Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin, E. A. Mccutchan	NDS 151, 334 (2018)	30-Jun-2018

Q(β^-)=−2397 *29*; S(n)=8594 *17*; S(p)=4354.5 *19*; Q(α)=2290.3 *23* 2017Wa10
S(2n)=15886 *4*; S(2p)=11131.1 *20* (2017Wa10).
For isotope shift data see, e.g., 1998Ge13.

^{171}Lu Levels

Cross Reference (XREF) Flags

A	^{171}Lu IT decay (79 s)	E	^{170}Yb(^{3}He,d), (α,t)
B	^{171}Hf ε decay	F	^{160}Gd(^{19}F,α4nγ)
C	^{169}Tm(α,2nγ), ^{171}Yb(p,nγ)	G	^{159}Tb(^{12}C,X)
D	^{170}Yb(p,p) IAR		

E(level)[†]	J$^\pi$[‡]	$T_{1/2}$	XREF	Comments
0.0[&]	7/2$^+$[#]	8.247 d *23*	ABC EF	%ε+%β^+=100 μ=2.293 *4* (1998Ge13); Q=3.525 *25* (1998Ge13) Δ<r^2>(170,171)=+0.076 *8* (1998Ge13). μ: from collinear laser spectroscopy (1998Ge13). Others: 2.305 *12* from NMR on oriented nuclei (1996Ko26), 2.03 *10* from nuclear orientation (1976KR04) relative to μ=+2.239 *11* for ^{177}Lu (0.0 level). Q: from collinear laser spectroscopy (1998Ge13). Other: 3.38 *4* from NMR on oriented nuclei (1996Ko26). J$^\pi$: from atomic beam (1976Fu06); π=+ from agreement with expected μ of 2.21 for 7/2[404] proton orbital (1998Ge13). $T_{1/2}$: weighted average of 8.28 d *4* (1960Wi16), 8.22 d *3* (1970Ka23), and 8.29 d *7* (2011Ma01). Others: 1951Wi08, 1957Mi65, 1960Dz02, 1962Bo12 (8.2 d 1), 1962Va17, 1963Ra14.
71.13[l] *8*	1/2$^-$	79 s *2*	ABC eF	%IT=100 μ=0.585 *7* (1998Ge13) Δ<r^2>(170,171)=+0.33 *3* (1998Ge13). μ: from collinear laser spectroscopy. J$^\pi$: E3 γ to 7/2$^+$; band decoupling parameter rules out J=13/2. Supported by μ which is comparable to that expected (=0.72) for 1/2[541] proton orbital. $T_{1/2}$: from 1967Gi10. Other value: 76 s *4* (1965Bj01).
73.01[l] *9*	5/2$^-$		BC eF	J$^\pi$: 71.1-73.0-159.2 level spacings and E2 γ between 73.0 and 159.2 are consistent with 5/2$^-$ 1/2[541] and 9/2$^-$ 1/2[541] band assignments for 73.0 and 159.2 levels, respectively.
122.058[@] *25*	9/2$^+$[#]		BC F	J$^\pi$: 0.0-122.0-269.1 level spacings and connecting M1+E2 γ's consistent with 9/2$^+$ 7/2[404] and 11/2$^+$ 7/2[404], respectively, for 122.0 and 269.1 levels.
159.37[l] *10*	9/2$^-$		BC EF	J$^\pi$: see comment with 73.0 level.
206.44[m] *12*	(3/2)$^-$		BC eF	J$^\pi$: M1(+E2) 133γ to 5/2$^-$, 135γ to 1/2$^-$; band assignment.
208.15[j] *9*	(1/2)$^+$	29.7 ns *11*	BC eF	J$^\pi$: E1 137γ to 1/2$^-$; L=0 component in 206+208 doublet based on σ(^{3}He,d)/σ(α,t) in ^{170}Yb(^{3}He,d), (α,t). $T_{1/2}$: 137γ-γ(t), ceγ(t), Xγ(t) in ^{171}Hf ε decay (1972Lo22). Other values (from ^{169}Tm(α,2nγ), ^{171}Yb(p,nγ)): 30 ns *3* ($\gamma\gamma$(t) (1972An06)), 33 ns *3* ($\gamma\gamma$(t) (1972Hj02)). Other: 1972Ba63.
220.71[i] *9*	(3/2)$^+$		BC EF	XREF: E(223). J$^\pi$: γ's to (1/2)$^+$ and 1/2$^-$ and 5/2$^-$; band assignment.
269.13[&] *4*	11/2$^+$[#]		BC F	J$^\pi$: see comment with 122.0 level.

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Adopted Levels, Gammas (continued)

^{171}Lu Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$	XREF	Comments
295.58[e] *4*	5/2+	826 ps *30*	BC EF	Jπ: M1+E2 296γ to 7/2+; spectroscopic strengths in (^{3}He,d) and in (α,t) are in excellent agreement with Nilsson model calculation for 5/2+ 5/2[402] state. $T_{1/2}$: ce(t) in ^{171}Yb(p,nγ),(d,2nγ) (1978Gu18). Others (from ^{169}Tm(α,2nγ),^{171}Yb(p,nγ)): ≤ 1 ns (1973Sc20), 850 ps *200* (1976Sc19).
333.80[j] *10*	(5/2)+		BC EF	Jπ: M1+E2 113γ to (3/2)+; J=5/2 consistent with band assignment.
336.60[l] *10*	13/2−		BC F	Jπ: stretched E2 177γ to 9/2−; band assignment.
364.98[i] *9*	(7/2)+		BC F	Jπ: M1(+E2) 31γ to (5/2)+; stretched E2 144γ to (3/2)+.
379.45[m] *10*	7/2−		BC EF	Jπ: M1+E2 306γ to 5/2−; M1+E2 220γ to 9/2−; band assignment.
394.72[f] *5*	7/2+		BC EF	Jπ: 295.6-394.7-519.3-670.9 level spacings and connecting M1 and E2 γ′s are consistent with 7/2+ 5/2[402], 9/2+ 5/2[402], and 11/2+ 5/2[402] for 394.7, 519.3 and 670.9 levels, respectively.
440.15[@] *6*	13/2+[#]		BC F	Jπ: M1+E2 171γ to 11/2+, E2 318γ to 9/2+.
469.21[o] *5*	9/2−	≤0.2 ns	BC EF	Jπ: E1 469γ to 7/2+, E1 200γ to 11/2+. $T_{1/2}$: γγ(t) in ^{171}Yb(p,nγ) (1976Sc19). Other value (from ^{169}Tm(α,2nγ), ^{171}Yb(p,nγ)):<0.5 ns (1973Sc20).
519.32[e] *8*	9/2+		BC EF	Jπ: see comment with 395 level.
558.88[j] *12*	(9/2)+		BC F	Jπ: E2 225γ to (5/2)+, 194γ to (7/2)+; band assignment.
593.74[p] *11*	11/2−		BC EF	Jπ: M1 125γ to 9/2−; 469-593-742 level spacings and connecting γ′s consistent with 11/2− 9/2[514] and 13/2− 9/2[514], respectively, for 594 and 742 levels.
606.96[l] *11*	(17/2−)		C F	
612.35[i] *11*	(11/2)+		BC F	Jπ: stretched E2 247γ to (7/2)+, 453γ to 9/2−.
620.00[m] *11*	11/2−		BC EF	XREF: E(625). Jπ: M1+E2 461γ to 9/2−, M1+E2 283γ to 13/2−.
634.06[&] *9*	15/2+[#]		C F	Jπ: stretched E2 365γ to 11/2+.
662.24[q] *7*	(7/2)−		BC	Jπ: E1 662γ to 7/2+, E1 540γ to 9/2+; E(level) consistent with expected position for 7/2[523] bandhead.
670.82[f] *10*	11/2+		BC F	Jπ: see comment with 395 level.
742.78[o] *14*	13/2−		BC F	Jπ: see comment with 593 level.
788.50[q] *9*	(9/2)−		B	Jπ: E1 666γ to 9/2+, M1 126γ to 7/2−, 519γ to 11/2+.
801 *2*	(3/2+,5/2+)		E	Jπ: L=(2) from σ(^{3}He,d)/σ(α,t).
842.20[e] *17*	(13/2+)		C F	
849.72[@] *9*	17/2+[#]		C F	
875.08[j] *16*	(13/2+)		C F	
910.09 *18*	(5/2)+		B	Jπ: 704γ to (3/2)−, 531γ to 7/2−, 624γ from (7/2+).
915.09[p] *14*	(15/2−)		C F	
933.70[m] *15*	(15/2−)		C F	
942.71 *14*	(7/2)+		B	Jπ: 784γ to 9/2−, 870γ to 5/2−, M1 592γ from (7/2)+.
951.92[i] *13*	(15/2+)		C F	
968[r] *2*	(5/2−)		E	Jπ: σ(^{3}He,d)/σ(α,t) and spectroscopic strength in (^{3}He,d), (α,t); ≈ 960 keV predicted for 5/2− 3/2[532] state from extrapolation of energies for corresponding levels in ^{177}Lu, ^{175}Lu, ^{173}Lu.
968.90[l] *14*	(21/2−)		C F	
1042.98[f] *17*	(15/2+)		C F	
1047 *2*	(3/2+)		E	Jπ: σ(^{3}He,d)/σ(α,t) and spectroscopic strength in (^{3}He,d), (α,t); 1050 keV predicted for a 3/2+ state in ^{171}Lu from interaction of quasiparticle states with phonons. Possible 3/2[402] component.
1085.88[&] *17*	19/2+[#]		C F	
1089 *2*	(5/2−,7/2−)		E	Jπ: L=(3) from σ(^{3}He,d)/σ(α,t) in (^{3}He,d), (α,t).
1111[s] *4*	(3/2−)		E	Jπ: σ(^{3}He,d)/σ(α,t) and spectroscopic strength in (^{3}He,d), (α,t); ≈ 1110

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Adopted Levels, Gammas (continued)

^{171}Lu Levels (continued)

E(level)[†]	Jπ[‡]	XREF	Comments
			keV predicted for 3/2⁻ 1/2[530] state from extrapolation of energies for corresponding levels in ^{177}Lu, ^{175}Lu, ^{173}Lu.
1111.28[o] *16*	(17/2⁻)	C F	
1139 *2*	(1/2⁺)	E	Jπ: σ(^{3}He,d)/σ(α,t) and spectroscopic strength in (^{3}He,d), (α,t) favor L=0. Possible 1/2[400] band member.
1156 *2*	(1/2⁺)	E	Jπ: σ(^{3}He,d)/σ(α,t) and spectroscopic strength in (^{3}He,d), (α,t) favor L=0. Possible 1/2[400] band member.
1162.28 *6*	9/2⁺	B	Jπ: E0+M1 γ to 9/2⁺.
1182[r] *4*	(9/2⁻)	E	Jπ: σ(^{3}He,d)/σ(α,t) and spectroscopic strength in (^{3}He,d), (α,t); ≈ 1175 keV predicted for 9/2⁻ 3/2[532] state from extrapolation of energies for corresponding levels in ^{177}Lu, ^{175}Lu, ^{173}Lu.
1193.83 *6*	7/2⁺,9/2⁺	B	Jπ: M1+E2 1072γ to 9/2⁺, M1 799γ to 7/2⁺.
1204.42 *21*	(11/2⁺)	B	Jπ: 736γ to 9/2⁻, 462γ to 13/2⁻, (E2) 118γ from (11/2)⁺.
1221[s] *3*	(7/2⁻)	E	Jπ: σ(^{3}He,d)/σ(α,t) and spectroscopic strength in (^{3}He,d), (α,t); ≈ 1220 keV predicted for 7/2⁻ 1/2[530] state from extrapolation of energies for corresponding levels in ^{177}Lu, ^{175}Lu, ^{173}Lu.
1241.55[a] *24*	(15/2⁻)	C F	
1248.05[e] *18*	(17/2⁺)	C F	
1256 *3*		E	
1270.0[h] *10*	(13/2⁺)	F	E(level): increases to 1270.7 if the 84.7γ feeding it is excluded from least-squares adjustment of Eγ.
1275.84[j] *19*	(17/2⁺)	C F	
1321.39[m] *17*	(19/2⁻)	C F	
1321.84 *8*	(11/2)⁺	B	Jπ: E1 853γ to 9/2⁻, (M1) 881γ to 13/2⁺.
1329.17[p] *16*	(19/2⁻)	C F	
1341.13[@] *19*	21/2⁺[#]	C F	
1354.2[g]	(15/2⁺)	F	
1367.76[i] *18*	(19/2⁺)	C F	
1382.17 *10*	(5/2,7/2)⁺	B	Jπ: M1+E2 188γ to 7/2⁺,9/2⁺, 1309γ to 5/2⁻.
1382.4[b]	(17/2⁻)	F	
1418.3[l] *3*	(25/2⁻)	C F	
1455.7[h]	(17/2⁺)	F	
1499.83[f] *24*	(19/2⁺)	C F	
1505.55 *16*	(7/2⁺,9/2,11/2⁺)	B	Jπ: 1506γ to 7/2⁺; 1236γ to 11/2⁺.
1534.25 *13*	(7/2)⁺	B	Jπ: M1 340γ to 7/2⁺,9/2⁺, (E2) 212γ to (11/2)⁺.
1542.6[a]	(19/2⁻)	F	
1546 *4*		E	
1558.12 *17*		B	Jπ: γ's to 7/2⁺ and 9/2⁺.
1565.76[o] *23*	(21/2⁻)	C F	
1569 *4*	(13/2⁺)	E	Jπ: σ(^{3}He,d)/σ(α,t) and spectroscopic strength in (^{3}He,d), (α,t); strongly populated 13/2⁺ state predicted in 1.5 to 2.0-MeV region. Probable 1/2[660] level.
1577.9[g]	(19/2⁺)	F	
1589 *6*		E	
1600.35 *17*	(5/2⁺,7/2,9/2⁺)	B	Jπ: 1306γ to 5/2⁺, 1081γ to 9/2⁺.
1606 *3*		E	
1614.2[&] *3*	23/2⁺[#]	C F	
1620.94 *14*	(7/2,9/2)⁺	B	Jπ: 1325γ to 5/2⁺, M1 1063γ to (9/2)⁺.
1701.96[j] *22*	(21/2⁺)	C F	
1719.1[h]	(21/2⁺)	F	
1721.9[b]	(21/2⁻)	F	
1761.7[e] *3*	(21/2⁺)	C F	
1762.5 *3*	(7/2⁻,9/2,11/2⁺)	B	Jπ: 1763γ to 7/2⁺, 1168γ to 11/2⁻.

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Adopted Levels, Gammas (continued)

^{171}Lu Levels (continued)

E(level)[†]	Jπ[‡]	XREF	Comments
1770.86 *16*	(9/2,11/2,13/2$^-$)	B	Jπ: 1302γ to 9/2$^-$, 1177γ to 11/2$^-$, 449γ to (11/2)$^+$.
1787.83[m] *21*	(23/2$^-$)	C F	
1819.3[p]	(23/2$^-$)	F	
1838.5[i] *3*	(23/2$^+$)	C F	
1841.41 *16*	(9/2$^+$,11/2$^+$)	B	Jπ: 1842γ to 7/2$^+$, 1401γ to 13/2$^+$.
1845.0[d]	(21/2$^-$)	F	
1876.0[g]	(23/2$^+$)	F	
1902.7[@] *4*	25/2$^+$[#]	C F	
1919.7[a]	(23/2$^-$)	F	
1948.8[l] *4*	(29/2$^-$)	C F	
2018.32 *12*	(9/2,11/2$^+$)	B	Jπ: γ's to 7/2$^+$, 11/2$^+$, and 11/2$^-$.
2022.63 *22*	(7/2$^+$,9/2,11/2$^+$)	B	Jπ: γ's to 7/2$^+$ and 11/2$^+$.
2029.2		F	
2044.9[h]	(25/2$^+$)	F	
2048.2[c]	(23/2$^-$)	F	
2093.3[o]	(25/2$^-$)	F	
2136.0[b]	(25/2$^-$)	F	
2153.2		F	
2204.4[j]	(25/2$^+$)	F	
2204.7[&]	(27/2$^+$)[#]	F	
2248.6[g]	(27/2$^+$)	F	
2269.4[d]	(25/2$^-$)	F	
2322.6[m]	(27/2$^-$)	F	
2346.6[i]	(27/2$^+$)	F	
2370.3[a]	(27/2$^-$)	F	
2374.9[p]	(27/2$^-$)	F	
2449.0[h]	(29/2$^+$)	F	
2510.3[c]	(27/2$^-$)	F	
2515.9[@]	(29/2$^+$)[#]	F	
2550.9[l]	(33/2$^-$)	F	
2622.3[b]	(29/2$^-$)	F	
2626.2[n]	(27/2$^+$)	F	
2646.2		F	
2676.4[o]	(29/2$^-$)	F	
2696.5[g]	(31/2$^+$)	F	
2724.7		F	
2732.7[j]	(29/2$^+$)	F	
2767.7[d]	(29/2$^-$)	F	
2831.4[&]	(31/2$^+$)[#]	F	
2854.1		F	
2887.2[i]	(31/2$^+$)	F	
2891.8[a]	(31/2$^-$)	F	
2914.5[m]	(31/2$^-$)	F	
2926.8[h]	(33/2$^+$)	F	
2973.5[p]	(31/2$^-$)	F	
3029.3[k]	(33/2$^-$)	F	
3043.2[c]	(31/2$^-$)	F	
3098.5[n]	(31/2$^+$)	F	
3137.9[@]	(33/2$^+$)[#]	F	
3177.5[b]	(33/2$^-$)	F	

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Adopted Levels, Gammas (continued)

^{171}Lu Levels (continued)

E(level)[†]	Jπ[‡]	XREF
3208.3[l]	(37/2⁻)	F
3219.4[g]	(35/2⁺)	F
3286.6[o]	(33/2⁻)	F
3301.8[j]	(33/2⁺)	F
3329.2[d]	(33/2⁻)	F
3390.1		F
3441.5[&]	(35/2⁺)[#]	F
3474.2[i]	(35/2⁺)	F
3477.0[h]	(37/2⁺)	F
3479.6[a]	(35/2⁻)	F
3540.4[m]	(35/2⁻)	F
3582.7[k]	(37/2⁻)	F
3583.3[p]	(35/2⁻)	F
3621.3[c]	(35/2⁻)	F
3642.5[n]	(35/2⁺)	F
3730.4[@]	(37/2⁺)[#]	F
3796.8[b]	(37/2⁻)	F
3814.7[g]	(39/2⁺)	F
3881.8[o]	(37/2⁻)	F
3891.2		F
3895.1[l]	(41/2⁻)	F
3914.4[d]	(37/2⁻)	F
3919.4[j]	(37/2⁺)	F
4034.9[&]	(39/2⁺)[#]	F
4059.0		F
4099.6[h]	(41/2⁺)	F
4119.4[i]	(39/2⁺)	F
4128.7[a]	(39/2⁻)	F
4180.1	(39/2⁻)	F
4184.5[m]	(39/2⁻)	F
4218.0[c]	(39/2⁻)	F
4244.1[k]	(41/2⁻)	F
4257.3[n]	(39/2⁺)	F
4336.5[@]	(41/2⁺)[#]	F
4459.5[o]	(41/2⁻)	F
4478.8[b]	(41/2⁻)	F
4478.9[g]	(43/2⁺)	F
4587.6[j]	(41/2⁺)	F
4600.2[l]	(45/2⁻)	F
4664.8[&]	(43/2⁺)[#]	F
4793.5[h]	(45/2⁺)	F
4828.5[i]	(43/2⁺)	F
4836.6[a]	(43/2⁻)	F
4995.3[@]	(45/2⁺)[#]	F
5208.1[g]	(47/2⁺)	F
5214.3[b]	(45/2⁻)	F
5341.7[l]	(49/2⁻)	F
5353.3[&]	(47/2⁺)[#]	F
5557.6[h]	(49/2⁺)	F

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Adopted Levels, Gammas (continued)

^{171}Lu Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$	XREF	Comments
5717.9[@]	(49/2+)[#]		F	
5991[b]	(49/2−)		F	
5997.7[g]	(51/2+)		F	
6105.4[&]	(51/2+)[#]		F	
6134.3[l]	(53/2−)		F	
6390.6[h]	(53/2+)		F	
6505.7[@]	(53/2+)[#]		F	
6845[g]	(55/2+)		F	
6982.4[l]	(57/2−)		F	
7292[h]	(57/2+)		F	
7750[g]	(59/2+)		F	
7886[l]	(61/2−)		F	
8257[h]	(61/2+)		F	
8841[l]	(65/2−)		F	
9848[l]	(69/2−)		F	
10907[l]	(73/2−)		F	
14792 *14*		120 keV *30*	D	Γ and Γ_p=7 keV *2* from (p,p) IAR.
15757 *20*		130 keV *30*	D	Γ and Γ_p=6 keV *2* from (p,p) IAR.

[†] From least-squares fit to adopted Eγ, except where cross references clearly indicate other source. For the least-squares adjustment, data for multiplets and transitions with uncertain placements were excluded unless no other data existed, and 1 keV uncertainty was assigned to data for which no uncertainty is shown here. For levels for which all Eγ data come from (^{19}F,α4nγ) (absolute uncertainty unknown), deduced level energies are given without specifying their uncertainties (see source dataset for authors′ values).

[‡] Values given without comment are based on multipolarities of deexciting transitions, coincidence data, deduced band structure, observed band alignment in (^{19}F,α4nγ) and comparison with similar bands in neighboring nuclides.

[#] Definite Jπ assigned to members of g.s. band based on smooth variation of level energies and independently-established Jπ(g.s.)=7/2+ and M1+E2 multipolarity for the 9/2 to 7/2 intraband 122γ.

[@] Band(A): π 7/2[404], α=+1/2 g.s. band. α=13.7, β=−9.1 (7/2, 9/2, 11/2 levels).

[&] Band(a): π 7/2[404], α=−1/2 g.s. band.

[a] Band(b): (π 7/2[404])(ν 7/2[633])(ν 1/2[521]), α=−1/2 band. See comment on signature partner band.

[b] Band(B): (π 7/2[404])(ν 7/2[633])(ν 1/2[521]), α=+1/2 band. Three-quasiproton configuration excluded by intraband B(ΔJ=1)/B(ΔJ=2) values and K ≈ 15/2 bandhead. Feeds into 7/2[404] band.

[c] Band(c): (π 1/2[541])(π 1/2[411])(π 7/2[404]), α=−1/2 band. See comment on signature partner band.

[d] Band(C): (π 1/2[541])(π 1/2[411])(π 7/2[404]), α=+1/2 band. Configuration assignment supported by observed alignment and intraband B(ΔJ=1)/B(ΔJ=2) values. Feeds into 7/2[404] band. Bandhead may not have been observed.

[e] Band(D): π 5/2[402], α=+1/2 band. A=14.3, B=−13.0 (5/2, 9/2, 13/2 levels).

[f] Band(d): π 5/2[402], α=−1/2 band.

[g] Band(e): (π 1/2[541])(ν 7/2[633])(ν 1/2[521]), α=−1/2 band. See comment on signature partner band.

[h] Band(E): (π 1/2[541])(ν 7/2[633])(ν 1/2[521]), α=+1/2 band. Configuration assignment supported by observed alignment and intraband B(ΔJ=1)/B(ΔJ=2) values. Configuration known in ^{177}Re and ^{173}Ta also.

[i] Band(f): π 1/2[411], α=−1/2 band.

[j] Band(F): π 1/2[411], α=+1/2 band. (A=13.6, B=−12.3, a=−0.70, b=49.0 (1/2, 3/2, 5/2, 7/2, 9/2 levels)).

[k] Band(G): π=(−), α=+1/2 band. May contain the yrare states of the crossing of the (π 1/2[541]) band by its S band (aligned $i_{13/2}$ neutrons); assignment supported by two-band fit to E(level) for this band and the 1/2[541] α=+1/2 band.

[l] Band(H): π 1/2[541], α=+1/2 band. (α=8.7, β=−7.4, a=+4.2, b=−251 (1/2, 3/2, 5/2, 9/2, 13/2 levels)).

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{171}Lu Levels (continued)

[m] Band(h): π 1/2[541], α=−1/2 band.
[n] Band(I): (π 1/2[541])(ν 7/2[633])(ν π=−), α=−1/2 band. Exhibits large alignment, as does the (π 1/2[541])(ν 7/2[633])(ν 1/2[521]) band.
[o] Band(J): π 9/2[514], α=+1/2 band. α=11.2, β=5.9 (9/2, 11/2, 13/2 levels).
[p] Band(j): π 9/2[514], α=−1/2 band.
[q] Band(K): 7/2[523] band. A=14.0 (7/2, 9/2 levels).
[r] Band(L): Tentative 3/2[532] band.
[s] Band(M): Tentative 1/2[530] band.

Adopted Levels, Gammas (continued)

γ(^{171}Lu)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	δ[@]	α[f]	Comments
71.13	1/2⁻	71.10[c] *9*	100	0.0	7/2⁺	E3		475	B(E3)(W.u.)=0.00202 *7* Mult.: from α(L)exp in ^{171}Lu IT decay.
73.01	5/2⁻	(1.88 *12*)		71.13	1/2⁻				Eγ: from level energy difference.
122.058	9/2⁺	122.08[c] *3*	100	0.0	7/2⁺	M1+E2	+0.479 *11*	1.98	δ: from BrIccMixing using K/L3 ratio from ε decay and δ from γ(θ) in (α,2nγ) (analysis by 1976KR21).
159.37	9/2⁻	86.32[&] *5*	100	73.01	5/2⁻	E2		6.01	
206.44	(3/2)⁻	133.45[c] *14*	100 *30*	73.01	5/2⁻	M1(+E2)	−0.1 *+4−3*	1.61 *7*	Iγ: from (α,2nγ).
		135.30[c] *14*	41 *12*	71.13	1/2⁻				Iγ: from (α,2nγ). Other: ≈ 25 in ε decay.
208.15	(1/2)⁺	137.01[&] *3*	100	71.13	1/2⁻	E1		0.1532	B(E1)(W.u.)=2.49×10^{-6} *10*
220.71	(3/2)⁺	12.5[e]		208.15	(1/2)⁺				
		148.08[ci] *18*	100 *30*	73.01	5/2⁻	[E1]		0.1250	Iγ: from (α,2nγ).
		149.8[&i] *3*	61[&] *18*	71.13	1/2⁻	[E1]		0.1213 *19*	
269.13	11/2⁺	147.07[c] *4*	100 *4*	122.058	9/2⁺	M1+E2	+0.43 *3*	1.159 *18*	δ: weighted average of 0.35 *11* from α(K)exp in ε decay and +0.44 *3* from γ(θ) in (α,2nγ) (analysis by 1976Kr21).
		269.10[c] *6*	91 *4*	0.0	7/2⁺	E2		0.1067	
295.58	5/2⁺	74.90[c] *17*	3.4	220.71	(3/2)⁺	M1		8.45 *13*	B(M1)(W.u.)=0.0014 *3* Iγ: average of 2.5 from ε decay and 4.3 from (α,2nγ).
		172.93[c] *17*	0.9 *6*	122.058	9/2⁺	[E2]		0.455	B(E2)(W.u.)=0.5 *4* Eγ is for doublet; Iγ is from (α,2nγ).
		295.59[c] *4*	100 *22*	0.0	7/2⁺	M1+E2	−0.23 *2*	0.173 *3*	B(M1)(W.u.)=0.00065 *19*; B(E2)(W.u.)=0.18 *6* Iγ: from ε decay.
333.80	(5/2)⁺	113.11[c] *6*	100 *25*	220.71	(3/2)⁺	M1+E2	−0.22 *+13−19*	2.56 *6*	Iγ: from ε decay.
		125.49[c] *17*	10	208.15	(1/2)⁺				Iγ: from ε decay.
336.60	13/2⁻	177.22[c] *3*	100	159.37	9/2⁻	E2		0.418	
364.98	(7/2)⁺	31.2[e] *2*		333.80	(5/2)⁺	M1(+E2)	0.02 *2*	18.8 *9*	
		144.28[c] *5*	100 *11*	220.71	(3/2)⁺	E2		0.859	
		291.93[c] *9*	28 *4*	73.01	5/2⁻	(E1)		0.0221	Iγ: other: 70 *35* from ε decay, 19 *6* from (α,2nγ). Mult.: D from γ(θ) in (α,2nγ); Δπ=yes from level scheme.
379.45	7/2⁻	172.93[c] *17*	22 *10*	206.44	(3/2)⁻				Eγ is for doublet. Iγ: from ε decay.
		220.06[c] *5*	89[b] *19*	159.37	9/2⁻	M1+E2	+0.18 *5*	0.392 *7*	
		306.45[c] *7*	100[b]	73.01	5/2⁻	M1+E2	−4.0 *+8−12*	0.077 *3*	
394.72	7/2⁺	99.13[c] *4*	100[b] *8*	295.58	5/2⁺	M1+E2	+0.163 *14*	3.76	δ: from BrIccMixing using K/L3 ratio from ε decay and δ from γ(θ) in (α,2nγ) (analysis by 1976KR21).
		394.70[c] *9*	55[b] *14*	0.0	7/2⁺	M1		0.0823	
440.15	13/2⁺	171.0[&] *1*	46.4 *18*	269.13	11/2⁺	M1+E2	+0.51 *6*	0.734 *17*	

$^{171}_{71}Lu_{100}$-8

Adopted Levels, Gammas (continued)

γ(^{171}Lu) (continued)

E_i(level)	J_i^π	E_γ [†]	I_γ [‡]	E_f	J_f^π	Mult.[#]	δ[@]	α[f]	Comments
440.15	13/2$^+$	318.13[c] *6*	100 *4*	122.058	9/2$^+$	E2		0.0642	
469.21	9/2$^-$	200.00[c] *9*	11.7[b] *11*	269.13	11/2$^+$	E1		0.0572	B(E1)(W.u.)>9.4×10^{-6}
		347.17[c] *6*	100[b] *5*	122.058	9/2$^+$	E1		0.01452	B(E1)(W.u.)>1.5×10^{-5}
		469.30[c] *9*	57[b] *6*	0.0	7/2$^+$	E1			B(E1)(W.u.)>3.5×10^{-6}
519.32	9/2$^+$	124.3[&] *3*	100 *7*	394.72	7/2$^+$	E2		1.476 *25*	
		223.84[c] *18*	14.6 *22*	295.58	5/2$^+$	(E2)		0.192	
		397.1[&] *4*	40 *4*	122.058	9/2$^+$				Other Iγ: 20 *7* in ε decay, 25 *5* in (α,2nγ).
		519.4[hei] *1*	17[he] *17*	0.0	7/2$^+$				Eγ is for possible doublet. Placement supported by coincidence data in ε decay; however, this transition is absent in (^{19}F,α4nγ), and γγ coin data indicate that, in ε decay, the more intense component of the doublet deexcites the 788 level.
558.88	(9/2)$^+$	193.9[&] *1*	100 *12*	364.98	(7/2)$^+$	(E2)		0.308	
		225.29[c] *17*	69 *10*	333.80	(5/2)$^+$	E2		0.188	
593.74	11/2$^-$	124.63[c] *17*	100 *6*	469.21	9/2$^-$	M1		1.96	
		324.3[c] *3*	25.2 *21*	269.13	11/2$^+$				
		471.65[hci] *25*	10[h] *10*	122.058	9/2$^+$				Eγ is for possible doublet; placement supported by coincidence data in ε decay. However, absence of this transition in (^{19}F,α4nγ) (which also excites this level) renders this placement questionable.
606.96	(17/2$^-$)	270.33[&] *7*	100	336.60	13/2$^-$	E2		0.1052	
612.35	(11/2)$^+$	247.40[c] *7*	100 *6*	364.98	(7/2)$^+$	E2		0.1389	
		452.8 *3*	14.6 *26*	159.37	9/2$^-$				
620.00	11/2$^-$	240.54[c] *9*	51 *6*	379.45	7/2$^-$	E2		0.1519	
		283.38[c] *9*	55 *9*	336.60	13/2$^-$	M1+E2	+0.21 *5*	0.195 *4*	
		460.73[c] *19*	100 *17*	159.37	9/2$^-$	M1+E2	−1.6 *6*	0.032 *7*	
634.06	15/2$^+$	193.9[&] *1*	28.3 *10*	440.15	13/2$^+$	(M1)		0.565	Eγ: for doublet.
		364.9[&] *1*	100 *3*	269.13	11/2$^+$	E2		0.0432	
662.24	(7/2)$^-$	193.0[e] *3*	≈8[e]	469.21	9/2$^-$	E2		0.313	
		540.28[c] *10*	13.0 *15*	122.058	9/2$^+$	E1			Iγ: from ε decay.
		662.18[c] *10*	100 *11*	0.0	7/2$^+$	E1			Iγ: from ε decay.
670.82	11/2$^+$	151.50[c] *9*	100 *5*	519.32	9/2$^+$	M1+E2	+0.07 *5*	1.125 *17*	
		276.0[&] *2*	34 *3*	394.72	7/2$^+$				
		401.8[&] *4*	59 *4*	269.13	11/2$^+$				Iγ: other: 12 *7* from (α,2nγ) in 90° spectrum.
742.78	13/2$^-$	149.20[c] *21*	100 *4*	593.74	11/2$^-$	M1+E2	+0.17 *2*	1.165 *18*	
		273.4 *3*	11.0 *17*	469.21	9/2$^-$				Eγ: from (α,2nγ) for doublet.
788.50	(9/2)$^-$	126.4[e] *2*	12[e]	662.24	(7/2)$^-$	M1		1.88	
		195.1[e]	[e]	593.74	11/2$^-$				
		519.4[he] *1*	22[he] *10*	269.13	11/2$^+$				Iγ: see comment on 519γ from 519 level.

$^{171}_{71}Lu_{100}$-9

Adopted Levels, Gammas (continued)

γ(^{171}Lu) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	δ[@]	α[f]	Comments
788.50	(9/2)$^-$	666.3[e] *2*	100[e] *30*	122.058	9/2$^+$	E1			
		788.5[e] *1*	54[e] *6*	0.0	7/2$^+$				
842.20	(13/2$^+$)	171.6[&] *3*	100 *5*	670.82	11/2$^+$	(M1)		0.794	
		229.7	3.5 *14*	612.35	(11/2)$^+$				
		323.4[&] *3*	52 *3*	519.32	9/2$^+$				
849.72	17/2$^+$	215.6[&] *1*	20.5 *9*	634.06	15/2$^+$	(M1+E2)	+0.45 *5*	0.386 *9*	
		409.6[&] *1*	100 *4*	440.15	13/2$^+$	E2		0.0313	
875.08	(13/2$^+$)	262.8[&] *2*	56 *4*	612.35	(11/2)$^+$	M1+E2	−0.11 *+7−8*	0.243 *5*	
		316.1[&] *2*	100 *7*	558.88	(9/2)$^+$	E2		0.0655	
910.09	(5/2)$^+$	530.5[e] *5*	19[e] *8*	379.45	7/2$^-$				
		575.5[e] *10*	28[e] *14*	333.80	(5/2)$^+$				
		703.7[e] *3*	100[e] *19*	206.44	(3/2)$^-$				
		837.5[e] *5*	28[e] *14*	73.01	5/2$^-$				
915.09	(15/2$^-$)	172.3[&] *1*	100 *5*	742.78	13/2$^-$	M1+E2	+0.15 *2*	0.778 *12*	
		321.4[&] *2*	41.4 *26*	593.74	11/2$^-$				
933.70	(15/2$^-$)	313.7[&] *2*	79 *5*	620.00	11/2$^-$	E2		0.0670	
		326.8[&] *2*	29 *4*	606.96	(17/2$^-$)	(M1(+E2))	+0.03 *+9−8*	0.1358 *22*	
		597.2[&] *3*	100 *8*	336.60	13/2$^-$	(M1+E2)	−1.9 *7*	0.016 *4*	
942.71	(7/2)$^+$	783.6[e] *3*	63[e] *19*	159.37	9/2$^-$				
		869.8[e] *2*	100[e]	73.01	5/2$^-$				
951.92	(15/2$^+$)	76.7[&i] *3*	2.1[&]	875.08	(13/2$^+$)				
		339.6[&] *1*	100 *5*	612.35	(11/2)$^+$	E2		0.0531	
		615.3[&] *3*	23.6 *23*	336.60	13/2$^-$				I_γ: other: 12 *4* in (α,2nγ).
968.90	(21/2$^-$)	361.9[&] *1*	100	606.96	(17/2$^-$)	E2		0.0442	
1042.98	(15/2$^+$)	200.5[&] *2*	87 *5*	842.20	(13/2$^+$)	(D)[d]			I_γ: other: 132 *40* in (α,2nγ).
		372.2[&] *3*	100 *6*	670.82	11/2$^+$	(E2)		0.0408	
1085.88	19/2$^+$	236.1[&] *2*	14.8 *7*	849.72	17/2$^+$	(M1+E2)	+0.29 *2*	0.315	
		451.9[&] *2*	100 *3*	634.06	15/2$^+$	(Q)[d]			
1111.28	(17/2$^-$)	196.1[&] *2*	100 *4*	915.09	(15/2$^-$)	(M1+E2)	+0.20 *6*	0.537 *10*	
		368.6[&] *2*	53 *3*	742.78	13/2$^-$				
1162.28	9/2$^+$	568.5[e] *3*	16[e] *5*	593.74	11/2$^-$				
		693.1[e] *1*	35[e] *6*	469.21	9/2$^-$				
		722.5[e] *2*	≈25[e]	440.15	13/2$^+$				
		893.0[e] *2*	36[e] *8*	269.13	11/2$^+$	M1		0.01021	
		1040.3[e] *2*	33[e] *9*	122.058	9/2$^+$	E0+M1		0.067	
		1162.2[e] *1*	100[e] *12*	0.0	7/2$^+$	E2			
1193.83	7/2$^+$,9/2$^+$	31.6[e] *2*	[e]	1162.28	9/2$^+$	M1+E2	0.16 *5*	33 *11*	

$^{171}_{71}Lu_{100}$-10

Adopted Levels, Gammas (continued)

γ(^{171}Lu) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	δ[@]	α[f]	Comments
1193.83	7/2+,9/2+	674.5[e] *1*	8.6[e] *14*	519.32	9/2+	M1		0.0206	
		724.7[e] *2*	9.5[e] *14*	469.21	9/2−				
		799.2[e] *2*	12.2[e] *14*	394.72	7/2+	M1		0.01346	
		925.2[e] *3*	4.9[e] *14*	269.13	11/2+				
		1071.8[e] *1*	100[e] *10*	122.058	9/2+	M1+E2[a]	1.9[a]		
		1193.7[e] *1*	8.9[e] *10*	0.0	7/2+	(M1)			
1204.42	(11/2+)	462.2[ei] *5*	≈100[e]	742.78	13/2−				
		610.5[e] *3*	75[e] *15*	593.74	11/2−				
		735.9[e] *5*	45[e] *15*	469.21	9/2−				
1241.55	(15/2−)	391.8[&] *4*	31.5 *22*	849.72	17/2+	(D)[d]			
		607.5[&] *4*	39 *3*	634.06	15/2+				
		801.4[&] *4*	100 *6*	440.15	13/2+	D[d]			
1248.05	(17/2+)	205.0[&] *3*	62 *3*	1042.98	(15/2+)				
		296.4[&] *3*	39 *3*	951.92	(15/2+)				
		373.0[&] *3*	32[&] *10*	875.08	(13/2+)				E_γ: intensity observed in (α,2nγ) suggests transition should have been seen in (^{19}F,α4nγ), however, it was not observed.
		405.6[&] *3*	100 *5*	842.20	(13/2+)				
1275.84	(17/2+)	232.9[&] *2*	41 *4*	1042.98	(15/2+)	D+Q	+0.17 *+8−7*	0.344	
		322.73	40 *4*	951.92	(15/2+)				E_γ: other: 324.3 *3* in (α,2nγ) for doublet.
		400.7[&] *3*	100 *6*	875.08	(13/2+)				
		433.5[&i] *3*	49[&] *15*	842.20	(13/2+)				E_γ: intensity observed in (α,2nγ) suggests transition should have been seen in (^{19}F,α4nγ), however, it was not observed thus transition is considered tentative by evaluators.
1321.39	(19/2−)	210.1[&] *3*	28.4 *21*	1111.28	(17/2−)	D+Q	+0.19 *+10−9*		
		352.3[&] *3*	41 *3*	968.90	(21/2−)	(M1(+E2))	−0.2 *+2−3*	0.109 *11*	
		387.8[&] *3*	100 *6*	933.70	(15/2−)				
		406.4[&] *3*	55 *4*	915.09	(15/2−)				I_γ: other: ≈ 21 in (α,2nγ).
		714.4[&] *3*	67 *6*	606.96	(17/2−)	(M1+E2)	−1.8 *9*	0.010 *4*	I_γ: other: 90 *27* in (α,2nγ).
1321.84	(11/2)+	117.5[e] *3*	26[e] *10*	1204.42	(11/2+)	(E2)		1.82	
		650.9[e] *3*	6.1[e] *19*	670.82	11/2+	M1+E2[a]	1.4[a]	0.01414	
		802.0[e] *5*	3.9[e] *19*	519.32	9/2+				
		852.6[e] *1*	100[e] *13*	469.21	9/2−	E1			
		881.0[e] *5*	13[e] *4*	440.15	13/2+	(M1)		0.01056	
		1199.9[e] *2*	15.6[e] *19*	122.058	9/2+				
		1322.2[e] *3*	9.7[e] *19*	0.0	7/2+				
1329.17	(19/2−)	217.9[&] *1*	100 *4*	1111.28	(17/2−)	(M1+E2)	+0.14 *4*	0.405 *7*	

$^{171}_{71}Lu_{100}$-11

Adopted Levels, Gammas (continued)

γ(^{171}Lu) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	δ[@]	α[f]	Comments
1329.17	(19/2$^-$)	395.6[&] *3*	62 *4*	933.70	(15/2$^-$)				
		414.2[&] *3*	80 *4*	915.09	(15/2$^-$)				I_γ: other: 130 *39* in (α,2nγ).
		722.1[&] *3*	51 *4*	606.96	(17/2$^-$)				E_γ: 723.29 *19* in (^{19}F,α4nγ) fits placement poorly.
1341.13	21/2$^+$	255.3[&] *3*	12.8 *6*	1085.88	19/2$^+$				
		491.4[&] *2*	100 *3*	849.72	17/2$^+$	Q[d]			
1354.2	(15/2$^+$)	84.7	100 *17*	1270.0	(13/2$^+$)				
		1017.01	95 *14*	336.60	13/2$^-$	D[d]			
1367.76	(19/2$^+$)	415.9[&] *2*	100 *4*	951.92	(15/2$^+$)	Q[d]			
		760.3[&] *3*	50 *3*	606.96	(17/2$^-$)	D+Q[d]			
1382.17	(5/2,7/2)$^+$	188.4[e] *1*	100[e] *12*	1193.83	7/2$^+$,9/2$^+$	M1+E2[a]	1.2[a]	0.451	
		439.7[ge] *3*	<13[ge]	942.71	(7/2)$^+$	[M1]		0.0620	
		471.9[he] *3*	19[he] *13*	910.09	(5/2)$^+$				E_γ: see comment on 472γ from 593 level.
		1002.2[e] *3*	34[e] *10*	379.45	7/2$^-$				
		1017.1[e] *3*	25[e] *6*	364.98	(7/2)$^+$	(E2)			
		1309.2[e] *2*	74[e] *25*	73.01	5/2$^-$				
1382.4	(17/2$^-$)	140.79	80 *5*	1241.55	(15/2$^-$)				
		748.32	100 *6*	634.06	15/2$^+$	D[d]			
1418.3	(25/2$^-$)	449.5[&] *3*	100	968.90	(21/2$^-$)	Q[d]			
1455.7	(17/2$^+$)	101.5	100 *52*	1354.2	(15/2$^+$)				
		185.13	44 *24*	1270.0	(13/2$^+$)				
1499.83	(19/2$^+$)	251.8[&] *3*	48 *5*	1248.05	(17/2$^+$)				
		456.9[&] *3*	100 *9*	1042.98	(15/2$^+$)				
1505.55	(7/2$^+$,9/2,11/2$^+$)	1236.2[e] *4*	37[e] *10*	269.13	11/2$^+$				
		1383.7[e] *3*	27[e] *5*	122.058	9/2$^+$				
		1505.5[e] *2*	100[e] *12*	0.0	7/2$^+$				
1534.25	(7/2)$^+$	212.3[e] *3*	20[e] *10*	1321.84	(11/2)$^+$	(E2)		0.228	
		340.2[e] *2*	27[e] *10*	1193.83	7/2$^+$,9/2$^+$	M1		0.1221	
		591.6[e] *1*	100[e] *14*	942.71	(7/2)$^+$	M1		0.0288	
		624.2[e] *2*	61[e] *20*	910.09	(5/2)$^+$	M1		0.0251	
		1534.4[e] *7*	14[e] *5*	0.0	7/2$^+$				
1542.6	(19/2$^-$)	160.26	79 *4*	1382.4	(17/2$^-$)				
		300.99	100 *5*	1241.55	(15/2$^-$)				
		693.00	88 *6*	849.72	17/2$^+$	D[d]			
1558.12		1436.1[e] *3*	29[e] *8*	122.058	9/2$^+$				
		1558.1[e] *2*	100[e] *13*	0.0	7/2$^+$				
1565.76	(21/2$^-$)	236.6[&] *2*	72 *3*	1329.17	(19/2$^-$)				
		454.4[&] *4*	100 *5*	1111.28	(17/2$^-$)				
1577.9	(19/2$^+$)	121.89	100 *18*	1455.7	(17/2$^+$)				

$^{171}_{71}Lu_{100}$-12

Adopted Levels, Gammas (continued)

γ(^{171}Lu) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	α[f]	Comments
1577.9	(19/2$^+$)	223.73	80 *16*	1354.2	(15/2$^+$)			
		970.83	26 *6*	606.96	(17/2$^-$)			
1600.35	(5/2$^+$,7/2,9/2$^+$)	1081.0[e] *3*	100[e] *43*	519.32	9/2$^+$			
		1205.6[e] *3*	71[e] *36*	394.72	7/2$^+$			
		1266.2[e] *3*	21[e] *7*	333.80	(5/2)$^+$			
		1305.5[e] *4*	43[e] *21*	295.58	5/2$^+$			
1614.2	23/2$^+$	273.4[&] *3*	10.9 *6*	1341.13	21/2$^+$			E_γ: for doublet.
		528.3[&] *3*	100 *3*	1085.88	19/2$^+$	Q[d]		
1620.94	(7/2,9/2)$^+$	958.0[e] *6*	17[e] *7*	662.24	(7/2)$^-$			
		1062.8[e] *3*	100[e] *26*	558.88	(9/2)$^+$	M1		
		1226.0[e] *10*	33[e] *13*	394.72	7/2$^+$			
		1241.4[e] *4*	60[e] *17*	379.45	7/2$^-$			
		1286.9[e] *3*	58[e] *17*	333.80	(5/2)$^+$			
		1325.0[e] *10*	25[e] *8*	295.58	5/2$^+$			
		1498.6[e] *3*	33[e] *13*	122.058	9/2$^+$			
		1620.7[e] *4*	34[e] *8*	0.0	7/2$^+$			
1701.96	(21/2$^+$)	123.0	7.3 *12*	1577.9	(19/2$^+$)			
		202.2	3.0 *12*	1499.83	(19/2$^+$)			
		334.0[&] *3*	40.2 *18*	1367.76	(19/2$^+$)			
		426.0[&] *3*	20.1 *18*	1275.84	(17/2$^+$)			I_γ: other: 47 *14* in (α,2nγ).
		454.4[&] *4*	100 *4*	1248.05	(17/2$^+$)			
1719.1	(21/2$^+$)	141.7	10.0 *10*	1577.9	(19/2$^+$)			
		263.1	15.4 *15*	1455.7	(17/2$^+$)			
		350.73	26.4 *15*	1367.76	(19/2$^+$)			
		443.30	18.4 *15*	1275.84	(17/2$^+$)			
		470.81	100 *4*	1248.05	(17/2$^+$)	(Q)[d]		
1721.9	(21/2$^-$)	179.36	38.3 *19*	1542.6	(19/2$^-$)			
		339.36	100 *5*	1382.4	(17/2$^-$)	Q[d]		
1761.7	(21/2$^+$)	261.9[&] *3*	59 *7*	1499.83	(19/2$^+$)			I_γ: other: 36 *11* in (α,2nγ).
		393.1	16 *9*	1367.76	(19/2$^+$)			
		485.9[&] *3*	100 *11*	1275.84	(17/2$^+$)			
1762.5	(7/2$^-$,9/2,11/2$^+$)	439.7[ge] *3*	<18[ge]	1321.84	(11/2)$^+$	[M1]	0.0620	
		1168.0[e] *8*	17[e] *7*	593.74	11/2$^-$			
		1293.4[e] *3*	100[e] *20*	469.21	9/2$^-$			
		1763.0[e] *10*	13[e] *5*	0.0	7/2$^+$			
1770.86	(9/2,11/2,13/2$^-$)	449.0[e] *3*	13[e] *5*	1321.84	(11/2)$^+$			
		1176.9[e] *4*	14[e] *5*	593.74	11/2$^-$			
		1301.7[e] *2*	100[e] *14*	469.21	9/2$^-$			
1787.83	(23/2$^-$)	369.8	8.2 *18*	1418.3	(25/2$^-$)			

$^{171}_{71}Lu_{100}$-13

Adopted Levels, Gammas (continued)

γ(^{171}Lu) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	Comments
1787.83	(23/2$^-$)	458.9[&] *3*	13 *3*	1329.17	(19/2$^-$)		I_γ: other: 41 *12* in (α,2nγ).
		466.4[&] *3*	100 *5*	1321.39	(19/2$^-$)	(Q)[d]	
		818.7[&] *3*	57 *4*	968.90	(21/2$^-$)	D+Q[d]	
1819.3	(23/2$^-$)	253.39	70 *3*	1565.76	(21/2$^-$)		
		490.22	100 *5*	1329.17	(19/2$^-$)		
		498.14	23.5 *22*	1321.39	(19/2$^-$)		
1838.5	(23/2$^+$)	470.48	100 *7*	1367.76	(19/2$^+$)	Q[d]	E_γ: 471.4 *3* in (α,2nγ) for doublet.
		869.6[&] *3*	78 *6*	968.90	(21/2$^-$)	D[d]	
1841.41	(9/2$^+$,11/2$^+$)	1372.2[e] *2*	100[e] *13*	469.21	9/2$^-$		
		1401.0[e] *5*	25[e] *13*	440.15	13/2$^+$		
		1571.6[e] *8*	13[e] *6*	269.13	11/2$^+$		
		1719.0[e] *10*	8[e] *4*	122.058	9/2$^+$		
		1841.6[e] *3*	63[e] *19*	0.0	7/2$^+$		
1845.0	(21/2$^-$)	759.39	100	1085.88	19/2$^+$	D[d]	
1876.0	(23/2$^+$)	156.88	25.3 *13*	1719.1	(21/2$^+$)	(D)[d]	
		173.48	17.8 *13*	1701.96	(21/2$^+$)	(D)[d]	
		298.42	100 *5*	1577.9	(19/2$^+$)	Q[d]	
		508.29	21.3 *18*	1367.76	(19/2$^+$)		
		907.6	13.3 *13*	968.90	(21/2$^-$)		
1902.7	25/2$^+$	288.44	12.7 *7*	1614.2	23/2$^+$		
		561.6[&] *3*	100 *3*	1341.13	21/2$^+$	Q[d]	
1919.7	(23/2$^-$)	197.70	19.4 *13*	1721.9	(21/2$^-$)		
		377.07	100 *5*	1542.6	(19/2$^-$)	(Q)[d]	
1948.8	(29/2$^-$)	530.5[&] *3*	100	1418.3	(25/2$^-$)	Q[d]	
2018.32	(9/2,11/2$^+$)	397.2[e] *3*	<16[e]	1620.94	(7/2,9/2)$^+$		E_γ,I_γ: for doublet; undivided Iγ given.
		1229.8[e] *2*	45[e] *10*	788.50	(9/2)$^-$		
		1357.0[e] *8*	10[e] *5*	662.24	(7/2)$^-$		
		1397.0[e] *10*	16[e] *7*	620.00	11/2$^-$		
		1549.1[e] *3*	24[e] *9*	469.21	9/2$^-$		
		1749.3[e] *2*	100[e] *10*	269.13	11/2$^+$		
		1896.1[e] *4*	50[e] *7*	122.058	9/2$^+$		
		2018.3[e] *10*	9[e] *3*	0.0	7/2$^+$		
2022.63	(7/2$^+$,9/2,11/2$^+$)	1753.6[e] *3*	31[e] *9*	269.13	11/2$^+$		
		2022.5[e] *3*	100[e] *13*	0.0	7/2$^+$		
2029.2		610.85	100	1418.3	(25/2$^-$)		
2044.9	(25/2$^+$)	168.95	48.5 *19*	1876.0	(23/2$^+$)	D[d]	
		325.75	100 *4*	1719.1	(21/2$^+$)	Q[d]	
		342.60	77 *3*	1701.96	(21/2$^+$)	Q[d]	

$^{171}_{71}Lu_{100}$-14

Adopted Levels, Gammas (continued)

γ(^{171}Lu) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]
2048.2	(23/2$^-$)	706.93	100	1341.13	21/2$^+$	D[d]
2093.3	(25/2$^-$)	273.89	75 *3*	1819.3	(23/2$^-$)	
		527.52	100 *5*	1565.76	(21/2$^-$)	
2136.0	(25/2$^-$)	216.13	16.2 *12*	1919.7	(23/2$^-$)	
		414.27	100 *4*	1721.9	(21/2$^-$)	Q[d]
2153.2		734.91	100	1418.3	(25/2$^-$)	
2204.4	(25/2$^+$)	366.25	32 *4*	1838.5	(23/2$^+$)	
		443.14	11 *4*	1761.7	(21/2$^+$)	
		485.06	41 *7*	1719.1	(21/2$^+$)	
		501.84	100 *7*	1701.96	(21/2$^+$)	
2204.7	(27/2$^+$)	302.04	12.6 *9*	1902.7	25/2$^+$	
		590.49	100 *4*	1614.2	23/2$^+$	Q[d]
2248.6	(27/2$^+$)	203.49	23.8 *13*	2044.9	(25/2$^+$)	D+Q[d]
		372.45	100 *4*	1876.0	(23/2$^+$)	(Q)[d]
		634.85[e]	21.9[e] *13*	1614.2	23/2$^+$	
2269.4	(25/2$^-$)	424.65	44 *4*	1845.0	(21/2$^-$)	
		655.03	100 *7*	1614.2	23/2$^+$	
2322.6	(27/2$^-$)	534.61	100 *5*	1787.83	(23/2$^-$)	Q[d]
		904.28	35 *3*	1418.3	(25/2$^-$)	
2346.6	(27/2$^+$)	508.09	81 *6*	1838.5	(23/2$^+$)	
		928.42	100 *6*	1418.3	(25/2$^-$)	Q[d]
2370.3	(27/2$^-$)	233.98	16.0 *19*	2136.0	(25/2$^-$)	
		450.74	100 *7*	1919.7	(23/2$^-$)	Q[d]
2374.9	(27/2$^-$)	281.25[e]	67[e] *3*	2093.3	(25/2$^-$)	
		555.74	100 *5*	1819.3	(23/2$^-$)	
2449.0	(29/2$^+$)	200.35	15.7 *9*	2248.6	(27/2$^+$)	D[d]
		404.10	100 *4*	2044.9	(25/2$^+$)	
2510.3	(27/2$^-$)	461.96	93 *6*	2048.2	(23/2$^-$)	
		607.41	100 *7*	1902.7	25/2$^+$	
2515.9	(29/2$^+$)	311.11	8.5 *7*	2204.7	(27/2$^+$)	
		613.39	100 *3*	1902.7	25/2$^+$	Q[d]
2550.9	(33/2$^-$)	602.20	100	1948.8	(29/2$^-$)	Q[d]
2622.3	(29/2$^-$)	251.69	12.9 *13*	2370.3	(27/2$^-$)	
		486.49	100 *5*	2136.0	(25/2$^-$)	(Q)[d]
2626.2	(27/2$^+$)	1207.83	100	1418.3	(25/2$^-$)	D[d]
2646.2		1227.83	100	1418.3	(25/2$^-$)	
2676.4	(29/2$^-$)	301.36	54 *3*	2374.9	(27/2$^-$)	
		583.20	100 *4*	2093.3	(25/2$^-$)	
2696.5	(31/2$^+$)	247.43	19.9 *14*	2449.0	(29/2$^+$)	D[d]
2696.5	(31/2$^+$)	448.00	100 *4*	2248.6	(27/2$^+$)	Q[d]
2724.7		775.88	100	1948.8	(29/2$^-$)	
2732.7	(29/2$^+$)	386.32	22 *3*	2346.6	(27/2$^+$)	
		528.05	100 *10*	2204.4	(25/2$^+$)	
2767.7	(29/2$^-$)	498.31	100	2269.4	(25/2$^-$)	
2831.4	(31/2$^+$)	314.96[e]	12.1[e] *10*	2515.9	(29/2$^+$)	
		627.01	100 *4*	2204.7	(27/2$^+$)	
2854.1		1435.76	100	1418.3	(25/2$^-$)	
2887.2	(31/2$^+$)	540.52	64 *6*	2346.6	(27/2$^+$)	
		938.54	100 *6*	1948.8	(29/2$^-$)	D
2891.8	(31/2$^-$)	521.44	100	2370.3	(27/2$^-$)	
2914.5	(31/2$^-$)	591.83	100 *5*	2322.6	(27/2$^-$)	
		965.61	22.0 *24*	1948.8	(29/2$^-$)	
2926.8	(33/2$^+$)	230.11	7.7 *7*	2696.5	(31/2$^+$)	(D)[d]
		477.69	100 *3*	2449.0	(29/2$^+$)	Q[d]
2973.5	(31/2$^-$)	296.96	35 *5*	2676.4	(29/2$^-$)	
		598.59	100 *5*	2374.9	(27/2$^-$)	
3029.3	(33/2$^-$)	1080.49	100	1948.8	(29/2$^-$)	Q[d]
3043.2	(31/2$^-$)	527.5	25 *4*	2515.9	(29/2$^+$)	
		532.71	100 *5*	2510.3	(27/2$^-$)	
3098.5	(31/2$^+$)	472.35	100	2626.2	(27/2$^+$)	
3137.9	(33/2$^+$)	306.29	10.9 *9*	2831.4	(31/2$^+$)	
		622.28	100 *4*	2515.9	(29/2$^+$)	
3177.5	(33/2$^-$)	555.21	100	2622.3	(29/2$^-$)	Q[d]
3208.3	(37/2$^-$)	657.45	100	2550.9	(33/2$^-$)	Q[d]
3219.4	(35/2$^+$)	292.33	11.4 *11*	2926.8	(33/2$^+$)	
		523.12	100 *4*	2696.5	(31/2$^+$)	Q[d]
3286.6	(33/2$^-$)	312.91	48 *3*	2973.5	(31/2$^-$)	
		610.29	100 *9*	2676.4	(29/2$^-$)	
3301.8	(33/2$^+$)	414.7	13 *3*	2887.2	(31/2$^+$)	
		569.04	100 *6*	2732.7	(29/2$^+$)	
3329.2	(33/2$^-$)	561.45	100	2767.7	(29/2$^-$)	Q[d]
3390.1		874.14	100	2515.9	(29/2$^+$)	
3441.5	(35/2$^+$)	303.61	14.8 *15*	3137.9	(33/2$^+$)	
		609.99	100 *4*	2831.4	(31/2$^+$)	
3474.2	(35/2$^+$)	587.08	100 *6*	2887.2	(31/2$^+$)	
		923.31	68 *6*	2550.9	(33/2$^-$)	
3477.0	(37/2$^+$)	257.49	6.1 *6*	3219.4	(35/2$^+$)	
		550.38	100 *3*	2926.8	(33/2$^+$)	Q[d]

$^{171}_{71}Lu_{100}$-15

Adopted Levels, Gammas (continued)

$\gamma(^{171}Lu)$ (continued)

E_i(level)	J_i^π	E_γ [†]	I_γ [‡]	E_f	J_f^π	Mult.[#]
3479.6	(35/2$^-$)	587.88	100	2891.8	(31/2$^-$)	
3540.4	(35/2$^-$)	625.76	100 *5*	2914.5	(31/2$^-$)	
		989.7	13.0 *17*	2550.9	(33/2$^-$)	
3582.7	(37/2$^-$)	553.40	39 *4*	3029.3	(33/2$^-$)	
		1031.68	100 *6*	2550.9	(33/2$^-$)	
3583.3	(35/2$^-$)	296.43	61 *8*	3286.6	(33/2$^-$)	
		609.96	100 *11*	2973.5	(31/2$^-$)	
3621.3	(35/2$^-$)	578.13	100	3043.2	(31/2$^-$)	
3642.5	(35/2$^+$)	543.98	100	3098.5	(31/2$^+$)	
3730.4	(37/2$^+$)	592.43	100	3137.9	(33/2$^+$)	
3796.8	(37/2$^-$)	619.38	100	3177.5	(33/2$^-$)	Q[d]
3814.7	(39/2$^+$)	595.32	100	3219.4	(35/2$^+$)	Q[d]
3881.8	(37/2$^-$)	298.37	69 *4*	3583.3	(35/2$^-$)	
		595.24	100 *6*	3286.6	(33/2$^-$)	
3891.2		682.89	100	3208.3	(37/2$^-$)	
3895.1	(41/2$^-$)	686.79	100	3208.3	(37/2$^-$)	
3914.4	(37/2$^-$)	585.2	100	3329.2	(33/2$^-$)	
3919.4	(37/2$^+$)	617.61	100	3301.8	(33/2$^+$)	
4034.9	(39/2$^+$)	593.37	100	3441.5	(35/2$^+$)	
4059.0		850.7	100	3208.3	(37/2$^-$)	
4099.6	(41/2$^+$)	622.53	100	3477.0	(37/2$^+$)	Q[d]
4119.4	(39/2$^+$)	645.36	100 *7*	3474.2	(35/2$^+$)	
		910.91	54 *6*	3208.3	(37/2$^-$)	
4128.7	(39/2$^-$)	649.04	100	3479.6	(35/2$^-$)	
4180.1	(39/2$^-$)	639.65	100	3540.4	(35/2$^-$)	
4184.5	(39/2$^-$)	644.09	100	3540.4	(35/2$^-$)	
4218.0	(39/2$^-$)	596.68	100	3621.3	(35/2$^-$)	
4244.1	(41/2$^-$)	661.21	100 *6*	3582.7	(37/2$^-$)	
		1035.86	32 *4*	3208.3	(37/2$^-$)	
4257.3	(39/2$^+$)	614.85	100	3642.5	(35/2$^+$)	
4336.5	(41/2$^+$)	606.17	100	3730.4	(37/2$^+$)	
4459.5	(41/2$^-$)	577.79	100	3881.8	(37/2$^-$)	
4478.8	(41/2$^-$)	681.99	100	3796.8	(37/2$^-$)	
4478.9	(43/2$^+$)	664.16	100	3814.7	(39/2$^+$)	
4587.6	(41/2$^+$)	668.15	100	3919.4	(37/2$^+$)	
4600.2	(45/2$^-$)	705.03	100	3895.1	(41/2$^-$)	
4664.8	(43/2$^+$)	629.92	100	4034.9	(39/2$^+$)	
4793.5	(45/2$^+$)	693.90	100	4099.6	(41/2$^+$)	
4828.5	(43/2$^+$)	709.06	100	4119.4	(39/2$^+$)	
4836.6	(43/2$^-$)	707.94	100	4128.7	(39/2$^-$)	
4995.3	(45/2$^+$)	658.81	100	4336.5	(41/2$^+$)	
5208.1	(47/2$^+$)	729.2	100	4478.9	(43/2$^+$)	
5214.3	(45/2$^-$)	735.5	100	4478.8	(41/2$^-$)	
5341.7	(49/2$^-$)	741.52	100	4600.2	(45/2$^-$)	
5353.3	(47/2$^+$)	688.56	100	4664.8	(43/2$^+$)	
5557.6	(49/2$^+$)	764.1	100	4793.5	(45/2$^+$)	
5717.9	(49/2$^+$)	722.53	100	4995.3	(45/2$^+$)	
5991	(49/2$^-$)	776.8	100	5214.3	(45/2$^-$)	
5997.7	(51/2$^+$)	789.58	100	5208.1	(47/2$^+$)	
6105.4	(51/2$^+$)	752.06	100	5353.3	(47/2$^+$)	
6134.3	(53/2$^-$)	792.66	100	5341.7	(49/2$^-$)	
6390.6	(53/2$^+$)	833.0	100	5557.6	(49/2$^+$)	
6505.7	(53/2$^+$)	787.8	100	5717.9	(49/2$^+$)	
6845	(55/2$^+$)	847.80	100	5997.7	(51/2$^+$)	
6982.4	(57/2$^-$)	848.03	100	6134.3	(53/2$^-$)	
7292	(57/2$^+$)	901.1	100	6390.6	(53/2$^+$)	
7750	(59/2$^+$)	904.4	100	6845	(55/2$^+$)	
7886	(61/2$^-$)	903.5	100	6982.4	(57/2$^-$)	
8257	(61/2$^+$)	964.9	100	7292	(57/2$^+$)	
8841	(65/2$^-$)	955.3	100	7886	(61/2$^-$)	
9848	(69/2$^-$)	1006.8	100	8841	(65/2$^-$)	
10907	(73/2$^-$)	1058.6	100	9848	(69/2$^-$)	

[†] From (^{19}F,α4nγ), except where noted. Uncertainties are not included for these data because only statistical uncertainties have been reported (please see source dataset for those; typical values range from 0.01 keV to 0.3 keV, but uncertainty is as high as 1.0-1.4 keV for 6 lines).

[‡] Relative photon branching from each level; values are from (^{19}F,α4nγ), except where noted. Upper limits are given when photon branching is affected by multiple placement.

[#] From $\gamma(\theta)$ and/or ce data in ^{169}Tm(α,2nγ), except as noted. Intraband stretched Q and intraband D+Q transitions are assigned as (E2) and (M1+E2), respectively, in the absence of ce data.

[@] From analysis by 1976Kr21 of $\gamma(\theta)$ data of 1973Ke10 in (α,2nγ), except where noted.

$^{171}_{71}Lu_{100}$-16

Adopted Levels, Gammas (continued)

$\gamma(^{171}Lu)$ (continued)

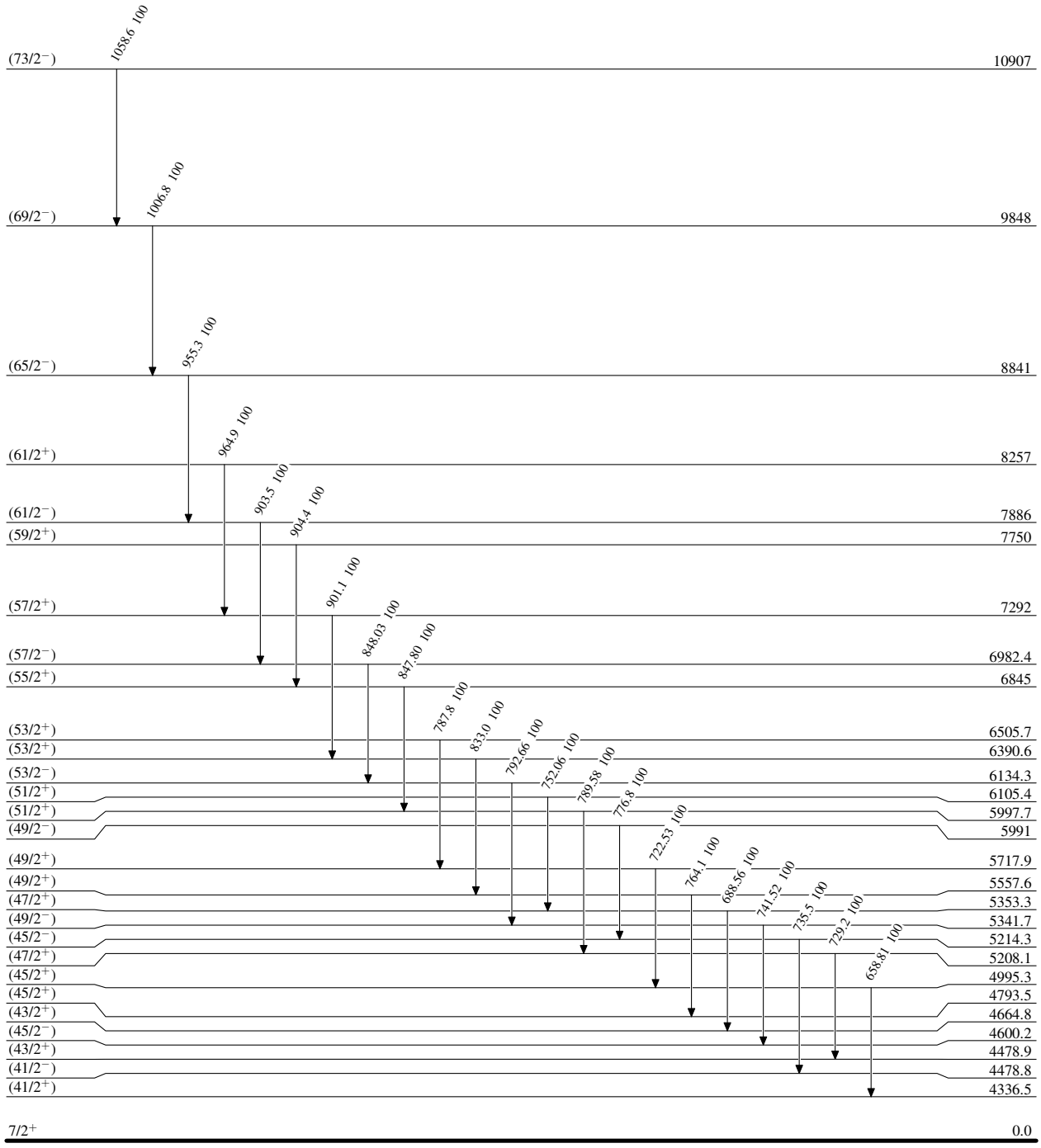
& From $^{169}Tm(\alpha,2n\gamma)$, $^{171}Yb(p,n\gamma)$.
[a] From α(K)exp in ^{171}Hf ε decay.
[b] Weighted average from ^{171}Hf ε decay and $(^{19}F,\alpha 4n\gamma)$.
[c] Weighted average from ^{171}Hf ε decay and $(\alpha,2n\gamma)$.
[d] From DCO ratio in $(^{19}F,\alpha 4n\gamma)$.
[e] From ^{171}Hf ε decay.
[f] Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.
[g] Multiply placed with undivided intensity.
[h] Multiply placed with intensity suitably divided.
[i] Placement of transition in the level scheme is uncertain.

$^{171}_{71}Lu_{100}$-17

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level

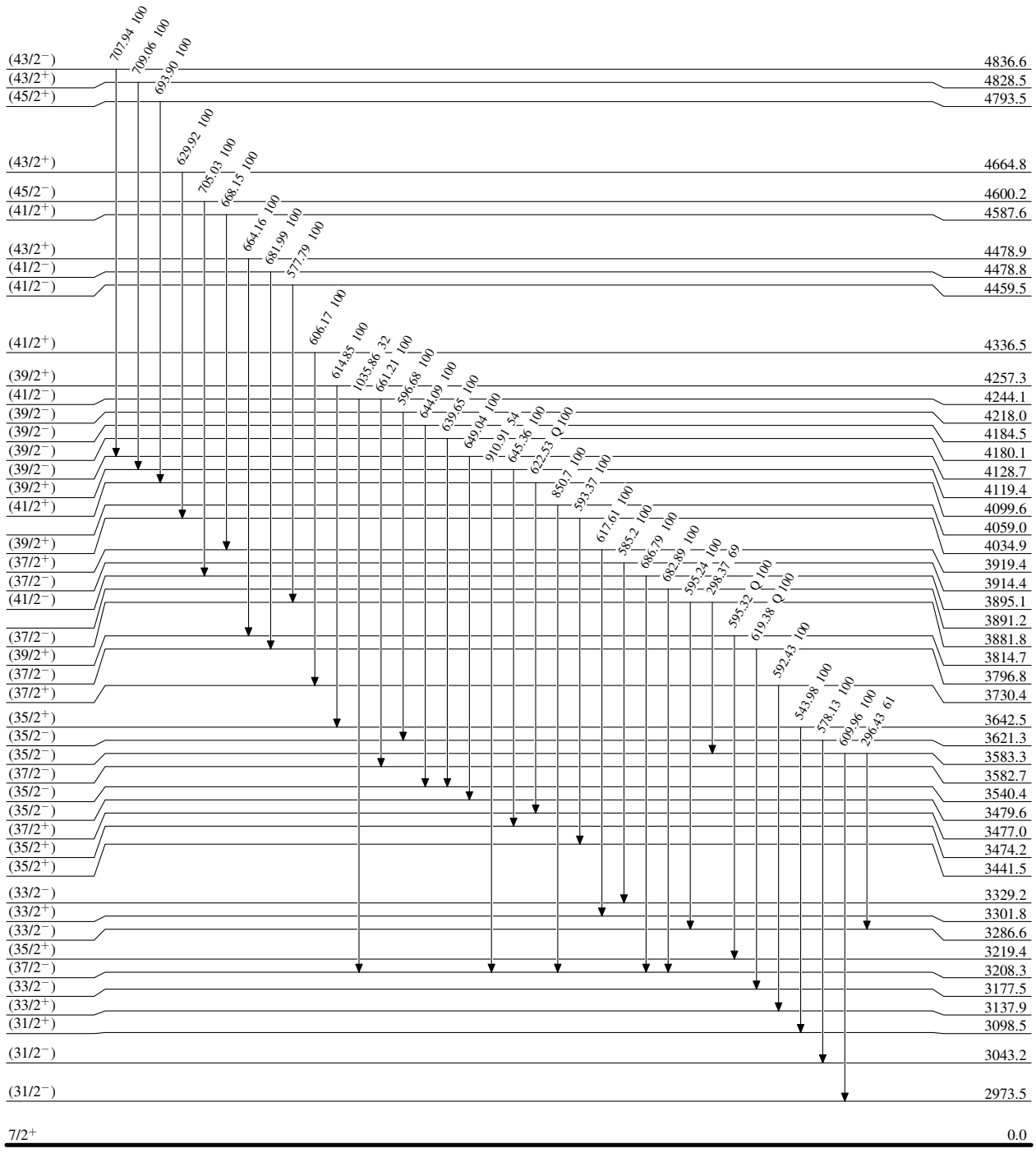


$^{171}_{71}Lu_{100}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

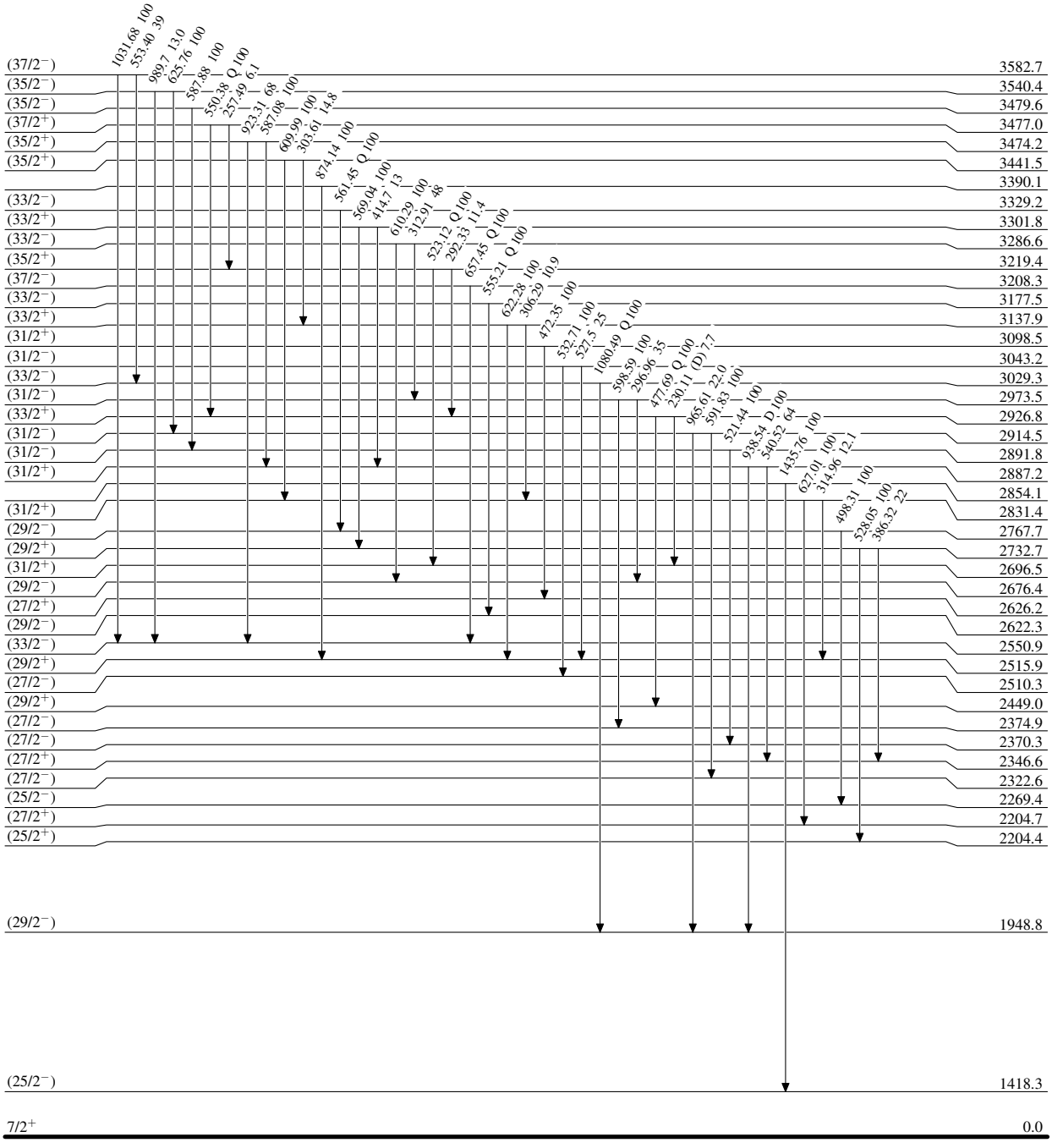


$^{171}_{71}Lu_{100}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

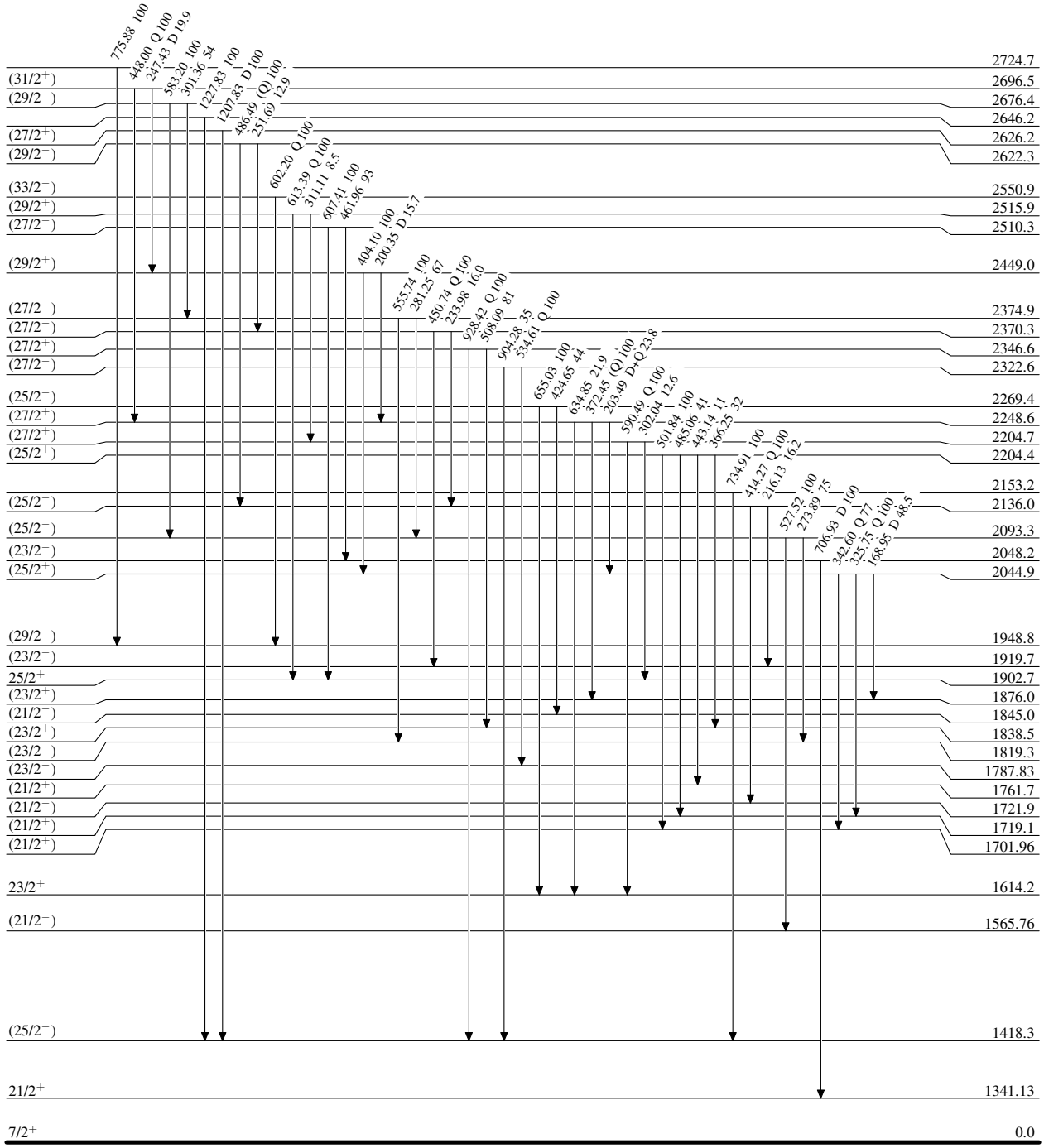


$^{171}_{71}Lu_{100}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

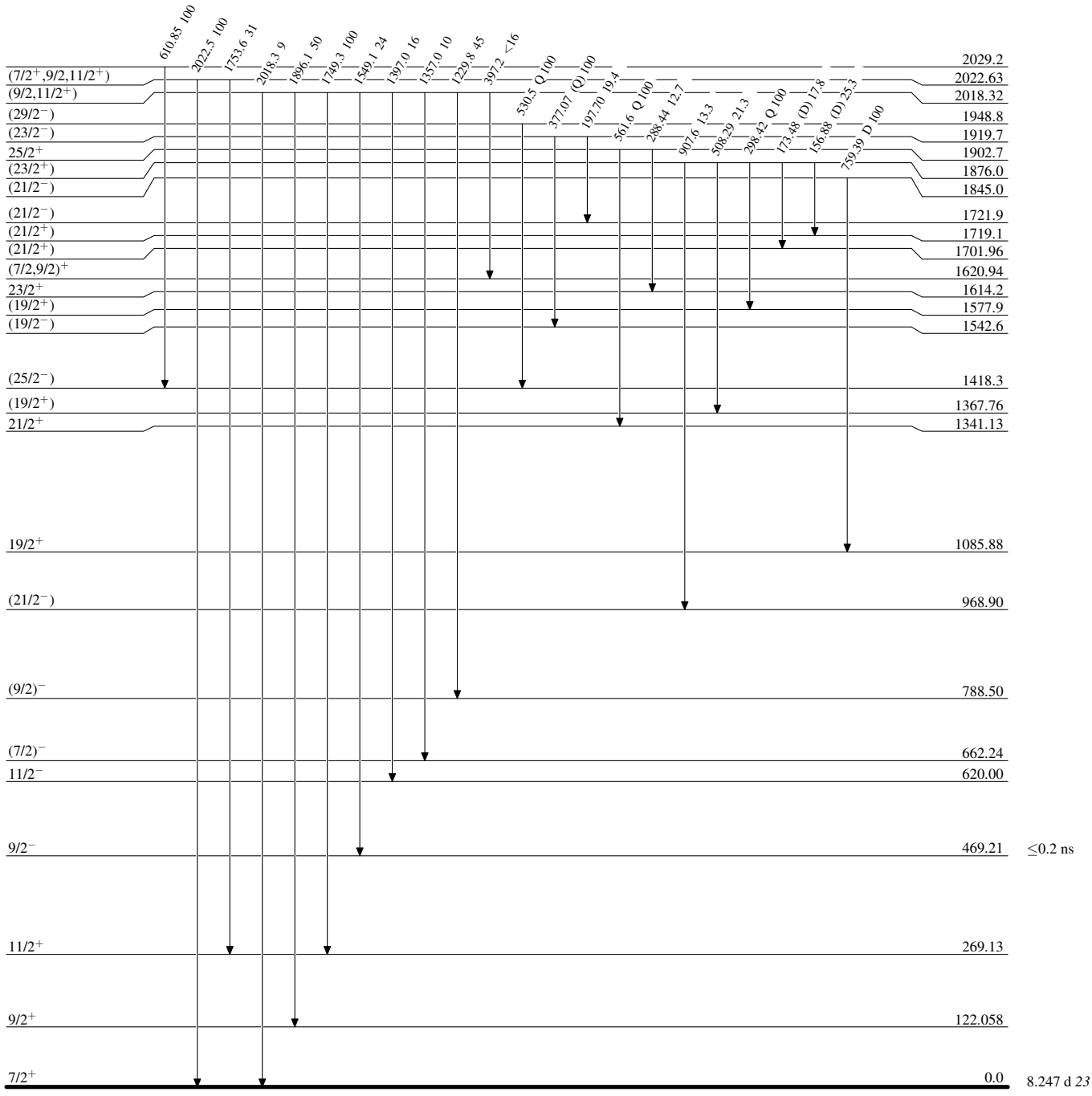


$^{171}_{71}Lu_{100}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

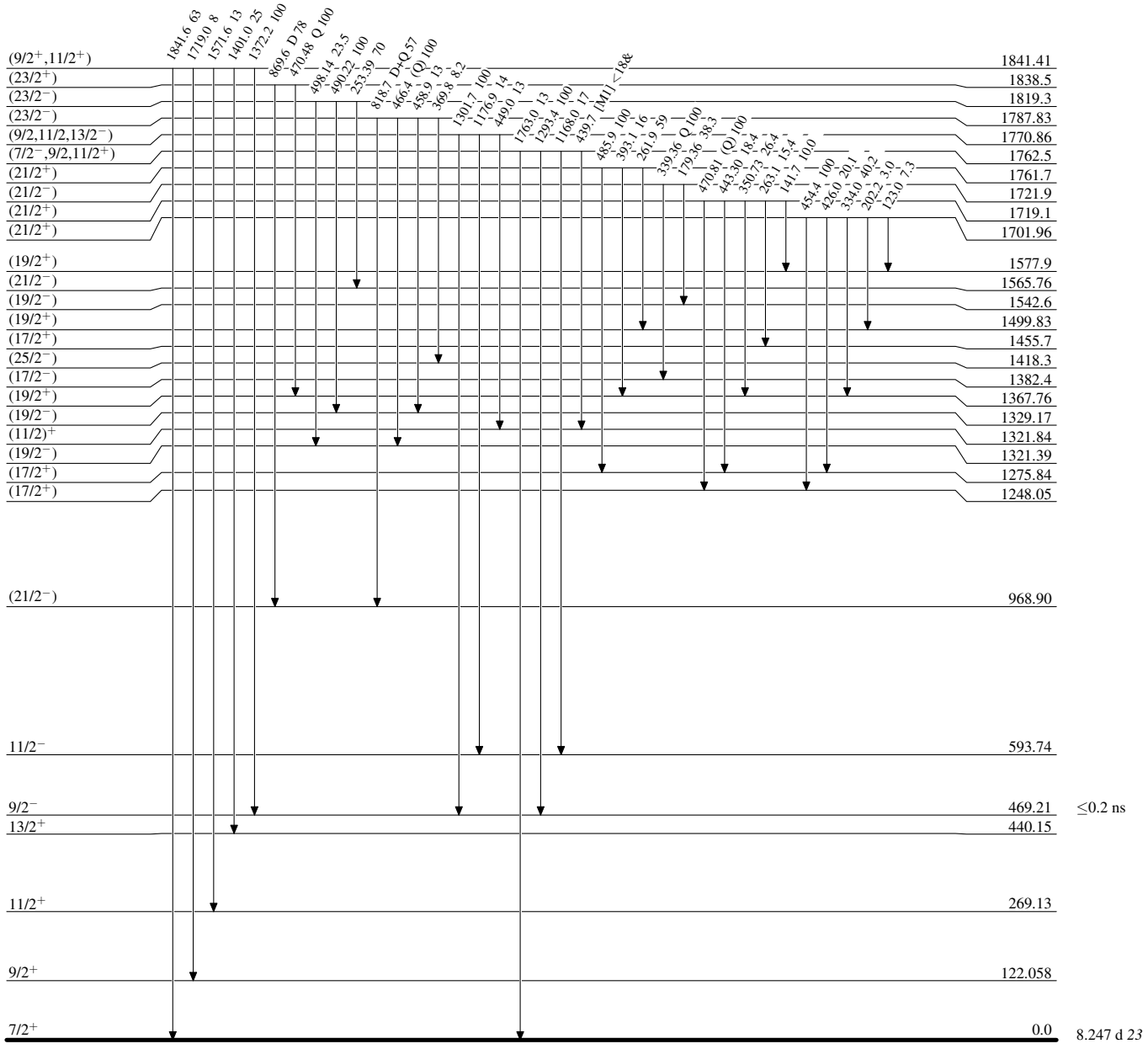


$^{171}_{71}Lu_{100}$

Adopted Levels, Gammas

Level Scheme (continued)

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

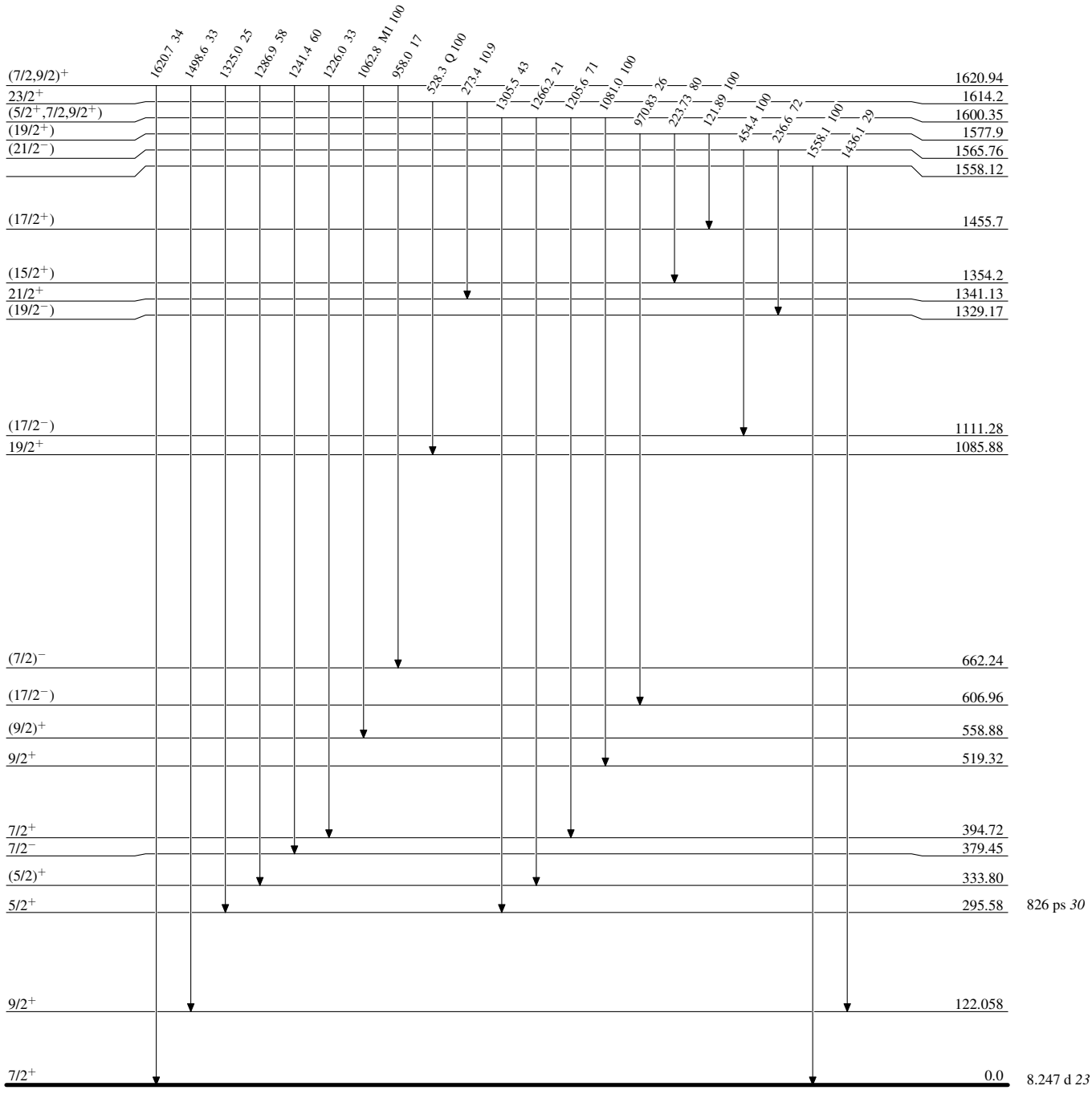


$^{171}_{71}Lu_{100}$

Adopted Levels, Gammas

Level Scheme (continued)

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

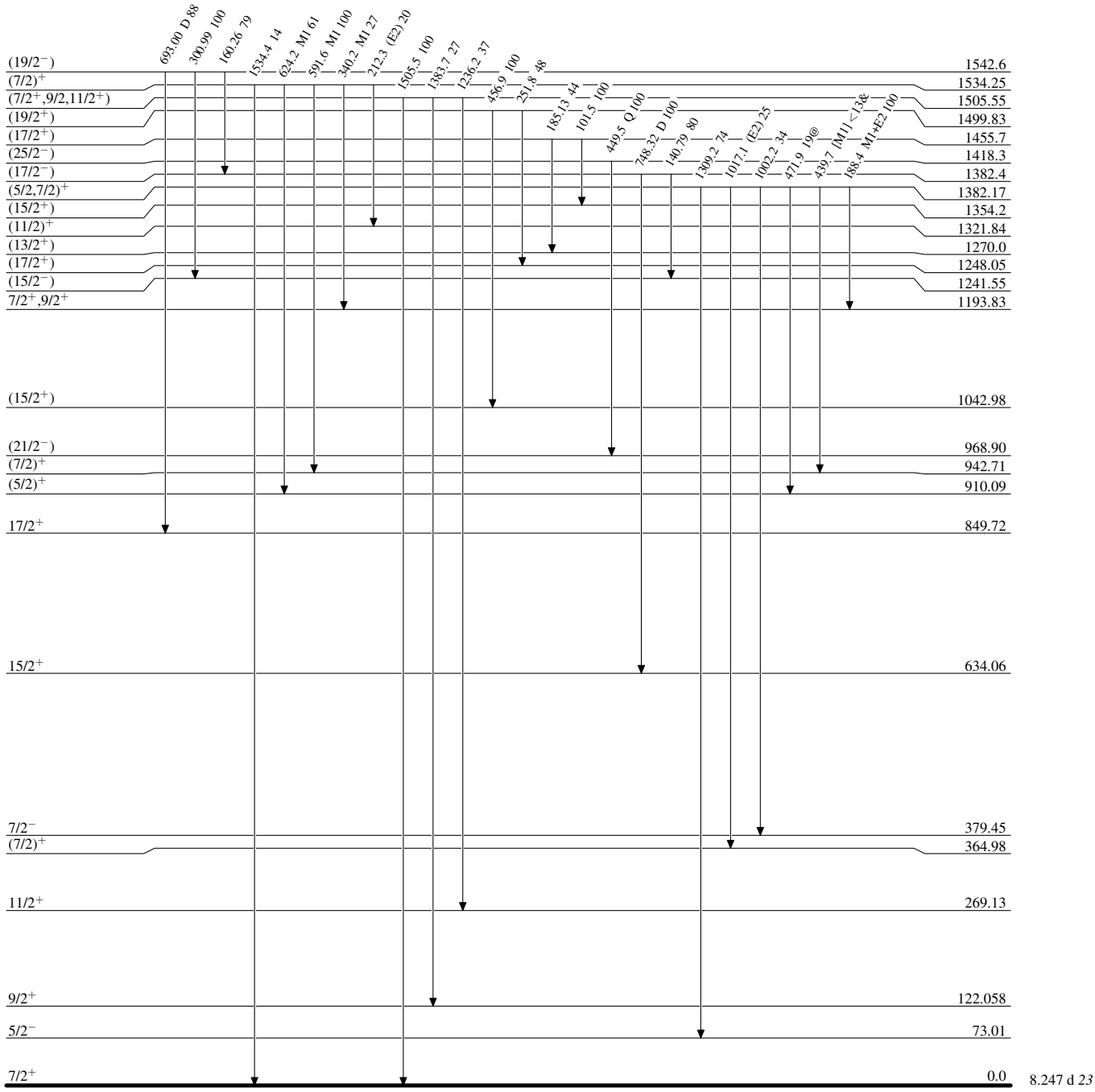


$^{171}_{71}Lu_{100}$

Adopted Levels, Gammas

Level Scheme (continued)

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

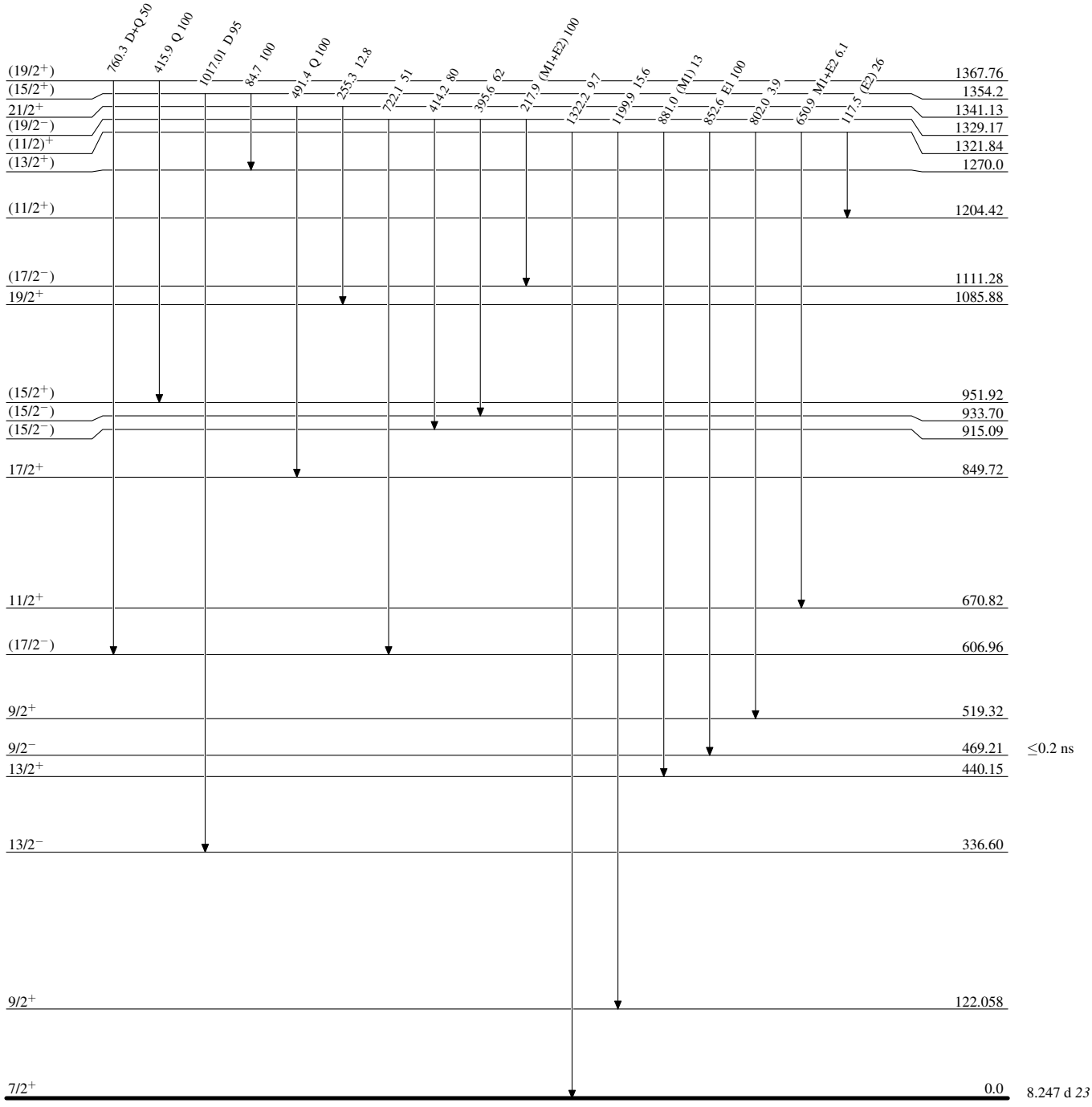


$^{171}_{71}Lu_{100}$

Adopted Levels, Gammas

Level Scheme (continued)

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



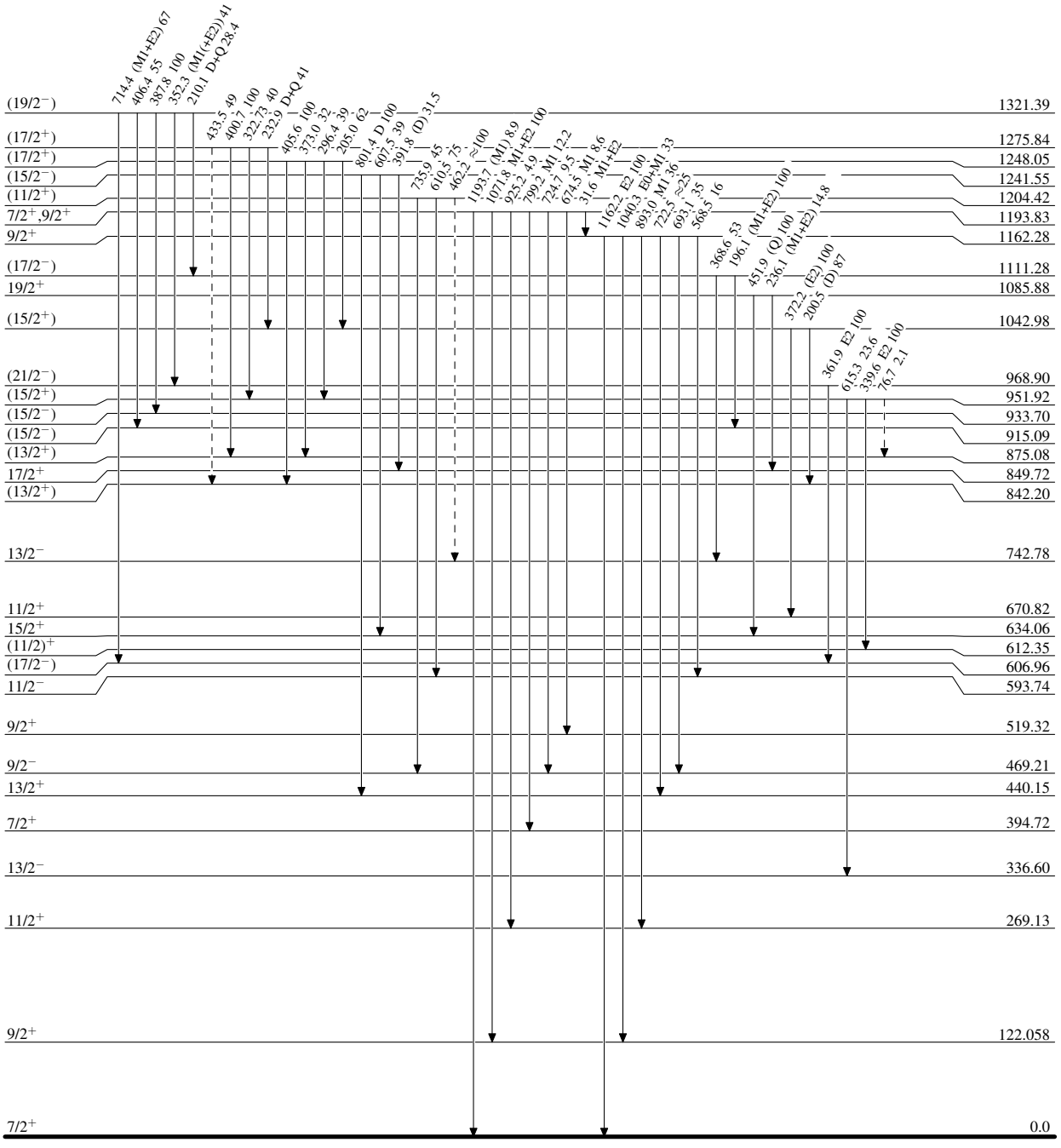
$^{171}_{71}Lu_{100}$

Adopted Levels, Gammas

Level Scheme (continued)

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

Legend: ------► γ Decay (Uncertain)



$^{171}_{71}Lu_{100}$

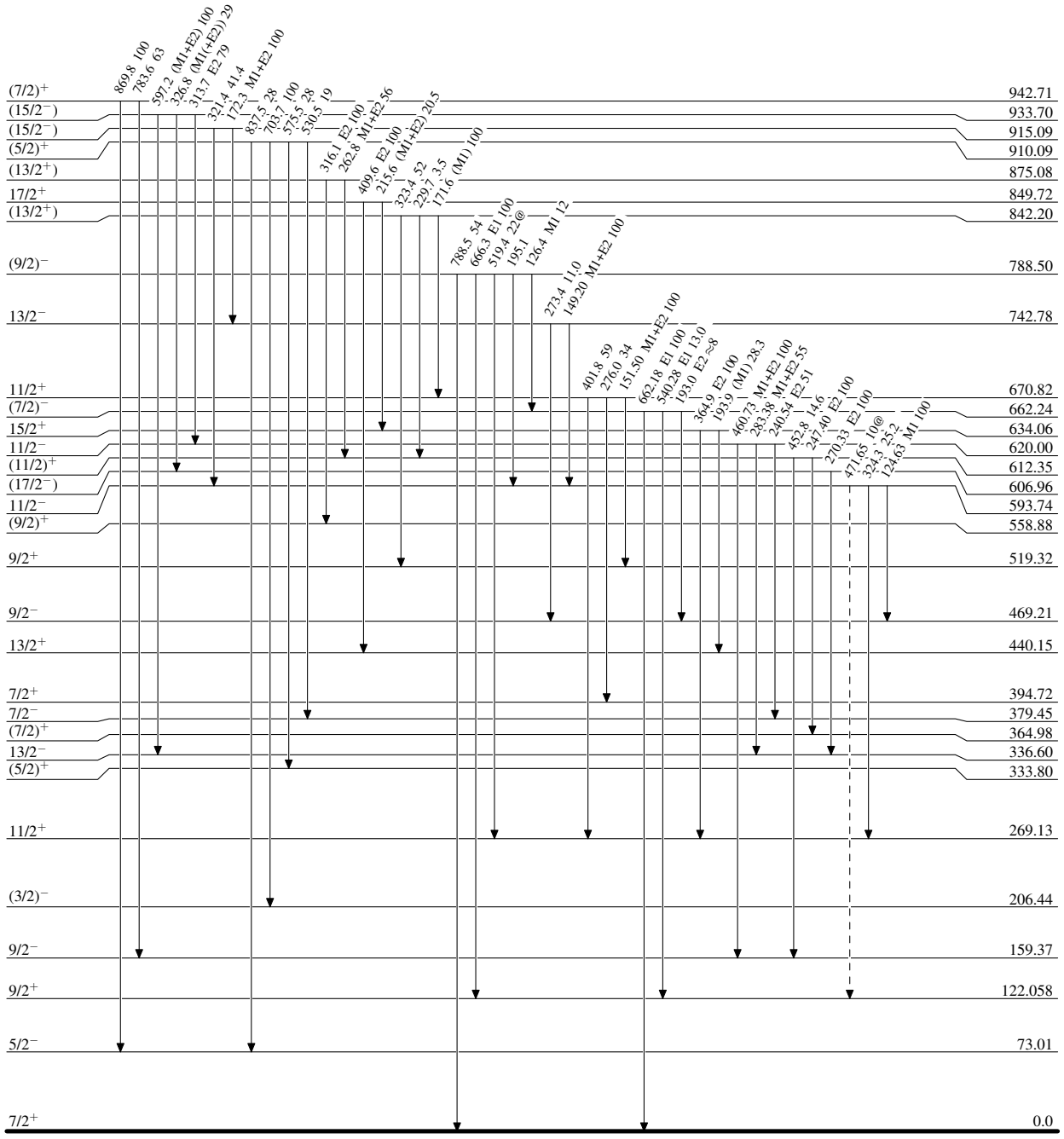
Adopted Levels, Gammas

Level Scheme (continued)

Legend

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

– – – – – – ► γ Decay (Uncertain)



$^{171}_{71}Lu_{100}$

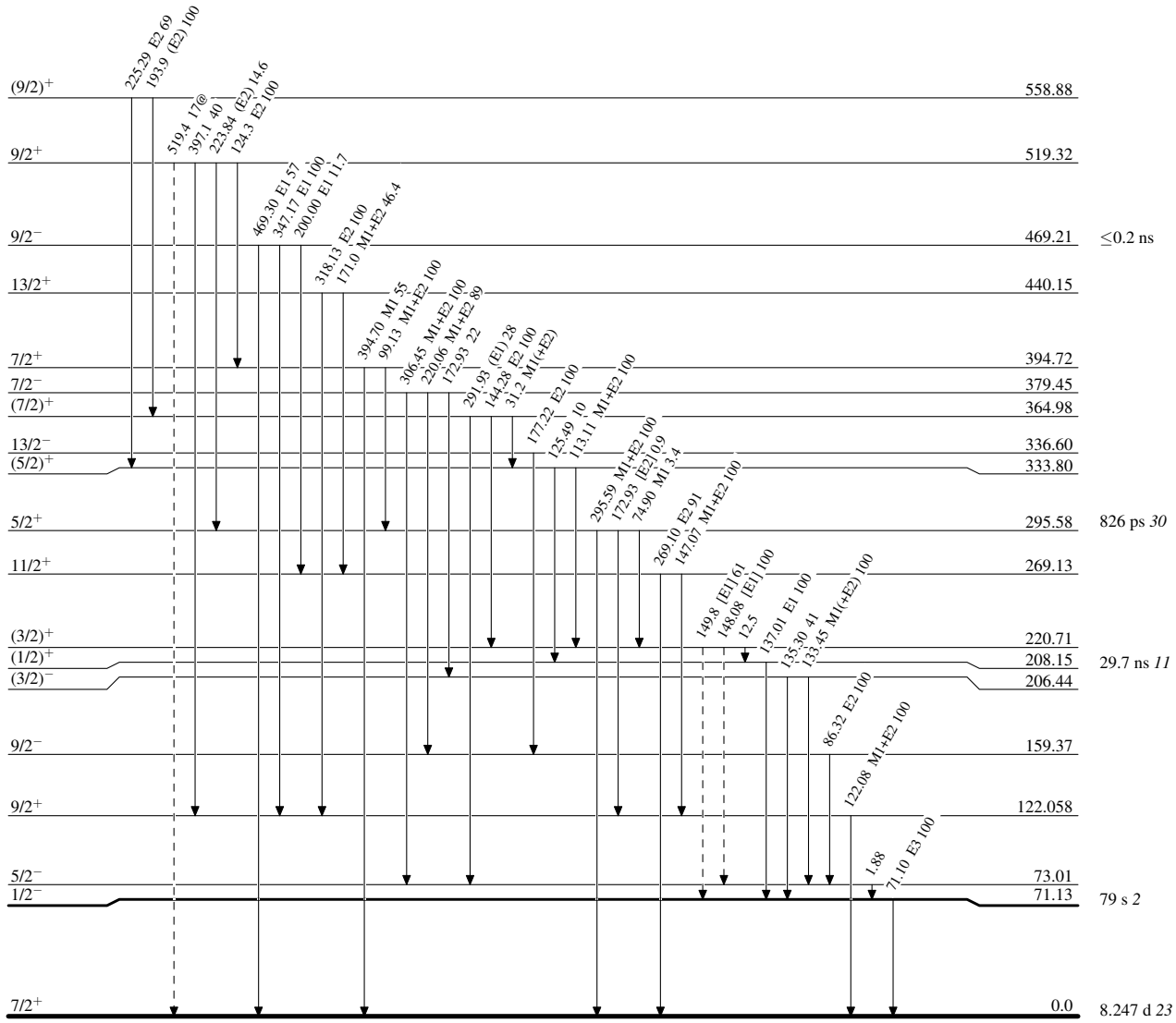
Adopted Levels, Gammas

Level Scheme (continued)

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

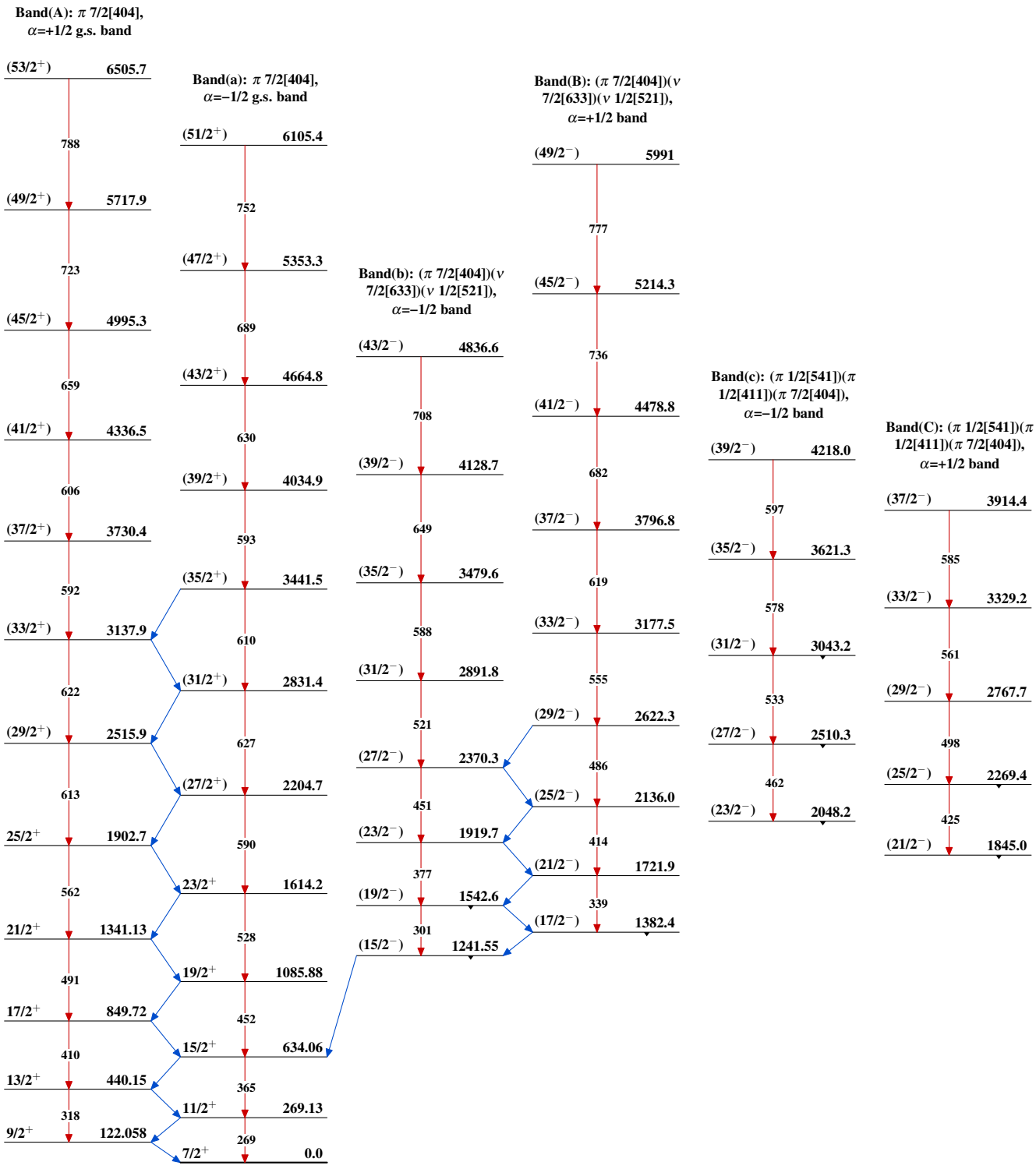
Legend

- - - - - - ► γ Decay (Uncertain)



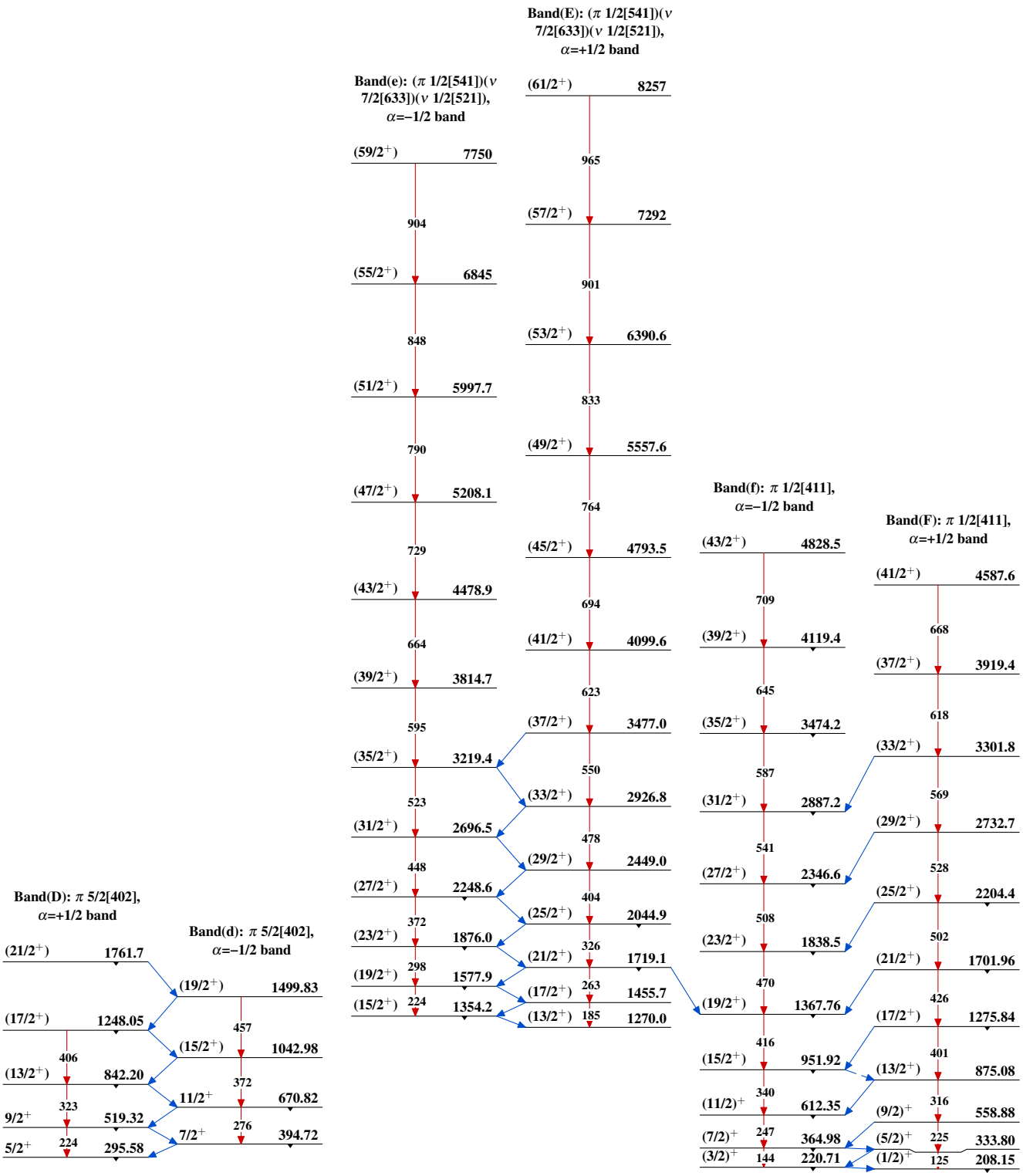
$^{171}_{71}Lu_{100}$

Adopted Levels, Gammas



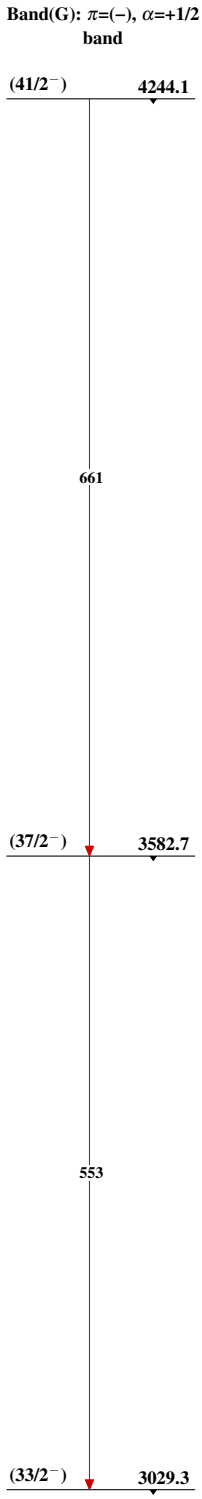
$^{171}_{71}Lu_{100}$

Adopted Levels, Gammas (continued)



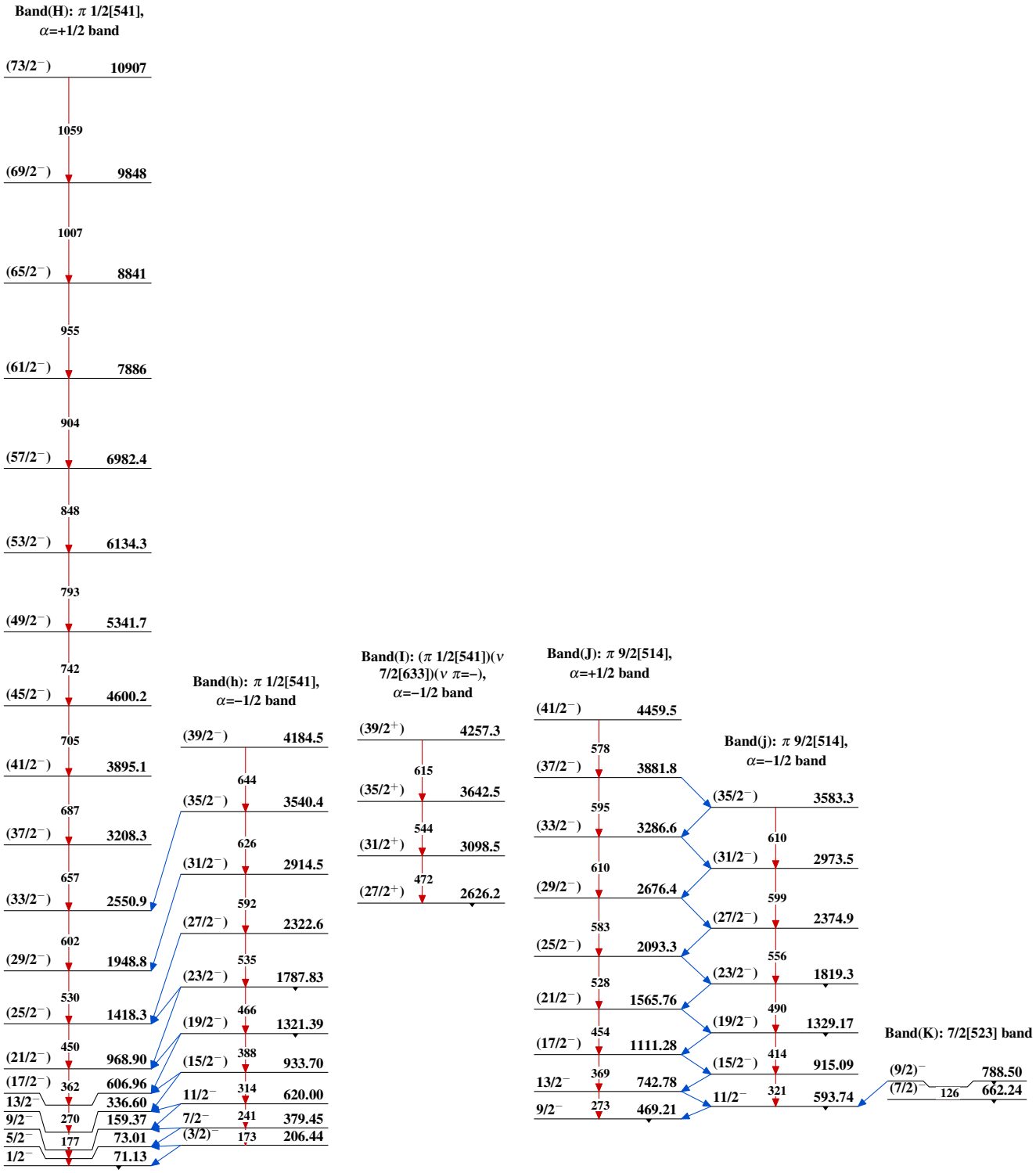
$^{171}_{71}Lu_{100}$

Adopted Levels, Gammas (continued)



$^{171}_{71}Lu_{100}$

Adopted Levels, Gammas (continued)



Adopted Levels, Gammas (continued)

Band(M): Tentative 1/2[530] band

$(7/2^-)$ 1221

Band(L): Tentative 3/2[532] band

$(9/2^-)$ 1182

$(3/2^-)$ 1111

$(5/2^-)$ 968

$^{171}_{71}Lu_{100}$