf. However, no such isomer was confirmed in 2004Dr06. The short lifetime of the K^π=39/2$^-$ isomer is inconsistent with the proposed β^--decaying branch in 2004Al04, 2002AlZX, and 2002AlZY. configuration: K^π=39/2$^-$, π^3(7/2[404],7/2[523],9/2[514])⊗ ν^2(7/2[514],9/2[624]).

† Band(A): K^π=7/2$^+$, π7/2[404].
‡ Band(B): K^π=9/2$^-$, π9/2[514].

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Adopted Levels, Gammas (continued)

^{177}Lu Levels (continued)

Band(C): $K^\pi=5/2^+$, $\pi5/2[402]$.
@ Band(D): $K^\pi=1/2^+$, $\pi1/2[411]$.
& Band(E): $K^\pi=1/2^-$, $\pi1/2[541]$.
a Band(F): $K^\pi=3/2^-$, $\pi3/2[532]$.
b Band(G): $K^\pi=1/2^-$, $\pi1/2[530]$.
c Band(H): $K^\pi=3/2^+$, $\pi3/2[411]$.
d Band(I): $K^\pi=23/2^-$, $\pi(7/2[404])\otimes\nu^2(7/2[514],9/2[624])$.
e Band(J): $K^\pi=25/2^+$, $\pi(9/2[514])\otimes\nu^2(7/2[514],9/2[624])$.
f Band(K): $K^\pi=33/2^+$, $\pi^3(1/2[411],7/2[404],9/2[514])\otimes\nu^2(7/2[514],9/2[624])$.
g $K^\pi=39/2^-$, $\pi^3(7/2[404],7/2[523],9/2[514])\otimes\nu^2(7/2[514],9/2[624])$.
h Band(L): $K^\pi=13/2^+$, $\pi7/2[404]\otimes\nu^2(7/2[514],1/2[510])$.
i Band(M): $K^\pi=15/2^+$, $\pi7/2[404]\otimes\nu^2(7/2[514],1/2[510])$.
j Band(N): $K^\pi=11/2^+$, 50% $\pi7/2[404]$ + K=2 γ vibration phonon and 50% $\pi7/2[404]\otimes\nu^2(7/2[514],3/2[512])$.
k Band(O): $K^\pi=11/2^+$. The assignment is tentative.
l Band(P): $K^\pi=17/2^-$, $\pi(9/2[514])\otimes\nu^2(1/2[510],7/2[514])$ or $\pi(7/2[404])\otimes\nu^2(1/2[510],9/2[624])$.
m Band(p): $K^\pi=13/2^+$, $\pi7/2[404]\otimes\nu^2(7/2[514],1/2[521])$.
n Band(k): $K^\pi=15/2^+$, $\pi7/2[404]\otimes\nu^2(7/2[514],1/2[521])$.
o Band(Q): $K^\pi=11/2^+$, $\pi9/2[514]\otimes\nu^2(7/2[514],9/2[624])$.
p Band(R): $K^\pi=7/2^+$, $\pi9/2[514]\otimes\nu^2(7/2[514],9/2[624])$.
q Band(S): $K^\pi=11/2^+$. The assignment is tentative.
r Band(T): $K^\pi=(3/2^+)$, $\pi7/2[404]$ − K=2 γ vibration phonon. The assignment is tentative.
s Band(U): $K^\pi=(9/2^+)$, $\pi1/2[411]\otimes\nu^2(7/2[514],1/2[510])$. The assignment is tentative.
t Band(V): $K^\pi=(7/2^+)$, $\pi1/2[411]\otimes\nu^2(7/2[514],1/2[510])$. The assignment is tentative.
u Band(W): $K^\pi=(13/2^+)$, $\pi5/2[402]\otimes\nu^2(7/2[514],1/2[510])$. The assignment is tentative.
v Band(X): $K^\pi=(11/2^+)$, $\pi5/2[402]\otimes\nu^2(7/2[514],1/2[510])$. The assignment is tentative.
w Band(Y): $K^\pi=9/2^-$, $\pi7/2[404]\otimes\nu^2(7/2[514],9/2[624])$.
x From a least-squares fit to Eγ, unless otherwise stated.
y From ^{176}Yb(^{3}He,d),(α,t).
z From ^{178}Hf(t,α).
1 From ^{176}Lu(d,p).
2 Populated by primary γ-ray transition in ^{176}Lu(n,γ) E=thermal.

Adopted Levels, Gammas (continued)

γ(^{177}Lu)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[&]	δ[b]	α[a]	Comments
121.6214	9/2$^+$	121.6211[‡] *5*	100[‡]	0.0	7/2$^+$	M1+E2	+0.51 *5*	2.00 *4*	α(K)=1.52 *5*; α(L)=0.367 *16*; α(M)=0.086 *5* α(N)=0.0201 *10*; α(O)=0.00275 *11*; α(P)=0.000111 *4* B(M1)(W.u.)=0.0277 *16*; B(E2)(W.u.)=2.1×10^2 *4* Mult.: γγ(θ) (1964Kr01,1974Kr12), α(K)exp=1.41 *9* (2012De24) (K/L1)exp=3.6 *3*, (K/L1)exp=7.2 *6* and (K/L1)exp=10.8 *12* (1972Ag05); α(K)exp=2.2 *8*, α(L1)exp=0.31 *12*, α(L2)exp=0.16 *6*, α(L3)exp=0.11 *4*, α(M2)exp=0.041 *15* and α(M3)exp=0.024 *9* (1996Pe05); (K/L)exp=4.5 *6* and ((L1+L2))/L3)exp=4.5 *6* (1964Jo03); α(K)exp=1.43, α(L1)exp+α(L2)exp=0.31, α(L3)exp=0.086, α(M)exp=0.11 and α(N)exp=0.026 (1971Ma45). δ: Using the briccmixing program and the following experimental data: δ(γγ(θ))=+0.54 *7* (1974Kr12) and 0.49 *4* (1964Kr01), and α(K)exp=1.41 *9* (2012De24). The sign is from 1974Kr12. Others (not used in the analysis): (K/L1)exp=3.6 *3*, (K/L1)exp=7.2 *6* and (K/L1)exp=10.8 *12* (1972Ag05); α(K)exp=2.2 *8*, α(L1)exp=0.31 *12*, α(L2)exp=0.16 *6*, α(L3)exp=0.11 *4*, α(M2)exp=0.041 *15* and α(M3)exp=0.024 *9* (1996Pe05); (K/L)exp=4.5 *6* and ((L1+L2))/L3)exp=4.5 *6* (1964Jo03).
150.3984	9/2$^-$	150.399 *1*	100	0.0	7/2$^+$	E1		0.512 *32*	B(E1)(W.u.)=3.13×10^{-7} *9* Mult.: An anomalous E1 transition (see 1972Ag05 for details). α(K)exp=0.61 *12*, α(L1)exp=0.122 *23*, α(L2)exp=0.047 *9*, α(L3)exp=0.0051 *10*, α(M1)exp=0.028 *5*, α(M2)exp=0.014 *3* and α(M3)exp=0.0014 *5* (1996Pe05). Other: α(K)exp=0.32, α(L1)exp+α(L2)exp=0.09, α(L3)exp=0.004, α(M)exp=0.0029 and α(N)exp=0.0011 (1971Ma45). α: Experimental value of α_{tot}=0.512 *32* (1972Ag05).
268.7852	11/2$^+$	147.1637[‡] *5*	100.0[‡] *10*	121.6214	9/2$^+$	M1+E2	+0.59 *7*	1.114 *25*	α(K)=0.86 *4*; α(L)=0.198 *8*; α(M)=0.0463 *21* α(N)=0.0108 *5*; α(O)=0.00149 *5*; α(P)=6.2×10^{-5} *3* Mult.: γγ(θ) (1974Kr12,1995Ya21); α(K)exp=0.91 *9* (2012De24), (K/L)exp=4.5 *6* and ((L1+L2)/L3)exp=4.6 *6* (1964Jo03); α(K)exp=1.1 *3*, α(L1)exp=0.15 *4*, α(L2)exp=0.10 *3*, α(L3)exp=0.0051 *10*, α(M1)exp=0.032 *9*, α(M2)exp=0.014 *3* and α(M3)exp=0.0014 *5* (1996Pe05); α(K)exp=0.66, α(L1+L2)exp=0.12, α(L3)exp=0.015, α(M)exp=0.045 and α(N)exp=0.0097 (1971Ma45); α(K)exp=1.22 *54* (1972Ag05). δ: Using the briccmixing program and the following experimental data: δ(γγ(θ))=+0.54 *+12−9* (1974Kr12), α(K)exp=0.91 *9* (2012De24), (K/L)exp=4.5 *6* and ((L1+L2)/L3)exp=4.6 *6* (1964Jo03). The sign is from 1974Kr12. δ: Others (not used in the analysis): α(K)exp=1.1 *3*,

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Adopted Levels, Gammas (continued)

γ(^{177}Lu) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[&]	δ[b]	α[a]	Comments
									α(L1)exp=0.15 *4*, α(L2)exp=0.10 *3*, α(L3)exp=0.0051 *10*, α(M1)exp=0.032 *9*, α(M2)exp=0.014 *3* and α(M3)exp=0.0014 *5* (1996Pe05); δ(γγ(θ))=0.58 *+13−15* (1995Ya21).
268.7852	11/2$^+$	268.7847[‡] *6*	97.2[‡] *14*	0.0	7/2$^+$	E2		0.1071	α(K)=0.0728 *11*; α(L)=0.0263 *4*; α(M)=0.00633 *9* α(N)=0.001467 *21*; α(O)=0.000190 *3*; α(P)=4.47×10^{-6} *7* Mult.: α(K)exp=0.0686 *11*, α(L1)exp=0.0070 *12*, α(L2)exp=0.0135 *23*, α(L3)exp=0.0151 *26*, and α(M2)exp=0.0032 *6* (1996Pe05); α(K)exp=0.09, α(L1)exp+α(L2)exp=0.02, α(L3)exp=0.006, α(M)exp=0.0049 and α(N)exp=0.0011 (1971Ma45); α(L)exp=0.020 *2* (2012De24).
289.0140	11/2$^-$	138.616 *1*	100	150.3984	9/2$^-$	M1+E2	+0.23 *8*	1.43 *3*	α(K)=1.17 *4*; α(L)=0.197 *9*; α(M)=0.0448 *24* α(N)=0.0106 *6*; α(O)=0.00154 *6*; α(P)=8.7×10^{-5} *3* Mult.: γγ(θ) (1973Il02,1995Ya21); α(K)exp=1.6 *4*, α(L1)exp=0.22 *5*, α(L2)exp=0.029 *7*, α(L3)exp=0.0097 *23* and α(M1)exp=0.048 *12*, α(K)exp=1.17 *16*, α(L1)exp=0.20 *3*, α(L2)exp=0.028 *8*, (1996Pe05);α(L3)exp=0.014 *7* (1972Ag05); (K/L)exp=5 *1* (1964Jo03); α(K)exp=1.12, α(L1)exp+α(L2)exp=0.19, α(L3)exp=0.016, α(M)exp=0.06 and α(N)exp=0.025 (1971Ma45). δ: Using the briccmixing program and the following experimental data: δ(γγ(θ))=0.18 *4* (1995Ya21), δ(γγ(θ))=+0.28 *6* (1973Il02), α(K)exp=1.6 *4*, α(L1)exp=0.22 *5*, α(L2)exp=0.029 *7*, α(L3)exp=0.0097 *23* and α(M1)exp=0.048 *12* (1996Pe05) and α(K)exp=1.17 *16*, α(L1)exp=0.20 *3*, α(L2)exp=0.028 *8*, α(L3)exp=0.014 *7* (1972Ag05); (K/L)exp=5 *1* (1964Jo03) The sign is from 1973Il02.
440.6431	13/2$^+$	171.8574[‡] *6*	45.7[‡] *5*	268.7852	11/2$^+$	M1+E2	+0.47 *21*	0.73 *5*	α(K)=0.59 *6*; α(L)=0.112 *9*; α(M)=0.0258 *23* α(N)=0.0061 *6*; α(O)=0.00086 *5*; α(P)=4.3×10^{-5} *5* Mult.: γγ(θ) (1974Kr12); α(K)exp=0.61 *7* (2012De24); α(L1)exp=0.055 *18*, α(L2)exp=0.073 *20*, α(L3)exp=0.017 *6*, and α(M1)exp=0.0127 *25* (1996Pe05); α(K)exp=0.55, α(L1)exp+α(L2)exp=0.10, α(L3)exp=0.02, and α(M)exp=0.0037 (1971Ma45). δ: Using the briccmixing program and the following experimental data: δ(γγ(θ))=+0.59 *+31−15* (1974Kr12) and α(K)exp=0.61 *7* (2012De24). The sign is from 1974Kr12. Others (not used in the analysis): α(K)exp=0.74 *12*, α(L1)exp=0.055 *18*, α(L2)exp=0.073 *20*, α(L3)exp=0.017 *6*, and α(M1)exp=0.0127 *25* (1996Pe05).
		319.0210[‡] *6*	100.0[‡] *11*	121.6214	9/2$^+$	E2		0.0637	α(K)=0.0456 *7*; α(L)=0.01393 *20*; α(M)=0.00332 *5* α(N)=0.000771 *11*; α(O)=0.0001016 *15*; α(P)=2.90×10^{-6} *4*

$^{177}_{71}Lu_{106}$-11

Adopted Levels, Gammas (continued)

γ(^{177}Lu) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult.&	δ[b]	α[a]	Comments
									Mult.: α(K)exp=0.038 *7*, α(L1)exp=0.0042 *8*, α(L2)exp=0.0034 *7*, α(L3)exp=0.0041 *10*, α(M1)exp=0.0008 *3*, and α(M2)exp=0.0013 *4* (1996Pe05). Other: α(K)exp=0.045, α(L1)exp+α(L2)exp=0.011, α(L3)exp=0.003, α(M)exp=0.002 and α(N)exp=0.0006 (1971Ma45); α(K)exp=0.049 *5* and α(L)exp=0.012 *2* (2012De24).
451.5139	13/2$^-$	162.500 *1*	100 *5*	289.0140	11/2$^-$	M1+E2	0.33 *13*	0.89 *3*	α(K)=0.73 *4*; α(L)=0.127 *7*; α(M)=0.0290 *19* α(N)=0.0068 *5*; α(O)=0.00098 *5*; α(P)=5.4×10^{-5} *4* I_γ: From (HI,xnγ). Mult.: α(K)exp=1.18 *19*, α(L1)exp=0.16 *3*, α(L2)exp=0.018 *3*, α(M1)exp=0.024 *4* and α(M2)exp=0.0053 *12* (1996Pe05). Other: α(K)exp=0.74, α(L1)exp+α(L2)exp=0.128, α(L3)exp=0.0087, α(M)exp=0.0032 and α(N)exp=0.0012 (1971Ma45). δ: Using the briccmixing program and the following experimental data: α(K)exp=1.18 *19*, α(L1)exp=0.16 *3*, α(L2)exp=0.018 *3*, α(M1)exp=0.024 *4* and α(M1)exp=0.0053 *12* (1996Pe05).
		301.115 *1*	12.6 *16*	150.3984	9/2$^-$	E2		0.0757	α(K)=0.0533 *8*; α(L)=0.01719 *24*; α(M)=0.00411 *6* α(N)=0.000954 *14*; α(O)=0.0001250 *18*; α(P)=3.35×10^{-6} *5* I_γ: From (HI,xnγ). Mult.: α(K)exp=0.048 *12*, α(L1)exp=0.010 *3*, and α(L3)exp=0.0054 *22* (1996Pe05). Other: α(K)exp=0.073, α(L1)exp+α(L2)exp=0.019, and α(M)exp=0.004 (1971Ma45).
457.9568	5/2$^+$	336.335 *2*	1.93 *19*	121.6214	9/2$^+$	E2		0.0546	α(K)=0.0396 *6*; α(L)=0.01153 *17*; α(M)=0.00274 *4* α(N)=0.000637 *9*; α(O)=8.44×10^{-5} *12*; α(P)=2.54×10^{-6} *4* Mult.: α(K)exp=0.032 *11* and α(L2)exp=0.006 *4* (1996Pe05).
		457.964 *4*	100 *10*	0.0	7/2$^+$	M1(+E2)	≤0.6	0.051 *5*	α(K)=0.043 *4*; α(L)=0.0066 *4*; α(M)=0.00149 *9* α(N)=0.000351 *20*; α(O)=5.2×10^{-5} *4*; α(P)=3.1×10^{-6} *3* Mult.: α(K)exp=0.070 *23*, α(L1)exp=0.009 *3*, and α(M1)exp=0.0018 *6* (1996Pe05). Other: α(K)exp=0.063, α(L1)exp+α(L2)exp=0.009, α(M)exp=0.0002 and α(N)exp=0.00009 (1971Ma45). δ: Using the briccmixing program and the following experimental data: α(K)exp=0.070 *23*, α(L1)exp=0.009 *3*, and α(M1)exp=0.0018 *5* (1996Pe05).
552.0960	7/2$^+$	94.140 *4*	100 *11*	457.9568	5/2$^+$	M1		4.37	α(K)=3.65 *6*; α(L)=0.565 *8*; α(M)=0.1270 *18* α(N)=0.0300 *5*; α(O)=0.00445 *7*; α(P)=0.000274 *4* Mult.: α(K)exp=6.7 *21*, α(L1)exp=1.2 *4*, α(M1)exp=0.25 *8*, and α(M2)exp=0.030 *14* (1996Pe05). Other: α(L1)exp=0.41, α(M)exp=0.23 and α(N)exp=0.12 (1971Ma45).
		283.33 *3*	0.24 *24*	268.7852	11/2$^+$				
		401.721 *9*	1.9 *5*	150.3984	9/2$^-$				
		430.473 *3*	6.1 *9*	121.6214	9/2$^+$	M1(+E2)	≤1.1	0.055 *11*	α(K)=0.046 *10*; α(L)=0.0073 *9*; α(M)=0.00166 *19*

$^{177}_{71}Lu_{106}$-12

Adopted Levels, Gammas (continued)

γ(^{177}Lu) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[&]	δ[b]	α[a]	Comments
									α(N)=0.00039 *5*; α(O)=5.7×10^{-5} *8*; α(P)=3.3×10^{-6} *8* Mult.,δ: α(K)exp=0.051 *14* (1996Pe05). Other: α(K)exp=0.049 (1971Ma45).
552.0960	7/2$^+$	552.102 *4*	74 *7*	0.0	7/2$^+$	M1+E2	1.8 *5*	0.019 *3*	α(K)=0.0156 *24*; α(L)=0.0028 *3*; α(M)=0.00064 *6* α(N)=0.000150 *14*; α(O)=2.15×10^{-5} *22*; α(P)=1.09×10^{-6} *19* Mult.,δ: α(K)exp=0.015 *4* and α(L1)exp=0.0022 *9* (1996Pe05). Other: α(K)exp=0.028 (1971Ma45).
569.6721	1/2$^+$	111.715 *1*	100 *10*	457.9568	5/2$^+$	E2		2.20	α(K)=0.774 *11*; α(L)=1.087 *16*; α(M)=0.269 *4* α(N)=0.0619 *9*; α(O)=0.00752 *11*; α(P)=4.07×10^{-5} *6* B(E2)(W.u.)=0.00110 *5* Mult.: α(K)exp=1.0 *4*, α(L1)exp=0.39 *15*, α(L2)exp=0.7 *3*, α(L3)exp=0.8 *3*, and α(M3)exp=0.15 *6* (1996Pe05). Other: α(K)exp=0.96, α(L1)exp=0.1, α(L2)exp=0.75, α(L3)exp=0.67, α(M)exp=0.42 and α(N)exp=0.13 (1971Ma45).
		569.680 *9*	2.1 *5*	0.0	7/2$^+$	[M3]		0.235	α(K)=0.183 *3*; α(L)=0.0395 *6*; α(M)=0.00930 *13* α(N)=0.00220 *3*; α(O)=0.000319 *5*; α(P)=1.753×10^{-5} *25* B(M3)(W.u.)=0.14 *4*
573.6203	3/2$^+$	115.665 *2*	100	457.9568	5/2$^+$	M1(+E2)		2.42	α(K)=2.02 *3*; α(L)=0.312 *5*; α(M)=0.0702 *10* α(N)=0.01658 *24*; α(O)=0.00246 *4*; α(P)=0.0001517 *22* Mult.: α(K)exp=4.5 *13* (1996Pe05); α(K)exp=2.5 and α(L1)exp=0.5 (1971Ma45).
		573.6 *5*		0.0	7/2$^+$				
636.2035	15/2$^+$	195.5602[‡] *7*	27.3[‡] *4*	440.6431	13/2$^+$	M1+E2	+0.48 *17*	0.50 *3*	α(K)=0.41 *4*; α(L)=0.075 *3*; α(M)=0.0172 *8* α(N)=0.00403 *18*; α(O)=0.000575 *15*; α(P)=3.0×10^{-5} *3* Mult.: γγ(θ) (1974Kr12); α(K)exp=0.37 *6* (2012De24); α(K)exp=0.50 *8*, α(L1)exp=0.037 *7*, α(L2)exp=0.012 *4*, α(M1)exp=0.010 *3*, and α(M2)exp=0.010 *5* (1996Pe05). Other: α(K)exp=0.53 and α(L1)exp+α(L2)exp=0.10 (1971Ma45). δ: Using the briccmixing program and the following experimental data: δ(γγ(θ))=+0.41 *+19−11* (1974Kr12) and α(K)exp=0.37 *6* (2012De24). The sign is from 1974Kr12. Others (not used in the analysis): α(K)exp=0.50 *8*, α(L1)exp=0.037 *7*, α(L2)exp=0.012 *4*, α(M1)exp=0.010 *3* and α(M2)exp=0.0095 *50* (1996Pe05).
		367.4174[‡] *7*	100.0[‡] *12*	268.7852	11/2$^+$	E2		0.0424	α(K)=0.0314 *5*; α(L)=0.00847 *12*; α(M)=0.00200 *3* α(N)=0.000466 *7*; α(O)=6.24×10^{-5} *9*; α(P)=2.04×10^{-6} *3* Mult.: α(K)exp=0.034 *4* (2012De24); α(K)exp=0.028 *7*, α(L2)exp=0.0024 *8*, and α(L3)exp=0.0018 *6* (1996Pe05); α(K)exp=0.024, α(L1)exp+α(L2)exp=0.005, α(L3)exp=0.0013, α(M)exp=0.0013 and α(N)exp=0.0027 (1971Ma45).

$^{177}_{71}Lu_{106}$-13

Adopted Levels, Gammas (continued)

γ(^{177}Lu) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[&]	δ[b]	α[a]	Comments
637.1126	15/2$^-$	185.599 *1*	100 *5*	451.5139	13/2$^-$	M1(+E2)		0.638	α(K)=0.533 *8*; α(L)=0.0816 *12*; α(M)=0.0183 *3* α(N)=0.00433 *6*; α(O)=0.000642 *9*; α(P)=3.98×10^{-5} *6* I_γ: From (HI,xnγ). Mult.: α(K)exp=0.66 *10*, α(L1)exp=0.065 *10*, α(L2)exp=0.0041 *32*, and α(M1)exp=0.016 *3* (1996Pe05); α(K)exp=0.51, α(L1)exp+α(L2)exp=0.082, α(L3)exp=0.0087, and α(M)exp=0.0052 (1971Ma45).
		348.098 *3*	20.51 *19*	289.0140	11/2$^-$	E2		0.0494	α(K)=0.0361 *5*; α(L)=0.01021 *15*; α(M)=0.00242 *4* α(N)=0.000564 *8*; α(O)=7.49×10^{-5} *11*; α(P)=2.33×10^{-6} *4* I_γ: From (HI,xnγ). Mult.: α(K)exp=0.023 *5*, α(L1)exp=0.0036 *10*, α(L2)exp=0.0030 *9*, α(L3)exp=0.0024 *9* (1996Pe05); α(K)exp=0.047, α(L1)exp+α(L2)exp=0.0069, and α(M)exp=0.0019 (1971Ma45).
671.9408	9/2$^+$	119.845 *1*	100 *11*	552.0960	7/2$^+$	M1+E2	0.34 *22*	2.14 *8*	α(K)=1.71 *16*; α(L)=0.33 *7*; α(M)=0.077 *18* α(N)=0.018 *4*; α(O)=0.0026 *5*; α(P)=0.000126 *14* Mult.: α(K)exp=2.6 *10*, α(L1)exp=0.38 *15*, α(L2)exp=0.18 *7*, α(L3)exp=0.25 *10*, α(M1)exp=0.08 *3*, and α(M2)exp=0.017 *7* (1996Pe05); α(K)exp=1.6, α(L1)exp=0.24, α(L2)exp=0.027, α(M)exp=0.11 and α(N)exp=0.028 (1971Ma45). δ: Using the briccmixing program and the following experimental data: α(K)exp=2.6 *10*, α(L1)exp=0.038 *15*, α(M1)exp=0.08 *3* and α(M2)exp=0.017 *7* (1996Pe05).
		213.986 *3*	12.4 *16*	457.9568	5/2$^+$				
		231.262 *13*	0.58 *19*	440.6431	13/2$^+$				
		382.939 *7*	1.0 *4*	289.0140	11/2$^-$				
		403.222 *11*	2.0 *4*	268.7852	11/2$^+$				
		550.318 *3*	48 *5*	121.6214	9/2$^+$	M1+E2	1.3 *6*	0.022 *6*	α(K)=0.018 *6*; α(L)=0.0031 *6*; α(M)=0.00070 *13* α(N)=0.00017 *3*; α(O)=2.4×10^{-5} *5*; α(P)=1.3×10^{-6} *4* Mult.,δ: α(K)exp=0.016 *5* and α(L1)exp=0.0033 *13* (1996Pe05). Other: α(K)exp=0.021 (1971Ma45).
		671.944 *8*	16.4 *17*	0.0	7/2$^+$	M1(+E2)	≤0.3	0.0203 *6*	α(K)=0.0171 *5*; α(L)=0.00253 *7*; α(M)=0.000567 *14* α(N)=0.000134 *4*; α(O)=1.99×10^{-5} *5*; α(P)=1.25×10^{-6} *4* Mult.,δ: α(K)exp=0.020 (1971Ma45).
709.4074	5/2$^+$	135.788 *1*	100 *12*	573.6203	3/2$^+$	M1(+E2)		1.536	α(K)=1.282 *18*; α(L)=0.197 *3*; α(M)=0.0444 *7* α(N)=0.01048 *15*; α(O)=0.001553 *22*; α(P)=9.60×10^{-5} *14* Mult.: α(K)exp=1.2 *3*, α(L2)exp=0.043 *12*, α(L3)exp=0.034 *10*, α(M1)exp=0.066 *16* (1996Pe05). Other: α(K)exp=1.2 and α(L1)exp+α(L2)exp=0.19 (1971Ma45).
		139.735 *1*	10.6 *18*	569.6721	1/2$^+$				
		157.317 *18*	0.6 *6*	552.0960	7/2$^+$				
		251.43 *8*	3.6 *12*	457.9568	5/2$^+$				
720.7963	7/2$^+$	147.175 *1*	100 *11*	573.6203	3/2$^+$	E2		0.800	α(K)=0.387 *6*; α(L)=0.316 *5*; α(M)=0.0777 *11*

$^{177}_{71}Lu_{106}$-14

Adopted Levels, Gammas (continued)

γ(^{177}Lu) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[&]	α[a]	Comments
								α(N)=0.0179 *3*; α(O)=0.00221 *3*; α(P)=2.08×10^{-5} *3* Mult.: α(K)exp=1.1 *3*, α(L1)exp=0.15 *4*, α(L2)exp=0.10 *3*, α(L3)exp=0.0051 *10*, α(M1)exp=0.032 *9*, α(M2)exp=0.014 *3* and α(M3)exp=0.0014 *5* (1996Pe05); α(K)exp=0.66, α(L1)exp+α(L2)exp=0.12, α(L3)exp=0.015, α(M)exp=0.045 and α(N)exp=0.0097 (1971Ma45).
720.7963	7/2$^+$	168.714 *8*	1.8 *6*	552.0960	7/2$^+$			
		262.844 *9*	0.63 *21*	457.9568	5/2$^+$			
761.7063	5/2$^-$	52.1 *5*	0.46 *8*	709.4074	5/2$^+$	[E1]	0.378	α(L)=0.294 *5*; α(M)=0.0666 *10* α(N)=0.01522 *22*; α(O)=0.00197 *3*; α(P)=7.38×10^{-5} *11* B(E1)(W.u.)=1.5×10^{-7} *3*
		188.08 *5*	28 *3*	573.6203	3/2$^+$	E1	0.0670	α(K)=0.0559 *8*; α(L)=0.00864 *12*; α(M)=0.00194 *3* α(N)=0.000452 *7*; α(O)=6.38×10^{-5} *9*; α(P)=3.28×10^{-6} *5* B(E1)(W.u.)=1.9×10^{-7} *3* Mult.: α(K)exp=0.060 *13* (1996Pe05).
		209.610 *1*	9.9 *10*	552.0960	7/2$^+$	[E1]	0.0507	α(K)=0.0424 *6*; α(L)=0.00648 *9*; α(M)=0.001453 *21* α(N)=0.000339 *5*; α(O)=4.81×10^{-5} *7*; α(P)=2.52×10^{-6} *4* B(E1)(W.u.)=4.9×10^{-8} *7*
		303.75 *5*	0.54 *15*	457.9568	5/2$^+$	[E1]	0.0200	α(K)=0.01681 *24*; α(L)=0.00250 *4*; α(M)=0.000559 *8* α(N)=0.0001310 *19*; α(O)=1.88×10^{-5} *3*; α(P)=1.041×10^{-6} *15* B(E1)(W.u.)=9.E−10 *3*
		761.708 *5*	100 *11*	0.0	7/2$^+$	E1	0.00263	α(K)=0.00223 *4*; α(L)=0.000313 *5*; α(M)=6.95×10^{-5} *10* α(N)=1.635×10^{-5} *23*; α(O)=2.41×10^{-6} *4*; α(P)=1.459×10^{-7} *21* B(E1)(W.u.)=1.04×10^{-8} *8* Mult.: α(K)exp=0.0027 *9* (1996Pe05).
761.863	(3/2$^+$)	761.5 *5*	100	0.0	7/2$^+$	E2	0.00691	α(K)=0.00564 *8*; α(L)=0.000987 *14*; α(M)=0.000225 *4* α(N)=5.29×10^{-5} *8*; α(O)=7.55×10^{-6} *11*; α(P)=3.88×10^{-7} *6* Mult.: α(K)exp=0.0041 (1971Ma45).
795.218	(1/2$^-$)	221.600 *3*	100 *24*	573.6203	3/2$^+$			
		225.53 *4*	35 *12*	569.6721	1/2$^+$			
811.4396	9/2$^-$	49.740 *4*	8.5 *29*	761.7063	5/2$^-$	E2	66.7	α(L)=50.8 *8*; α(M)=12.60 *18* α(N)=2.89 *4*; α(O)=0.343 *5*; α(P)=0.000263 *4* B(E2)(W.u.)=3.6×10^2 *5* Mult.: α(L2)exp=35 *8* and α(L3)exp=38 *8* (1996Pe05); α(L2)exp=35.12, α(L3)exp=39.05, α(M)exp=32.14 and α(N)exp=16.7 (1971Ma45).
		90.647 *6*	1.0 *5*	720.7963	7/2$^+$	[E1]	0.452	α(K)=0.371 *6*; α(L)=0.0632 *9*; α(M)=0.01423 *20* α(N)=0.00329 *5*; α(O)=0.000447 *7*; α(P)=1.97×10^{-5} *3* B(E1)(W.u.)=3.9×10^{-7} *23*
		542.652 *5*	33 *3*	268.7852	11/2$^+$	[E1]	0.00528	α(K)=0.00446 *7*; α(L)=0.000639 *9*; α(M)=0.0001424 *20* α(N)=3.34×10^{-5} *5*; α(O)=4.89×10^{-6} *7*; α(P)=2.88×10^{-7} *4* B(E1)(W.u.)=6.0×10^{-8} *18*
		689.824 *5*	100 *10*	121.6214	9/2$^+$	E1	0.00321	α(K)=0.00272 *4*; α(L)=0.000383 *6*; α(M)=8.52×10^{-5} *12* α(N)=2.00×10^{-5} *3*; α(O)=2.94×10^{-6} *5*; α(P)=1.770×10^{-7} *25*

$^{177}_{71}Lu_{106}$-15

Adopted Levels, Gammas (continued)

γ(^{177}Lu) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult. &	δ b	α a	Comments
									B(E1)(W.u.)=9.E−8 *3* Mult.: α(K)exp=0.0040 *15* (1996Pe05); α(K)exp=0.0031 *1* (1971Ma45).
811.4396	9/2⁻	811.483 *14*	29 *7*	0.0	7/2⁺	[E1]		0.00233	α(K)=0.00197 *3*; α(L)=0.000276 *4*; α(M)=6.12×10⁻⁵ *9* α(N)=1.440×10⁻⁵ *21*; α(O)=2.12×10⁻⁶ *3*; α(P)=1.292×10⁻⁷ *18*
816.6951	11/2⁺	144.755 *1*	100 *11*	671.9408	9/2⁺	M1(+E2)		1.281	B(E1)(W.u.)=1.6×10⁻⁸ *6* α(K)=1.070 *15*; α(L)=0.1645 *23*; α(M)=0.0370 *6* α(N)=0.00874 *13*; α(O)=0.001295 *19*; α(P)=8.00×10⁻⁵ *12* Mult.: α(K)exp=1.3 *3*, α(L1)exp=0.15 *4*, α(L2)exp=0.018 *6*, and α(M1)exp=0.0038 *9* (1996Pe05); α(K)exp=0.95, α(L1)exp+α(L2)exp=0.26, α(L3)exp=0.03, α(M)exp=0.07 (1971Ma45).
		264.600 *2*	29 *3*	552.0960	7/2⁺	E2		0.1124	α(K)=0.0760 *11*; α(L)=0.0279 *4*; α(M)=0.00672 *10* α(N)=0.001559 *22*; α(O)=0.000202 *3*; α(P)=4.65×10⁻⁶ *7* Mult.: α(L2)exp=0.018 *7* and α(L3)exp=0.008 *3* (1996Pe05); α(K)exp=0.076 and α(M)exp=0.0031 (1971Ma45).
		527.665 *20*	2.4 *4*	289.0140	11/2⁻				
		547.902 *7*	32 *3*	268.7852	11/2⁺	M1(+E2)		0.0351	α(K)=0.0294 *5*; α(L)=0.00437 *7*; α(M)=0.000980 *14* α(N)=0.000231 *4*; α(O)=3.44×10⁻⁵ *5*; α(P)=2.16×10⁻⁶ *3* Mult.: α(K)exp=0.015 *4* and α(L1)exp=0.0041 *18* (1996Pe05); α(K)exp=0.029 (1971Ma45).
		695.069 *7*	19 *3*	121.6214	9/2⁺	M1(+E2)		0.0191	α(K)=0.01608 *23*; α(L)=0.00237 *4*; α(M)=0.000530 *8* α(N)=0.0001253 *18*; α(O)=1.86×10⁻⁵ *3*; α(P)=1.173×10⁻⁶ *17* Mult.: α(K)exp=0.0044 *18* and α(L1)exp=0.0020 *11* (1996Pe05), α(K)exp=0.016 (1971Ma45).
823.046	(5/2⁺)	823.045 *11*	100	0.0	7/2⁺	M1(+E2)		0.01251	α(K)=0.01053 *15*; α(L)=0.001543 *22*; α(M)=0.000345 *5* α(N)=8.15×10⁻⁵ *12*; α(O)=1.214×10⁻⁵ *17*; α(P)=7.66×10⁻⁷ *11* Mult.: α(K)exp=0.010 (1971Ma45).
844.9109	17/2⁻	207.799 *1*	100 *4*	637.1126	15/2⁻	M1(+E2)		0.466	α(K)=0.389 *6*; α(L)=0.0595 *9*; α(M)=0.01337 *19* α(N)=0.00316 *5*; α(O)=0.000469 *7*; α(P)=2.90×10⁻⁵ *4* I_γ: From (HI,xnγ). Mult.: α(K)exp=0.29 *6*, α(L1)exp=0.031 *7*, and α(L2)exp=0.0067 *19* (1996Pe05); α(K)exp=0.46 and α(L1)exp+α(L2)exp=0.07 (1971Ma45).
		393.395 *2*	44 *6*	451.5139	13/2⁻	E2		0.0350	α(K)=0.0263 *4*; α(L)=0.00672 *10*; α(M)=0.001585 *23* α(N)=0.000369 *6*; α(O)=4.97×10⁻⁵ *7*; α(P)=1.725×10⁻⁶ *25* I_γ: From (HI,xnγ). Mult.: α(K)exp=0.0391 *17* (1996Pe05); α(K)exp=0.022 and α(L1)exp+α(L2)exp=0.006 (1971Ma45).
854.3074	17/2⁺	218.1038‡ *6*	19.14‡ *22*	636.2035	15/2⁺	M1+E2	+0.52 *5*	0.365 *9*	α(K)=0.296 *8*; α(L)=0.0537 *8*; α(M)=0.01230 *20* α(N)=0.00289 *5*; α(O)=0.000413 *6*; α(P)=2.16×10⁻⁵ *7*

$^{177}_{71}Lu_{106}$-16

Adopted Levels, Gammas (continued)

γ(^{177}Lu) (continued)

E_i(level)	J_i^π	E_γ [†]	I_γ [†]	E_f	J_f^π	Mult. [&]	α [a]	Comments
								Mult.: γγ(θ) in 1974Kr12; α(K)exp=0.30 *2* (2012De24); α(L1)exp=0.078 *23* and α(M1)exp=0.023 *7* (1996Pe05). Other: α(K)exp=0.56 and α(L1)exp+α(L2)exp=0.048 (1971Ma45). δ: Using the briccmixing program and the following experimental data: δ(γγ(θ))=+0.52 *5* (1974Kr12) and α(K)exp=0.30 *2* (2012De24). The sign is from 1974Kr12. Others (not used in the analysis): α(L1)exp=0.078 *24* and α(M1)exp=0.023 *7* (1996Pe05).
854.3074	17/2$^+$	413.6637[‡] *6*	100.0[‡] *9*	440.6431	13/2$^+$	E2	0.0305	α(K)=0.0231 *4*; α(L)=0.00569 *8*; α(M)=0.001339 *19* α(N)=0.000312 *5*; α(O)=4.22×10^{-5} *6*; α(P)=1.528×10^{-6} *22* Mult.: α(K)exp=0.026 *2* and α(L)exp=0.0063 *6* (2012De24); α(K)exp=0.028 *8* (1996Pe05); α(K)exp=0.025, α(L1)exp+α(L2)exp=0.006, and α(M)exp=0.0015 (1971Ma45).
907.737	(7/2$^+$)	84.702 *15*	0.07	823.046	(5/2$^+$)			
		145.874 *1*	100 *11*	761.863	(3/2$^+$)	E2	0.826	α(K)=0.396 *6*; α(L)=0.328 *5*; α(M)=0.0808 *12* α(N)=0.0186 *3*; α(O)=0.00229 *4*; α(P)=2.13×10^{-5} *3* Mult.: α(K)exp=0.84 *21*, α(L1)exp=0.051 *14*, α(L2)exp=0.23 *6*, α(M2)exp=0.050 *13*, and α(M3)exp=0.036 *9* (1996Pe05); α(K)exp=0.75, α(L1)exp=0.06, α(L2)exp=0.11, α(L3)exp=0.021, and α(M)exp=0.09 (1971Ma45).
		787.0 *6*	2.2 *9*	121.6214	9/2$^+$			
		907.5 *6*	11.0 *9*	0.0	7/2$^+$			
956.411	(3/2)$^-$	161.40 *3*	69 *27*	795.218	(1/2$^-$)			
		194.612 *20*	100 *25*	761.7063	5/2$^-$			
956.6663	9/2$^+$	235.869 *1*	100 *10*	720.7963	7/2$^+$	M1(+E2)	0.329	α(K)=0.275 *4*; α(L)=0.0419 *6*; α(M)=0.00941 *14* α(N)=0.00222 *4*; α(O)=0.000330 *5*; α(P)=2.05×10^{-5} *3* Mult.: α(K)exp=0.18 *3*, α(L1)exp=0.059 *13*, and α(L2)exp=0.042 *7* (1996Pe05).
		247.262 *2*	48 *5*	709.4074	5/2$^+$	E2	0.1391	α(K)=0.0917 *13*; α(L)=0.0363 *5*; α(M)=0.00877 *13* α(N)=0.00203 *3*; α(O)=0.000261 *4*; α(P)=5.54×10^{-6} *8* Mult.: α(K)exp=0.045 *11*, α(L1)exp=0.014 *5*, and α(L2)exp=0.020 *6* (1996Pe05).
957.3128	13/2$^-$	145.874 *1*	100 *10*	811.4396	9/2$^-$	E2	0.826	α(K)=0.396 *6*; α(L)=0.328 *5*; α(M)=0.0808 *12* α(N)=0.0186 *3*; α(O)=0.00229 *4*; α(P)=2.13×10^{-5} *3* Mult.: α(K)exp=0.84 *21*, α(L1)exp=0.051 *14*, α(L2)exp=0.23 *6*, α(M2)exp=0.050 *13*, and α(M3)exp=0.036 *9* (1996Pe05); α(K)exp=0.75, α(L1)exp=0.06, α(L2)exp=0.11, α(L3)exp=0.021, and α(M)exp=0.09 (1971Ma45).
		321.077 *6*	1.60 *20*	636.2035	15/2$^+$			
		516.665 *14*	6.4 *8*	440.6431	13/2$^+$			
		688.532 *18*	3.7 *6*	268.7852	11/2$^+$			
970.1757	23/2$^-$	115.8682[‡] *23*	100[‡] *2*	854.3074	17/2$^+$	E3	30.7	α(K)=2.09 *3*; α(L)=21.5 *3*; α(M)=5.64 *8* α(N)=1.307 *19*; α(O)=0.1558 *22*; α(P)=0.000273 *4*

$^{177}_{71}Lu_{106}$-17

Adopted Levels, Gammas (continued)

γ(^{177}Lu) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[&]	δ[b]	α[a]	Comments
									B(E3)(W.u.)=1.201×10^{-9} *17* Mult.: from α(exp)=32.9 *20* from γ-ray transition intensity balance (1981Hn03); α(L2)exp=11.2 *3* and ce(L2)/ce(L3)exp=1.24 *3* (1990Bu31); ce(K)/ce(L)/ce(M)exp=31.6 *16*/323 *11*/91 *7* (2012De24).
970.1757	23/2$^-$	125.3[‡c] *2*	0.032[‡] *8*	844.9109	17/2$^-$	[M3]		94.3 *15*	α(K)=45.8 *7*; α(L)=36.2 *6*; α(M)=9.59 *16* α(N)=2.29 *4*; α(O)=0.305 *5*; α(P)=0.01123 *18* B(M3)(W.u.)=2.3×10^{-11} *6*
		333.1[‡] *2*	0.26[‡] *6*	637.1126	15/2$^-$	[E4]		1.007	α(K)=0.324 *5*; α(L)=0.514 *8*; α(M)=0.1330 *20* α(N)=0.0310 *5*; α(O)=0.00383 *6*; α(P)=3.61×10^{-5} *6* B(E4)(W.u.)=1.7×10^{-9} *4*
		334[‡c]	≤0.28[‡]	636.2035	15/2$^+$	[M4]		5.58	α(K)=3.52 *5*; α(L)=1.556 *22*; α(M)=0.398 *6* α(N)=0.0946 *14*; α(O)=0.01287 *18*; α(P)=0.000527 *8*
980.1858	11/2$^+$	163.489 *4* 259.390 *2*	0.6 *3* 100 *10*	816.6951 720.7963	11/2$^+$ 7/2$^+$	E2		0.1196	α(K)=0.0803 *12*; α(L)=0.0302 *5*; α(M)=0.00727 *11* α(N)=0.001684 *24*; α(O)=0.000217 *3*; α(P)=4.90×10^{-6} *7* Mult.: α(K)exp=0.0650 *10*, α(L1)exp=0.0070 *13*, α(L2)exp=0.0113 *18*, α(M1)exp=0.0016 *7*, and α(M2)exp=0.0028 *8* (1996Pe05); α(K)exp=0.09, α(L1)exp+α(L2)exp=0.027, and α(M)exp=0.004 (1971Ma45).
985.2968	13/2$^+$	168.605 *2*	100 *10*	816.6951	11/2$^+$	M1(+E2)		0.834	α(K)=0.696 *10*; α(L)=0.1068 *15*; α(M)=0.0240 *4* α(N)=0.00567 *8*; α(O)=0.000841 *12*; α(P)=5.20×10^{-5} *8* Mult.: α(K)exp=0.8427 *13*, α(L1)exp=0.12 *2*, α(L2)exp=0.024 *5*, and α(M1)exp=0.022 *5* (1996Pe05); α(K)exp=0.74, α(L1)exp+α(L2)exp=0.16, and α(M)exp=0.05 (1971Ma45).
		313.358 *2*	47 *6*	671.9408	9/2$^+$	E2		0.0672	α(K)=0.0478 *7*; α(L)=0.01486 *21*; α(M)=0.00354 *5* α(N)=0.000823 *12*; α(O)=0.0001083 *16*; α(P)=3.03×10^{-6} *5* Mult.: α(K)exp=0.051 *11*, α(L1)exp=0.0067 *21*, and α(L2)exp=0.0053 *20* (1996Pe05); α(K)exp=0.067 (1971Ma45).
		544.640 *4*	22.4 *24*	440.6431	13/2$^+$	M1(+E2)		0.0356	α(K)=0.0299 *5*; α(L)=0.00444 *7*; α(M)=0.000995 *14* α(N)=0.000235 *4*; α(O)=3.50×10^{-5} *5*; α(P)=2.19×10^{-6} *3* Mult.: α(K)exp=0.026 (1971Ma45).
		716.505 *8*	25 *3*	268.7852	11/2$^+$	M1(+E2)		0.01771	α(K)=0.01489 *21*; α(L)=0.00219 *3*; α(M)=0.000491 *7* α(N)=0.0001159 *17*; α(O)=1.725×10^{-5} *25*; α(P)=1.086×10^{-6} *16* Mult.: α(K)exp=0.0042 *16* (1996Pe05) and α(K)exp=0.0056 (1971Ma45).
1021.195	(9/2$^+$)	198.09 *4* 1020.2 *10*	 100	823.046 0.0	(5/2$^+$) 7/2$^+$				

$^{177}_{71}Lu_{106}$-18

Adopted Levels, Gammas (continued)

γ(^{177}Lu) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[&]	δ[b]	α[a]	Comments
1049.456	9/2⁻	760.40 *7*	9.1 *7*	289.0140	11/2⁻	M1+E2	0.55 *+111−4*	0.013 *5*	α(K)=0.011 *4*; α(L)=0.0017 *5*; α(M)=0.00038 *10* α(N)=8.9×10^{-5} *24*; α(O)=1.3×10^{-5} *4*; α(P)=8.E−7 *3* I_γ,δ: From ^{177}Yb β^- decay. δ is from γγ(θ) in 1995Ya21.
		899.060 *9*	100 *3*	150.3984	9/2⁻	E2(+M1)		0.01004	α(K)=0.00845 *12*; α(L)=0.001236 *18*; α(M)=0.000276 *4* α(N)=6.53×10^{-5} *10*; α(O)=9.72×10^{-6} *14*; α(P)=6.14×10^{-7} *9* I_γ,Mult.: From ^{177}Yb β^- decay. Mult. is from α(K)exp (1964Ew04).
		927.66 *9*	2.9 *8*	121.6214	9/2⁺				
		1049.2[#] *1*	2.5[#] *9*	0.0	7/2⁺				
1073.6382	19/2⁻	228.728 *1*	100 *5*	844.9109	17/2⁻	M1(+E2)		0.358	α(K)=0.299 *5*; α(L)=0.0456 *7*; α(M)=0.01025 *15* α(N)=0.00242 *4*; α(O)=0.000359 *5*; α(P)=2.23×10^{-5} *4* I_γ: From (HI,xnγ). Mult.: α(K)exp=0.19 *4*, α(L1)exp=0.021 *6*, and α(L2)exp=0.027 *13* (1996Pe05); α(K)exp=0.37 (1971Ma45).
		436.522 *3*	25 *3*	637.1126	15/2⁻	E2		0.0264	α(K)=0.0202 *3*; α(L)=0.00479 *7*; α(M)=0.001122 *16* α(N)=0.000262 *4*; α(O)=3.56×10^{-5} *5*; α(P)=1.344×10^{-6} *19* I_γ: From (HI,xnγ). Mult.: α(K)exp=0.025 *10* (1996Pe05) and α(K)exp=0.014 (1971Ma45).
1088.612	7/2⁻	277.175 *5*	100 *18*	811.4396	9/2⁻	M1(+E2)		0.212	α(K)=0.1772 *25*; α(L)=0.0269 *4*; α(M)=0.00604 *9* α(N)=0.001426 *20*; α(O)=0.000212 *3*; α(P)=1.315×10^{-5} *19* Mult.: α(K)exp=0.24 (1971Ma45).
		326.890 *13*	30 *6*	761.7063	5/2⁻				
1093.661	19/2⁺	239.349 *8*	29 *7*	854.3074	17/2⁺				I_γ: From (HI,xnγ).
		457.461 *8*	100 *10*	636.2035	15/2⁺				I_γ: From (HI,xnγ).
1149.97	7/2⁺	691.9[#] *2*	0.5[#] *3*	457.9568	5/2⁺				
		881.3[#c] *2*	<0.34[#]	268.7852	11/2⁺				
		1028.3[#] *3*	96[#] *3*	121.6214	9/2⁺	M1+E2	−0.10 *4*	0.00717 *11*	α(K)=0.00604 *9*; α(L)=0.000879 *13*; α(M)=0.000197 *3* α(N)=4.64×10^{-5} *7*; α(O)=6.92×10^{-6} *11*; α(P)=4.37×10^{-7} *7* Mult.,δ: From 1995Ya21.
		1150.1[#] *2*	100[#] *3*	0.0	7/2⁺				

$^{177}_{71}Lu_{106}$-19

Adopted Levels, Gammas (continued)

γ(^{177}Lu) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[&]	α[a]	Comments
1152.069	(11/2$^+$)	130.873 *5*	2.4 *4*	1021.195	(9/2$^+$)			
		244.332 *2*	100 *11*	907.737	(7/2$^+$)	E2	0.1445	α(K)=0.0948 *14*; α(L)=0.0381 *6*; α(M)=0.00920 *13* α(N)=0.00213 *3*; α(O)=0.000273 *4*; α(P)=5.71×10^{-6} *8* Mult.: α(K)exp=0.076 *21*, α(L1)exp=0.017 *6*, α(L2)exp=0.009 *3*, α(L3)exp=0.007 *3*, and α(M2)exp=0.0042 *20* (1996Pe05); α(K)exp=0.08 and α(M)exp=0.006 (1971Ma45).
		1030.0 *5*	23 *4*	121.6214	9/2$^+$	M1(+E2)	0.00718	α(K)=0.00605 *9*; α(L)=0.000880 *13*; α(M)=0.000197 *3* α(N)=4.64×10^{-5} *7*; α(O)=6.92×10^{-6} *10*; α(P)=4.38×10^{-7} *7* E_γ: 1030.02 keV *4* in ^{176}Lu(n,γ). Mult.: α(K)exp=0.0092 (1971Ma45).
1165.605	9/2$^-$,11/2	714.2[#] *2*	26[#] *8*	451.5139	13/2$^-$			
		876.586 *13*	100 *11*	289.0140	11/2$^-$			I_γ: From ^{177}Yb β$^-$ decay.
		1015.27 *8*	42 *8*	150.3984	9/2$^-$			I_γ: From ^{177}Yb β$^-$ decay.
1176.7986	15/2$^+$	191.503 *2*	100 *10*	985.2968	13/2$^+$	M1(+E2)	0.584	α(K)=0.488 *7*; α(L)=0.0747 *11*; α(M)=0.01680 *24* α(N)=0.00397 *6*; α(O)=0.000588 *9*; α(P)=3.64×10^{-5} *6* Mult.: α(K)exp=0.52 *9*, α(L1)exp=0.068 *15*, and α(L2)exp=0.028 *7* (1996Pe05); α(K)exp=0.38 and α(L1)exp+α(L2)exp=0.059 (1971Ma45).
		360.104 *3*	58 *6*	816.6951	11/2$^+$	E2	0.0448	α(K)=0.0330 *5*; α(L)=0.00908 *13*; α(M)=0.00215 *3* α(N)=0.000500 *7*; α(O)=6.67×10^{-5} *10*; α(P)=2.14×10^{-6} *3* Mult.: α(K)exp=0.036 (1971Ma45).
		540.567 *9*	15 *3*	636.2035	15/2$^+$			
		725.359 *31*	7.1 *15*	451.5139	13/2$^-$			
		736.142 *9*	18 *3*	440.6431	13/2$^+$	M1(+E2)	0.01655	α(K)=0.01392 *20*; α(L)=0.00205 *3*; α(M)=0.000458 *7* α(N)=0.0001082 *16*; α(O)=1.611×10^{-5} *23*; α(P)=1.014×10^{-6} *15* Mult.: α(K)exp=0.015 (1971Ma45).
		908.035 *10*	95 *12*	268.7852	11/2$^+$			
1187.740	(11/2$^-$)	515.798 *9*	9.3 *10*	671.9408	9/2$^+$			
		898.8 *6*	93 *10*	289.0140	11/2$^-$			E_γ: 899.060 keV *9* in ^{176}Lu(n,γ).
		1066.0 *5*	100 *15*	121.6214	9/2$^+$			E_γ: 1066.03 keV *3* in ^{176}Lu(n,γ).
1201.644	17/2$^-$	244.332 *2*	100	957.3128	13/2$^-$	E2	0.1445	α(K)=0.0948 *14*; α(L)=0.0381 *6*; α(M)=0.00920 *13* α(N)=0.00213 *3*; α(O)=0.000273 *4*; α(P)=5.71×10^{-6} *8* Mult.: α(K)exp=0.076 *21*, α(L1)exp=0.017 *6*, α(L2)exp=0.009 *3*, α(L3)exp=0.007 *3*, and α(M2)exp=0.004 *2* (1996Pe05); α(K)exp=0.08 and α(M)exp=0.006 (1971Ma45).
1230.620	11/2$^+$	779.3[#] *2*	1.93[#] *10*	451.5139	13/2$^-$	[E1]	0.00252	α(K)=0.00213 *3*; α(L)=0.000299 *5*; α(M)=6.64×10^{-5} *10* α(N)=1.562×10^{-5} *22*; α(O)=2.30×10^{-6} *4*; α(P)=1.396×10^{-7} *20* B(E1)(W.u.)=1.1×10^{-7} *3*
		790.3[#] *2*	0.15[#] *5*	440.6431	13/2$^+$	[M1+E2]	0.01385	α(K)=0.01165 *17*; α(L)=0.001710 *24*; α(M)=0.000383 *6* α(N)=9.04×10^{-5} *13*; α(O)=1.345×10^{-5} *19*; α(P)=8.48×10^{-7} *12*
		941.8[#] *1*	18.3[#] *5*	289.0140	11/2$^-$	E1	1.75×10^{-3}	α(K)=0.001486 *21*; α(L)=0.000206 *3*; α(M)=4.57×10^{-5} *7* α(N)=1.077×10^{-5} *15*; α(O)=1.589×10^{-6} *23*; α(P)=9.78×10^{-8} *14* B(E1)(W.u.)=6.0×10^{-7} *16* Mult.: From α(K)exp (1964Ew04).

$^{177}_{71}Lu_{106}$-20

Adopted Levels, Gammas (continued)

γ(^{177}Lu) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[&]	α[a]	Comments
		962.0[#] *5*	0.32[#] *2*	268.7852	11/2$^+$	[M1+E2]	0.00849	α(K)=0.00715 *10*; α(L)=0.001043 *15*; α(M)=0.000233 *4* α(N)=5.51×10^{-5} *8*; α(O)=8.20×10^{-6} *12*; α(P)=5.19×10^{-7} *8*

$^{177}_{71}Lu_{106}$-21

Adopted Levels, Gammas (continued)

γ(^{177}Lu) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult.&	δ b	α a	Comments
1230.620	11/2+	1080.204 *18*	100 *3*	150.3984	9/2−	E1		1.36×10^{-3}	α(K)=0.001155 *17*; α(L)=0.0001591 *23*; α(M)=3.53×10^{-5} *5* α(N)=8.31×10^{-6} *12*; α(O)=1.229×10^{-6} *18*; α(P)=7.62×10^{-8} *11* B(E1)(W.u.)=2.2×10^{-6} *6* I_γ: From ^{177}Yb β^- decay. Mult.: α(K)exp>0.0009 (1964Jo03); α(K)exp (1964Ew04); α(K)exp=0.0023 *1* (1971Ma45).
		1109.2# *2*	3.5# *1*	121.6214	9/2+	M1+E2	0.7 *+6−2*	0.0051 *9*	α(K)=0.0043 *8*; α(L)=0.00063 *10*; α(M)=0.000140 *22* α(N)=3.3×10^{-5} *5*; α(O)=4.9×10^{-6} *8*; α(P)=3.0×10^{-7} *6*; α(IPF)=4.0×10^{-7} *4* B(M1)(W.u.)=5.E−6 *3*; B(E2)(W.u.)=0.0008 *+10−8* Mult.,δ: From γγ(θ) in 1995Ya21.
		1231.0# *3*	6.1# *2*	0.0	7/2+	E2		0.00258	α(K)=0.00215 *3*; α(L)=0.000329 *5*; α(M)=7.38×10^{-5} *11* α(N)=1.738×10^{-5} *25*; α(O)=2.54×10^{-6} *4*; α(P)=1.486×10^{-7} *21*; α(IPF)=8.27×10^{-6} *13* B(E2)(W.u.)=0.0026 *7* Mult.: α(K)exp=0.0021 (1964Jo03) and α(K)exp=0.0020 *8* (1971Ma45).
1236.37	7/2+	967.3# *2*	83# *9*	268.7852	11/2+				
		1114.6# *2*	9# *5*	121.6214	9/2+				
		1236.8# *2*	100# *9*	0.0	7/2+				
1241.50	7/2+	783.3# *3*	0.07# *3*	457.9568	5/2+	[M1+E2]		0.01416	α(K)=0.01191 *17*; α(L)=0.001749 *25*; α(M)=0.000391 *6* α(N)=9.24×10^{-5} *13*; α(O)=1.376×10^{-5} *20*; α(P)=8.67×10^{-7} *13*
		973.1#c *2*	<0.07#	268.7852	11/2+				
		1120.0# *4*	16.8# *5*	121.6214	9/2+	M1+E2	−0.07 *3*	0.00583	α(K)=0.00492 *7*; α(L)=0.000713 *11*; α(M)=0.0001593 *23* α(N)=3.76×10^{-5} *6*; α(O)=5.61×10^{-6} *8*; α(P)=3.55×10^{-7} *5*; α(IPF)=6.56×10^{-7} *14* B(M1)(W.u.)=9.E−5 *3*; B(E2)(W.u.)=0.00015 *14* δ: From γγ(θ) in 1995Ya21.
		1241.8# *4*	100# *4*	0.0	7/2+	E2+M1		0.00456	α(K)=0.00383 *6*; α(L)=0.000554 *8*;

$^{177}_{71}Lu_{106}$-22

Adopted Levels, Gammas (continued)

γ(^{177}Lu) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[&]	α[a]	Comments
								α(M)=0.0001237 *18* α(N)=2.92×10^{-5} *4*; α(O)=4.36×10^{-6} *7*; α(P)=2.77×10^{-7} *4*; α(IPF)=1.248×10^{-5} *19* Mult.: From α(K)exp (1964Ew04) and α(K)exp=0.0040 32 (1971Ma45).
1243.0	25/2$^-$	272.8[@] *5*	100[@]	970.1757	23/2$^-$	[M1+E2]	0.221 *4*	α(K)=0.185 *3*; α(L)=0.0281 *5*; α(M)=0.00631 *10* α(N)=0.001490 *23*; α(O)=0.000221 *4*; α(P)=1.373×10^{-5} *21*
1286.931	11/2$^-$	301.640 *12*	3.3 *13*	985.2968	13/2$^+$			
		329.623 *5*	44 *5*	957.3128	13/2$^-$	M1(+E2)	0.1328	α(K)=0.1112 *16*; α(L)=0.01680 *24*; α(M)=0.00377 *6* α(N)=0.000891 *13*; α(O)=0.0001322 *19*; α(P)=8.23×10^{-6} *12* Mult.: α(K)exp=0.14 *5* (1996Pe05) and α(K)exp=0.15 (1971Ma45).
		475.491 *5*	100 *10*	811.4396	9/2$^-$	M1(+E2)	0.0506	α(K)=0.0424 *6*; α(L)=0.00633 *9*; α(M)=0.001420 *20* α(N)=0.000335 *5*; α(O)=4.99×10^{-5} *7*; α(P)=3.12×10^{-6} *5* Mult.: α(K)exp=0.037 *14* and α(L1)exp=0.014 *6* (1996Pe05) and α(K)exp=0.031 (1971Ma45).
1303.0590	13/2$^+$	317.768 *8*	4.1 *7*	985.2968	13/2$^+$			
		322.873 *1*	92 *9*	980.1858	11/2$^+$	M1(+E2)	0.1404	α(K)=0.1175 *17*; α(L)=0.01776 *25*; α(M)=0.00399 *6* α(N)=0.000942 *14*; α(O)=0.0001398 *20*; α(P)=8.70×10^{-6} *13* Mult.: α(K)exp=0.16 *4* and α(L1)exp=0.013 *4* (1996Pe05); α(K)exp=0.16 and α(L1)exp+α(L2)exp=0.018 (1971Ma45).
		346.392 *2*	100 *10*	956.6663	9/2$^+$	E2	0.0501	α(K)=0.0366 *6*; α(L)=0.01039 *15*; α(M)=0.00247 *4* α(N)=0.000573 *8*; α(O)=7.62×10^{-5} *11*; α(P)=2.36×10^{-6} *4* Mult.: α(K)exp=0.042 *8* and α(L2)exp=0.010 *3* (1996Pe05).
1305.917	11/2$^+$	865.18 *17*	4.6 *14*	440.6431	13/2$^+$	M1(+E2)	0.01105	α(K)=0.00930 *13*; α(L)=0.001361 *19*; α(M)=0.000304 *5* α(N)=7.19×10^{-5} *10*; α(O)=1.070×10^{-5} *15*; α(P)=6.76×10^{-7} *10* Mult.: α(K)exp=0.009 (1971Ma45).
		1035.5 *5*	12.3 *19*	268.7852	11/2$^+$	M1(+E2)	0.00708	α(K)=0.00597 *9*; α(L)=0.000868 *13*; α(M)=0.000194 *3* α(N)=4.58×10^{-5} *7*; α(O)=6.83×10^{-6} *10*; α(P)=4.32×10^{-7} *6* E_γ: 1035.48 keV *9* in ^{176}Lu(n,γ). Mult.: α(K)exp=0.015 (1971Ma45).
		1184.14 *6*	13.3 *25*	121.6214	9/2$^+$	M1(+E2)	0.00511	α(K)=0.00430 *6*; α(L)=0.000623 *9*; α(M)=0.0001391 *20* α(N)=3.29×10^{-5} *5*; α(O)=4.90×10^{-6} *7*; α(P)=3.11×10^{-7} *5*; α(IPF)=4.48×10^{-6} *7* Mult.: α(K)exp=0.0084 *15* (1971Ma45).
		1305.71 *3*	100 *15*	0.0	7/2$^+$	(E2)	0.00232	α(K)=0.00193 *3*; α(L)=0.000290 *4*; α(M)=6.52×10^{-5} *10* α(N)=1.534×10^{-5} *22*; α(O)=2.25×10^{-6} *4*; α(P)=1.328×10^{-7} *19*; α(IPF)=1.92×10^{-5} *3* Mult.: α(K)exp=0.0050 (1971Ma45).
1319.941	(13/2$^+$)	167.872 *2*	41 *5*	1152.069	(11/2$^+$)			
		299.0 *5*	6.5 *9*	1021.195	(9/2$^+$)	(E2)	0.0773	α(K)=0.0543 *8*; α(L)=0.0176 *3*; α(M)=0.00422 *7* α(N)=0.000979 *15*; α(O)=0.0001282 *20*; α(P)=3.41×10^{-6} *5* E_γ: 299.002 keV *18* in ^{176}Lu(n,γ). Mult.: α(K)exp=0.08 and α(M)exp=0.006 (1971Ma45).

$^{177}_{71}Lu_{106}$-23

Adopted Levels, Gammas (continued)

γ(^{177}Lu) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[&]	α[a]	Comments
1319.941	(13/2$^+$)	1049.6 *5*	80 *10*	268.7852	11/2$^+$	M1(+E2)	0.00685	α(K)=0.00577 *9*; α(L)=0.000839 *12*; α(M)=0.000188 *3* α(N)=4.43×10^{-5} *7*; α(O)=6.60×10^{-6} *10*; α(P)=4.18×10^{-7} *6* E_γ: 1049.5 keV *3* in ^{176}Lu(n,γ). Mult.: α(K)exp=0.003 (1971Ma45).
		1197.2 *5*	100 *14*	121.6214	9/2$^+$			E_γ: 1197.24 keV *3* in ^{176}Lu(n,γ).
1322.1	(3/2$^-$)	526.9 *4*	100	795.218	(1/2$^-$)	M1(+E2)	0.0388	α(K)=0.0325 *5*; α(L)=0.00484 *7*; α(M)=0.001085 *16* α(N)=0.000256 *4*; α(O)=3.81×10^{-5} *6*; α(P)=2.39×10^{-6} *4* Mult.: α(K)exp=0.023 (1971Ma45).
1322.184	21/2$^-$	248.560 *5*	100 *16*	1073.6382	19/2$^-$	[M1+E2]	0.285	α(K)=0.238 *4*; α(L)=0.0363 *5*; α(M)=0.00814 *12* α(N)=0.00192 *3*; α(O)=0.000285 *4*; α(P)=1.771×10^{-5} *25* I_γ: From (HI,xnγ).
		477.267 *3*	55 *11*	844.9109	17/2$^-$	[E2]	0.0209	α(K)=0.01623 *23*; α(L)=0.00362 *5*; α(M)=0.000844 *12* α(N)=0.000197 *3*; α(O)=2.71×10^{-5} *4*; α(P)=1.089×10^{-6} *16* I_γ: From (HI,xnγ).
1324.4	25/2$^+$	81.2[@] *5*	22.1[@] *16*	1243.0	25/2$^-$	E1	0.602 *13*	α(K)=0.492 *11*; α(L)=0.0857 *19*; α(M)=0.0193 *5* α(N)=0.00446 *10*; α(O)=0.000600 *13*; α(P)=2.57×10^{-5} *6* B(E1)(W.u.)=1.04×10^{-6} *10* Mult.: From α(exp) using intensity balances (2004Dr06).
		354.3[@] *5*	100[@] *5*	970.1757	23/2$^-$	[E1]	0.01383	α(K)=0.01163 *17*; α(L)=0.001713 *25*; α(M)=0.000383 *6* α(N)=8.97×10^{-5} *13*; α(O)=1.296×10^{-5} *19*; α(P)=7.30×10^{-7} *11* B(E1)(W.u.)=5.7×10^{-8} *4*
1336.85	7/2$^+$	1068.3[#] *3*	31[#] *6*	268.7852	11/2$^+$	[E2]	0.00341	α(K)=0.00283 *4*; α(L)=0.000446 *7*; α(M)=0.0001006 *15* α(N)=2.37×10^{-5} *4*; α(O)=3.44×10^{-6} *5*; α(P)=1.96×10^{-7} *3* I_γ: From ^{177}Yb β^- decay.
		1215.22 *4*	100 *6*	121.6214	9/2$^+$	M1(+E2)	0.00480	α(K)=0.00404 *6*; α(L)=0.000584 *9*; α(M)=0.0001305 *19* α(N)=3.08×10^{-5} *5*; α(O)=4.60×10^{-6} *7*; α(P)=2.92×10^{-7} *4*; α(IPF)=8.34×10^{-6} *12* I_γ: From ^{177}Yb β^- decay. Mult.: α(K)exp=0.0050 (1971Ma45).
		1336.8 *10*	44.9 *20*	0.0	7/2$^+$	M1(+E2)	0.00383	α(K)=0.00321 *5*; α(L)=0.000462 *7*; α(M)=0.0001032 *15* α(N)=2.44×10^{-5} *4*; α(O)=3.64×10^{-6} *6*; α(P)=2.31×10^{-7} *4*; α(IPF)=3.28×10^{-5} *6* Mult.: α(K)exp=0.0043 (1971Ma45). I_γ: From ^{177}Yb β^- decay.
1344.39	(11/2$^+$)	902.6 *10*	100 *9*	440.6431	13/2$^+$			
		1076.0 *7*	42 *9*	268.7852	11/2$^+$			
		1222.2 *8*	75 *9*	121.6214	9/2$^+$	M1(+E2)	0.00473	α(K)=0.00398 *6*; α(L)=0.000576 *9*; α(M)=0.0001287 *19* α(N)=3.04×10^{-5} *5*; α(O)=4.53×10^{-6} *7*; α(P)=2.88×10^{-7} *4*; α(IPF)=9.36×10^{-6} *18* Mult.: α(K)exp=0.0050 (1971Ma45).
		1344.39 *5*	71 *11*	0.0	7/2$^+$			

$^{177}_{71}Lu_{106}$-24

Adopted Levels, Gammas (continued)

γ(^{177}Lu) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult.&	α^a	Comments
1344.799	15/2$^+$	364.613 *2*	100	980.1858	11/2$^+$	E2	0.0433	α(K)=0.0320 *5*; α(L)=0.00870 *13*; α(M)=0.00206 *3* α(N)=0.000479 *7*; α(O)=6.40×10^{-5} *9*; α(P)=2.08×10^{-6} *3* Mult.: α(K)exp=0.026 *5* (1996Pe05) and α(K)exp=0.025 and α(L1)exp+α(L2)exp=0.0061 (1971Ma45).
1348.6	(13/2$^-$)	907.9 *3* 1080.21		440.6431 268.7852	13/2$^+$ 11/2$^+$			
1352.5	21/2$^+$	258.7@ *5*	29@ *12*	1093.661	19/2$^+$	[M1+E2]	0.255	α(K)=0.214 *4*; α(L)=0.0325 *5*; α(M)=0.00730 *11* α(N)=0.00172 *3*; α(O)=0.000256 *4*; α(P)=1.588×10^{-5} *24*
		498.4@ *5*	100@ *6*	854.3074	17/2$^+$	[E2]	0.0187	α(K)=0.01462 *21*; α(L)=0.00317 *5*; α(M)=0.000738 *11* α(N)=0.0001724 *25*; α(O)=2.38×10^{-5} *4*; α(P)=9.85×10^{-7} *14*
1356.860	15/2$^+$	502.54 *6*	0.8 *6*	854.3074	17/2$^+$	[M1]	0.0438	α(K)=0.0368 *6*; α(L)=0.00548 *8*; α(M)=0.001228 *18* α(N)=0.000290 *4*; α(O)=4.31×10^{-5} *6*; α(P)=2.70×10^{-6} *4* B(M1)(W.u.)=9.E−8 *7*
		720.721 *18*	11.9 *19*	636.2035	15/2$^+$	M1	0.01745	α(K)=0.01467 *21*; α(L)=0.00216 *3*; α(M)=0.000484 *7* α(N)=0.0001142 *16*; α(O)=1.700×10^{-5} *24*; α(P)=1.070×10^{-6} *15* B(M1)(W.u.)=4.5×10^{-7} *9* Mult.: α(K)exp=0.010 (1971Ma45). E2 admixtures are possible.
		916.25 *16*	17 *3*	440.6431	13/2$^+$	M1	0.00958	α(K)=0.00807 *12*; α(L)=0.001178 *17*; α(M)=0.000263 *4* α(N)=6.22×10^{-5} *9*; α(O)=9.27×10^{-6} *13*; α(P)=5.85×10^{-7} *9* B(M1)(W.u.)=3.1×10^{-7} *6* Mult.: α(K)exp=0.0043 (1971Ma45). E2 admixtures are possible.
		1067.0@ *5*	11@ *4*	289.0140	11/2$^-$	[M2]	0.01620	α(K)=0.01347 *19*; α(L)=0.00212 *3*; α(M)=0.000479 *7* α(N)=0.0001133 *16*; α(O)=1.680×10^{-5} *24*; α(P)=1.039×10^{-6} *15* B(M2)(W.u.)=0.0050 *18*
		1088.129 *10*	100 *14*	268.7852	11/2$^+$	(E2)	0.00329	α(K)=0.00273 *4*; α(L)=0.000428 *6*; α(M)=9.66×10^{-5} *14* α(N)=2.27×10^{-5} *4*; α(O)=3.31×10^{-6} *5*; α(P)=1.89×10^{-7} *3* B(E2)(W.u.)=0.00040 *3* Mult.: α(K)exp=0.0048 (1971Ma45).
		1206.0@c *5*	≤5.7@	150.3984	9/2$^-$	[E3]	0.00559	α(K)=0.00452 *7*; α(L)=0.000821 *12*; α(M)=0.000188 *3* α(N)=4.43×10^{-5} *7*; α(O)=6.36×10^{-6} *9*; α(P)=3.34×10^{-7} *5*; α(IPF)=1.52×10^{-6} *3*
1388.0	(13/2$^+$)	1099.0 *10*	100	289.0140	11/2$^-$			
1389.659	17/2$^+$	212.861 *2*	100 *12*	1176.7986	15/2$^+$	M1(+E2)	0.436	α(K)=0.364 *6*; α(L)=0.0557 *8*; α(M)=0.01251 *18* α(N)=0.00295 *5*; α(O)=0.000438 *7*; α(P)=2.72×10^{-5} *4* Mult.: α(K)exp=0.26 *4* and α(M3)exp=0.015 *8* (1996Pe05) and α(K)exp=0.38 (1971Ma45).
		404.361 *4*	81 *10*	985.2968	13/2$^+$	E2	0.0325	α(K)=0.0245 *4*; α(L)=0.00614 *9*; α(M)=0.001444 *21* α(N)=0.000337 *5*; α(O)=4.54×10^{-5} *7*; α(P)=1.614×10^{-6} *23* Mult.: α(K)exp=0.018 *6* (1996Pe05) and α(K)exp=0.02 (1971Ma45).
		535.25 *3*	13 *3*	854.3074	17/2$^+$	M1(+E2)	0.0372	α(K)=0.0313 *5*; α(L)=0.00465 *7*; α(M)=0.001042 *15* α(N)=0.000246 *4*; α(O)=3.66×10^{-5} *6*; α(P)=2.29×10^{-6} *4* Mult.: α(K)exp=0.03 (1971Ma45).

$^{177}_{71}Lu_{106}$-25

Adopted Levels, Gammas (continued)

γ(^{177}Lu) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult.&	α[a]	Comments
1389.659	17/2$^+$	753.45 *3*	26 *5*	636.2035	15/2$^+$	M1(+E2)	0.01561	α(K)=0.01313 *19*; α(L)=0.00193 *3*; α(M)=0.000432 *6* α(N)=0.0001020 *15*; α(O)=1.518×10^{-5} *22*; α(P)=9.56×10^{-7} *14* Mult.: α(K)exp=0.011 (1971Ma45).
1394.48	(5/2$^-$)	632.95 *27*	100	761.7063	5/2$^-$	M1(+E2)	0.0242	α(K)=0.0204 *3*; α(L)=0.00301 *5*; α(M)=0.000675 *10* α(N)=0.0001593 *23*; α(O)=2.37×10^{-5} *4*; α(P)=1.489×10^{-6} *21*
1438.3	(17/2$^-$)	81.4@ *5*	100@	1356.860	15/2$^+$	[E1]	0.598 *13*	α(K)=0.489 *11*; α(L)=0.0851 *19*; α(M)=0.0192 *5* α(N)=0.00443 *10*; α(O)=0.000596 *13*; α(P)=2.56×10^{-5} *6*
1443.72	9/2$^+$	1175.5 *10*	100 *36*	268.7852	11/2$^+$	M1(+E2)	0.00520	α(K)=0.00438 *7*; α(L)=0.000634 *9*; α(M)=0.0001417 *20* α(N)=3.35×10^{-5} *5*; α(O)=4.99×10^{-6} *7*; α(P)=3.16×10^{-7} *5*; α(IPF)=3.64×10^{-6} *11* Mult.: α(K)exp=0.0017 (1971Ma45).
		1322.07 *15*	80 *15*	121.6214	9/2$^+$	M1(+E2)	0.00393	α(K)=0.00329 *5*; α(L)=0.000475 *7*; α(M)=0.0001061 *15* α(N)=2.51×10^{-5} *4*; α(O)=3.74×10^{-6} *6*; α(P)=2.37×10^{-7} *4*; α(IPF)=2.89×10^{-5} *4* Mult.: α(K)exp=0.008 (1971Ma45).
		1444.4 *10*	59 *17*	0.0	7/2$^+$	M1(+E2)	0.00322	α(K)=0.00266 *4*; α(L)=0.000383 *6*; α(M)=8.54×10^{-5} *12* α(N)=2.02×10^{-5} *3*; α(O)=3.01×10^{-6} *5*; α(P)=1.92×10^{-7} *3*; α(IPF)=6.87×10^{-5} *11* Mult.: α(K)exp=0.0029 (1971Ma45).
1454.392	(13/2$^+$)	97.534 *4*	10.8 *22*	1356.860	15/2$^+$			
		1013.731 *13*	100 *11*	440.6431	13/2$^+$	M1(+E2)	0.00746	α(K)=0.00629 *9*; α(L)=0.000915 *13*; α(M)=0.000205 *3* α(N)=4.83×10^{-5} *7*; α(O)=7.20×10^{-6} *10*; α(P)=4.56×10^{-7} *7*
		1185.10 *25*	85 *10*	268.7852	11/2$^+$	M1(+E2)	0.00510	α(K)=0.00429 *6*; α(L)=0.000622 *9*; α(M)=0.0001388 *20* α(N)=3.28×10^{-5} *5*; α(O)=4.89×10^{-6} *7*; α(P)=3.10×10^{-7} *5*; α(IPF)=4.58×10^{-6} *7*
		1332.1 *5*	49 *7*	121.6214	9/2$^+$	(E2)	0.00224	α(K)=0.00185 *3*; α(L)=0.000279 *4*; α(M)=6.25×10^{-5} *9* α(N)=1.471×10^{-5} *21*; α(O)=2.16×10^{-6} *3*; α(P)=1.279×10^{-7} *18*; α(IPF)=2.43×10^{-5} *4* E_γ: 1332.05 keV *8* in ^{176}Lu(n,γ).
1471.097	13/2$^+$	165.07 *2*	6.7 *7*	1305.917	11/2$^+$			
		834.99 *3*	39 *6*	636.2035	15/2$^+$	M1(+E2)	0.01207	α(K)=0.01016 *15*; α(L)=0.001488 *21*; α(M)=0.000333 *5* α(N)=7.86×10^{-5} *11*; α(O)=1.170×10^{-5} *17*; α(P)=7.38×10^{-7} *11* Mult.: α(K)exp=0.018 (1971Ma45).
		1030.0 *5*	33 *5*	440.6431	13/2$^+$	M1(+E2)	0.00718	α(K)=0.00605 *9*; α(L)=0.000880 *13*; α(M)=0.000197 *3* α(N)=4.64×10^{-5} *7*; α(O)=6.92×10^{-6} *10*; α(P)=4.38×10^{-7} *7* E_γ: 1030.02 keV *4* in ^{176}Lu(n,γ). Mult.: α(K)exp=0.0092 (1971Ma45).
		1202.45 *3*	100 *15*	268.7852	11/2$^+$	M1(+E2)	0.00492	α(K)=0.00414 *6*; α(L)=0.000600 *9*; α(M)=0.0001339 *19* α(N)=3.16×10^{-5} *5*; α(O)=4.72×10^{-6} *7*; α(P)=2.99×10^{-7} *5*; α(IPF)=6.61×10^{-6} *10* Mult.: α(K)exp=0.0077 (1971Ma45).
		1350.8 *10*	48 *26*	121.6214	9/2$^+$			Mult.: α(K)exp=0.0045 (1971Ma45).

$^{177}_{71}Lu_{106}$-26

Adopted Levels, Gammas (continued)

γ(^{177}Lu) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[&]	α[a]	Comments
1488.404	(11/2$^+$)	336.335 *2*	48 *5*	1152.069	(11/2$^+$)	(E2)	0.0546	α(K)=0.0396 *6*; α(L)=0.01153 *17*; α(M)=0.00274 *4* α(N)=0.000637 *9*; α(O)=8.44×10^{-5} *12*; α(P)=2.54×10^{-6} *4* Mult.: α(K)exp=0.032 *11* and α(L2)exp=0.006 *4* (1996Pe05).
		1047.68 *16*	30 *5*	440.6431	13/2$^+$			
		1220.6 *5*	79 *10*	268.7852	11/2$^+$	(E2)	0.00263	α(K)=0.00219 *3*; α(L)=0.000334 *5*; α(M)=7.52×10^{-5} *11* α(N)=1.770×10^{-5} *25*; α(O)=2.59×10^{-6} *4*; α(P)=1.511×10^{-7} *22*; α(IPF)=7.03×10^{-6} *12* Mult.: α(K)exp=0.0050 (1971Ma45).
		1368.0 *10*	100 *17*	121.6214	9/2$^+$			
1502.682	(13/2$^+$)	325.884 *8*	6.2 *5*	1176.7986	15/2$^+$	M1(+E2)	0.1369	α(K)=0.1146 *16*; α(L)=0.01732 *25*; α(M)=0.00389 *6* α(N)=0.000919 *13*; α(O)=0.0001364 *19*; α(P)=8.49×10^{-6} *12* Mult.: α(K)exp=0.12 (1971Ma45).
		1061.99 *6*	100 *16*	440.6431	13/2$^+$	(M1+E2)	0.00666	α(K)=0.00561 *8*; α(L)=0.000815 *12*; α(M)=0.000182 *3* α(N)=4.30×10^{-5} *6*; α(O)=6.41×10^{-6} *9*; α(P)=4.06×10^{-7} *6* Mult.: α(K)exp=0.008 (1971Ma45).
		1233.88 *8*	45 *6*	268.7852	11/2$^+$			
		1381.07 *5*	97 *14*	121.6214	9/2$^+$			
1505.95	(13/2$^+$)	1065.7 *8*	100 *12*	440.6431	13/2$^+$	M1(+E2)	0.00660	α(K)=0.00556 *8*; α(L)=0.000808 *12*; α(M)=0.000181 *3* α(N)=4.27×10^{-5} *6*; α(O)=6.36×10^{-6} *9*; α(P)=4.03×10^{-7} *6* Mult.: α(K)exp=0.0023 (1971Ma45).
		1237.15 *11*	28 *5*	268.7852	11/2$^+$	M1(+E2)	0.00460	α(K)=0.00387 *6*; α(L)=0.000559 *8*; α(M)=0.0001249 *18* α(N)=2.95×10^{-5} *5*; α(O)=4.40×10^{-6} *7*; α(P)=2.79×10^{-7} *4*; α(IPF)=1.171×10^{-5} *17* Mult.: α(K)exp=0.0050 (1971Ma45).
1536.6	27/2$^-$	293.5[@] *5*	50.3[@] *15*	1243.0	25/2$^-$			
		566.4[@] *5*	100[@]	970.1757	23/2$^-$			
1542.9	(21/2$^-$)	341.3[@] *5*	100[@]	1201.644	17/2$^-$	[E2]	0.0523	α(K)=0.0381 *6*; α(L)=0.01094 *17*; α(M)=0.00260 *4* α(N)=0.000604 *9*; α(O)=8.02×10^{-5} *12*; α(P)=2.45×10^{-6} *4*
1544.309	(17/2$^+$)	154.566[c] *16*	0.04 *4*	1389.659	17/2$^+$	[M1]	1.065	α(K)=0.889 *13*; α(L)=0.1366 *20*; α(M)=0.0307 *5* α(N)=0.00725 *11*; α(O)=0.001075 *15*; α(P)=6.65×10^{-5} *10*
		187.492 *8*	0.78 *11*	1356.860	15/2$^+$	[M1]	0.620	α(K)=0.518 *8*; α(L)=0.0793 *12*; α(M)=0.01783 *25* α(N)=0.00421 *6*; α(O)=0.000624 *9*; α(P)=3.87×10^{-5} *6*
		367.44[c] *2*	100 *11*	1176.7986	15/2$^+$	[M1]	0.0995	α(K)=0.0833 *12*; α(L)=0.01255 *18*; α(M)=0.00282 *4* α(N)=0.000665 *10*; α(O)=9.88×10^{-5} *14*; α(P)=6.16×10^{-6} *9* I_γ: Contaminated in ^{176}Lu(n,γ), but the intensity value is not corrected.
		689.7 *6*	6.7 *3*	854.3074	17/2$^+$	[M1]	0.0195	α(K)=0.01639 *24*; α(L)=0.00242 *4*; α(M)=0.000541 *8* α(N)=0.0001278 *19*; α(O)=1.90×10^{-5} *3*; α(P)=1.196×10^{-6} *17*
		908 *1*		637.1126	15/2$^-$			E_γ: From (HI,xnγ).
		908.035 *10*	23 *3*	636.2035	15/2$^+$	M1(+E2)	0.00980	α(K)=0.00825 *12*; α(L)=0.001205 *17*; α(M)=0.000269 *4* α(N)=6.36×10^{-5} *9*; α(O)=9.48×10^{-6} *14*; α(P)=5.99×10^{-7} *9* Mult.: α(K)exp=0.0096 (1971Ma45).

$^{177}_{71}Lu_{106}$-27

Adopted Levels, Gammas (continued)

γ(^{177}Lu) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult.&	α[a]	Comments
1564.097	15/2⁻	277.175 *5*	17 *3*	1286.931	11/2⁻			
		362.459 *4*	27 *3*	1201.644	17/2⁻	M1(+E2)	0.1031	α(K)=0.0864 *12*; α(L)=0.01301 *19*; α(M)=0.00292 *4* α(N)=0.000690 *10*; α(O)=0.0001024 *15*; α(P)=6.38×10^{-6} *9* Mult.: α(K)exp=0.065 and α(L1)exp=0.024 (1971Ma45).
		578.86 *4*	5.3 *16*	985.2968	13/2⁺	E1	0.00461	α(K)=0.00389 *6*; α(L)=0.000555 *8*; α(M)=0.0001236 *18* α(N)=2.90×10^{-5} *4*; α(O)=4.25×10^{-6} *6*; α(P)=2.52×10^{-7} *4* Mult.: α(K)exp=0.006 (1971Ma45).
		606.774 *4*	100 *11*	957.3128	13/2⁻	M1(+E2)	0.0270	α(K)=0.0227 *4*; α(L)=0.00336 *5*; α(M)=0.000752 *11* α(N)=0.0001777 *25*; α(O)=2.64×10^{-5} *4*; α(P)=1.659×10^{-6} *24* Mult.: α(K)exp=0.0060 *22* (1996Pe05) and α(K)exp=0.012 (1971Ma45).
		709.745 *17*	35 *5*	854.3074	17/2⁺	(E1)	0.00303	α(K)=0.00256 *4*; α(L)=0.000361 *5*; α(M)=8.03×10^{-5} *12* α(N)=1.89×10^{-5} *3*; α(O)=2.78×10^{-6} *4*; α(P)=1.674×10^{-7} *24* Mult.: α(K)exp≤0.004 (1971Ma45).
1566.20	(15/2⁺)	1126.0 *12*		440.6431	13/2⁺			
		1277.7 *10*	35 *17*	289.0140	11/2⁻	(M2)	0.01012	α(K)=0.00844 *12*; α(L)=0.001301 *19*; α(M)=0.000293 *5* α(N)=6.93×10^{-5} *10*; α(O)=1.029×10^{-5} *15*; α(P)=6.41×10^{-7} *9*; α(IPF)=5.04×10^{-6} *10* Mult.: α(K)exp=0.006 (1971Ma45).
		1297.40 *12*	100 *5*	268.7852	11/2⁺	E2	0.00234	α(K)=0.00195 *3*; α(L)=0.000294 *5*; α(M)=6.60×10^{-5} *10* α(N)=1.555×10^{-5} *22*; α(O)=2.28×10^{-6} *4*; α(P)=1.344×10^{-7} *19*; α(IPF)=1.78×10^{-5} *3* Mult.: α(K)exp=0.0033 (1971Ma45).
1573.32	(7/2⁻)	178.85 *6*	5.7 *24*	1394.48	(5/2⁻)			
		811.94 *9*	100 *10*	761.7063	5/2⁻			
1573.7	(11/2⁺)	1132.4 *8*	37 *13*	440.6431	13/2⁺	M1(+E2)	0.00569	α(K)=0.00480 *7*; α(L)=0.000696 *10*; α(M)=0.0001554 *22* α(N)=3.67×10^{-5} *6*; α(O)=5.47×10^{-6} *8*; α(P)=3.47×10^{-7} *5*; α(IPF)=1.02×10^{-6} *4* Mult.: α(K)exp=0.010 (1971Ma45).
		1305.3 *10*	100 *37*	268.7852	11/2⁺	M1(+E2)	0.00405	α(K)=0.00340 *5*; α(L)=0.000490 *7*; α(M)=0.0001094 *16* α(N)=2.59×10^{-5} *4*; α(O)=3.85×10^{-6} *6*; α(P)=2.45×10^{-7} *4*; α(IPF)=2.48×10^{-5} *5* Mult.: α(K)exp=0.0050 (1971Ma45).
		1452.8 *12*	37 *13*	121.6214	9/2⁺			
1588.7	23/2⁻	266.6[@] *5*	100[@] *20*	1322.184	21/2⁻	[M1+E2]	0.235	α(K)=0.197 *3*; α(L)=0.0299 *5*; α(M)=0.00672 *10* α(N)=0.001587 *24*; α(O)=0.000235 *4*; α(P)=1.462×10^{-5} *22*
		515.0[@] *5*	29[@] *14*	1073.6382	19/2⁻	[E2]	0.01725	α(K)=0.01353 *20*; α(L)=0.00287 *5*; α(M)=0.000668 *10* α(N)=0.0001560 *23*; α(O)=2.16×10^{-5} *3*; α(P)=9.13×10^{-7} *13*
1605.8	27/2⁺	281.3[@] *5*	100[@]	1324.4	25/2⁺			
1607.369	(15/2⁺)	152.8		1454.392	(13/2⁺)			
		753.27 *10*	47 *4*	854.3074	17/2⁺	M1(+E2)	0.01562	α(K)=0.01314 *19*; α(L)=0.00193 *3*; α(M)=0.000432 *6* α(N)=0.0001021 *15*; α(O)=1.519×10^{-5} *22*; α(P)=9.57×10^{-7} *14* Mult.: α(K)exp=0.011 (1971Ma45).

$^{177}_{71}Lu_{106}$-28

Adopted Levels, Gammas (continued)

γ(^{177}Lu) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult.&	α[a]	Comments
1607.369	(15/2$^+$)	971.15 *3*	27 *5*	636.2035	15/2$^+$			
		1166.64 *4*	100 *14*	440.6431	13/2$^+$			
1623.250	19/2$^+$	233.6@ *5*	52@ *13*	1389.659	17/2$^+$	M1(+E2)	0.338 *6*	α(K)=0.282 *5*; α(L)=0.0430 *7*; α(M)=0.00967 *15* α(N)=0.00228 *4*; α(O)=0.000339 *6*; α(P)=2.10×10^{-5} *4* Mult.: α(K)exp=0.35 (1971Ma45).
		446.4@ *5*	100@ *30*	1176.7986	15/2$^+$	[E2]	0.0249	α(K)=0.0191 *3*; α(L)=0.00446 *7*; α(M)=0.001043 *15* α(N)=0.000243 *4*; α(O)=3.32×10^{-5} *5*; α(P)=1.274×10^{-6} *19*
		768.7 *10*		854.3074	17/2$^+$			
		987.9 *5*	77 *9*	636.2035	15/2$^+$			E$_\gamma$: 987.86 keV *5* in ^{176}Lu(n,γ).
1623.4	(9/2$^+$)	902.6 *10*	100	720.7963	7/2$^+$			
1628.096	(9/2$^-$)	341.132 *18*	23 *3*	1286.931	11/2$^-$	M1(+E2)	0.1212	α(K)=0.1015 *15*; α(L)=0.01532 *22*; α(M)=0.00344 *5* α(N)=0.000812 *12*; α(O)=0.0001206 *17*; α(P)=7.51×10^{-6} *11* Mult.: α(K)exp=0.089 (1971Ma45).
		817.01 *11*	100 *16*	811.4396	9/2$^-$			
1629.7	(23/2$^+$)	536.0@ *5*	100@	1093.661	19/2$^+$	[E2]	0.01561	α(K)=0.01231 *18*; α(L)=0.00255 *4*; α(M)=0.000592 *9* α(N)=0.0001385 *20*; α(O)=1.92×10^{-5} *3*; α(P)=8.34×10^{-7} *12*
1632.771	(15/2$^+$)	130.089 *4*	35 *6*	1502.682	(13/2$^+$)			
		161.47		1471.097	13/2$^+$			
		275.91 *8*	36 *9*	1356.860	15/2$^+$	M1(+E2)	0.214	α(K)=0.179 *3*; α(L)=0.0272 *4*; α(M)=0.00612 *9* α(N)=0.001444 *21*; α(O)=0.000214 *3*; α(P)=1.332×10^{-5} *19* Mult.: α(K)exp=0.16 (1971Ma45).
		326.6		1305.917	11/2$^+$			
		996.57 *4*	100 *15*	636.2035	15/2$^+$			
1634.74	13/2$^+$	163.64 *3*	1.3 *4*	1471.097	13/2$^+$			
		999.4 *5*	12.2 *24*	636.2035	15/2$^+$	M1(+E2)	0.00773	α(K)=0.00651 *10*; α(L)=0.000948 *14*; α(M)=0.000212 *3* α(N)=5.01×10^{-5} *7*; α(O)=7.46×10^{-6} *11*; α(P)=4.72×10^{-7} *7* E$_\gamma$: 999.35 keV *3* in ^{176}Lu(n,γ). Mult.: α(K)exp=0.0045 (1971Ma45).
		1367.0 *5*	100 *15*	268.7852	11/2$^+$	M1(+E2)	0.00364 *6*	α(K)=0.00304 *5*; α(L)=0.000438 *7*; α(M)=9.77×10^{-5} *14* α(N)=2.31×10^{-5} *4*; α(O)=3.44×10^{-6} *5*; α(P)=2.19×10^{-7} *3*; α(IPF)=4.16×10^{-5} *6* E$_\gamma$: 1367.004 keV *24* in ^{176}Lu(n,γ). Mult.: α(K)exp=0.0038 (1971Ma45).
		1513.8 *15*		121.6214	9/2$^+$			
1640.17	(3/2$^-$)	844.96 *8*	100	795.218	(1/2$^-$)			
1661.392	15/2$^+$	1025.39 *4*	52 *7*	636.2035	15/2$^+$	M1(+E2)	0.00726	α(K)=0.00611 *9*; α(L)=0.000890 *13*; α(M)=0.000199 *3* α(N)=4.70×10^{-5} *7*; α(O)=7.00×10^{-6} *10*; α(P)=4.43×10^{-7} *7* Mult.: α(K)exp=0.005 (1971Ma45).
		1220.63 *3*	100 *13*	440.6431	13/2$^+$	M1(+E2)	0.00475	α(K)=0.00400 *6*; α(L)=0.000578 *8*; α(M)=0.0001291 *18* α(N)=3.05×10^{-5} *5*; α(O)=4.55×10^{-6} *7*; α(P)=2.88×10^{-7} *4*; α(IPF)=9.13×10^{-6} *13* Mult.: α(K)exp=0.0050 (1971Ma45).

$^{177}_{71}Lu_{106}$-29

Adopted Levels, Gammas (continued)

γ(^{177}Lu) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult.&	α[a]	Comments
1671.3	(19/2⁻)	233.4@ 5	100@	1438.3	(17/2⁻)	[M1+E2]	0.338 6	α(K)=0.283 5; α(L)=0.0431 7; α(M)=0.00969 15 α(N)=0.00229 4; α(O)=0.000339 6; α(P)=2.11×10⁻⁵ 4
1677.191	(15/2⁺)	174.509 2	18.7 19	1502.682	(13/2⁺)			
		823.1 5	41 6	854.3074	17/2⁺	M1(+E2)	0.01251	α(K)=0.01053 15; α(L)=0.001543 22; α(M)=0.000345 5 α(N)=8.15×10⁻⁵ 12; α(O)=1.214×10⁻⁵ 17; α(P)=7.65×10⁻⁷ 11 E_γ: 823.045 keV 11 in ^{176}Lu(n,γ). Mult.: α(K)exp=0.010 (1971Ma45).
		1039.39 24	13 4	636.2035	15/2⁺	M1(+E2)	0.00702	α(K)=0.00591 9; α(L)=0.000860 12; α(M)=0.000192 3 α(N)=4.54×10⁻⁵ 7; α(O)=6.76×10⁻⁶ 10; α(P)=4.28×10⁻⁷ 6 Mult.: α(K)exp=0.0060 (1971Ma45).
		1237.15 11	100 16	440.6431	13/2⁺	M1(+E2)	0.00460	α(K)=0.00387 6; α(L)=0.000559 8; α(M)=0.0001249 18 α(N)=2.95×10⁻⁵ 5; α(O)=4.40×10⁻⁶ 7; α(P)=2.79×10⁻⁷ 4; α(IPF)=1.171×10⁻⁵ 17 Mult.: α(K)exp=0.0050 (1971Ma45).
		1409.2 5	27 5	268.7852	11/2⁺	(E2)	0.00203	α(K)=0.001667 24; α(L)=0.000248 4; α(M)=5.56×10⁻⁵ 8 α(N)=1.309×10⁻⁵ 19; α(O)=1.92×10⁻⁶ 3; α(P)=1.150×10⁻⁷ 17; α(IPF)=4.31×10⁻⁵ 7 E_γ: 1409.19 keV 7 in ^{176}Lu(n,γ). Mult.: α(K)exp=0.0036 (1971Ma45).
1678.8?		436.0@c 5	100@	1243.0	25/2⁻			
1692.996	(15/2⁺)	837.8 15	42 30	854.3074	17/2⁺			
		1056.790 24	100 16	636.2035	15/2⁺	M1(+E2)	0.00674	α(K)=0.00568 8; α(L)=0.000825 12; α(M)=0.000184 3 α(N)=4.36×10⁻⁵ 6; α(O)=6.49×10⁻⁶ 9; α(P)=4.11×10⁻⁷ 6 Mult.: α(K)exp=0.0036 3 (1971Ma45).
		1252.0 10	49 7	440.6431	13/2⁺			
		1423.5 10	42 29	268.7852	11/2⁺			
1711.9	(7/2⁺)	1138.3 10	100	573.6203	3/2⁺			
1728.899	13/2⁺	552.102 4	100 10	1176.7986	15/2⁺	M1(+E2)	0.0344	α(K)=0.0289 4; α(L)=0.00429 6; α(M)=0.000961 14 α(N)=0.000227 4; α(O)=3.37×10⁻⁵ 5; α(P)=2.12×10⁻⁶ 3 Mult.: α(K)exp=0.015 4 and α(L1)exp=0.0022 9 (1996Pe05) and α(K)exp=0.028 (1971Ma45).
		743.4 5	3.3 7	985.2968	13/2⁺	M1(+E2)	0.01614	α(K)=0.01358 20; α(L)=0.00200 3; α(M)=0.000447 7 α(N)=0.0001055 15; α(O)=1.571×10⁻⁵ 23; α(P)=9.89×10⁻⁷ 14 Mult.: α(K)exp=0.008 (1971Ma45).
		911.0 10		816.6951	11/2⁺			
		1056.790 24	8.9 15	671.9408	9/2⁺	(E2)	0.00348	α(K)=0.00289 4; α(L)=0.000457 7; α(M)=0.0001031 15 α(N)=2.42×10⁻⁵ 4; α(O)=3.53×10⁻⁶ 5; α(P)=2.00×10⁻⁷ 3 Mult.: α(K)exp=0.0036 (1971Ma45).
1745.517	(17/2⁺)	355.829 20	43 14	1389.659	17/2⁺			
		400.75 4	14 14	1344.799	15/2⁺			
		442.470 16	100 14	1303.0590	13/2⁺			
1746.548	(19/2⁺)	202.239 2	68 8	1544.309	(17/2⁺)			

$^{177}_{71}Lu_{106}$-30

Adopted Levels, Gammas (continued)

γ(^{177}Lu) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult.&	α[a]	Comments
1746.548	(19/2$^+$)	389.1[c]		1356.860	15/2$^+$			
		652.0 *8*	60 *24*	1093.661	19/2$^+$	M1(+E2)	0.0225	α(K)=0.0189 *3*; α(L)=0.00279 *4*; α(M)=0.000625 *9* α(N)=0.0001476 *22*; α(O)=2.20×10^{-5} *4*; α(P)=1.380×10^{-6} *20* Mult.: α(K)exp=0.020 (1971Ma45).
		891.3 *10*	100 *40*	854.3074	17/2$^+$			E_γ: Eγ=895 keV in (HI,xnγ).
		1108.0 *12*		637.1126	15/2$^-$			E_γ: Eγ=1113 keV in (HI,xnγ).
1756.533	(7/2$^-$)	128.436 *4*	18 *3*	1628.096	(9/2$^-$)			
		183.28 *4*	5.9 *25*	1573.32	(7/2$^-$)			
		945.6 *5*	100 *30*	811.4396	9/2$^-$	M1(+E2)	0.00886	α(K)=0.00746 *11*; α(L)=0.001089 *16*; α(M)=0.000243 *4* α(N)=5.75×10^{-5} *8*; α(O)=8.56×10^{-6} *12*; α(P)=5.41×10^{-7} *8* E_γ: 945.595 keV *18* in ^{176}Lu(n,γ). Mult.: α(K)exp=0.009 (1971Ma45).
		994.89 *5*	28 *3*	761.7063	5/2$^-$			
1757.1	(11/2$^+$)	133.75 *2*	3.4 *14*	1623.4	(9/2$^+$)			
		1036.3 *10*	100 *71*	720.7963	7/2$^+$			
1772.9?		530.1[@c] *5*	100[@]	1243.0	25/2$^-$			
1786.38	(17/2$^+$)	178.85 *6*	6 *3*	1607.369	(15/2$^+$)			
		1150.24 *4*	100 *15*	636.2035	15/2$^+$			
1804.3	(19/2$^+$)	459.5[@] *5*	100[@]	1344.799	15/2$^+$	[E2]	0.0231	α(K)=0.0178 *3*; α(L)=0.00407 *6*; α(M)=0.000951 *14* α(N)=0.000222 *4*; α(O)=3.04×10^{-5} *5*; α(P)=1.190×10^{-6} *17*
1812.335	(17/2$^+$)	180.10 *16*	2.5	1632.771	(15/2$^+$)			
		958.014 *22*	100 *12*	854.3074	17/2$^+$			
		1176.3 *3*	43 *11*	636.2035	15/2$^+$			
1820.69	(15/2$^+$)	966.47 *3*	100 *13*	854.3074	17/2$^+$	M1(+E2)	0.00840	α(K)=0.00707 *10*; α(L)=0.001031 *15*; α(M)=0.000230 *4* α(N)=5.44×10^{-5} *8*; α(O)=8.11×10^{-6} *12*; α(P)=5.13×10^{-7} *8* Mult.: α(K)exp=0.0053 (1971Ma45).
		1184.14 *6*	36 *7*	636.2035	15/2$^+$	M1(+E2)	0.00511	α(K)=0.00430 *6*; α(L)=0.000623 *9*; α(M)=0.0001391 *20* α(N)=3.29×10^{-5} *5*; α(O)=4.90×10^{-6} *7*; α(P)=3.11×10^{-7} *5*; α(IPF)=4.48×10^{-6} *7* Mult.: α(K)exp=0.0084 (1971Ma45).
1821.8	(9/2$^+$)	109.82 *2*	100	1711.9	(7/2$^+$)			
1827.68	(5/2$^-$)	187.505 *2*	5.9 *7*	1640.17	(3/2$^-$)			
		1065.96 *9*	100 *9*	761.7063	5/2$^-$			
1829.252	(19/2$^+$)	206.002 *8*	6 *3*	1623.250	19/2$^+$			
		484.458 *18*	25 *6*	1344.799	15/2$^+$			
		652.451 *8*	100 *13*	1176.7986	15/2$^+$			
1850.7	29/2$^-$	314.1[@] *5*	58[@] *4*	1536.6	27/2$^-$			
		607.8[@] *5*	100[@]	1243.0	25/2$^-$			
1872.2	25/2$^-$	283.4[@] *5*	≤46[@]	1588.7	23/2$^-$	[M1+E2]	0.199	α(K)=0.1668 *25*; α(L)=0.0253 *4*; α(M)=0.00568 *9* α(N)=0.001343 *20*; α(O)=0.000199 *3*; α(P)=1.238×10^{-5} *19*
		550.0[@] *5*	100[@] *23*	1322.184	21/2$^-$	[E2]	0.01466	α(K)=0.01159 *17*; α(L)=0.00237 *4*; α(M)=0.000549 *8* α(N)=0.0001283 *19*; α(O)=1.79×10^{-5} *3*; α(P)=7.86×10^{-7} *12*

$^{177}_{71}Lu_{106}$-31

Adopted Levels, Gammas (continued)

γ(^{177}Lu) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult.&	α[a]	Comments
1873.59	(17/2+)	196.41 *3*	5.1 *8*	1677.191	(15/2+)			
		1020.2 *10*		854.3074	17/2+			
		1237.15 *11*	100 *16*	636.2035	15/2+	M1(+E2)	0.00460	α(K)=0.00387 *6*; α(L)=0.000559 *8*; α(M)=0.0001249 *18* α(N)=2.95×10^{-5} *5*; α(O)=4.40×10^{-6} *7*; α(P)=2.79×10^{-7} *4*; α(IPF)=1.171×10^{-5} *17* Mult.: α(K)exp=0.0050 (1971Ma45).
		1433.1 *10*		440.6431	13/2+			
1882.180	(11/2+)	896.0 *8*		985.2968	13/2+			
		1065.7 *8*	100	816.6951	11/2+	M1(+E2)	0.00660	α(K)=0.00556 *8*; α(L)=0.000808 *12*; α(M)=0.000181 *3* α(N)=4.27×10^{-5} *6*; α(O)=6.36×10^{-6} *9*; α(P)=4.03×10^{-7} *6* Mult.: α(K)exp=0.0023 (1971Ma45).
1907.3	29/2+	301.4@ *5*	100@	1605.8	27/2+			
		582.9@ *5*	83@ *9*	1324.4	25/2+			
1912.6	(13/2+)	155.917	83	1757.1	(11/2+)			
		289.55	100	1623.4	(9/2+)			
1922.0	(25/2+)	569.5@ *5*	100@	1352.5	21/2+	[E2]	0.01347	α(K)=0.01070 *16*; α(L)=0.00214 *3*; α(M)=0.000496 *7* α(N)=0.0001160 *17*; α(O)=1.618×10^{-5} *23*; α(P)=7.27×10^{-7} *11*
1925.404	15/2+	196.41 *3*	7.0 *11*	1728.899	13/2+			
		534.5 *4*	27 *18*	1389.659	17/2+	M1(+E2)	0.0374	α(K)=0.0314 *5*; α(L)=0.00467 *7*; α(M)=0.001045 *15* α(N)=0.000247 *4*; α(O)=3.67×10^{-5} *6*; α(P)=2.30×10^{-6} *4* Mult.: α(K)exp=0.030 (1971Ma45).
		747.3 *8*	31 *18*	1176.7986	15/2+	M1(+E2)	0.01593	α(K)=0.01340 *20*; α(L)=0.00197 *3*; α(M)=0.000441 *7* α(N)=0.0001041 *15*; α(O)=1.550×10^{-5} *23*; α(P)=9.76×10^{-7} *14* Mult.: α(K)exp=0.005 (1971Ma45).
		940.143 *18*	100 *12*	985.2968	13/2+	M1(+E2)	0.00899	α(K)=0.00757 *11*; α(L)=0.001105 *16*; α(M)=0.000247 *4* α(N)=5.83×10^{-5} *9*; α(O)=8.69×10^{-6} *13*; α(P)=5.49×10^{-7} *8* Mult.: α(K)exp=0.0060 (1971Ma45).
		1108.0 *12*		816.6951	11/2+			
1925.7	(21/2−)	254.0@ *5*	100@ *36*	1671.3	(19/2−)	[M1+E2]	0.268	α(K)=0.225 *4*; α(L)=0.0342 *6*; α(M)=0.00767 *12* α(N)=0.00181 *3*; α(O)=0.000269 *4*; α(P)=1.67×10^{-5} *3*
		487.0@ *5*	≤36@	1438.3	(17/2−)	[E2]	0.0199	α(K)=0.01546 *22*; α(L)=0.00340 *5*; α(M)=0.000792 *12* α(N)=0.000185 *3*; α(O)=2.55×10^{-5} *4*; α(P)=1.039×10^{-6} *15*
1954.6	(11/2+)	132.816 *6*	27 *7*	1821.8	(9/2+)			
		242.74 *5*	100 *32*	1711.9	(7/2+)			
1957.167	(11/2−)	1000.495 *22*	100 *17*	956.6663	9/2+			
		1146.2 *3*	67 *11*	811.4396	9/2−	M1(+E2)	0.00553	α(K)=0.00466 *7*; α(L)=0.000675 *10*; α(M)=0.0001508 *22* α(N)=3.56×10^{-5} *5*; α(O)=5.31×10^{-6} *8*; α(P)=3.37×10^{-7} *5*; α(IPF)=1.61×10^{-6} *3* Mult.: α(K)exp=0.007 (1971Ma45).
1976.9	(25/2−)	434.0@ *5*	100@	1542.9	(21/2−)	[E2]	0.0268	α(K)=0.0205 *3*; α(L)=0.00487 *7*; α(M)=0.001143 *17* α(N)=0.000267 *4*; α(O)=3.63×10^{-5} *6*; α(P)=1.362×10^{-6} *20*

$^{177}_{71}Lu_{106}$-32

Adopted Levels, Gammas (continued)

γ(^{177}Lu) (continued)

E_i(level)	J_i^π	E_γ [†]	I_γ [†]	E_f	J_f^π	Mult.[&]	α[a]	Comments
2053.392	(13/2$^+$)	171.212 *11*	3.0 *5*	1882.180	(11/2$^+$)			
		876.586 *13*	100 *11*	1176.7986	15/2$^+$			
		1237.15 *11*	55 *9*	816.6951	11/2$^+$	M1(+E2)	0.00460	α(K)=0.00387 *6*; α(L)=0.000559 *8*; α(M)=0.0001249 *18* α(N)=2.95×10^{-5} *5*; α(O)=4.40×10^{-6} *7*; α(P)=2.79×10^{-7} *4*; α(IPF)=1.171×10^{-5} *17* Mult.: α(K)exp=0.005 (1971Ma45).
		1382.0 *10*	32 *9*	671.9408	9/2$^+$			
2090.3	(15/2$^+$)	177.671 *11*	41 *18*	1912.6	(13/2$^+$)			
		333.148 *4*	100 *12*	1757.1	(11/2$^+$)			
2110.5?	(13/2$^+$)	155.917[c]	100	1954.6	(11/2$^+$)			
2155.00	17/2$^+$	229.60 *3*	8 *3*	1925.404	15/2$^+$			
		426.1 *2*	20 *5*	1728.899	13/2$^+$	(E2)	0.0282	α(K)=0.0215 *3*; α(L)=0.00517 *8*; α(M)=0.001214 *17* α(N)=0.000283 *4*; α(O)=3.84×10^{-5} *6*; α(P)=1.423×10^{-6} *20* Mult.: α(K)exp=0.047 (1971Ma45).
		977.4 *6*	100 *13*	1176.7986	15/2$^+$	M1(+E2)	0.00817	α(K)=0.00688 *10*; α(L)=0.001002 *15*; α(M)=0.000224 *4* α(N)=5.29×10^{-5} *8*; α(O)=7.88×10^{-6} *12*; α(P)=4.99×10^{-7} *7* Mult.: α(K)exp=0.0053 (1971Ma45).
		1171.5 *12*	73 *28*	985.2968	13/2$^+$	E2	0.00284	α(K)=0.00237 *4*; α(L)=0.000365 *6*; α(M)=8.21×10^{-5} *12* α(N)=1.93×10^{-5} *3*; α(O)=2.82×10^{-6} *4*; α(P)=1.635×10^{-7} *24*; α(IPF)=2.53×10^{-6} *9* Mult.: α(K)exp=0.0018 (1971Ma45).
2173.7	(27/2$^-$)	585.0[@] *5*	100[@]	1588.7	23/2$^-$	[E2]	0.01263	α(K)=0.01006 *15*; α(L)=0.00199 *3*; α(M)=0.000459 *7* α(N)=0.0001074 *16*; α(O)=1.502×10^{-5} *22*; α(P)=6.85×10^{-7} *10*
2184.9	31/2$^-$	334.4[@] *5*	35.2[@] *20*	1850.7	29/2$^-$			
		648.3[@] *5*	100[@]	1536.6	27/2$^-$			
2200.5	(23/2$^-$)	274.0[@] *5*	100[@] *45*	1925.7	(21/2$^-$)	[M1+E2]	0.218 *4*	α(K)=0.183 *3*; α(L)=0.0278 *5*; α(M)=0.00623 *10* α(N)=0.001472 *22*; α(O)=0.000218 *4*; α(P)=1.357×10^{-5} *21*
		530.0[@] *5*	<45[@]	1671.3	(19/2$^-$)	[E2]	0.01606	α(K)=0.01264 *18*; α(L)=0.00264 *4*; α(M)=0.000612 *9* α(N)=0.0001432 *21*; α(O)=1.99×10^{-5} *3*; α(P)=8.55×10^{-7} *13*
2228.9	31/2$^+$	321.4 *5*	100	1907.3	29/2$^+$			
		623.1 *5*	42 *4*	1605.8	27/2$^+$			
2248.001	(15/2$^+$)	194.612 *20*	55 *13*	2053.392	(13/2$^+$)			
		856.9 *5*	100 *15*	1389.659	17/2$^+$	M1(+E2)	0.01132	α(K)=0.00952 *14*; α(L)=0.001394 *20*; α(M)=0.000312 *5* α(N)=7.36×10^{-5} *11*; α(O)=1.096×10^{-5} *16*; α(P)=6.92×10^{-7} *10* E_γ: 856.924 keV *15* in ^{176}Lu(n,γ).
		1262.2 *12*	84 *53*	985.2968	13/2$^+$	M1(+E2)	0.00438	α(K)=0.00368 *6*; α(L)=0.000532 *8*; α(M)=0.0001189 *17* α(N)=2.81×10^{-5} *4*; α(O)=4.19×10^{-6} *6*; α(P)=2.66×10^{-7} *4*; α(IPF)=1.61×10^{-5} *4*
		1429.0 *12*	63 *25*	816.6951	11/2$^+$	(E2)	0.00198	α(K)=0.001624 *23*; α(L)=0.000241 *4*; α(M)=5.40×10^{-5} *8* α(N)=1.272×10^{-5} *18*; α(O)=1.87×10^{-6} *3*; α(P)=1.120×10^{-7} *16*; α(IPF)=4.86×10^{-5} *8*

$^{177}_{71}Lu_{106}$-33

Adopted Levels, Gammas (continued)

γ(^{177}Lu) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[&]	α[a]	Comments
2345.3	(23/2$^+$)	541[@] *1*	100[@]	1804.3	(19/2$^+$)			
2497.9	(29/2$^-$)	521.0[@] *5*	100[@]	1976.9	(25/2$^-$)	[E2]	0.01675	α(K)=0.01316 *19*; α(L)=0.00278 *4*; α(M)=0.000645 *10* α(N)=0.0001507 *22*; α(O)=2.09×10^{-5} *3*; α(P)=8.89×10^{-7} *13*
2539.0	33/2$^-$	353.8[@] *5*	23.5[@] *19*	2184.9	31/2$^-$			
		688.4[@] *5*	100[@]	1850.7	29/2$^-$			
2771.7	33/2$^+$	542.6[@] *5*	78[@] *7*	2228.9	31/2$^+$	[M1]	0.0359	α(K)=0.0302 *5*; α(L)=0.00449 *7*; α(M)=0.001005 *15* α(N)=0.000237 *4*; α(O)=3.53×10^{-5} *5*; α(P)=2.21×10^{-6} *4* B(M1)(W.u.)=7.5×10^{-8} *10*
		586.5[@] *5*	49[@] *5*	2184.9	31/2$^-$	[E1]	0.00448	α(K)=0.00379 *6*; α(L)=0.000540 *8*; α(M)=0.0001202 *17* α(N)=2.82×10^{-5} *4*; α(O)=4.13×10^{-6} *6*; α(P)=2.45×10^{-7} *4* B(E1)(W.u.)=3.6×10^{-10} *5*
		864.4[@] *5*	100[@] *10*	1907.3	29/2$^+$	[E2]	0.00526	α(K)=0.00433 *6*; α(L)=0.000724 *11*; α(M)=0.0001645 *24* α(N)=3.86×10^{-5} *6*; α(O)=5.56×10^{-6} *8*; α(P)=2.99×10^{-7} *5* B(E2)(W.u.)=1.38×10^{-5} *17*
2911.7	35/2$^-$	372.8[@] *5*	21[@] *3*	2539.0	33/2$^-$			
		726.8[@] *5*	100[@]	2184.9	31/2$^-$			
3128.0	35/2$^+$	356.1[@] *5*	100[@]	2771.7	33/2$^+$			
3303.7	37/2$^-$	392.2[@] *5*	11.5[@] *20*	2911.7	35/2$^-$			
		764.6[@] *5*	100[@]	2539.0	33/2$^-$			
3505.4	37/2$^+$	377.4[@] *5*	100[@]	3128.0	35/2$^+$			
3530.4	39/2$^-$	226.7[@] *5*	61[@] *5*	3303.7	37/2$^-$	M1	0.367	α(K)=0.306 *5*; α(L)=0.0467 *8*; α(M)=0.01050 *16* α(N)=0.00248 *4*; α(O)=0.000368 *6*; α(P)=2.28×10^{-5} *4* B(M1)(W.u.)=8.E−8 *3* Mult.: From α(exp)=0.32 *6* (2004Dr06).
		402.2[@] *5*	16[@] *3*	3128.0	35/2$^+$	[M2]	0.271	α(K)=0.218 *4*; α(L)=0.0406 *6*; α(M)=0.00937 *14* α(N)=0.00222 *4*; α(O)=0.000326 *5*; α(P)=1.92×10^{-5} *3* B(M2)(W.u.)=0.0011 *4*
		618.7[@] *5*	100[@] *9*	2911.7	35/2$^-$	[E2]	0.01106	α(K)=0.00886 *13*; α(L)=0.001701 *25*; α(M)=0.000392 *6* α(N)=9.17×10^{-5} *13*; α(O)=1.289×10^{-5} *19*; α(P)=6.05×10^{-7} *9* B(E2)(W.u.)=8.E−6 *3*
		758.8[@] *5*	27[@] *7*	2771.7	33/2$^+$	[E3]	0.01692	α(K)=0.01283 *18*; α(L)=0.00315 *5*; α(M)=0.000742 *11* α(N)=0.0001740 *25*; α(O)=2.40×10^{-5} *4*; α(P)=9.78×10^{-7} *14* B(E3)(W.u.)=0.09 *4*

[†] From ^{176}Lu(n,γ) E=thermal, unless otherwise stated.
[‡] From ^{177}Lu IT decay (160.4 d).

$^{177}_{71}Lu_{106}$-34

Adopted Levels, Gammas (continued)

$\gamma(^{177}Lu)$ (continued)

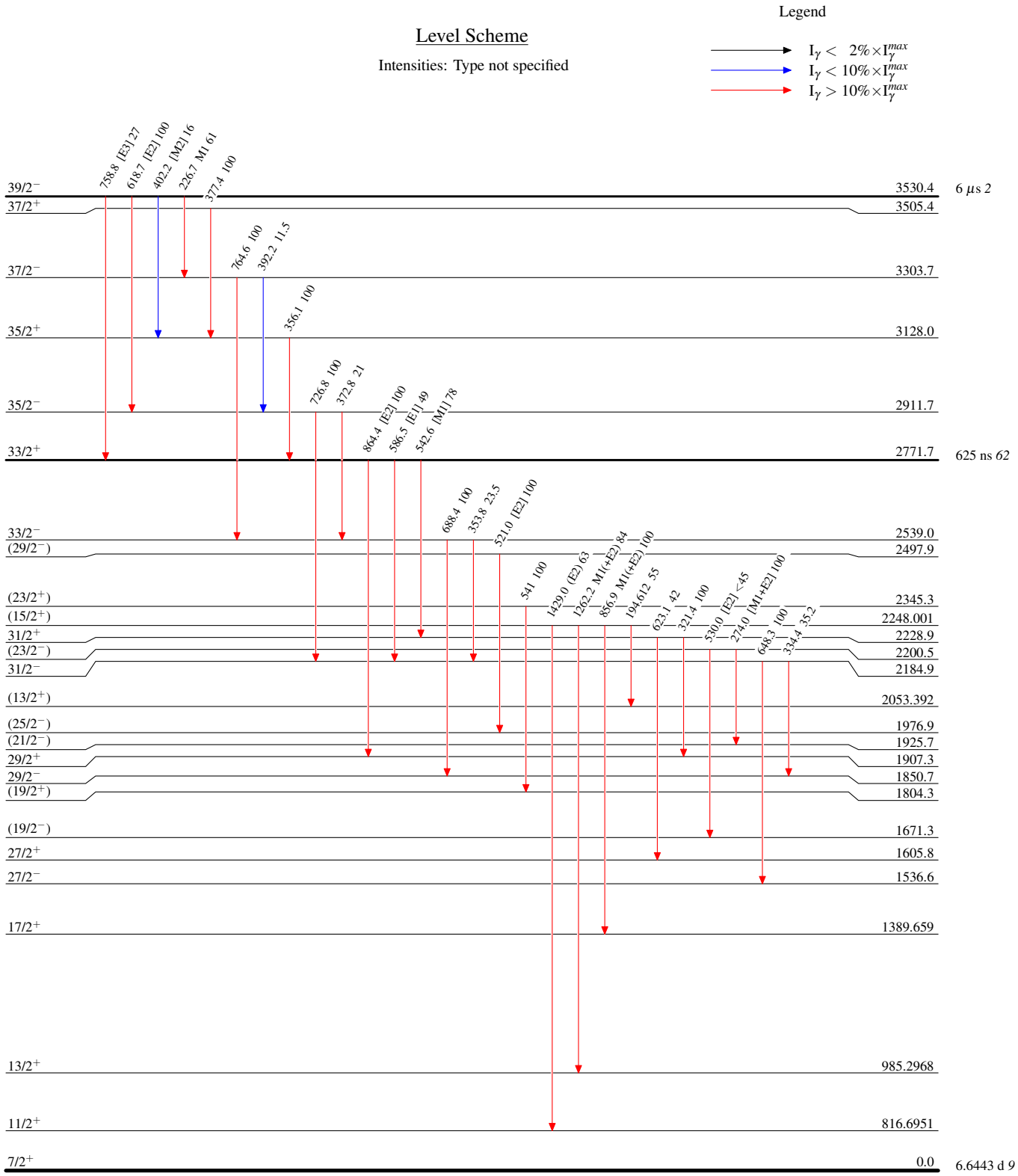
From ^{177}Yb β^- decay.
@ From (HI,xnγ).
& From ce in $^{176}Lu(n,\gamma)$ E=thermal (1996Pe05,1971Ma45), unless otherwise stated.
a Additional information 1.
b If No value given it was assumed δ=0.00 for E2/M1, δ=1.00 for E3/M2 and δ=0.10 for the other multipolarities.
c Placement of transition in the level scheme is uncertain.

$^{177}_{71}Lu_{106}$-35

Adopted Levels, Gammas

Level Scheme

Intensities: Type not specified

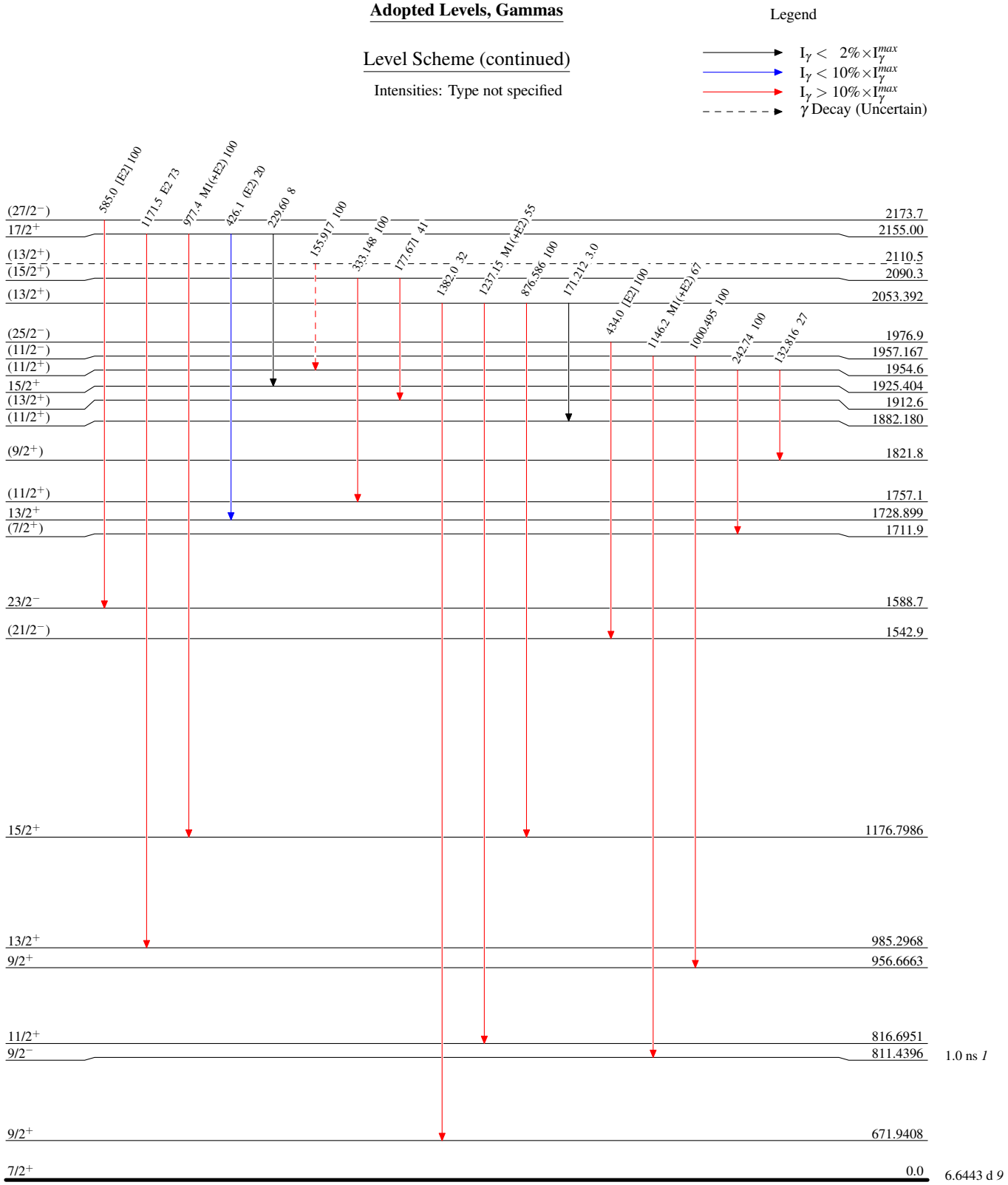


$^{177}_{71}Lu_{106}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

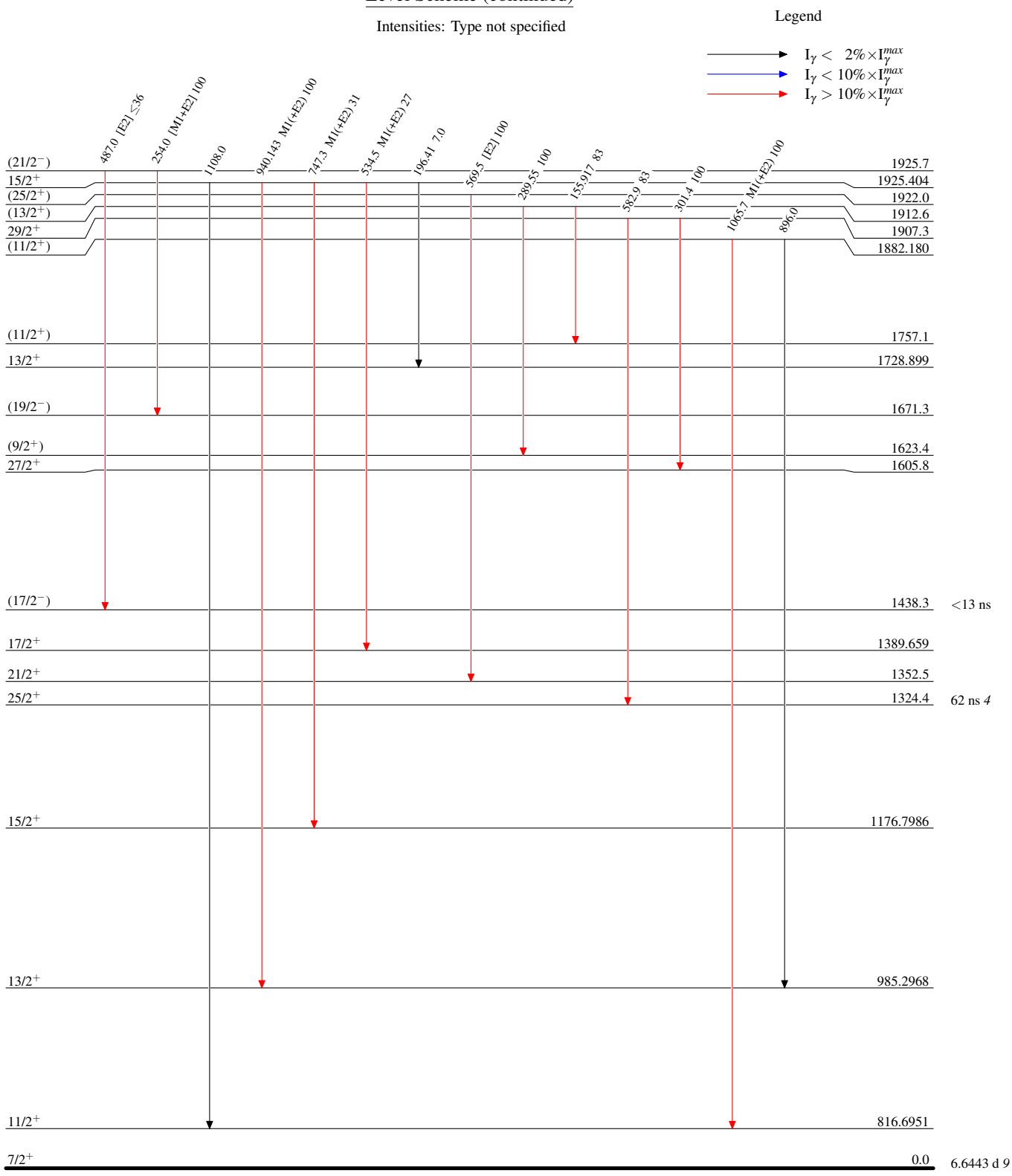


$^{177}_{71}Lu_{106}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

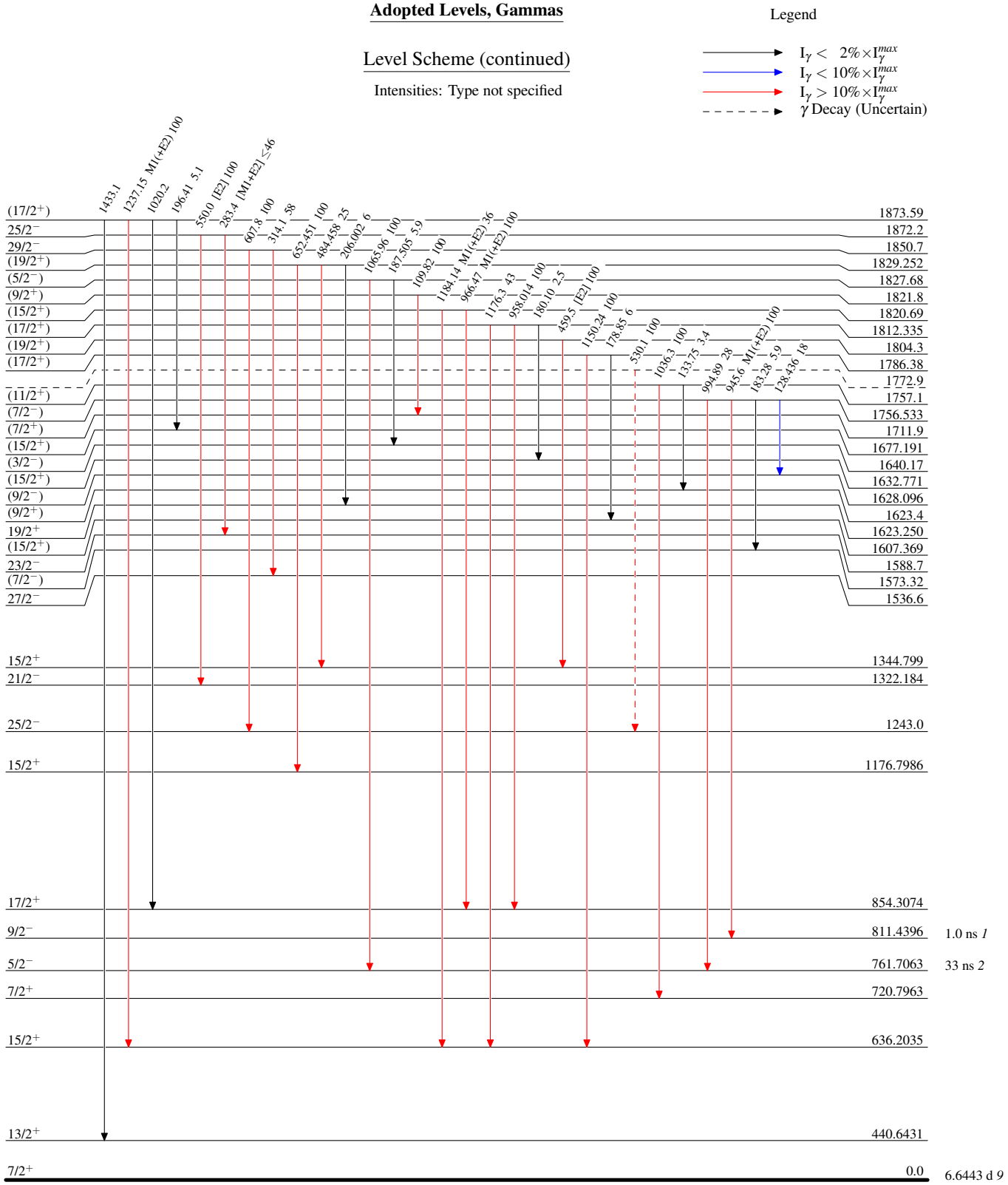


$^{177}_{71}Lu_{106}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

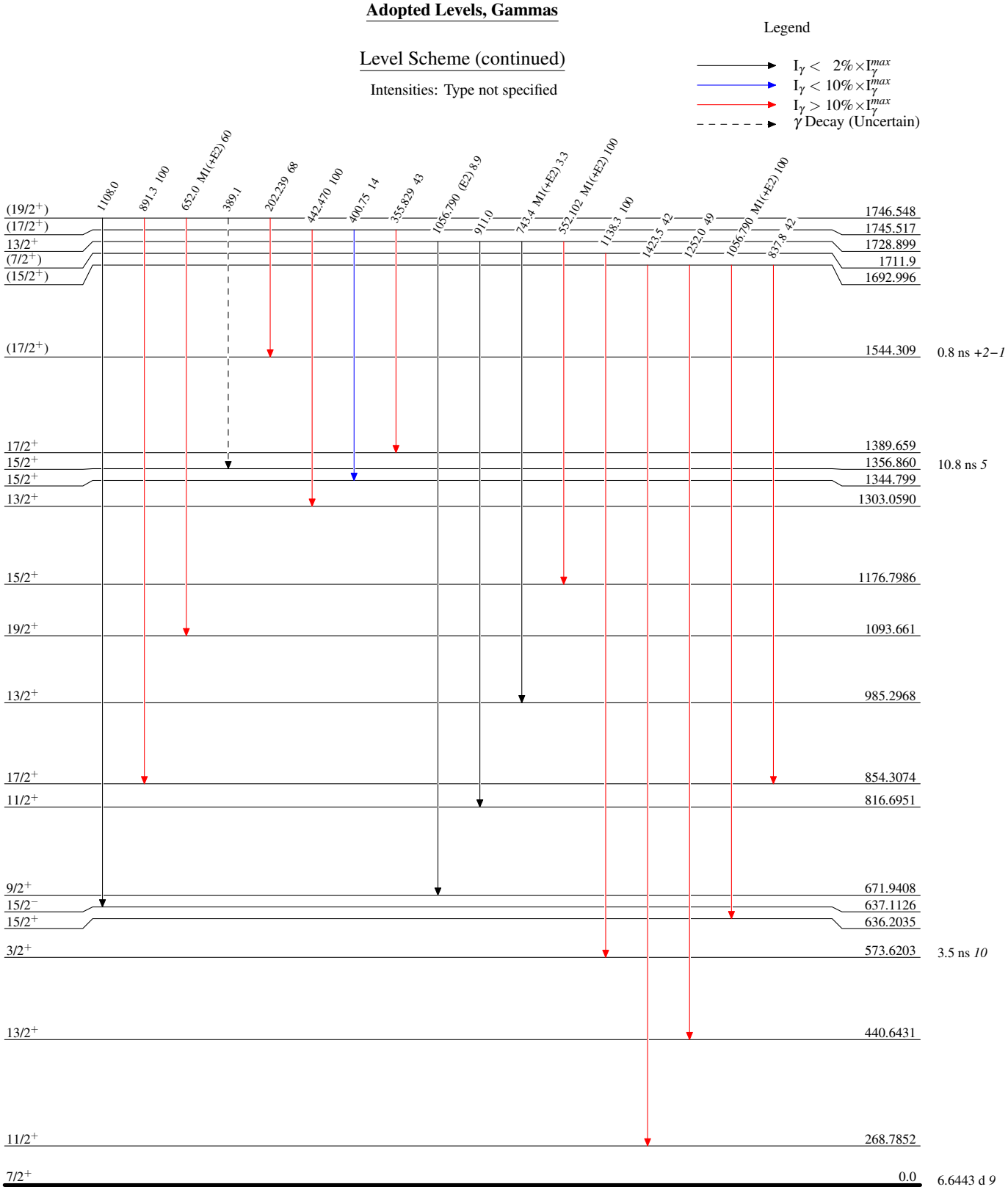


$^{177}_{71}Lu_{106}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

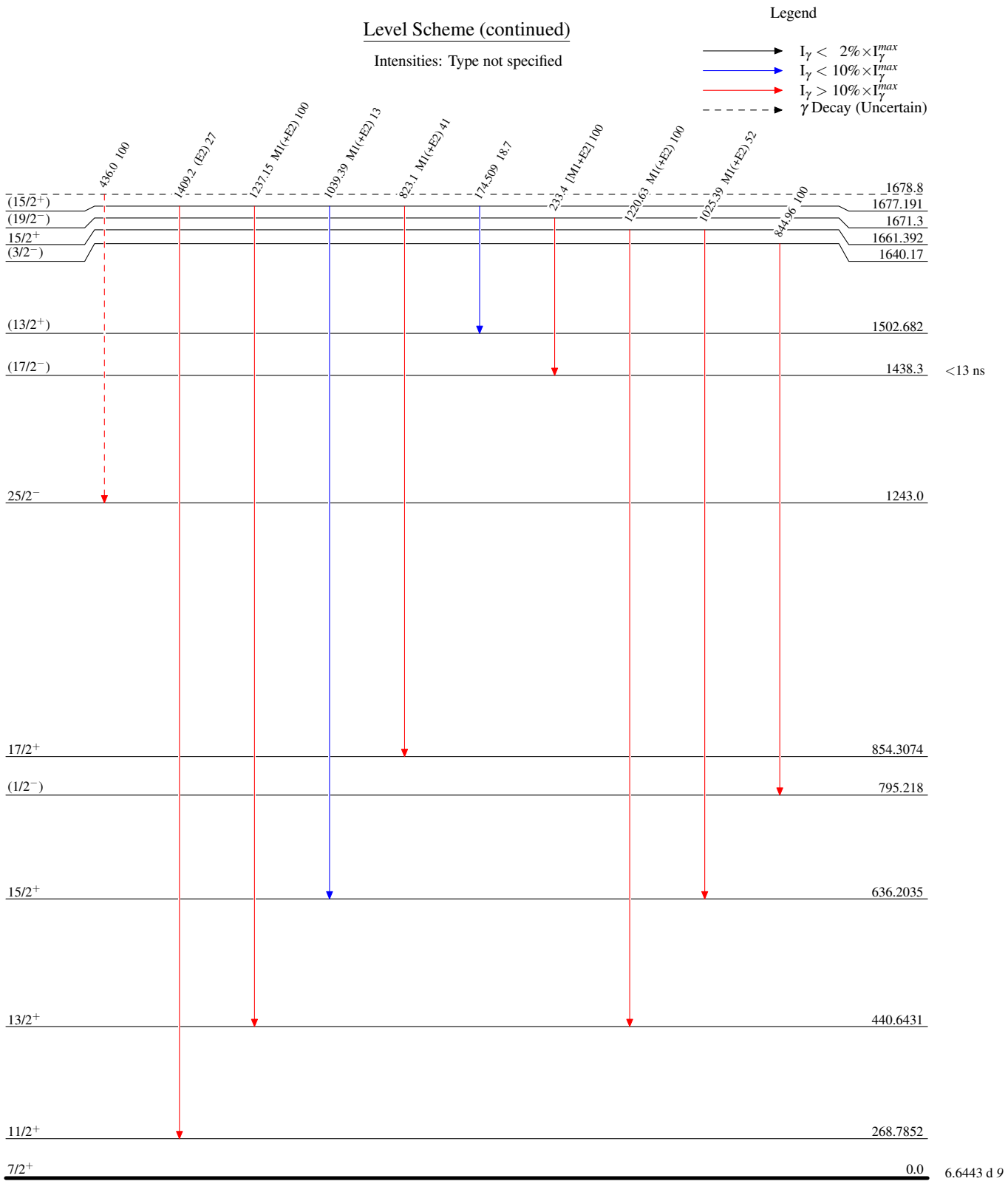


$^{177}_{71}Lu_{106}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

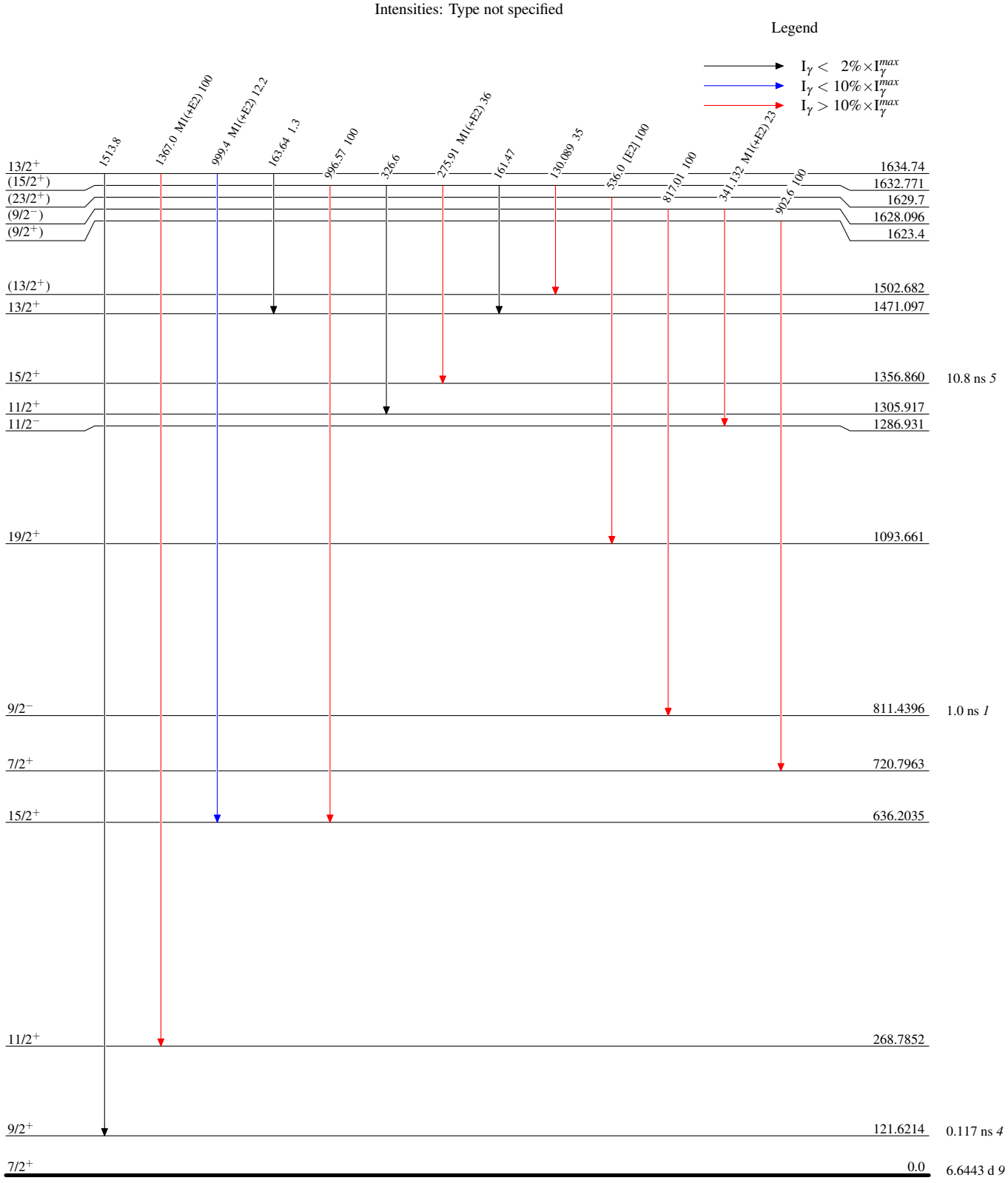


$^{177}_{71}Lu_{106}$

Adopted Levels, Gammas

Level Scheme (continued)

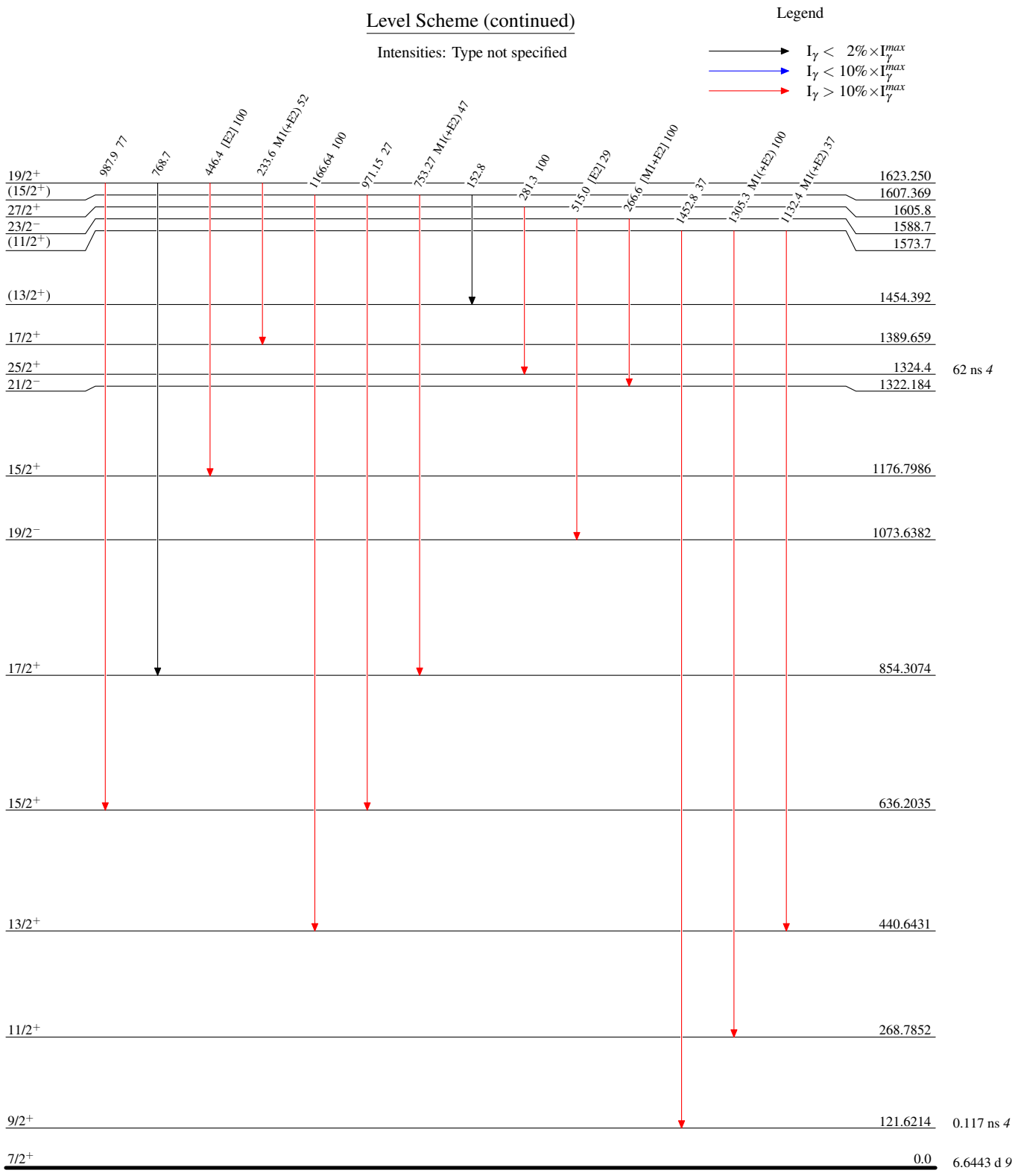
Intensities: Type not specified



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

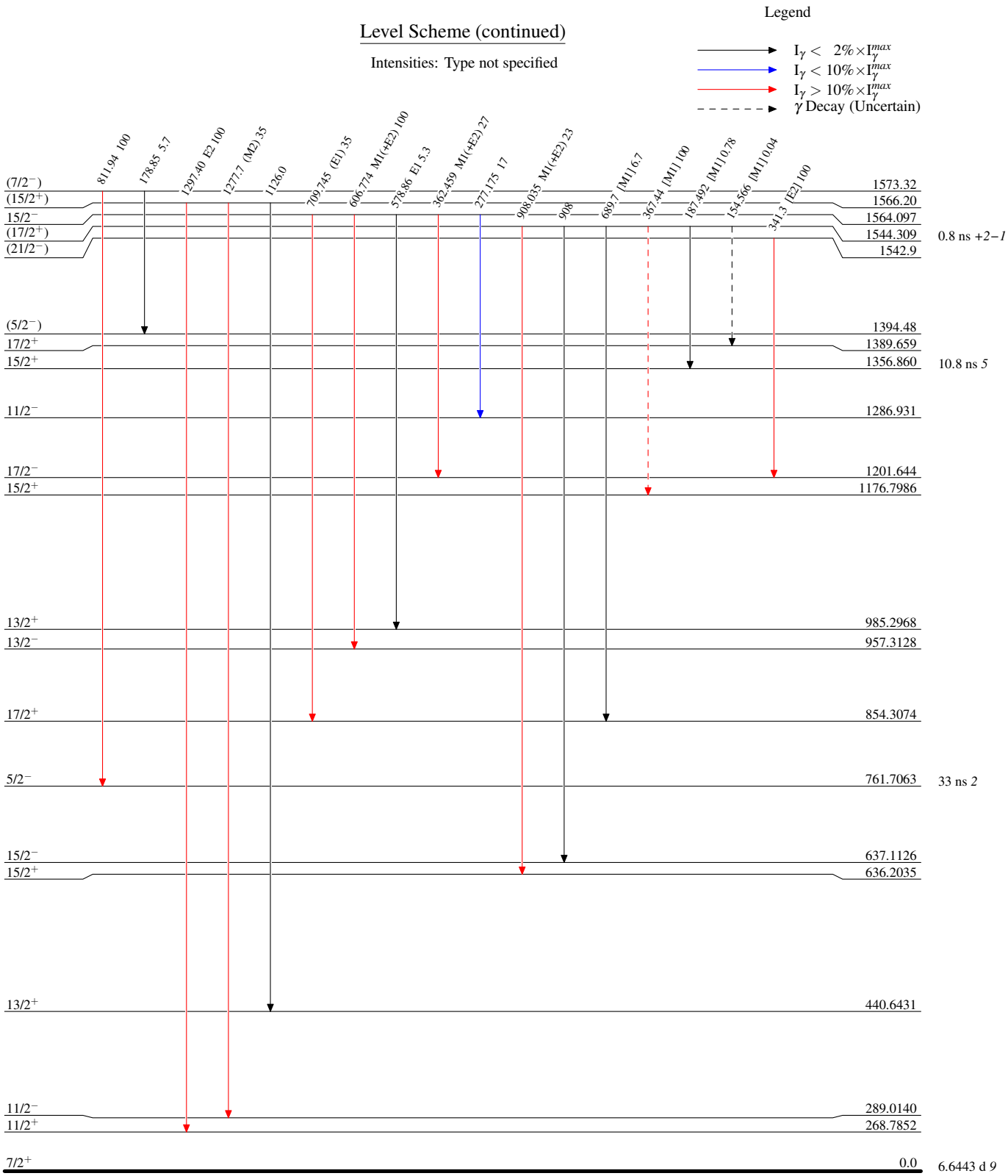


$^{177}_{71}Lu_{106}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

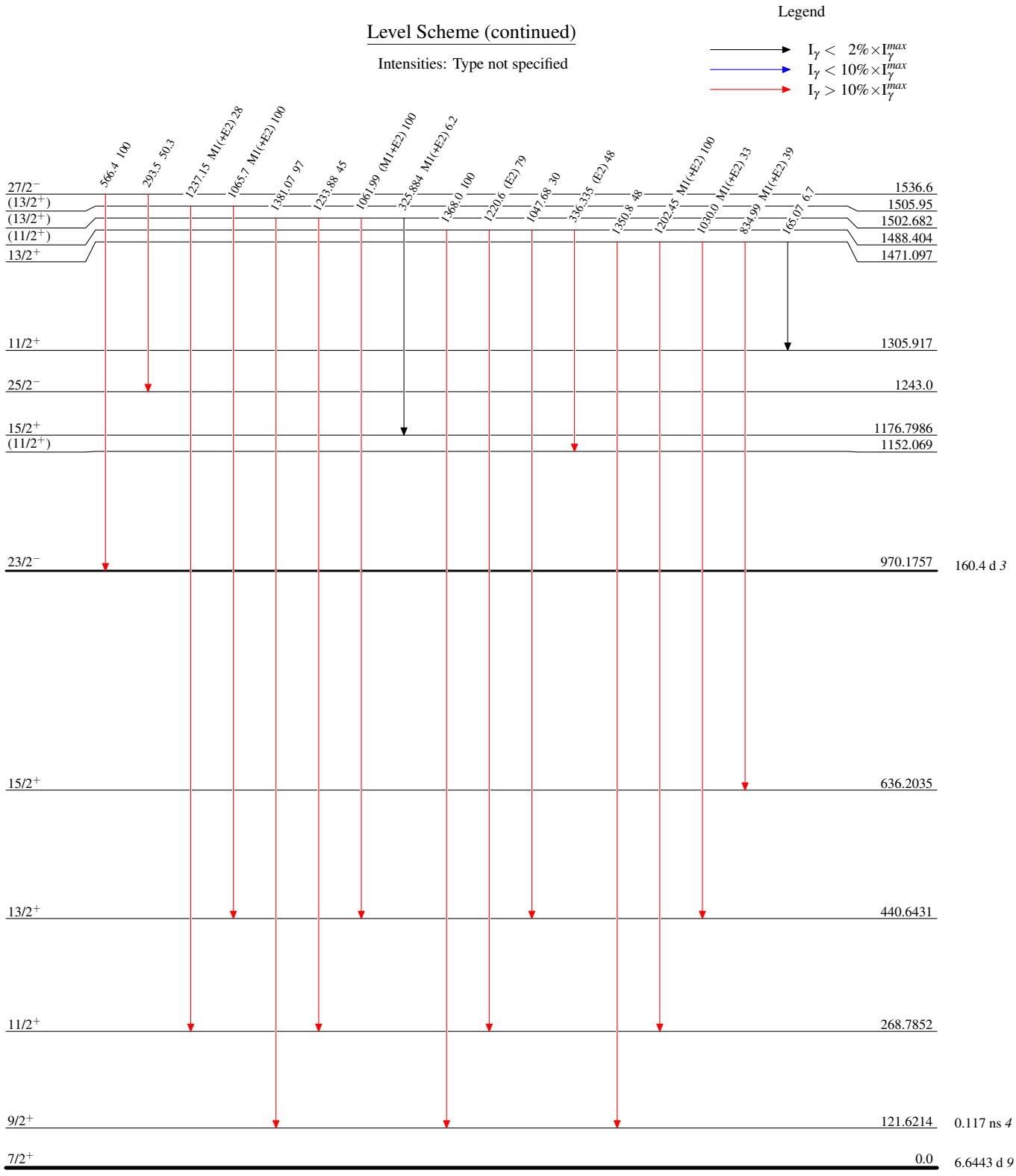


$^{177}_{71}Lu_{106}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

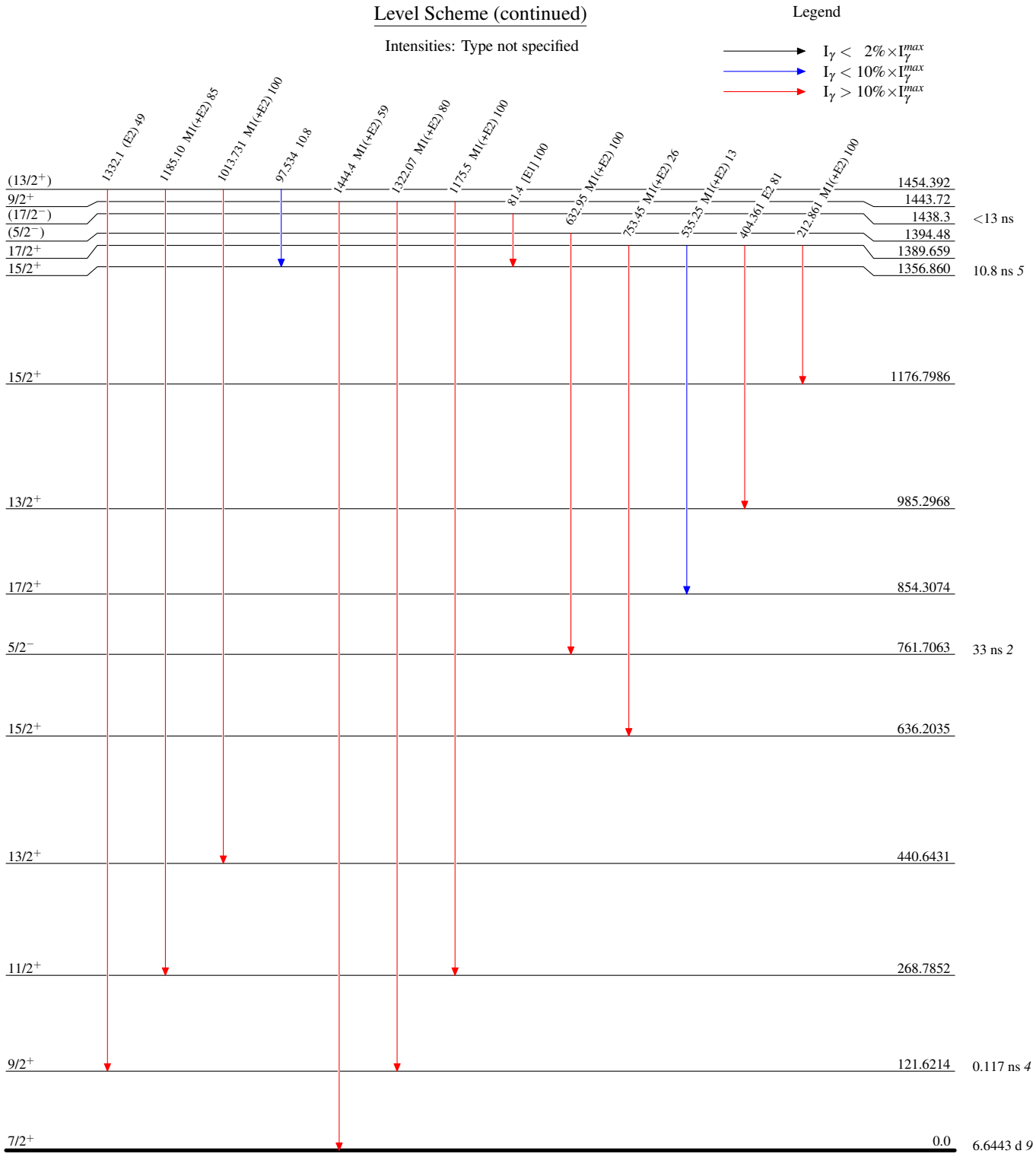


$^{177}_{71}Lu_{106}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

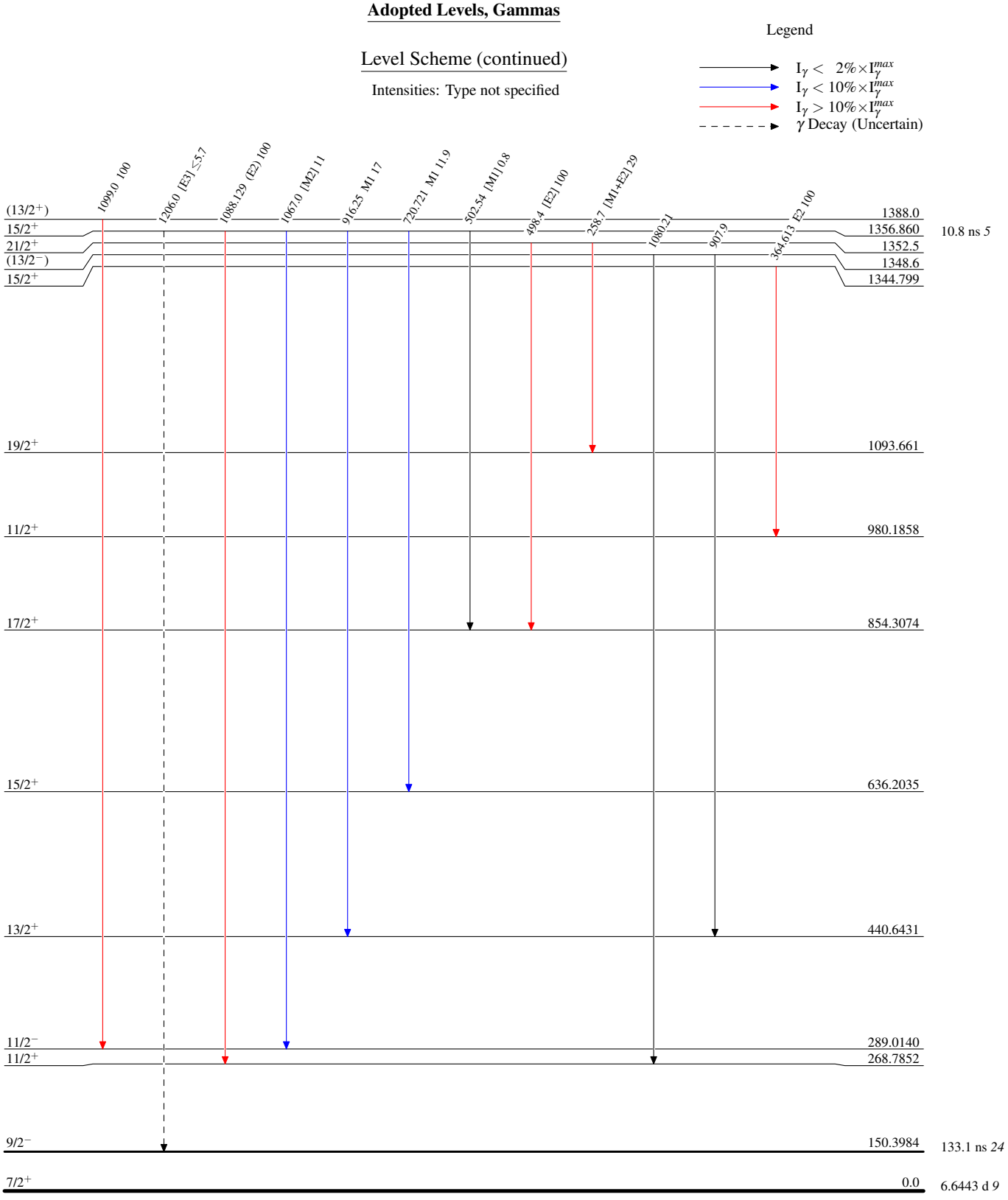


$^{177}_{71}Lu_{106}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

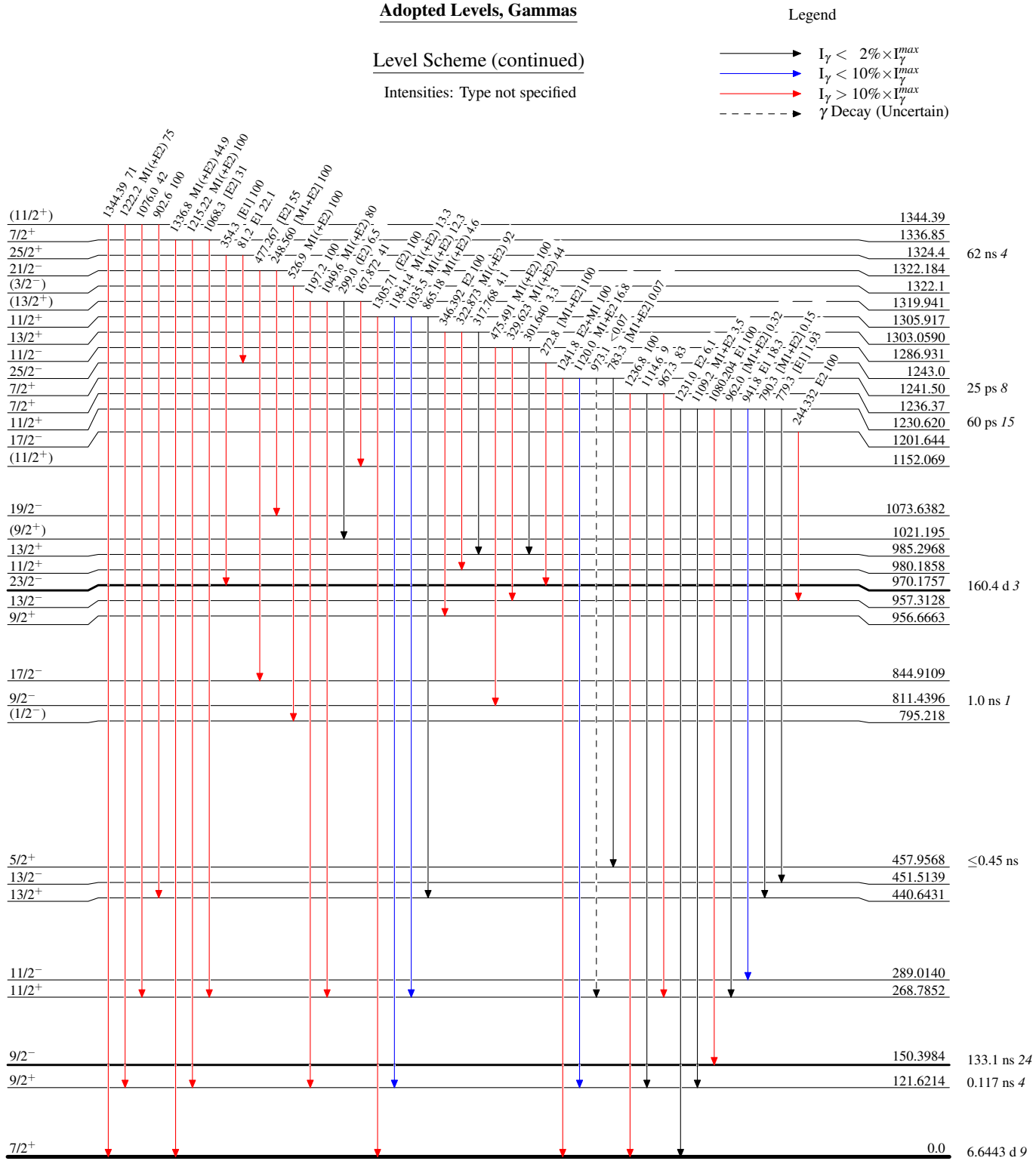


$^{177}_{71}Lu_{106}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

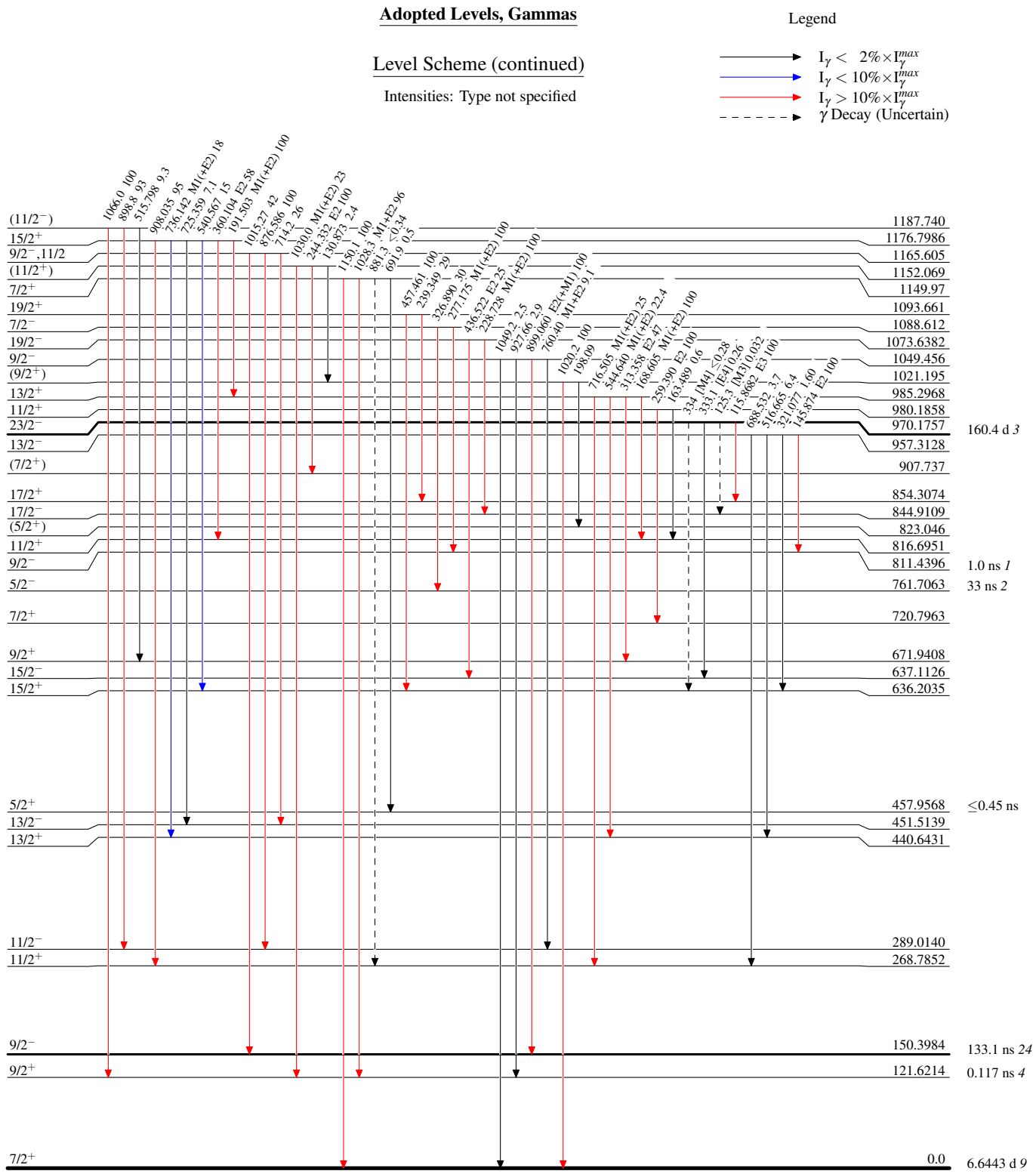


$^{177}_{71}Lu_{106}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

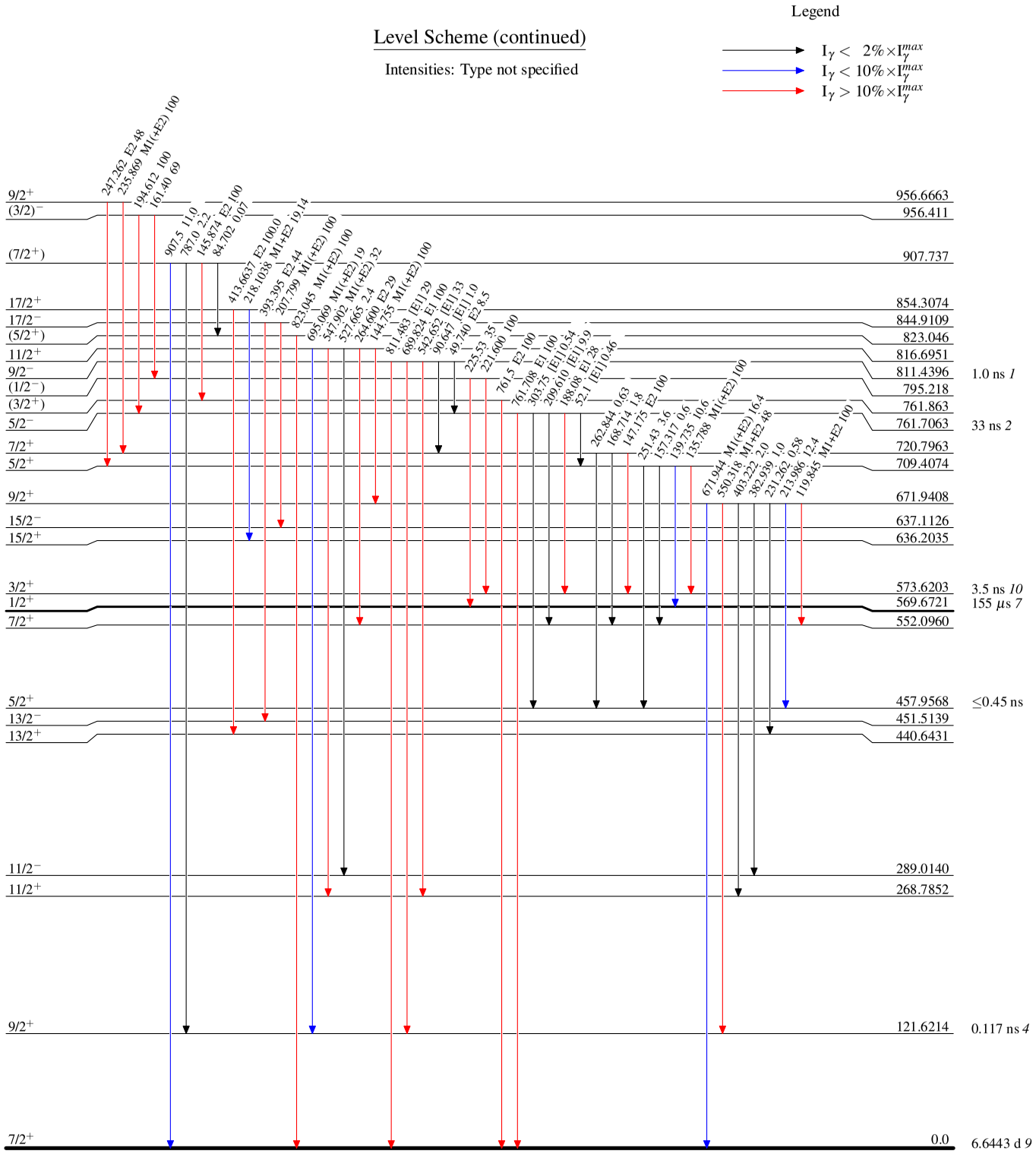


$^{177}_{71}Lu_{106}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

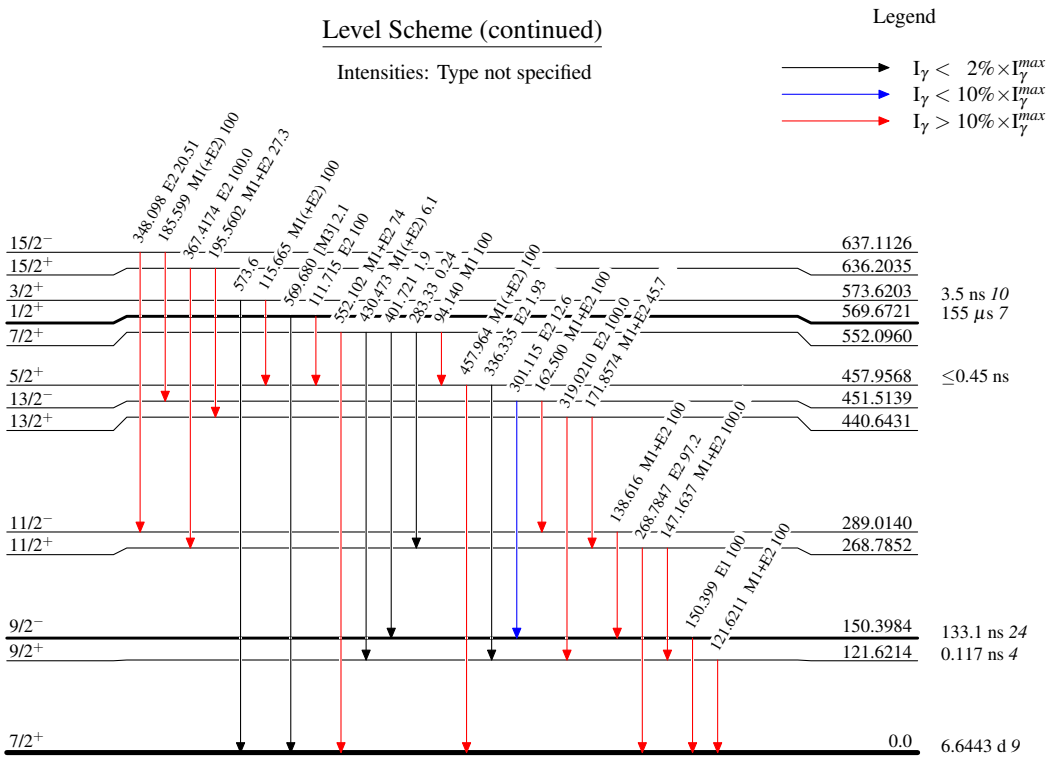


$^{177}_{71}Lu_{106}$

Adopted Levels, Gammas

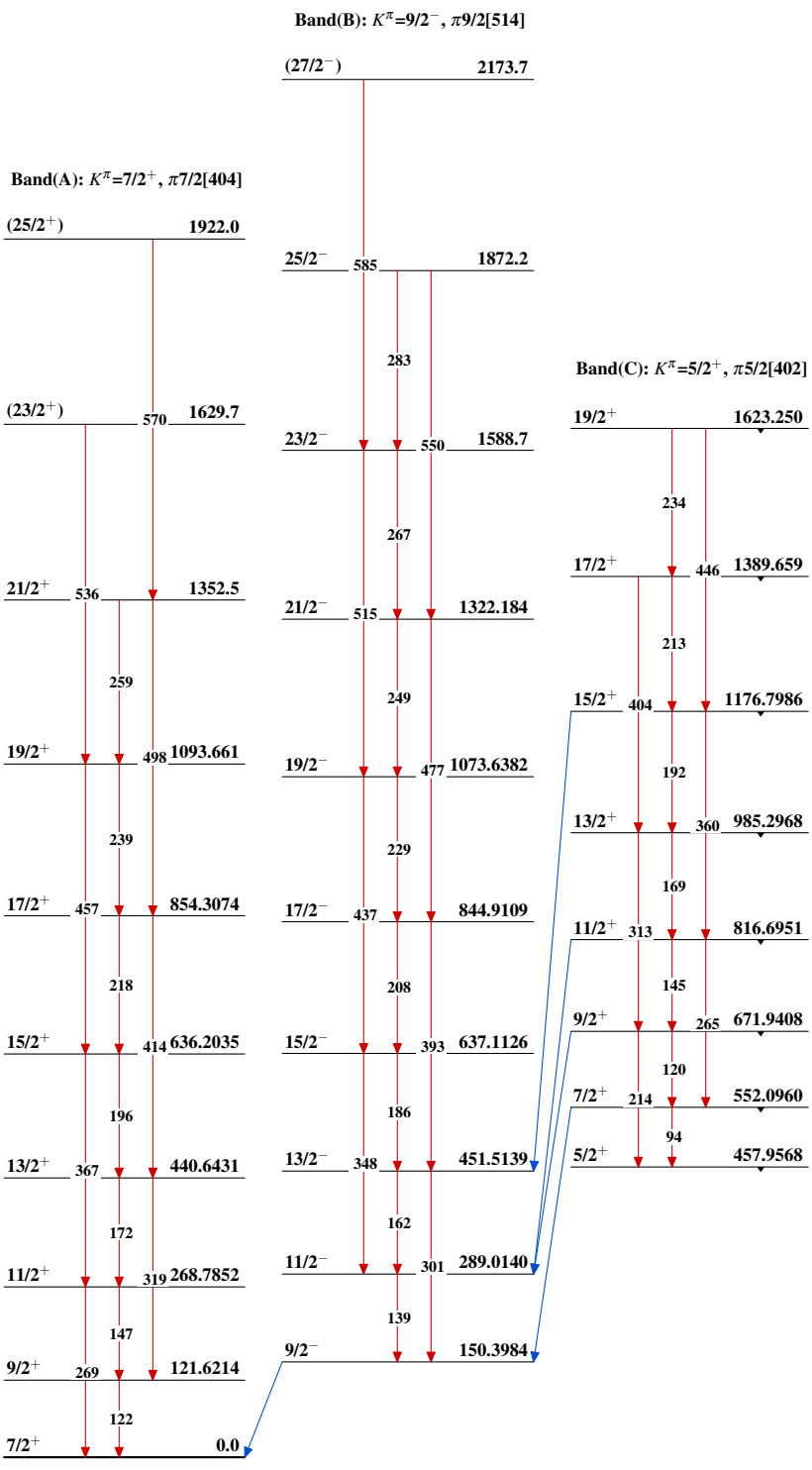
Level Scheme (continued)

Intensities: Type not specified



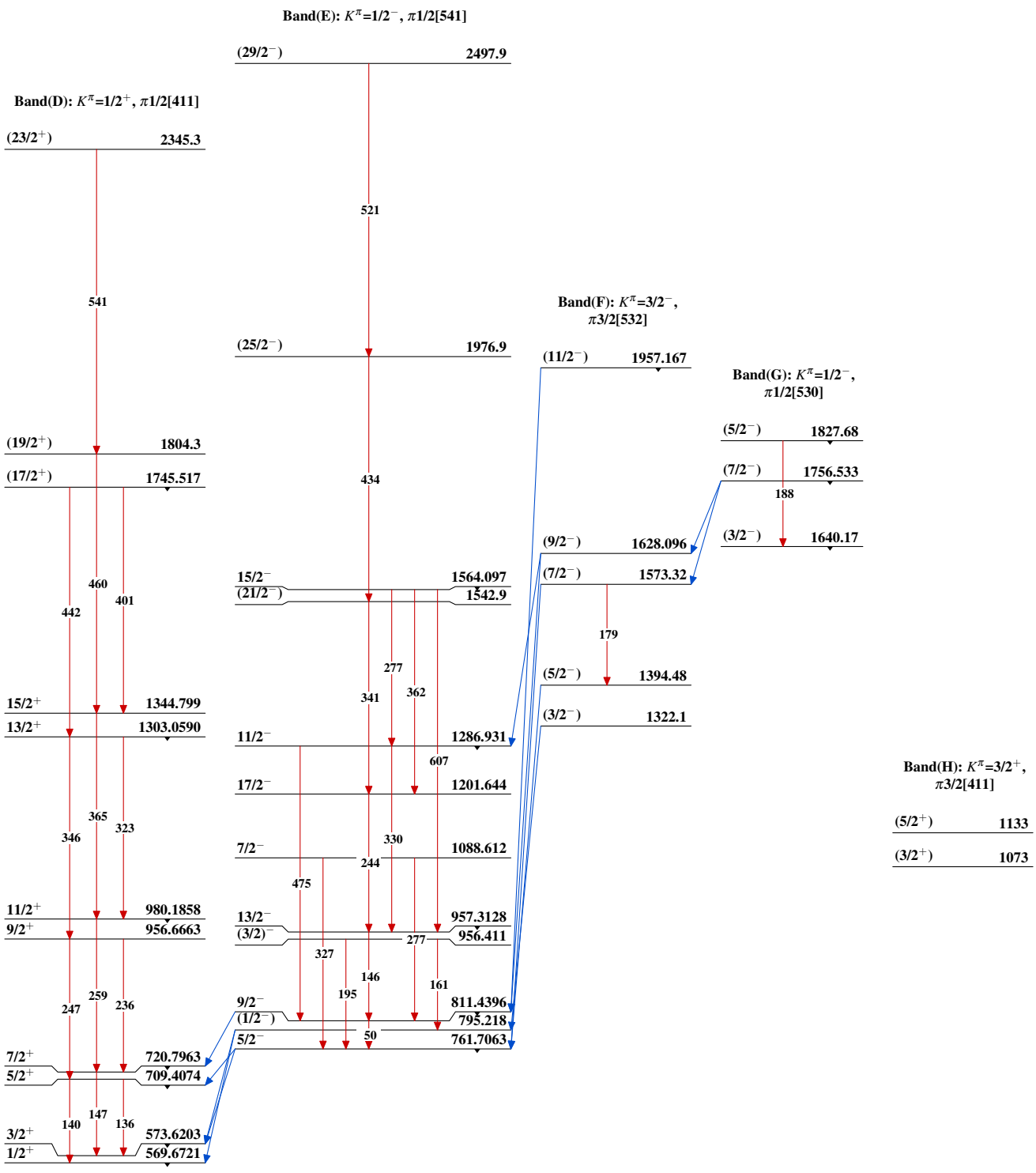
$^{177}_{71}Lu_{106}$

Adopted Levels, Gammas



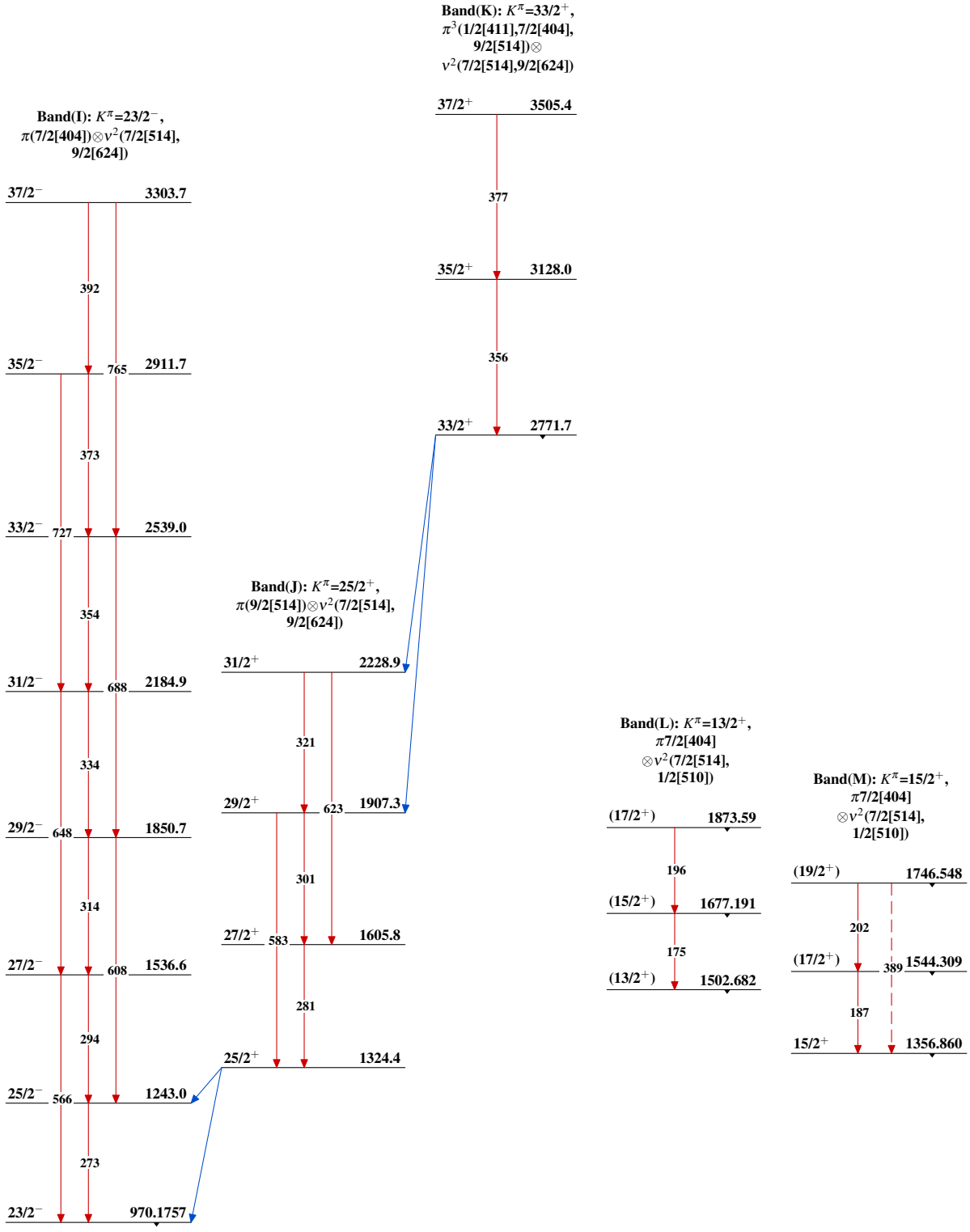
$^{177}_{71}Lu_{106}$

Adopted Levels, Gammas (continued)



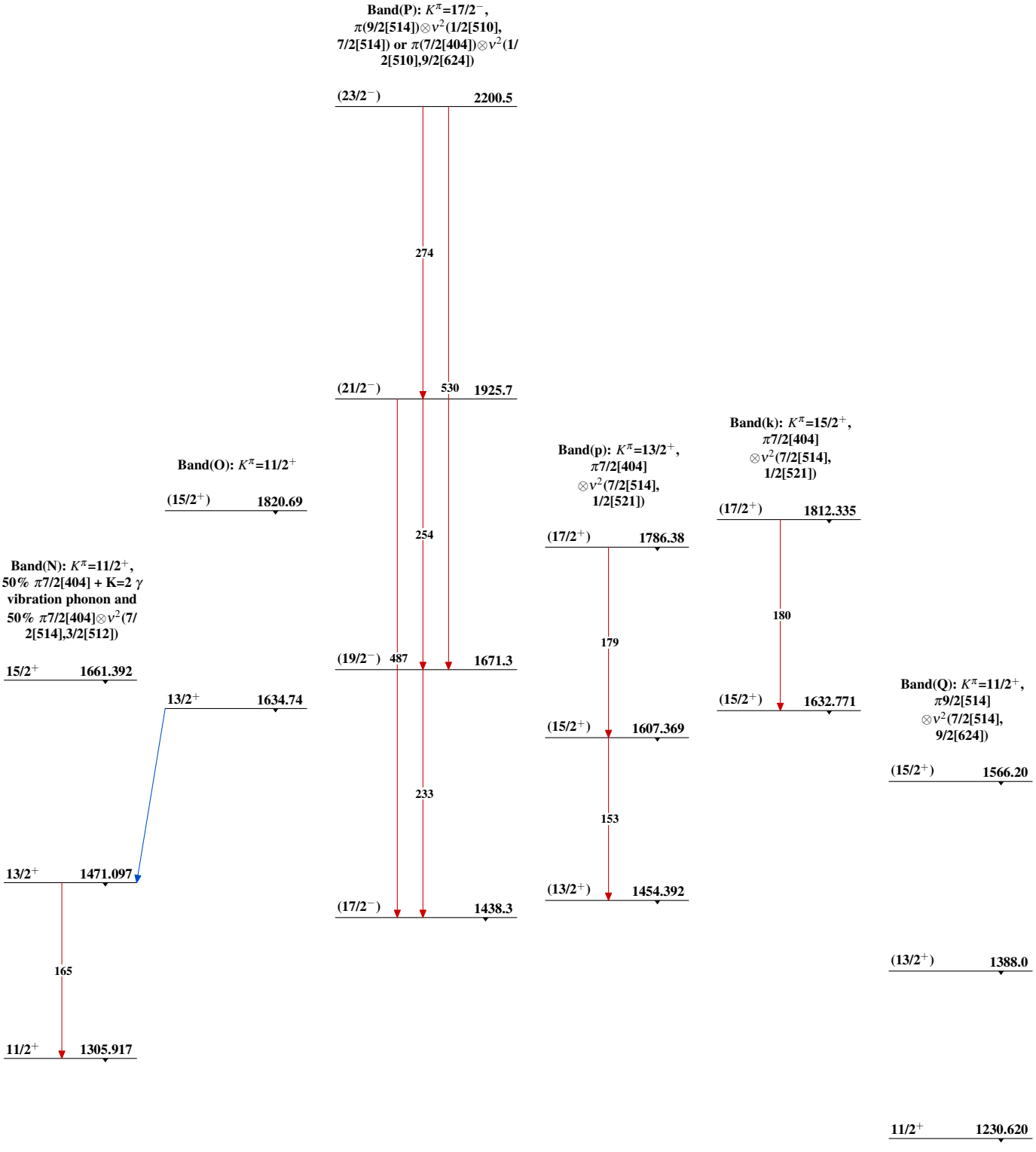
$^{177}_{71}Lu_{106}$

Adopted Levels, Gammas (continued)



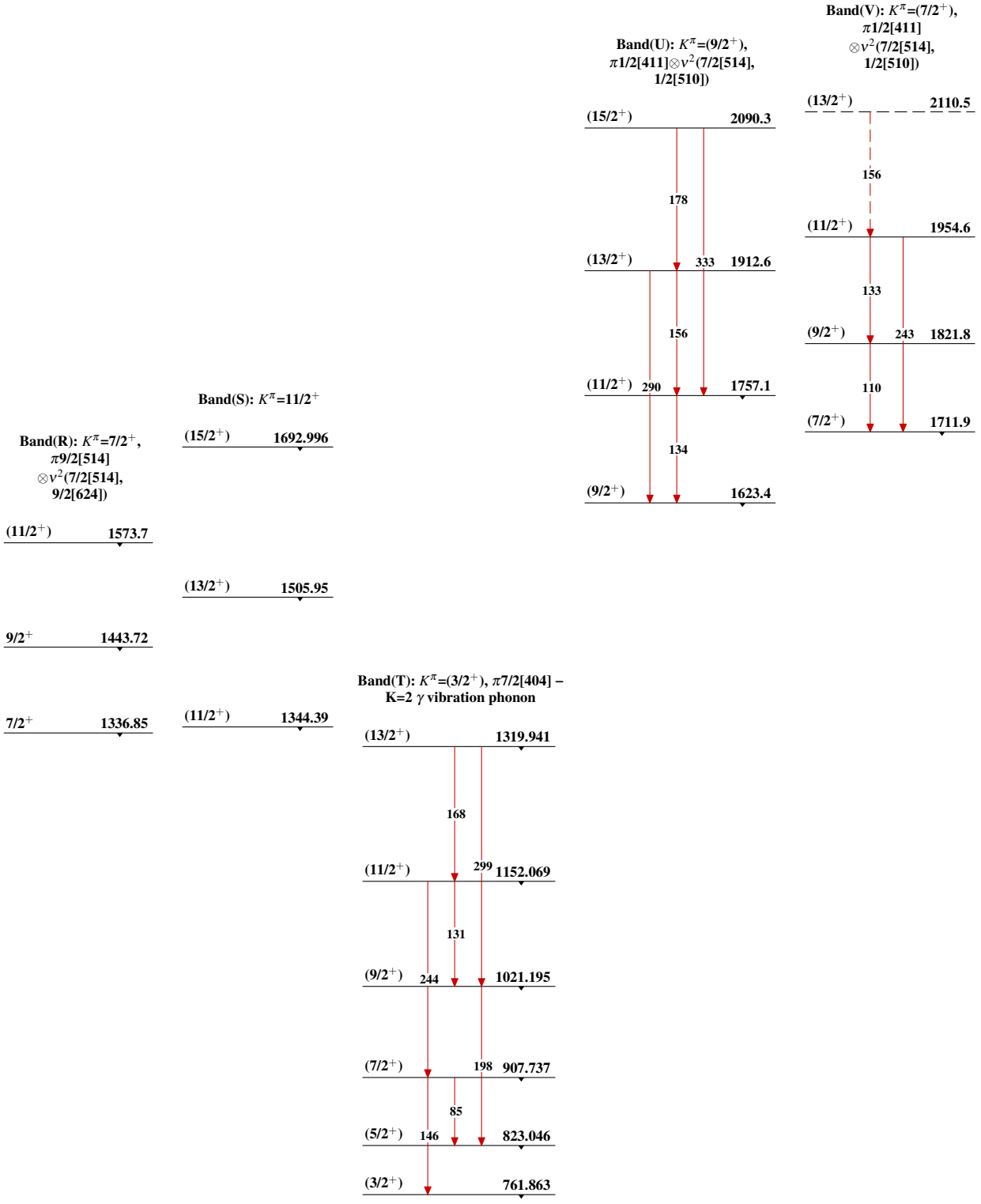
$^{177}_{71}Lu_{106}$

Adopted Levels, Gammas (continued)



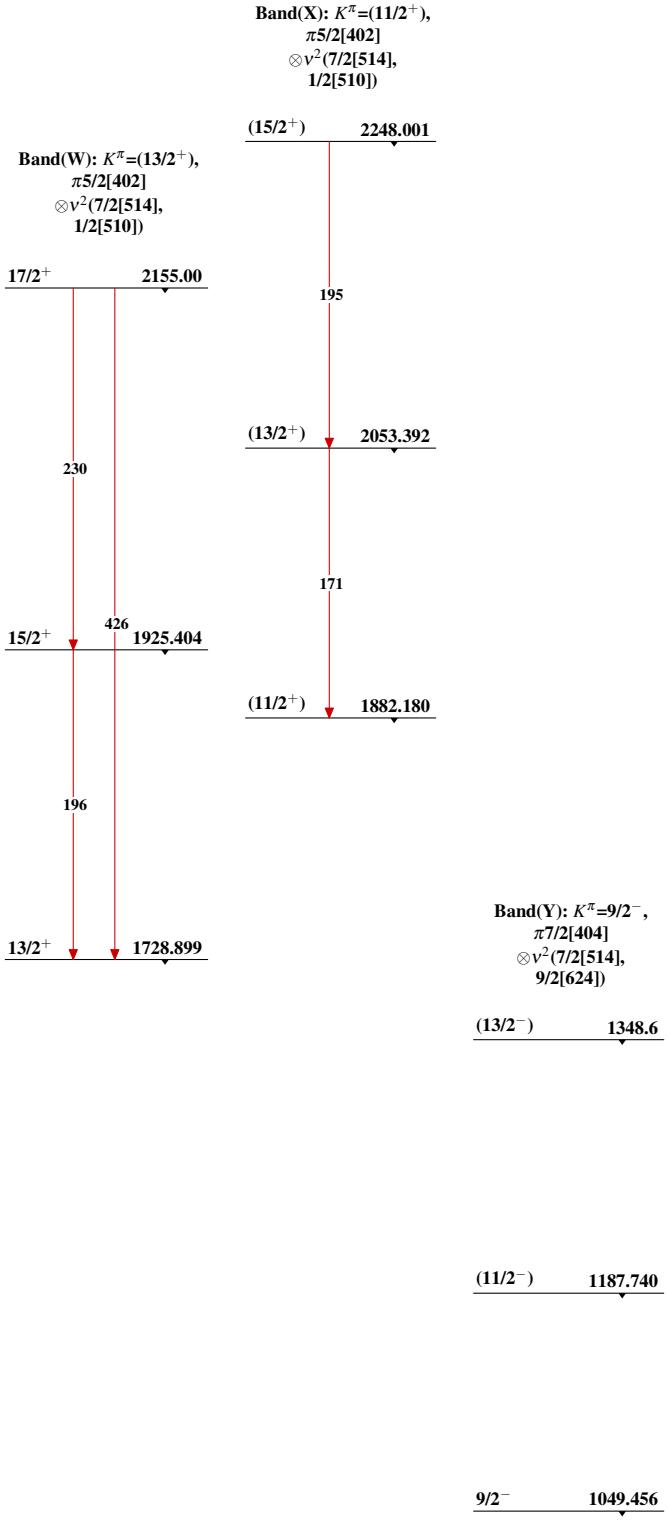
$^{177}_{71}Lu_{106}$

Adopted Levels, Gammas (continued)



$^{177}_{71}Lu_{106}$

Adopted Levels, Gammas (continued)



$^{177}_{71}Lu_{106}$