Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	T. D. Johnson, Balraj Singh	NDS 142, 1 (2017)	15-Apr-2017

Q(β^-)=−3960 *40*; S(n)=9282 *20*; S(p)=3050 *21*; Q(α)=4330 *30* 2017Wa10
S(2n)=16700 *30*, S(2p)=8610 *30* (2017Wa10).

^{189}Au produced and identified by 1960Po07 and 1960Al20 in proton and deuteron irradiations of ^{189}Pt and ^{189}Hg targets, followed by half-life measurements. Previous assignment of a 42-min activity to ^{189}Au by 1955Sm42 may have belonged to ^{190}Au. Later studies of decay of ^{189}Au: 1973Ja16, 1970Fi16, 1970Jo02, 1967Na02, 1965Ki06.

The level scheme for high-spin structures in 1992Ve05 and 1992Bo23 differ in the ordering of several cascades, and J^π assignments. Experimental details are not available in either of the two references. The evaluators have adopted the level scheme from 1992Ve05. The level scheme proposed by 1992Bo23 (and 1993Pe17) is in general agreement with that from 1992Ve05, with the exception of a few transitions placed in a different ordering of the γ cascades. The level schemes proposed in ^{191}Ir(α,6nγ) (1979Go15) and ^{181}Ta(^{12}C,4nγ) (1975De20) differ significantly above ≈2.5 MeV excitation, mainly due to either different ordering of the γ cascades or missing transition(s) in a cascade. Observation of a γ ray in 1975De20 and 1979Go15 similar in energy to that in 1992Ve05 is taken here as an evidence of population of a particular level in that study.

^{189}Au Levels

Additional information 1.

Cross Reference (XREF) Flags

A	^{189}Hg ε decay (7.6 min)	D	^{176}Yb(^{19}F,6nγ)
B	^{189}Hg ε decay (8.6 min)	E	^{181}Ta(^{12}C,4nγ)
C	^{174}Yb(^{19}F,4nγ)	F	^{191}Ir(α,6nγ)

E(level)†	J$^\pi$‡	T$_{1/2}$	XREF	Comments
0.0	1/2$^+$	28.7 min *4*	AB	%ε+%β^+=100; %α<3×10^{-5} μ=+0.494 *14*(1989Wa11,1987Wa06,2014StZZ) RMS charge radius <r^2>$^{1/2}$=5.4084 fm *52* (2013An02 evaluation). μ: laser resonance ionization mass spectroscopy (1989Wa11,1987Wa06). %α: ionization chamber measurement (1963Ka17). No α decay observed. J$^\pi$: spin from atomic beam (1976Ek01). Systematics of ^{191}Au-^{199}Au predict 1/2$^+$, 3/2$^+$ ground-state doublet. T$_{1/2}$: weighted average of 28.3 min *5* (1970Fi16), 28.6 min *10* (1970Jo02), 29.7 min *8* (1967Na02), and 28.7 min *4* (1966Fo13). Other values: 30 min (1960Po07,1960Al20), 42 min *5* (1955Sm42). Activity identified by 1955Sm42 may have belonged to ^{190}Au.
9.94 *11*	3/2$^+$	30 ns *4*	AB	J$^\pi$: M1+E2 from 5/2$^+$ (248.6), γ to 1/2$^+$. Systematics of ^{191}Au-^{199}Au predict 1/2$^+$, 3/2$^+$ ground-state doublet. T$_{1/2}$: from 1975Be17.
203.74 *12*	3/2$^+$#		AB	
247.25& *16*	11/2$^-$#	4.59 min *11*	ABCDEF	%ε+%β^+≈100; %IT=? μ=+6.19 *2* (1989Wa11,1987Wa06,2014StZZ) μ: laser resonance ionization mass spectroscopy (1989Wa11,1987Wa06). Other value: 6.17 *15* (1986Va35,1985Va07, nuclear orientation, NMR). %IT: on the basis of decay curves, 1970Fi16 suggest a possible ÎT branch. RUL for a possible 237γ leads to %IT<5.5. J$^\pi$: spin from atomic beam (1976Ek01), parity from E2 γ from 7/2$^-$. T$_{1/2}$: weighted average of 4.55 min *10* (1970Fi16), 4.7 min *1* (1967He06,1967Al17) and 4.0 min *3* (1966Fo13).
248.56 *11*	5/2$^+$#		AB	

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Adopted Levels, Gammas (continued)

^{189}Au Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$	XREF	Comments
307.76 *13*	$5/2^+$		AB	Jπ: M1+E2 to $3/2^+$ (9.9), E1 from $7/2^-$ (484.0).
325.12[a] *16*	$9/2^-$[@]	190 ns *15*	ABCDEF	%IT=100 $T_{1/2}$: from γ(t) in ^{189}Hg ε decay (1975Be17).
484.02 *16*	$7/2^-$[#]	0.15 ns *5*	AB E	$T_{1/2}$: from γ(t) in ^{189}Hg ε decay (1975Be17).
491.53 *17*	$5/2^-$[@]	0.30 ns *3*	AB E	$T_{1/2}$: from γ(t) in ^{189}Hg ε decay (1975Be17).
512.35 *15*	$7/2^+$		AB	Jπ: E2 to $3/2^+$ (203.7); E2 from $11/2^+$ (1112.5).
602.90 *16*	$1/2^+$,$3/2^+$		A	Jπ: M1+E2 to $3/2^+$ (203.7), M1 to $1/2^+$.
646.17[a] *17*	$13/2^-$		BCDEF	Jπ: E2 γ to $9/2^-$, band member.
647.20 *13*	$7/2^+$		AB	Jπ: M1 to $5/2^+$ (248.6), E2 from $11/2^+$.
681.90[&] *19*	$15/2^-$		BCDEF	Jπ: E2 γ to $11/2^-$, band member.
712.70 *18*	$11/2^-$		BCDEF	Jπ: M1+E2 to $9/2^-$, strong ε feeding from ^{189m}Hg (J^π=$13/2^+$).
760.67 *18*	$9/2^+$		B	Jπ: E2 to $5/2^+$ (248.56), M1 from $11/2^+$.
770.68 *18*	$7/2^-$		AB	Jπ: M1+E2 to $9/2^-$, M1+E2 to $5/2^-$.
801.95 *18*	$1/2^+$,$3/2^+$		A	Jπ: M1+E2 to $3/2^+$ (203.7); M1+E2 to $1/2^+$; γ to $5/2^+$ (248.6), strong ε feeding from ^{189g}Hg (J^π=$3/2^-$).
811.88 *22*	$(5/2,3/2,1/2)^+$		AB	Jπ: M1 to $3/2^+$; γs to $5/2^+$ (307.8) and $1/2^+$.
812.67 *18*	$13/2^-$		BCDEF	Jπ: M1+E2 to $11/2^-$ (247.2), strong ε feeding from ^{189m}Hg (J^π=$13/2^+$).
814.30 *25*	$1/2^-$		A	Jπ: E2 to $5/2^-$, strong ε feeding from ^{189g}Hg with J^π=$3/2^-$.
847.89 *19*	$9/2^+$		B	Jπ: E2 to $5/2^+$ (248.6), E2 from $13/2^+$ (1534.8).
862.04 *18*	$9/2^-$		AB	Jπ: M1 to $11/2^-$, M1+E2 to $7/2^-$ (484.0).
879.64 *23*	$^+$		A	Jπ: E2(+M1) to $3/2^+$ (203.7).
880.45 *23*	$9/2^-$		B	Jπ: M1+E2 to $11/2^-$, M1+E2 to $7/2^-$ (484.0).
887.24 *24*	$(3/2,5/2)^-$		A	Jπ: M1+E2 to $5/2^-$, strong ε feeding from ^{189g}Hg parent with J^π=$3/2^-$.
911.01 *20*	$7/2^-$		AB	Jπ: M1+E2 to $5/2^-$, M1 to $9/2^-$ (325.1).
961.22 *19*	$(5/2,3/2)^+$		B	Jπ: M1+E2 γ to $5/2^+$ (248.6); M1+E2 γ to $3/2^+$.
977.8 *10*			A	
1058.73 *14*	$3/2^-$		A	Jπ: E2 to $7/2^-$ (484.0), E1 to $3/2^+$ (203.7), E1 to $1/2^+$.
1097.03 *21*	$13/2^-$		BCD	Jπ: E2 to $9/2^-$ (325.1), strong ε feeding from ^{189m}Hg, J^π=$13/2^+$.
1098.1 *3*			A	
1104.80 *22*	$3/2^-$[@]		A	
1105.35[a] *30*	$17/2^-$		BCD F	Jπ: E2 γ to $13/2^-$, band member.
1106.56 *23*	$(5/2,3/2)^+$		B	Jπ: M1+E2 to $3/2^+$ (203.74), ε feeding from ^{189g}Hg, J^π=$3/2^-$.
1107.4 *11*			A	
1112.48 *20*	$11/2^+$		B	Jπ: M1 to $9/2^+$; strong ε feeding from ^{189m}Hg (J^π=$13/2^+$).
1116.05 *21*	$7/2^-$,$5/2^-$		A	Jπ: M1 to $7/2^-$ (770.67), M1 to $5/2^-$.
1130.10 *19*	$11/2^-$		BC	Jπ: M1+E2 to $9/2^-$ (325.1), M1+E2 to $13/2^-$ (646.2).
1133.52 *22*	$9/2^-$		B	Jπ: M1+E2 to $7/2^-$; E2 to $5/2^-$ (491.5).
1133.6 *6*			A	
1145.70 *22*	$13/2^-$,$15/2^-$		BC	Jπ: M1+E2 to $13/2^-$ (646.2); strong ε feeding from ^{189m}Hg, J^π=$13/2^+$; 11/2 not likely from population in heavy-ion (^{19}F,4nγ) reaction.
1156.0 *3*	$(5/2,7/2)^-$		A	Jπ: M1 to $7/2^-$ (770.7), M1+E2 to $(3/2,5/2)^-$ (887.2); possible γ to $3/2^+$ makes 7/2 less likely.
1165.0 *10*			A	
1165.7 *6*			A	
1188.60 *21*	$11/2^-$		B	Jπ: M1+E2 to $13/2^-$ (812.7), M1+E2 to $9/2^-$ (862.0).
1193.55 *23*	$^-$		B	Jπ: M1+E2 to $7/2^-$ (911.0).
1247.1 *3*	$(9/2,7/2)^+$		B	Jπ: M1+E2 to $9/2^+$ (760.7), γ to $5/2^+$ (307.8).
1254.24 *19*	$5/2^-$,$7/2^-$		A	Jπ: M1 to $7/2^-$ (484.0), E2 to 3/2−(1058.7).
1260.7 *10*			A	
1273.14 *25*	$11/2^-$		B	Jπ: M1+E2 to $9/2^-$ (862.0), M1 to $13/2^-$ (646.2).
1286.3 *11*			A	
1295.5 *3*	$11/2^-$		B	Jπ: M1+E2 to $9/2^-$ (862.0), populated in ε decay of ^{189m}Hg, J^π=$13/2^+$.
1298.87 *16*	$11/2^+$		B	Jπ: E2 to 647.2 (J≤$7/2^+$), strong ε feeding from ^{189m}Hg (J^π=$13/2^+$).
1312.96 *25*	$13/2^-$		B	Jπ: M1+E2 to $11/2^-$, strong feeding ε from ^{189m}Hg, J^π=$13/2^+$.

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Adopted Levels, Gammas (continued)

^{189}Au Levels (continued)

E(level)[†]	Jπ[‡]	XREF	Comments
1346.5 *5*		A	
1352.6 *3*	(15/2,13/2,11/2)$^-$	BCDE	XREF: E(?). Jπ: M1+E2 to 13/2$^-$ (812.7), E2 to 11/2$^-$ (247.2).
1358.8 *5*		A	
1365.3 *5*		B	
1368.1 *3*	(17/2,13/2,15/2)$^-$	B	Jπ: (M1) to 15/2$^-$ (681.9).
1371.3 *11*		A	
1376.2 *11*	$^-$	B	Jπ: M1+E2 γ to 13/2$^-$.
1383.25 *20*	13/2$^+$	BCD	Jπ: E1 to 13/2$^-$ (646.2), E1 to 11/2$^-$ (1130.1), strong ε feeding from ^{189m}Hg, J^π=13/2$^+$.
1412.2[&] *4*	19/2$^-$	BCDEF	Jπ: ΔJ=2, γ to 15/2$^-$, band member.
1419.80 *22*	(13/2,11/2)$^+$	B	Jπ: E2 to 9/2$^+$ (760.7), observed in ^{189m}Hg ε decay, J^π=13/2$^+$.
1431.9 *4*		A	Jπ: in 1996Wo04, this level is shown in their Figure 15 with other low lying negative parity levels. However no spin parity was explicitly assigned to this level.
1456.2 *10*	$^+$	B	Jπ: M1 γ to 647.2, 7/2$^+$ level.
1459.97 *20*	11/2$^+$	B	Jπ: E1 to 9/2$^-$ (325.1), E1 to 13/2$^-$ (646.2).
1463.9 *5*	$^-$	B	Jπ: M1 γ to 712.7, 11/2$^-$ level.
1476.1 *4*		A	
1481.6 *4*	13/2$^-$	B	Jπ: M1 γ rays to 15/2$^-$ and 11/2$^-$ (1188.6).
1483.4 *3*	(7/2)$^+$	B	Jπ: M1+E2 γ to 760.7, 9/2$^+$; M1+E2 to (5/2,3/2)$^+$.
1488.9 *3*	(7/2,11/2)$^-$	B	Jπ: M1+E2 γ to 325.1, 9/2$^-$ level; (E2) γ to 712.7, 11/2$^-$ level.
1516.7 *11*	$^-$	B	Jπ: M1+E2 γ to 812.7, 13/2$^-$ level.
1523.4 *4*	($^-$)	B	Jπ: in Figure 10 of 1996Wo04, the association of the decay of this level with the 11/2$^-$ isomeric level, indirectly fed via the 841 keV γ leads the authors to assign a negative parity.
1523.9 *11*	$^+$	B	Jπ: M1+E2 γ to the 847.9, 9/2$^+$ level.
1525.0 *4*	$^-$	B	Jπ: M1 γ to 1093.0, 13/2$^-$ level; M1(+E2) γ to 712.7, 11/2$^-$ level.
1534.79 *19*	13/2$^+$	B	Jπ: E1 to 11/2$^-$ (247.2), (E1) to 15/2$^-$ (681.9), strong ε feeding from ^{189m}Hg (J=13/2$^+$).
1559.1 *4*	$^-$	B	Jπ: E2(+M1) γ to 1130.1, 11/2$^-$ level.
1559.83 *22*	$^-$	B	Jπ: M1 γ to 712.7, 11/2$^-$ level.
1580.3 *6*	$^-$	B	Jπ: M1 γ to 1097.0, 13/2$^-$ level.
1595.4 *11*		B	
1597.2 *11*		B	
1601.19 *20*	13/2$^+$,15/2$^+$	BCD	Jπ: E1 to 13/2$^-$ (812.7), γ to 15/2$^-$ (681.9), populated by ^{189m}Hg ε decay.
1654.2 *3*	13/2$^-$,15/2$^-$	B	Jπ: M1+E2 to 13/2$^-$ (812.7), E2 to 15/2$^-$ (681.9), populated by ^{189m}Hg ε decay.
1662.4[a] *4*	21/2$^-$	CD F	Jπ: ΔJ=(2), (E2) γ to 17/2$^-$, band member.
1688.1 *6*		D	
1730.6 *4*		B	
1739.4 *4*	13/2$^+$,15/2$^+$	BC	Jπ: M1+E2 to 13/2$^+$ (1383.2), γ to 15/2$^-$ (681.9).
1745.6 *11*		BCD	
1755.0 *11*		A	
1756.7 *4*	$^-$	B	Jπ: M1 γ to 681.9, 15/2$^-$ level.
1760.2 *4*		B	
1764.3 *4*		B	
1767.0 *11*		A	
1774.5 *6*		B	
1788.3 *8*	($^+$)	B	Jπ: (E2) γ to 1112.5, 11/2$^+$ level.
1800.6 *5*	(15/2$^+$)	B	Jπ: (E1) to 17/2$^-$ (1105.3), observed in ^{189m}Hg ε decay.
1808.4 *4*		A	
1822.2 *4*	$^-$	B	Jπ: M1(+E2) γ to 681.9, 15/2$^-$ level.
1835.1 *3*	(13/2$^+$,15/2$^+$)	B	Jπ: γs to 13/2$^-$ (646.2, 812.7), 15/2$^-$ (681.9) and 13/2$^+$ (1383.2).
1851.0 *11*		A	
1862.9 *8*	$^-$	A	Jπ: M1 γ to 911.0, 7/2$^-$ level.
1863.4 *3*		A	
1877.1 *5*	$^-$	B	Jπ: M1+E2 γ to 812.7, 13/2$^-$ level.

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Adopted Levels, Gammas (continued)

^{189}Au Levels (continued)

E(level)[†]	Jπ[‡]	XREF	Comments
1879.0 *3*		A	
1905.2 *11*		B	
1913.5 *5*		A	
1935.02 *20*	+	B	Jπ: E1 γ to 812.7, 13/2⁻ level.
1939.02 *20*	+	B	Jπ: M1+E2 γ to 1459.9, 11/2⁺ level.
1960.1 *4*		A	
1970.8 *4*		A	
2030.87 *22*		A	
2031.04 *25*		A	
2034.2 *3*		A	
2034.7 *4*		A	
2036.1 *6*		A	
2045.8 *4*	+	B	Jπ: M1+E2 γ to 1298.9, 11/2⁺.
2061.5 *11*		A	
2062.6 *5*	(21/2⁺)	CDEF	Jπ: ΔJ=1, dipole γ to 19/2⁻.
2066.2 *11*		A	
2066.47 *18*	3/2⁻,5/2⁻	A	Jπ: M1 γ to 1058.7, 3/2⁻; γ to 5/2⁺.
2074.05 *20*	−	A	Jπ: M1 γ to 1058.73, 3/2⁻ level.
2074.7 *3*	−	A	Jπ: M1+E2 γ to 1156.0, *J*π=(5/2,7/2)⁻ level.
2092.8 *3*	−	A	Jπ: M1 γ to 1156.0, *J*π=(5/2,7/2)⁻ level.
2093.61 *22*	−	A	Jπ: M1 γ to 1116.0, *J*π=7/2⁻,5/2⁻ level.
2094.0 *4*		B	
2099.7 *6*		A	
2101.47 *18*		A	
2101.7 *3*	(−)	A	Jπ: (M1) γ to 5/2⁻ level.
2109.8 *10*		A	
2113.8 *4*		B	
2145.0 *4*		B	
2154.6 *4*	−	A	Jπ: M1(+E2) γ to 1254.2, 5/2⁻ level.
2155.3 *5*		A	
2157.4 *5*		A	
2163.3 *6*	+	B	Jπ: M1 γ to 1383.2, 13/2⁺ level.
2165.21 *24*	+	B	Jπ: M1+E2 γ to 1534.8, 13/2⁺ level.
2169.19 *21*	(+)	B	Jπ: (M1+E2) γ to 1534.8, 13/2⁺ level.
2169.6 *3*	+	B	Jπ: M1+E2 γ to 1419.8, *J*π=(13/2,11/2)⁺ level.
2176.2 *8*	+	B	Jπ: E2(+M1) γ to 1459.97, 11/2⁺ level.
2176.8 *4*		B	
2178.0 *11*		B	
2200.9 *11*		B	
2205.3[&] *5*	23/2⁻	C F	Jπ: ΔJ=(2) to 19/2⁻, band member.
2209.8 *10*		A	
2211.01 *24*	+	B	Jπ: M1(+E2) γ to 1459.9, 11/2⁺ level.
2239.9 *11*		B	
2240.94 *20*	(+)	B	Jπ: M1(+E2) γ to 1112.5, 11/2⁺ level.
2250.7 *5*	(25/2⁺)	CDEF	Jπ: γ to (21/2⁺); 1997Pe26 proposed 25/2⁺, based on assumed similarity of decay scheme from the (31/2⁺) isomers in ^{189}Au and ^{191}Au, which would require 188γ to be E2, rather than M1+E2, from other studies.
2251.9 *5*		B	
2255.1 *11*		B	
2257.18 *21*	(−)	B	Jπ: (E1) γ to 1939.0, π=(+) level.
2257.53 *20*	(+)	B	Jπ: M1+E2 γ to 1419.8, *J*π=(13/2,11/2)⁺ level.
2258.7 *3*		A	
2264.0 *11*		B	
2264.81 *22*	+	B	Jπ: M1+E2 γ to 1601.2, 13/2⁺,15/2⁺ level.
2268.0 *11*		B	
2268.97 *23*		B	

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Adopted Levels, Gammas (continued)

^{189}Au Levels (continued)

E(level)[†]	J$^{\pi}$[‡]	$T_{1/2}$	XREF	Comments
2269.7 *4*			B	
2271.0 *4*	+		B	J$^{\pi}$: M1 γ to 1419.8, J^{π}=(13/2,11/2)$^+$ level.
2272.16 *19*	+		B	J$^{\pi}$: M1(+E2) γ to 1139.0, π=+ level.
2273.1 *7*			B	
2274.1 *3*			B	
2274.6 *5*			B	
2275.6 *3*	+		B	J$^{\pi}$: E2(+M1) γ to 1419.8, J^{π}=(13/2,11/2)$^+$ level.
2276.59 *20*	+		B	J$^{\pi}$: M1(+E2) γ to 1459.9, 11/2$^+$ level.
2281.00 *24*			B	
2281.9 *8*			B	
2293.9 *4*			B	
2294.99 *23*	+		B	J$^{\pi}$: M1(+E2) γ to 1139.0, π=+ level.
2295.7 *6*			B	
2299.5[a] *5*	25/2$^-$		C F	J$^{\pi}$: ΔJ=(2) to (21/2$^-$), band member.
2311.3 *3*			B	
2316.0 *3*			B	
2317.1 *3*	+		B	J$^{\pi}$: M1+E2 γ to 1534.8, 13/2$^+$ level.
2317.5 *3*	+		B	J$^{\pi}$: M1 γ to 1935.0, π=+ level.
2319.4 *7*			DE	XREF: E(?).
2325.0 *11*			B	
2330.9 *11*			B	
2335.1 *3*	(+)		B	J$^{\pi}$: M1+E2 γ to 1601.2, J^{π}=13/2$^+$,15/2$^+$ level.
2335.7 *11*			B	
2336.1 *11*			B	
2338.6 *11*			B	
2339.7 *4*			B	
2349.2 *11*			B	
2370.3 *5*			B	
2384.7 *4*			B	
2400.9 *6*	(25/2$^+$)		CDEF	J$^{\pi}$: ΔJ=0, (M1) to 2250.7, (25/2$^+$) level.
2405.9 *11*			B	
2417.1 *4*			B	
2417.9 *11*			B	
2436.4 *4*			B	
2451.0 *5*	(23/2$^-$)		CDEF	XREF: E(?). J$^{\pi}$: ΔJ=(2) γ to 1412.2, 19/2$^-$ level.
2483.7 *11*			B	
2492.1 *5*			B	
2515.8 *6*	(27/2$^+$)		CDEF	J$^{\pi}$: ΔJ=1, M1(+E2) γ to (25/2$^+$).
2542.7 *7*			C E	XREF: E(?).
2554.2[&] *5*	(27/2$^-$)		CDEF	XREF: E(?). J$^{\pi}$: (E2) γ to 2205.3, 23/2$^-$ level.
2554.2+x[b]	(31/2$^-$)	9.3 ns *5*	CDEF	Additional information 2. The 9-ns isomer is populated in all the high-spin studies but its energy is differently interpreted. $T_{1/2}$: γ(t) method (1975De20) in ^{181}Ta(^{12}C,4nγ). Others: 9 ns *2* (1997Pe26) in ^{181}Ta(^{12}C,4nγ); 11 ns *4* in ^{191}Ir(α,6nγ) (1979Go15).
2554.8[h] *8*	(31/2$^+$)	242 ns *10*	CDEF	%IT=100 μ=6.5 *5* (1997Pe26,2014StZZ) E(level): 2515.7+y, y=38.8 keV (2001MaZN, 39 in 1997Pe26). However, y=200 keV from 1975De20. J$^{\pi}$: (E2) γ to (27/2$^+$). $T_{1/2}$: from γ(t) in ^{181}Ta(^{12}C,4nγ) (1997Pe26). Other: 440 ns *50* from ^{181}Ta(^{12}C,4nγ) (1975De20) based on γ(t) for a 199.6-keV transition which is not confirmed in other studies. μ: time dependent perturbed angular distribution (1997Pe26); g factor=0.42 *3*.

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Adopted Levels, Gammas (continued)

^{189}Au Levels (continued)

E(level)[†]	Jπ[‡]	XREF	Comments
2608.9 *6*		B	
2862.8+x[c] *3*	(33/2⁻)	CDEF	Jπ: ΔJ=1 γ to (31/2⁻), band member.
2928.8? *10*		C	E(level): level treated as questionable by the evaluators since 374γ is not reported in other high-spin studies.
2968.7[j] *7*	(29/2⁻)	CD	
2988.8+x[b] *3*	(35/2⁻)	CDEF	
3003.9[a] *7*	29/2⁻	CD	Jπ: γ to 25/2⁻; band member.
3062.3[h] *9*	(35/2⁺)	CDEF	
3160.5+x[e] *5*	(37/2⁻)	CD	
3222.1[j] *8*	(31/2⁻)	CDE	XREF: E(?).
3359.2+x[c] *4*	(37/2⁻)	CDEF	
3377.4[j] *8*	(33/2⁻)	D	
3559.6+x[b] *4*	(39/2⁻)	C F	
3562.9 *9*	(37/2⁺)	CD	
3709.7[j] *9*		CD	
3838.2+x[e] *5*	(39/2⁻)	CD	
3845.6[h] *9*	(39/2⁺)	CDEF	
3921.4[j] *9*	(37/2⁻)	D	
3965.0+x *5*	(39/2⁻)	CD	
3980.2 *11*		D	
4102.7+x[c] *5*	(41/2⁻)	CD	
4253.5+x[b] *5*	(43/2⁻)	CD	
4290.7+x *6*	(41/2⁻)	CD	
4305.6+x[d] *6*	(43/2⁻)	D	
4325.7 *10*	(41/2⁺)	CD	
4352.5[i] *10*	(41/2⁺)	D	
4480.1[h] *10*	(43/2⁺)	CD	
4527.0+x[e] *6*	(43/2⁻)	CD	
4639.0[i] *10*	(43/2⁺)	D	
4674.4+x[e] *6*	(45/2⁻)	CD	
4694.7+x[c] *7*	(45/2⁻)	D	
4698.7[h] *11*	(47/2⁺)	CDE	
4796.5+x *7*		C	
4879.7 *10*		CD	
4903.5+x[b] *7*	(47/2⁻)	CD	
4916.2 *11*		D	
5085.0 *12*		D	
5103.1[i] *10*	(47/2⁺)	CD	
5124.6+x[d] *8*	(47/2⁻)	D	
5166.5 *11*		D	
5174.5 *12*	(49/2⁺)	CD	
5263.3+x[e] *8*	(49/2⁻)	D	
5315.6[h] *12*	(51/2⁺)	CD	
5368.1+x[c] *7*	(49/2⁻)	CD	XREF: C(?).
5428.5+x *8*	(47/2⁻)	CD	
5602.5 *13*		C	
5634.9[g] *13*	(53/2⁺)	CD	
5665.5 *13*		C	
5707.4+x[b] *8*	(51/2⁻)	CD	
5734.2+x[e] *10*	(53/2⁻)	D	
5861.2 *13*		D	

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Adopted Levels, Gammas (continued)

^{189}Au Levels (continued)

E(level)[†]	J$^{\pi}$[‡]	XREF	Comments
5923.8 *12*	(55/2$^+$)	D	
5964.1+x[d] *9*	(51/2$^-$)	D	
6096.7+x[c] *8*	(53/2$^-$)	D	
6179.8 *14*		CD	XREF: C(?).
6202.3 *13*		D	
6234.8[g] *14*	(57/2$^+$)	D	
6305.5+x[b] *9*	(55/2$^-$)	D	
6305.6+x *10*		CD	
6316.1+x[e] *11*	(57/2$^-$)	D	
6359.5[f] *13*	(57/2)	D	
6379.4 *13*		D	
6394.9+x *10*		D	
6881.2[f] *14*	(61/2)	D	
7092.1[g] *15*	(61/2$^+$)	CD	
7284.7 *14*	(61/2$^-$)	D	
7601.0[f] *14*	(65/2)	D	
7849.4 *15*	(65/2)	D	
7956.2[g] *15*	(65/2$^+$)	CD	
8182.3 *15*		D	
8261.8 *15*		D	
8433.9[f] *15*	(69/2)	D	
8680.6[g] *16*	(69/2$^+$)	D	
8804.3 *16*		D	
9141.0 *17*		D	
9314.1[f] *16*	(73/2)	D	
9580.9[g] *17*	(73/2$^+$)	D	

[†] From least-squares fit to Eγ values with assumed 0.5 keV uncertainty for Eγ value when not stated.

[‡] For high-spin (J>17/2 or so) levels, assignments are essentially as proposed in the most extensive (yet not reported in adequate detail) by 1992Ve05 in ^{176}Yb(^{19}F,6nγ) study, corroborated by similar but limited studies by 1992Bo23 (also 1993Pe17), 1979Go15 and 1975De20. Except for levels in a well-defined band built on $\pi h_{11/2}$ orbital, all other J^{π} assignments are considered as tentative since detailed angular distribution or correlation data are available for only a few transitions, and no polarization or internal conversion data are available.

[#] The 248.56 state M1+E2 decays to the 203.74 state, and then M1+E2 to the ground state (J=1/2$^+$) imply J(248.56) ≤5/2$^+$; E1 transition from the 484.02 state to the 248.56 state implies J(248.56) ≤7/2$^-$; On the other hand, an E2 transition from the 484.02 level to the 247.23 state, with J=11/2 determined from atomic beam (1976Ek01), uniquely determines the assignments as J(247.23)=11/2$^-$, therefore, J(484.02)=7/2$^-$; J(248.56)=5/2$^+$; J(203.74)=3/2$^+$.

[@] The 1104.78 state has strong ε feeding from ^{189g}Hg (J=3/2$^+$). It cascades via 491.51 and 325.11 to the 247.23 state (J=11/2$^-$) with M1+E2, E2, and M1+E2 transitions. This implies J(1104.78) ≥3/2$^-$. Therefore, J(1104.78)=3/2$^-$; J(491.51)=5/2$^-$; J(325.11)=9/2$^-$.

[&] Band(A): $\pi h_{11/2}$ band.

[a] Band(B): $\pi h_{9/2}$ band.

[b] Band(C): $\pi h_{11/2}\otimes\nu i^2_{13/2}$,$\alpha$=−1/2.

[c] Band(c): $\pi h_{11/2}\otimes\nu i^2_{13/2}$,$\alpha$=+1/2.

[d] Band(D): γ cascade based on (43/2$^-$).

[e] Band(E): γ cascade based on (37/2$^-$).

[f] Band(F): Band based on (57/2).

[g] Band(G): Band based on (53/2$^+$).

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{189}Au Levels (continued)

[h] Band(H): γ cascade based on $(31/2^+)$.
[i] Band(I): γ cascade based on $(41/2^+)$.
[j] Band(J): γ cascade based on $(29/2^-)$.

Adopted Levels, Gammas (continued)

$\gamma(^{189}Au)$

E_i(level)	J_i^π	E_γ[†]	I_γ[#]	E_f	J_f^π	Mult.[@]	δ[@]	α[‡]	Comments
9.94	$3/2^+$	9.9 *2*	100	0.0	$1/2^+$	[M1]		278 *18*	α(M)=214 *14*; α(N)=53 *4*; α(O)=9.8 *7*; α(P)=0.66 *5* B(M1)(W.u.)=0.0027 *5* E_γ: observed as M-conversion line in singles and ce-γ coin by 1975Be17. Mult.: from the systematics of analogous transitions in heavier odd-A Au isotopes, a 15-20% E2 admixture in this transition is expected.
203.74	$3/2^+$	203.9 *2*	100	0.0	$1/2^+$	M1+E2	0.63 *+14−15*	0.79 *6*	α(K)=0.61 *7*; α(L)=0.1345 *22*; α(M)=0.0322 *8* α(N)=0.00799 *18*; α(O)=0.001418 *22*; α(P)=7.2×10^{-5} *8*
248.56	$5/2^+$	44.7 *2*		203.74	$3/2^+$	M1+E2	0.15 *2*	18.2 *13*	α(L)=13.9 *10*; α(M)=3.3 *3*; α(N)=0.82 *7*; α(O)=0.146 *10*; α(P)=0.00742 *15* δ: average value from the two decays.
		238.7 *2*	99 *8*	9.94	$3/2^+$	M1+E2	2.3 *3*	0.274 *18*	α(K)=0.173 *17*; α(L)=0.0759 *12*; α(M)=0.0190 *3* α(N)=0.00470 *7*; α(O)=0.000790 *13*; α(P)=1.92×10^{-5} *21*
		248.7 *2*	100 *8*	0.0	$1/2^+$	E2		0.182	α(K)=0.0987 *14*; α(L)=0.0629 *9*; α(M)=0.01601 *23* α(N)=0.00395 *6*; α(O)=0.000653 *10*; α(P)=1.031×10^{-5} *15*
307.76	$5/2^+$	59.2 *2*		248.56	$5/2^+$				
		104 *1*		203.74	$3/2^+$				
		297.9 *2*	100 *7*	9.94	$3/2^+$	M1(+E2)	<0.8	0.29 *5*	α(K)=0.24 *5*; α(L)=0.043 *3*; α(M)=0.0101 *6* α(N)=0.00252 *15*; α(O)=0.00046 *4*; α(P)=2.8×10^{-5} *6* δ: from ε decay (7.6 min).
325.12	$9/2^-$	77.9 *2*	100	247.25	$11/2^-$	M1+E2	0.3 *2*	3.7 *15*	α(L)=2.8 *11*; α(M)=0.68 *29* α(N)=0.168 *69*; α(O)=0.029 *11*; α(P)=0.00138 *16* B(M1)(W.u.)=4.8×10^{-5} *17*; B(E2)(W.u.)=0.3 *+4−3* E_γ: weighted average of values from ^{189}Hg ε decay (7.6 m) (1996Wo04) and ^{189}Hg ε decay (7.6 m+8.6 m) (1975Be17). δ: From ε decay (8.6 min).
484.02	$7/2^-$	176.3 *2*	20 *4*	307.76	$5/2^+$	E1		0.0988	α(K)=0.0807 *12*; α(L)=0.01393 *20*; α(M)=0.00323 *5* α(N)=0.000795 *12*; α(O)=0.0001398 *20*; α(P)=7.19×10^{-6} *11* B(E1)(W.u.)=3.0×10^{-5} *+15−7*
		235 *1*	32 *5*	248.56	$5/2^+$	E1		0.0484 *9*	α(K)=0.0398 *7*; α(L)=0.00664 *12*; α(M)=0.00154 *3* α(N)=0.000379 *7*; α(O)=6.73×10^{-5} *12*; α(P)=3.68×10^{-6} *7* B(E1)(W.u.)=2.1×10^{-5} *+11−5*
		236 *1*	100 *11*	247.25	$11/2^-$	E2		0.216 *5*	α(K)=0.1125 *20*; α(L)=0.0777 *18*; α(M)=0.0198 *5* α(N)=0.00489 *11*; α(O)=0.000805 *18*; α(P)=1.168×10^{-5} *21* B(E2)(W.u.)=43 *+22−10*
491.53	$5/2^-$	166.5 *2*	100	325.12	$9/2^-$	E2		0.714	α(K)=0.264 *4*; α(L)=0.338 *5*; α(M)=0.0872 *13* α(N)=0.0215 *4*; α(O)=0.00348 *6*; α(P)=2.70×10^{-5} *4* B(E2)(W.u.)=133 *14*
512.35	$7/2^+$	264.0 *2*	43 *4*	248.56	$5/2^+$	M1+E2	0.4 *+2−3*	0.43 *5*	α(K)=0.35 *4*; α(L)=0.0621 *21*; α(M)=0.0145 *4* α(N)=0.00362 *10*; α(O)=0.000658 *24*; α(P)=4.1×10^{-5} *5* δ: From ε decay (7.6 min).

$^{189}_{79}Au_{110}$-9

Adopted Levels, Gammas (continued)

γ(^{189}Au) (continued)

E_i(level)	J_i^π	E_γ †	I_γ #	E_f	J_f^π	Mult. @	δ @	α ‡	Comments
512.35	7/2+	308 *1*	9 *2*	203.74	3/2+	E2		0.0947 *16*	α(K)=0.0582 *10*; α(L)=0.0275 *6*; α(M)=0.00693 *13* α(N)=0.00171 *4*; α(O)=0.000286 *6*; α(P)=6.23×10^{-6} *10*
		502.3 *2*	100 *8*	9.94	3/2+	E2		0.0255	α(K)=0.0187 *3*; α(L)=0.00521 *8*; α(M)=0.001273 *18* α(N)=0.000315 *5*; α(O)=5.45×10^{-5} *8*; α(P)=2.07×10^{-6} *3*
602.90	1/2+,3/2+	399 *1*	29 *10*	203.74	3/2+	M1+E2	1.0 *+5−4*	0.100 *26*	α(K)=0.079 *23*; α(L)=0.0159 *24*; α(M)=0.0038 *5* α(N)=0.00093 *13*; α(O)=0.00017 *3*; α(P)=9.2×10^{-6} *28*
		603.0 *2*	100 *14*	0.0	1/2+	M1		0.0518	α(K)=0.0428 *6*; α(L)=0.00692 *10*; α(M)=0.001600 *23* α(N)=0.000398 *6*; α(O)=7.34×10^{-5} *11*; α(P)=5.01×10^{-6} *7*
646.17	13/2−	321.2 *2*	100	325.12	9/2−	E2		0.0837	α(K)=0.0525 *8*; α(L)=0.0236 *4*; α(M)=0.00592 *9* α(N)=0.001462 *21*; α(O)=0.000245 *4*; α(P)=5.65×10^{-6} *8*
647.20	7/2+	135 *1*		512.35	7/2+	M1+E2	0.7 *+4−5*	2.6 *5*	α(K)=1.83 *62*; α(L)=0.57 *13*; α(M)=0.139 *37* α(N)=0.0344 *89*; α(O)=0.0059 *13*; α(P)=2.18×10^{-4} *76* δ: From ε decay (7.6 min).
		339.7 *3*	6.5 *10*	307.76	5/2+	E2(+M1)	>1.3	0.102 *31*	α(K)=0.074 *28*; α(L)=0.0216 *25*; α(M)=0.0053 *5* α(N)=0.00131 *13*; α(O)=0.00023 *3*; α(P)=8.3×10^{-6} *34* δ: from ε decay (8.6 min).
		398.9 *3*	100[a] *25*	248.56	5/2+	M1		0.1539	α(K)=0.1269 *18*; α(L)=0.0208 *3*; α(M)=0.00481 *7* α(N)=0.001198 *17*; α(O)=0.000221 *4*; α(P)=1.498×10^{-5} *22* Mult.: from ε decay (8.6 min).
		443.4 *3*	13[a] *5*	203.74	3/2+				
		637.2 *1*	27[a] *3*	9.94	3/2+	E2		0.01469	α(K)=0.01127 *16*; α(L)=0.00261 *4*; α(M)=0.000629 *9* α(N)=0.0001559 *22*; α(O)=2.74×10^{-5} *4*; α(P)=1.252×10^{-6} *18*
681.90	15/2−	434.6 *2*	100	247.25	11/2−	E2		0.0367	α(K)=0.0258 *4*; α(L)=0.00824 *12*; α(M)=0.00203 *3* α(N)=0.000502 *7*; α(O)=8.61×10^{-5} *13*; α(P)=2.84×10^{-6} *4*
712.70	11/2−	387.7 *2*	100	325.12	9/2−	M1+E2	2.0 *+14−6*	0.073 *17*	α(K)=0.054 *15*; α(L)=0.0141 *15*; α(M)=0.0034 *3* α(N)=0.00085 *8*; α(O)=0.000148 *16*; α(P)=6.2×10^{-6} *18*
760.67	9/2+	113 *1*	1.5 *4*	647.20	7/2+	M1+E2	1.2 *3*	4.0 *4*	α(K)=2.06 *52*; α(L)=1.43 *19*; α(M)=0.36 *5* α(N)=0.090 *13*; α(O)=0.0148 *19*; α(P)=2.48×10^{-4} *63*
		453 *1*	6.4 *18*	307.76	5/2+	E2		0.0330	α(K)=0.0235 *4*; α(L)=0.00720 *12*; α(M)=0.00177 *3* α(N)=0.000438 *7*; α(O)=7.53×10^{-5} *12*; α(P)=2.59×10^{-6} *4*
		512 *1*	100 *18*	248.56	5/2+	E2		0.0244	α(K)=0.0179 *3*; α(L)=0.00492 *8*; α(M)=0.001199 *19* α(N)=0.000297 *5*; α(O)=5.14×10^{-5} *8*; α(P)=1.99×10^{-6} *3*
770.68	7/2−	279.3 *2*	99 *8*	491.53	5/2−	M1+E2	0.9 *2*	0.28 *4*	α(K)=0.22 *3*; α(L)=0.0482 *19*; α(M)=0.0115 *4* α(N)=0.00287 *9*; α(O)=0.000508 *22*; α(P)=2.5×10^{-5} *4* δ: From ε decay (8.6 min).
		445.6 *2*	100 *8*	325.12	9/2−	M1+E2	0.8 *3*	0.083 *16*	α(K)=0.067 *14*; α(L)=0.0124 *15*; α(M)=0.0029 *4* α(N)=0.00072 *9*; α(O)=0.000131 *17*; α(P)=7.8×10^{-6} *17* δ: From ε decay (7.6 min).
801.95	1/2+,3/2+	553 *1*	21 *10*	248.56	5/2+				
		598.4 *3*	100 *17*	203.74	3/2+	M1+E2	≈1.0	≈0.0349	α(K)≈0.0282; α(L)≈0.00509; α(M)≈0.001192 α(N)≈0.000296; α(O)≈5.37×10^{-5}; α(P)≈3.27×10^{-6}
		791.7 *3*	29 *8*	9.94	3/2+				

$^{189}_{79}Au_{110}$-10

Adopted Levels, Gammas (continued)

γ(^{189}Au) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[#]	E_f	J_f^π	Mult.[@]	δ[@]	α[‡]	Comments
801.95	1/2$^+$,3/2$^+$	802.1 *3*	92 *17*	0.0	1/2$^+$	M1(+E2)	<0.8	0.022 *4*	α(K)=0.018 *3*; α(L)=0.0029 *4*; α(M)=0.00068 *9* α(N)=0.000169 *21*; α(O)=3.1×10^{-5} *4*; α(P)=2.1×10^{-6} *4*
811.88	(5/2,3/2,1/2)$^+$	504 *1*	86 *25*	307.76	5/2$^+$				
		608.5 *5*	100 *35*	203.74	3/2$^+$	E2(+M1)	>2	0.020 *4*	α(K)=0.015 *3*; α(L)=0.0033 *4*; α(M)=0.00080 *9* α(N)=0.000199 *22*; α(O)=3.5×10^{-5} *4*; α(P)=1.7×10^{-6} *4*
		802.4 *4*	73 *19*	9.94	3/2$^+$	M1		0.0248	α(K)=0.0205 *3*; α(L)=0.00329 *5*; α(M)=0.000759 *11* α(N)=0.000189 *3*; α(O)=3.48×10^{-5} *5*; α(P)=2.38×10^{-6} *4*
		811.5 *3*	96[&] *32*	0.0	1/2$^+$				
812.67	13/2$^-$	565.4 *2*	100	247.25	11/2$^-$	M1+E2	0.6 *+4−3*	0.050 *10*	α(K)=0.041 *9*; α(L)=0.0070 *11*; α(M)=0.00163 *24* α(N)=0.00041 *6*; α(O)=7.4×10^{-5} *12*; α(P)=4.8×10^{-6} *11*
814.30	1/2$^-$	322.9 *3*	100	491.53	5/2$^-$	E2		0.0825	α(K)=0.0519 *8*; α(L)=0.0231 *4*; α(M)=0.00580 *9* α(N)=0.001433 *21*; α(O)=0.000241 *4*; α(P)=5.58×10^{-6} *8*
847.89	9/2$^+$	200.7 *2*	45[a] *5*	647.20	7/2$^+$	M1+E2	1.1 *+3−2*	0.66 *8*	α(K)=0.47 *8*; α(L)=0.145 *3*; α(M)=0.0357 *10* α(N)=0.00885 *23*; α(O)=0.00152 *3*; α(P)=5.4×10^{-5} *10*
		335.5 *4*	24[a] *7*	512.35	7/2$^+$	M1		0.245	α(K)=0.202 *3*; α(L)=0.0332 *5*; α(M)=0.00769 *11* α(N)=0.00192 *3*; α(O)=0.000353 *5*; α(P)=2.39×10^{-5} *4*
		540.0 *5*	100[a] *18*	307.76	5/2$^+$	E2		0.0215	α(K)=0.01596 *23*; α(L)=0.00419 *6*; α(M)=0.001019 *15* α(N)=0.000252 *4*; α(O)=4.39×10^{-5} *7*; α(P)=1.77×10^{-6} *3*
		600 *1*	36[a] *9*	248.56	5/2$^+$	E2		0.01682	α(K)=0.01277 *19*; α(L)=0.00309 *5*; α(M)=0.000746 *11* α(N)=0.000185 *3*; α(O)=3.24×10^{-5} *5*; α(P)=1.418×10^{-6} *21*
862.04	9/2$^-$	378.3 *2*	100 *10*	484.02	7/2$^-$	M1(+E2)	<0.5	0.165 *13*	α(K)=0.135 *12*; α(L)=0.0229 *12*; α(M)=0.00532 *25* α(N)=0.00132 *7*; α(O)=0.000242 *13*; α(P)=1.59×10^{-5} *14* δ: From ε decay (7.6 min).
		614.8 *2*	75 *6*	247.25	11/2$^-$	M1		0.0492	α(K)=0.0407 *6*; α(L)=0.00658 *10*; α(M)=0.001520 *22* α(N)=0.000379 *6*; α(O)=6.97×10^{-5} *10*; α(P)=4.76×10^{-6} *7*
879.64	+	571 *1*	22[&] *11*	307.76	5/2$^+$				
		675.9 *2*	100[&] *18*	203.74	3/2$^+$	E2(+M1)			
880.45	9/2$^-$	389 *1*	60[a] *19*	491.53	5/2$^-$	E2		0.0491 *8*	α(K)=0.0333 *5*; α(L)=0.01193 *20*; α(M)=0.00296 *5* α(N)=0.000733 *13*; α(O)=0.0001245 *21*; α(P)=3.64×10^{-6} *6*
		395.8 *3*	49[a] *6*	484.02	7/2$^-$	M1(+E2)	<0.4	0.150 *8*	α(K)=0.123 *7*; α(L)=0.0205 *8*; α(M)=0.00477 *17* α(N)=0.00119 *4*; α(O)=0.000218 *8*; α(P)=1.45×10^{-5} *9*
		555.7 *3*	100[a] *10*	325.12	9/2$^-$	M1+E2	0.5 *+3−4*	0.055 *9*	α(K)=0.045 *8*; α(L)=0.0076 *9*; α(M)=0.00177 *21* α(N)=0.00044 *5*; α(O)=8.1×10^{-5} *10*; α(P)=5.3×10^{-6} *9*
		634 *1*	59[a] *9*	247.25	11/2$^-$	(M1+E2)	1.0 *2*	0.030 *4*	
887.24	(3/2,5/2)$^-$	395.7 *2*	100	491.53	5/2$^-$	M1+E2	1.1 *+4−3*	0.097 *18*	α(K)=0.076 *16*; α(L)=0.0158 *16*; α(M)=0.0038 *4* α(N)=0.00093 *9*; α(O)=0.000166 *18*; α(P)=8.8×10^{-6} *19*
911.01	7/2$^-$	419.5 *2*	100 *9*	491.53	5/2$^-$	M1+E2	0.8 *+5−4*	0.098 *24*	α(K)=0.079 *21*; α(L)=0.0147 *23*; α(M)=0.0035 *5* α(N)=0.00086 *13*; α(O)=0.000155 *25*; α(P)=9.2×10^{-6} *26* δ: From ε decay (8.6 min).
		585.9 *2*	41 *6*	325.12	9/2$^-$	M1		0.0558	α(K)=0.0461 *7*; α(L)=0.00747 *11*; α(M)=0.001726 *25* α(N)=0.000430 *6*; α(O)=7.91×10^{-5} *12*; α(P)=5.40×10^{-6} *8*

$^{189}_{79}Au_{110}$-11

Adopted Levels, Gammas (continued)

γ(^{189}Au) (continued)

E_i(level)	J_i^π	E_γ †	I_γ #	E_f	J_f^π	Mult. @	δ @	α ‡	Comments
961.22	(5/2,3/2)$^+$	653.3 *3*	23 [a] *5*	307.76	5/2$^+$	M1+E2	1.7 *+25−7*	0.0211 *69*	α(K)=0.0169 *59*; α(L)=0.0033 *8*; α(M)=0.00077 *18* α(N)=0.00019 *5*; α(O)=3.4×10^{-5} *9*; α(P)=1.93×10^{-6} *70*
		713.0 *5*	69 [a] *15*	248.56	5/2$^+$	E2		0.01150	α(K)=0.00896 *13*; α(L)=0.00194 *3*; α(M)=0.000463 *7* α(N)=0.0001147 *17*; α(O)=2.03×10^{-5} *3*; α(P)=9.95×10^{-7} *14*
		757.5 *2*	100 [a] *11*	203.74	3/2$^+$	M1+E2	2.6 *+12−6*	0.0125 *14*	α(K)=0.0100 *12*; α(L)=0.00194 *16*; α(M)=0.00046 *4* α(N)=0.000114 *9*; α(O)=2.03×10^{-5} *17*; α(P)=1.12×10^{-6} *14*
		952 *1*	12 [a] *6*	9.94	3/2$^+$	(E2)		0.00634	α(K)=0.00509 *8*; α(L)=0.000953 *14*; α(M)=0.000224 *4* α(N)=5.57×10^{-5} *8*; α(O)=1.000×10^{-5} *15*; α(P)=5.62×10^{-7} *8*
977.8		670 *1*	100	307.76	5/2$^+$				
1058.73	3/2$^-$	456 *1*	7.9 & *24*	602.90	1/2$^+$,3/2$^+$				
		574.8 *3*	100 & *14*	484.02	7/2$^-$	E2		0.0186	α(K)=0.01397 *20*; α(L)=0.00349 *5*; α(M)=0.000845 *12* α(N)=0.000209 *3*; α(O)=3.66×10^{-5} *6*; α(P)=1.552×10^{-6} *22*
		751.1 *3*	7.9 & *24*	307.76	5/2$^+$				
		809.6 *3*	12 & *3*	248.56	5/2$^+$				
		855.5 *4*	17 & *3*	203.74	3/2$^+$	E1		0.00295	α(K)=0.00247 *4*; α(L)=0.000369 *6*; α(M)=8.45×10^{-5} *12* α(N)=2.09×10^{-5} *3*; α(O)=3.82×10^{-6} *6*; α(P)=2.51×10^{-7} *4*
		1048 *1*	4.8 & *17*	9.94	3/2$^+$				
		1058.5 *3*	33 & *3*	0.0	1/2$^+$	E1		0.00199	α(K)=0.001673 *24*; α(L)=0.000247 *4*; α(M)=5.65×10^{-5} *8* α(N)=1.400×10^{-5} *20*; α(O)=2.56×10^{-6} *4*; α(P)=1.714×10^{-7} *24*
1097.03	13/2$^-$	384.4 *3*	100 [a] *8*	712.70	11/2$^-$	M1+E2	0.7 *3*	0.131 *23*	α(K)=0.105 *21*; α(L)=0.0195 *21*; α(M)=0.0046 *5* α(N)=0.00114 *11*; α(O)=0.000206 *22*; α(P)=1.23×10^{-5} *25*
		451 *1*	15 [a] *5*	646.17	13/2$^-$	M1(+E2)	<0.5	0.103 *8*	α(K)=0.085 *7*; α(L)=0.0142 *8*; α(M)=0.00329 *18* α(N)=0.00082 *5*; α(O)=0.000150 *9*; α(P)=1.00×10^{-5} *9*
		771.9 *3*	31 [a] *3*	325.12	9/2$^-$	E2		0.00972	α(K)=0.00765 *11*; α(L)=0.001580 *23*; α(M)=0.000376 *6* α(N)=9.32×10^{-5} *13*; α(O)=1.657×10^{-5} *24*; α(P)=8.48×10^{-7} *12*
1098.1		894.9 *5*	41 & *15*	203.74	3/2$^+$				
		1087.9 *3*	100 & *24*	9.94	3/2$^+$				
1104.80	3/2$^-$	217 *1*	22 & *6*	887.24	(3/2,5/2)$^-$	M1(+E2)	<1.3	0.64 *17*	α(K)=0.50 *17*; α(L)=0.1102 *23*; α(M)=0.0264 *10* α(N)=0.00655 *22*; α(O)=0.00116 *3*; α(P)=5.9×10^{-5} *21*
		290 *1*	31 & *12*	814.30	1/2$^-$	M1		0.364 *7*	α(K)=0.300 *5*; α(L)=0.0495 *9*; α(M)=0.01147 *20* α(N)=0.00286 *5*; α(O)=0.000526 *9*; α(P)=3.56×10^{-5} *6*

$^{189}_{79}Au_{110}$-12

Adopted Levels, Gammas (continued)

γ(^{189}Au) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[#]	E_f	J_f^π	Mult.[@]	δ[@]	α[‡]	Comments
1104.80	3/2⁻	613.2 *2*	100[&] *19*	491.53	5/2⁻	M1(+E2)	<0.8	0.043 *7*	α(K)=0.035 *6*; α(L)=0.0059 *8*; α(M)=0.00137 *17* α(N)=0.00034 *4*; α(O)=6.2×10^{-5} *8*; α(P)=4.1×10^{-6} *7*
1105.35	17/2⁻	459.3 *3*	100	646.17	13/2⁻	E2		0.0319	α(K)=0.0228 *4*; α(L)=0.00690 *10*; α(M)=0.001694 *24* α(N)=0.000419 *6*; α(O)=7.21×10^{-5} *11*; α(P)=2.52×10^{-6} *4*
1106.56	(5/2,3/2)⁺	799 *1*	73[a] *20*	307.76	5/2⁺				
		857.7 *3*	100[a] *20*	248.56	5/2⁺	M1+E2	1.4 *+23−6*	0.0122 *36*	α(K)=0.0100 *31*; α(L)=0.0017 *5*; α(M)=0.00041 *10* α(N)=0.000101 *24*; α(O)=1.8×10^{-5} *5*; α(P)=1.13×10^{-6} *36*
		903.1 *3*	80[a] *20*	203.74	3/2⁺	M1(+E2)	<2.6	0.0134 *50*	α(K)=0.0110 *42*; α(L)=0.00184 *59*; α(M)=4.3×10^{-4} *14* α(N)=1.06×10^{-4} *34*; α(O)=1.94×10^{-5} *63*; α(P)=1.26×10^{-6} *50*
1107.4		595 *1*	100	512.35	7/2⁺				
1112.48	11/2⁺	351.9 *2*	41[a] *4*	760.67	9/2⁺	M1		0.215	α(K)=0.178 *3*; α(L)=0.0292 *5*; α(M)=0.00676 *10* α(N)=0.001683 *24*; α(O)=0.000310 *5*; α(P)=2.10×10^{-5} *3*
		600 *1*	100[a] *13*	512.35	7/2⁺	E2		0.01682	α(K)=0.01277 *19*; α(L)=0.00309 *5*; α(M)=0.000746 *11* α(N)=0.000185 *3*; α(O)=3.24×10^{-5} *5*; α(P)=1.418×10^{-6} *21*
1116.05	7/2⁻,5/2⁻	229 *1*	55[&] *22*	887.24	(3/2,5/2)⁻	M1+E2	0.8 *3*	0.52 *9*	α(K)=0.40 *9*; α(L)=0.0923 *24*; α(M)=0.0222 *5* α(N)=0.00551 *12*; α(O)=0.00097 *3*; α(P)=4.7×10^{-5} *11*
		345.2 *3*	100[&] *18*	770.68	7/2⁻	M1		0.227	α(K)=0.187 *3*; α(L)=0.0307 *5*; α(M)=0.00712 *11* α(N)=0.00177 *3*; α(O)=0.000326 *5*; α(P)=2.21×10^{-5} *4*
		624.6 *2*	80[&] *30*	491.53	5/2⁻	M1		0.0473	α(K)=0.0391 *6*; α(L)=0.00631 *9*; α(M)=0.001458 *21* α(N)=0.000363 *5*; α(O)=6.69×10^{-5} *10*; α(P)=4.57×10^{-6} *7*
1130.10	11/2⁻	249 *1*	48[a] *9*	880.45	9/2⁻	M1+E2	1.4 *+8−4*	0.31 *7*	α(K)=0.219 *60*; α(L)=0.067 *3*; α(M)=0.0165 *5* α(N)=0.00407 *11*; α(O)=0.00070 *3*; α(P)=2.51×10^{-5} *74*
		360 *1*	47[a] *9*	770.68	7/2⁻	E2		0.0606 *10*	α(K)=0.0400 *7*; α(L)=0.0156 *3*; α(M)=0.00390 *7* α(N)=0.000963 *17*; α(O)=0.000163 *3*; α(P)=4.34×10^{-6} *7*
		417.6 *3*	15[a] *2*	712.70	11/2⁻	M1		0.1362	α(K)=0.1123 *16*; α(L)=0.0184 *3*; α(M)=0.00425 *6* α(N)=0.001059 *15*; α(O)=0.000195 *3*; α(P)=1.325×10^{-5} *19*
		484.0 *2*	100[a] *10*	646.17	13/2⁻	M1		0.0921	α(K)=0.0760 *11*; α(L)=0.01238 *18*; α(M)=0.00286 *4* α(N)=0.000713 *10*; α(O)=0.0001313 *19*; α(P)=8.94×10^{-6} *13*
		805.0 *3*	17[a] *6*	325.12	9/2⁻	E2(+M1)	>0.8	0.0137 *48*	α(K)=0.0111 *41*; α(L)=0.00198 *56*; α(M)=4.6×10^{-4} *13* α(N)=1.15×10^{-4} *32*; α(O)=2.09×10^{-5} *60*; α(P)=1.26×10^{-6} *49*
		882.4 *3*	11[a] *3*	247.25	11/2⁻	M1		0.0194	α(K)=0.01609 *23*; α(L)=0.00257 *4*; α(M)=0.000593 *9* α(N)=0.0001477 *21*; α(O)=2.72×10^{-5} *4*; α(P)=1.87×10^{-6} *3*
1133.52	9/2⁻	363.0 *2*	100[a] *10*	770.68	7/2⁻	M1+E2	2.5 *+16−6*	0.078 *12*	α(K)=0.056 *11*; α(L)=0.0168 *10*; α(M)=0.00412 *21* α(N)=0.00102 *6*; α(O)=0.000176 *11*; α(P)=6.3×10^{-6} *13*
		420.7 *4*	27[a] *12*	712.70	11/2⁻	M1(+E2)	<1.7	0.099 *35*	α(K)=0.080 *31*; α(L)=0.015 *4*; α(M)=0.0035 *7* α(N)=0.00086 *18*; α(O)=0.00016 *4*; α(P)=9.3×10^{-6} *37*

$^{189}_{79}Au_{110}$-13

Adopted Levels, Gammas (continued)

γ(^{189}Au) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[#]	E_f	J_f^π	Mult.[@]	δ[@]	α[‡]	Comments
1133.52	9/2$^-$	641.7 *3*	31[a] *5*	491.53	5/2$^-$	E2		0.01447	α(K)=0.01110 *16*; α(L)=0.00256 *4*; α(M)=0.000617 *9* α(N)=0.0001528 *22*; α(O)=2.69×10^{-5} *4*; α(P)=1.234×10^{-6} *18*
1133.6		825.8 *5*	100	307.76	5/2$^+$				
1145.70	13/2$^-$,15/2$^-$	433.0 *3*	23[a] *4*	712.70	11/2$^-$	M1+E2	1.8 *+43−7*	0.057 *19*	α(K)=0.044 *17*; α(L)=0.0103 *19*; α(M)=0.0025 *4* α(N)=0.00062 *10*; α(O)=0.000108 *20*; α(P)=5.0×10^{-6} *20*
		499.6 *2*	100[a] *8*	646.17	13/2$^-$	M1+E2	0.9 *4*	0.058 *15*	α(K)=0.047 *13*; α(L)=0.0087 *16*; α(M)=0.0020 *4* α(N)=0.00051 *9*; α(O)=9.1×10^{-5} *17*; α(P)=5.5×10^{-6} *16*
		898.1 *4*	5.8[a] *13*	247.25	11/2$^-$	E2(+M1)	>0.8	0.0106 *35*	α(K)=0.0086 *30*; α(L)=0.00151 *42*; α(M)=3.52×10^{-4} *95* α(N)=8.7×10^{-5} *24*; α(O)=1.59×10^{-5} *45*; α(P)=9.8×10^{-7} *36*
1156.0	(5/2,7/2)$^-$	268.8 *3*	97[&] *19*	887.24	(3/2,5/2)$^-$	M1+E2	1.7 *+12−8*	0.221 *91*	α(K)=0.155 *85*; α(L)=0.050 *5*; α(M)=0.0124 *8* α(N)=0.00306 *19*; α(O)=0.00052 *5*; α(P)=1.8×10^{-5} *11*
		385 *1*	65[&] *14*	770.68	7/2$^-$	M1		0.169 *3*	α(K)=0.1395 *22*; α(L)=0.0229 *4*; α(M)=0.00529 *9* α(N)=0.001319 *21*; α(O)=0.000243 *4*; α(P)=1.65×10^{-5} *3*
		664 *1*	100[&] *20*	491.53	5/2$^-$	M1+E2	≈0.4	≈0.0366	α(K)≈0.0302; α(L)≈0.00496; α(M)≈0.001148 α(N)≈0.000286; α(O)≈5.25×10^{-5}; α(P)≈3.52×10^{-6}
		848[b] *1*	41[b&] *14*	307.76	5/2$^+$	[E1]			
		952[c] *1*	27[&] *9*	203.74	3/2$^+$				
1165.0		1165 *1*	100	0.0	1/2$^+$				
1165.7		917.1 *5*	100	248.56	5/2$^+$				
1188.60	11/2$^-$	326.4 *3*	32[a] *4*	862.04	9/2$^-$	M1+E2	1.3 *+14−6*	0.148 *56*	α(K)=0.113 *50*; α(L)=0.027 *4*; α(M)=0.0066 *9* α(N)=0.00163 *21*; α(O)=0.00029 *5*; α(P)=1.30×10^{-5} *61*
		376.1 *4*	13[a] *3*	812.67	13/2$^-$	M1(+E2)	<1.3	0.140 *40*	α(K)=0.113 *36*; α(L)=0.021 *4*; α(M)=0.0049 *8* α(N)=0.00122 *19*; α(O)=0.00022 *4*; α(P)=1.33×10^{-5} *43*
		704 *1*	18[a] *2*	484.02	7/2$^-$				
		941.4 *2*	100[a] *10*	247.25	11/2$^-$	M1+E2	1.3 *+5−4*	0.0102 *19*	α(K)=0.0083 *16*; α(L)=0.00142 *22*; α(M)=0.00033 *5* α(N)=8.2×10^{-5} *13*; α(O)=1.50×10^{-5} *24*; α(P)=9.5×10^{-7} *19*
1193.55	$^-$	282.6 *3*	54[a] *7*	911.01	7/2$^-$	M1+E2	1.1 *+14−6*	0.244 *94*	α(K)=0.185 *87*; α(L)=0.045 *6*; α(M)=0.0109 *10* α(N)=0.00269 *25*; α(O)=0.00047 *6*; α(P)=2.1×10^{-5} *11*
		868.4 *2*	100[a] *11*	325.12	9/2$^-$	(E2)		0.00762	α(K)=0.00608 *9*; α(L)=0.001183 *17*; α(M)=0.000280 *4* α(N)=6.94×10^{-5} *10*; α(O)=1.241×10^{-5} *18*; α(P)=6.72×10^{-7} *10*

$^{189}_{79}Au_{110}$-14

Adopted Levels, Gammas (continued)

γ(^{189}Au) (continued)

E_i(level)	J_i^π	E_γ [†]	I_γ [#]	E_f	J_f^π	Mult. [@]	δ [@]	α [‡]	Comments
1247.1	(9/2,7/2)$^+$	486.3 *3*	100[a] *27*	760.67	9/2$^+$	M1+E2	0.8 *+6−5*	0.066 *20*	α(K)=0.054 *17*; α(L)=0.0097 *20*; α(M)=0.0023 *5* α(N)=0.00057 *11*; α(O)=0.000103 *22*; α(P)=6.2×10^{-6} *21*
		600 *1*	43[a] *13*	647.20	7/2$^+$				
		735 *1*	83[a] *27*	512.35	7/2$^+$				
		939.8 *6*	27[a] *10*	307.76	5/2$^+$				
1254.24	5/2$^-$,7/2$^-$	195.6 *4*	10[&] *4*	1058.73	3/2$^-$	E2		0.404 *7*	α(K)=0.179 *3*; α(L)=0.169 *3*; α(M)=0.0434 *8* α(N)=0.01070 *18*; α(O)=0.00175 *3*; α(P)=1.83×10^{-5} *3*
		770.2 *2*	100[&] *15*	484.02	7/2$^-$	M1		0.0275	α(K)=0.0228 *4*; α(L)=0.00365 *6*; α(M)=0.000844 *12* α(N)=0.000210 *3*; α(O)=3.87×10^{-5} *6*; α(P)=2.65×10^{-6} *4*
		946.3 *3*	19[&] *7*	307.76	5/2$^+$				
1260.7		1057 *1*	100[&]	203.74	3/2$^+$				
1273.14	11/2$^-$	393[c] *1*	40[a] *20*	880.45	9/2$^-$				
		411.4 *3*	100[a] *12*	862.04	9/2$^-$	M1+E2	0.6 *3*	0.115 *19*	α(K)=0.094 *16*; α(L)=0.0167 *17*; α(M)=0.0039 *4* α(N)=0.00097 *10*; α(O)=0.000177 *19*; α(P)=1.10×10^{-5} *20*
		459 *1*	48[a] *24*	812.67	13/2$^-$	M1(+E2)	<6	0.070 *36*	α(K)=0.056 *32*; α(L)=0.0107 *36*; α(M)=0.00252 *78* α(N)=6.3×10^{-4} *20*; α(O)=1.13×10^{-4} *39*; α(P)=6.5×10^{-6} *38*
		626.7 *3*	40[a] *12*	646.17	13/2$^-$	M1		0.0469	α(K)=0.0387 *6*; α(L)=0.00626 *9*; α(M)=0.001446 *21* α(N)=0.000360 *5*; α(O)=6.63×10^{-5} *10*; α(P)=4.53×10^{-6} *7*
		1026.2 *5*	72[a] *12*	247.25	11/2$^-$	M1+E2	1.2 *+20−6*	0.0086 *26*	α(K)=0.0071 *22*; α(L)=0.00119 *31*; α(M)=2.76×10^{-4} *70* α(N)=6.9×10^{-5} *18*; α(O)=1.25×10^{-5} *33*; α(P)=8.1×10^{-7} *26*
1286.3		472 *1*	100	814.30	1/2$^-$				
1295.5	11/2$^-$	433.5 *3*	100[a] *16*	862.04	9/2$^-$	M1+E2	0.8 *+6−5*	0.090 *27*	α(K)=0.072 *24*; α(L)=0.013 *3*; α(M)=0.0031 *6* α(N)=0.00078 *14*; α(O)=0.00014 *3*; α(P)=8.4×10^{-6} *29*
		483 *1*	23[a] *7*	812.67	13/2$^-$				
		612 *1*	18[a] *5*	681.90	15/2$^-$				
		811 *1*	23[a] *9*	484.02	7/2$^-$				
		1048.4 *3*	46[a] *14*	247.25	11/2$^-$	M1+E2	1.1 *+16−6*	0.0085 *26*	α(K)=0.0070 *22*; α(L)=0.00117 *31*; α(M)=2.70×10^{-4} *70* α(N)=6.7×10^{-5} *18*; α(O)=1.23×10^{-5} *33*; α(P)=8.0×10^{-7} *26*
1298.87	11/2$^+$	186.6 *3*	8[a] *2*	1112.48	11/2$^+$	E2		0.476	α(K)=0.201 *3*; α(L)=0.206 *4*; α(M)=0.0531 *9* α(N)=0.01309 *21*; α(O)=0.00213 *4*; α(P)=2.05×10^{-5} *3*
		538.2 *2*	100[a] *10*	760.67	9/2$^+$	M1		0.0697	α(K)=0.0575 *8*; α(L)=0.00934 *14*; α(M)=0.00216 *3* α(N)=0.000538 *8*; α(O)=9.90×10^{-5} *14*; α(P)=6.75×10^{-6} *10*
		651.6 *2*	92[a] *9*	647.20	7/2$^+$	E2		0.01398	α(K)=0.01076 *15*; α(L)=0.00246 *4*; α(M)=0.000591 *9* α(N)=0.0001465 *21*; α(O)=2.58×10^{-5} *4*; α(P)=1.196×10^{-6} *17*
		786.6 *2*	32[a] *3*	512.35	7/2$^+$	E2		0.00934	α(K)=0.00737 *11*; α(L)=0.001507 *22*; α(M)=0.000358 *5* α(N)=8.88×10^{-5} *13*; α(O)=1.581×10^{-5} *23*; α(P)=8.17×10^{-7} *12*
1312.96	13/2$^-$	432.3 *4*	27[a] *8*	880.45	9/2$^-$	E2		0.0372	α(K)=0.0261 *4*; α(L)=0.00838 *12*; α(M)=0.00207 *3* α(N)=0.000511 *8*; α(O)=8.76×10^{-5} *13*; α(P)=2.87×10^{-6} *4*

$^{189}_{79}Au_{110}$-15

Adopted Levels, Gammas (continued)

γ(^{189}Au) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[#]	E_f	J_f^π	Mult.[@]	δ[@]	α[‡]	Comments
1312.96	13/2$^-$	600.1 *5*	100[a] *23*	712.70	11/2$^-$	M1+E2	1.3 *+11−5*	0.0301 *85*	α(K)=0.0241 *73*; α(L)=0.0045 *10*; α(M)=0.00107 *21* α(N)=0.00027 *6*; α(O)=4.8×10^{-5} *10*; α(P)=2.78×10^{-6} *87*
		667.0 *3*	18[a] *4*	646.17	13/2$^-$	M1(+E2)	<0.9	0.034 *6*	α(K)=0.028 *5*; α(L)=0.0046 *7*; α(M)=0.00108 *16* α(N)=0.00027 *4*; α(O)=4.9×10^{-5} *8*; α(P)=3.2×10^{-6} *6*
		987.8 *4*	8[a] *2*	325.12	9/2$^-$				
1346.5		1142.8 *4*	100	203.74	3/2$^+$				
1352.6	(15/2,13/2,11/2)$^-$	540.0 *5*	100[a] *20*	812.67	13/2$^-$	M1+E2	1.2 *+7−4*	0.041 *10*	α(K)=0.0328 *83*; α(L)=0.0063 *11*; α(M)=0.00148 *23* α(N)=0.00037 *6*; α(O)=6.6×10^{-5} *11*; α(P)=3.79×10^{-6} *99*
		670 *1*	19[a] *7*	681.90	15/2$^-$	M1		0.0394	α(K)=0.0326 *5*; α(L)=0.00525 *8*; α(M)=0.001213 *18* α(N)=0.000302 *5*; α(O)=5.57×10^{-5} *8*; α(P)=3.80×10^{-6} *6* E_γ: doublet.
		1105.4 *3*	27[a] *4*	247.25	11/2$^-$	E2		0.00473	α(K)=0.00384 *6*; α(L)=0.000681 *10*; α(M)=0.0001591 *23* α(N)=3.95×10^{-5} *6*; α(O)=7.14×10^{-6} *10*; α(P)=4.23×10^{-7} *6*; α(IPF)=2.06×10^{-7} *4*
1358.8		1155.1 *4*	100	203.74	3/2$^+$				
1365.3		683.4[c] *4*	100	681.90	15/2$^-$				
1368.1	(17/2,13/2,15/2)$^-$	686.2 *2*	100	681.90	15/2$^-$	(M1)		0.0370	α(K)=0.0306 *5*; α(L)=0.00493 *7*; α(M)=0.001140 *16* α(N)=0.000284 *4*; α(O)=5.23×10^{-5} *8*; α(P)=3.57×10^{-6} *5*
1371.3		557 *1*	100	814.30	1/2$^-$				
1376.2	$^-$	730 *1*	100	646.17	13/2$^-$	M1+E2	≈1.7	≈0.01624	α(K)≈0.01307; α(L)≈0.00243; α(M)≈0.000572 α(N)≈0.0001422; α(O)≈2.56×10^{-5}; α(P)≈1.488×10^{-6}
1383.25	13/2$^+$	253.2 *2*	39[a] *4*	1130.10	11/2$^-$	E1		0.0404	α(K)=0.0332 *5*; α(L)=0.00550 *8*; α(M)=0.001273 *18* α(N)=0.000314 *5*; α(O)=5.59×10^{-5} *8*; α(P)=3.10×10^{-6} *5*
		670 *1*	2.6[a] *12*	712.70	11/2$^-$	[E1]		0.00471	α(K)=0.00394 *6*; α(L)=0.000599 *9*; α(M)=0.0001374 *20* α(N)=3.40×10^{-5} *5*; α(O)=6.19×10^{-6} *9*; α(P)=3.97×10^{-7} *6*
		737.0 *2*	100[a] *9*	646.17	13/2$^-$	E1		0.00391	α(K)=0.00327 *5*; α(L)=0.000494 *7*;

$^{189}_{79}Au_{110}$-16

Adopted Levels, Gammas (continued)

γ(^{189}Au) (continued)

E_i(level)	J_i^π	E_γ †	I_γ #	E_f	J_f^π	Mult. @	δ @	α ‡	Comments
									α(M)=0.0001133 *16* α(N)=2.81×10^{-5} *4*; α(O)=5.11×10^{-6} *8*; α(P)=3.31×10^{-7} *5*
1412.2	19/2$^-$	730.3 *3*	100	681.90	15/2$^-$	Q			E_γ,Mult.: from ^{191}Ir(α,6nγ).
1419.80	(13/2,11/2)$^+$	659.0 *2*	100	760.67	9/2$^+$	E2		0.01364	α(K)=0.01051 *15*; α(L)=0.00239 *4*; α(M)=0.000573 *8* α(N)=0.0001420 *20*; α(O)=2.50×10^{-5} *4*; α(P)=1.168×10^{-6} *17*
1431.9		544.7 *3*	100	887.24	(3/2,5/2)$^-$				
1456.2	$^+$	809 *1*	100	647.20	7/2$^+$	M1		0.0243	α(K)=0.0201 *3*; α(L)=0.00322 *5*; α(M)=0.000743 *11* α(N)=0.000185 *3*; α(O)=3.41×10^{-5} *5*; α(P)=2.34×10^{-6} *4*
1459.97	11/2$^+$	813 *1*	23[a] *6*	646.17	13/2$^-$	E1		0.00324	α(K)=0.00271 *4*; α(L)=0.000408 *6*; α(M)=9.33×10^{-5} *14* α(N)=2.31×10^{-5} *4*; α(O)=4.22×10^{-6} *6*; α(P)=2.76×10^{-7} *4*
		1134.8 *2*	100[a] *10*	325.12	9/2$^-$	E1		1.76×10^{-3}	α(K)=0.001479 *21*; α(L)=0.000218 *3*; α(M)=4.97×10^{-5} *7* α(N)=1.233×10^{-5} *18*; α(O)=2.26×10^{-6} *4*; α(P)=1.517×10^{-7} *22*; α(IPF)=3.15×10^{-6} *5*
		1213 *1*	22[a] *7*	247.25	11/2$^-$				
1463.9	$^-$	751.4 *5*	76[a] *41*	712.70	11/2$^-$	M1		0.0293	α(K)=0.0243 *4*; α(L)=0.00390 *6*; α(M)=0.000900 *13* α(N)=0.000224 *4*; α(O)=4.13×10^{-5} *6*; α(P)=2.83×10^{-6} *4*
		817 *1*	100[a] *29*	646.17	13/2$^-$				
1476.1		1272.1 *5*	100[&] *28*	203.74	3/2$^+$				
		1466.3 *4*	97[&] *28*	9.94	3/2$^+$				
1481.6	13/2$^-$	293.0 *3*	48[a] *7*	1188.60	11/2$^-$	M1		0.354	α(K)=0.291 *5*; α(L)=0.0481 *7*; α(M)=0.01115 *16* α(N)=0.00278 *4*; α(O)=0.000511 *8*; α(P)=3.46×10^{-5} *5*
		800 *1*	100[a] *14*	681.90	15/2$^-$	M1		0.0250	α(K)=0.0207 *3*; α(L)=0.00331 *5*; α(M)=0.000764 *11* α(N)=0.000190 *3*; α(O)=3.51×10^{-5} *5*; α(P)=2.40×10^{-6} *4*
1483.4	(7/2)$^+$	522.2 *2*	100[a] *11*	961.22	(5/2,3/2)$^+$	M1+E2	2.2 *+11−5*	0.032 *5*	α(K)=0.025 *4*; α(L)=0.0056 *5*; α(M)=0.00134 *11* α(N)=0.00033 *3*; α(O)=5.9×10^{-5} *6*; α(P)=2.8×10^{-6} *5*
		722 *1*	44[a] *7*	760.67	9/2$^+$	M1+E2	1.1 *+5−4*	0.021 *5*	α(K)=0.017 *4*; α(L)=0.0030 *6*; α(M)=0.00070 *12*

$^{189}_{79}Au_{110}$-17

Adopted Levels, Gammas (continued)

γ(^{189}Au) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[#]	E_f	J_f^π	Mult.[@]	δ[@]	α[‡]	Comments
									α(N)=0.00017 *3*; α(O)=3.1×10^{-5} *6*; α(P)=1.9×10^{-6} *5*
1488.9	(7/2,11/2)$^-$	578 *1*	39[a] *14*	911.01	7/2$^-$				
		776.0 *3*	71[a] *14*	712.70	11/2$^-$	(E2)		0.00961	α(K)=0.00757 *11*; α(L)=0.001559 *22*; α(M)=0.000371 *6* α(N)=9.20×10^{-5} *13*; α(O)=1.635×10^{-5} *23*; α(P)=8.40×10^{-7} *12*
		1164.3 *5*	100 *11*	325.12	9/2$^-$	M1+E2	1.4 *+14−6*	0.0061 *15*	α(K)=0.0050 *13*; α(L)=0.00083 *18*; α(M)=0.00019 *4* α(N)=4.8×10^{-5} *11*; α(O)=8.7×10^{-6} *19*; α(P)=5.7×10^{-7} *15*; α(IPF)=2.1×10^{-6} *3*
1516.7	$^-$	704 *1*	100	812.67	13/2$^-$	M1+E2	2.0 *+11−5*	0.0164 *25*	α(K)=0.0131 *21*; α(L)=0.0025 *3*; α(M)=0.00060 *7* α(N)=0.000148 *16*; α(O)=2.7×10^{-5} *3*; α(P)=1.5×10^{-6} *3*
1523.4	($^-$)	841 *1*	100[a] *17*	681.90	15/2$^-$				
		1276.2 *3*	61[a] *13*	247.25	11/2$^-$				
1523.9	$^+$	676 *1*	100	847.89	9/2$^+$	M1+E2	1.6 *+9−5*	0.020 *5*	α(K)=0.016 *4*; α(L)=0.0030 *5*; α(M)=0.00072 *12* α(N)=0.00018 *3*; α(O)=3.2×10^{-5} *6*; α(P)=1.8×10^{-6} *5*
1525.0	$^-$	429 *1*	100[a] *27*	1097.03	13/2$^-$	M1		0.1268 *20*	α(K)=0.1046 *16*; α(L)=0.0171 *3*; α(M)=0.00396 *6* α(N)=0.000985 *16*; α(O)=0.000181 *3*; α(P)=1.232×10^{-5} *19*
		812.1 *4*	50[a] *14*	712.70	11/2$^-$	M1(+E2)	<0.7	0.022 *3*	α(K)=0.0178 *22*; α(L)=0.0029 *3*; α(M)=0.00067 *7* α(N)=0.000166 *17*; α(O)=3.1×10^{-5} *4*; α(P)=2.1×10^{-6} *3*
1534.79	13/2$^+$	151.4 *2*	24[a] *2*	1383.25	13/2$^+$	M1(+E2)	<0.4	2.14 *9*	α(K)=1.72 *11*; α(L)=0.319 *15*; α(M)=0.075 *5* α(N)=0.0187 *11*; α(O)=0.00338 *15*; α(P)=0.000206 *14*
		404.5 *3*	17[a] *6*	1130.10	11/2$^-$	E1		0.01358	α(K)=0.01126 *16*; α(L)=0.00179 *3*; α(M)=0.000411 *6* α(N)=0.0001018 *15*; α(O)=1.83×10^{-5} *3*; α(P)=1.100×10^{-6} *16*
		686 *1*	31[a] *10*	847.89	9/2$^+$	[E2]		0.01250	α(K)=0.00969 *14*; α(L)=0.00214 *4*; α(M)=0.000513 *8* α(N)=0.0001272 *19*; α(O)=2.25×10^{-5} *4*; α(P)=1.076×10^{-6} *16*
		722 *1*	11[a] *4*	812.67	13/2$^-$				
		821.9 *3*	47[a] *5*	712.70	11/2$^-$	E1		0.00318	α(K)=0.00266 *4*; α(L)=0.000399 *6*; α(M)=9.13×10^{-5} *13* α(N)=2.26×10^{-5} *4*; α(O)=4.13×10^{-6} *6*; α(P)=2.70×10^{-7} *4*
		853 *1*	13[a] *4*	681.90	15/2$^-$	(E1)		0.00296	α(K)=0.00248 *4*; α(L)=0.000371 *6*; α(M)=8.49×10^{-5} *12* α(N)=2.11×10^{-5} *3*; α(O)=3.84×10^{-6} *6*; α(P)=2.52×10^{-7} *4*
		888.5 *3*	33[a] *4*	646.17	13/2$^-$	(E1)		0.00275	α(K)=0.00230 *4*; α(L)=0.000343 *5*; α(M)=7.85×10^{-5} *11* α(N)=1.95×10^{-5} *3*; α(O)=3.56×10^{-6} *5*; α(P)=2.34×10^{-7} *4*

$^{189}_{79}Au_{110}$-18

Adopted Levels, Gammas (continued)

γ(^{189}Au) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[#]	E_f	J_f^π	Mult.[@]	δ[@]	α[‡]	Comments
1534.79	13/2$^+$	1287.7 *2*	100[a] *10*	247.25	11/2$^-$	E1		1.46×10^{-3}	α(K)=0.001186 *17*; α(L)=0.0001734 *25*; α(M)=3.96×10^{-5} *6* α(N)=9.82×10^{-6} *14*; α(O)=1.80×10^{-6} *3*; α(P)=1.220×10^{-7} *17*; α(IPF)=5.01×10^{-5} *7*
1559.1	−	429 *1*	100[a] *20*	1130.10	11/2$^-$	E2		0.0379	α(K)=0.0266 *4*; α(L)=0.00860 *14*; α(M)=0.00212 *4* α(N)=0.000525 *9*; α(O)=8.98×10^{-5} *15*; α(P)=2.92×10^{-6} *5*
		912.9 *3*	30[a] *10*	646.17	13/2$^-$	M1(+E2)	<0.24	0.0175 *4*	α(K)=0.0145 *4*; α(L)=0.00232 *5*; α(M)=0.000535 *11* α(N)=0.000133 *3*; α(O)=2.46×10^{-5} *6*; α(P)=1.68×10^{-6} *4*
1559.83	−	847.2 *3*	50[a] *15*	712.70	11/2$^-$	M1		0.0216	α(K)=0.0178 *3*; α(L)=0.00286 *4*; α(M)=0.000659 *10* α(N)=0.0001641 *23*; α(O)=3.02×10^{-5} *5*; α(P)=2.07×10^{-6} *3*
		1234.3 *3*	100[a] *15*	325.12	9/2$^-$				
		1312.9 *3*	90[a] *15*	247.25	11/2$^-$				
1580.3	−	483 *1*	100[a] *40*	1097.03	13/2$^-$	M1		0.0926	α(K)=0.0764 *12*; α(L)=0.01245 *19*; α(M)=0.00288 *5* α(N)=0.000717 *11*; α(O)=0.0001320 *20*; α(P)=8.99×10^{-6} *14*
		934.2 *6*	79[a] *17*	646.17	13/2$^-$				
1595.4		1083 *1*	100	512.35	7/2$^+$				
1597.2		951 *1*	100	646.17	13/2$^-$				
1601.19	13/2$^+$,15/2$^+$	218.1 *2*	100[a] *10*	1383.25	13/2$^+$	E2(+M1)	>1.1	0.40 *12*	α(K)=0.25 *12*; α(L)=0.1076 *16*; α(M)=0.0269 *7* α(N)=0.00666 *15*; α(O)=0.001121 *20*; α(P)=2.9×10^{-5} *15*
		455 *1*	13[a] *5*	1145.70	13/2$^-$,15/2$^-$				
		788.5 *2*	40[a] *7*	812.67	13/2$^-$	E1		0.00344	α(K)=0.00288 *4*; α(L)=0.000433 *6*; α(M)=9.90×10^{-5} *14* α(N)=2.46×10^{-5} *4*; α(O)=4.48×10^{-6} *7*; α(P)=2.92×10^{-7} *4*
		919.0 *4*	11[a] *3*	681.90	15/2$^-$				
		954.9 *3*	36[a] *4*	646.17	13/2$^-$	E1		0.00240	α(K)=0.00201 *3*; α(L)=0.000299 *5*; α(M)=6.85×10^{-5} *10* α(N)=1.698×10^{-5} *24*; α(O)=3.10×10^{-6} *5*; α(P)=2.06×10^{-7} *3*
1654.2	13/2$^-$,15/2$^-$	286 *1*	15[a] *6*	1368.1	(17/2,13/2,15/2)$^-$				
		841 *1*	39[a] *12*	812.67	13/2$^-$	E2		0.00814	α(K)=0.00647 *10*; α(L)=0.001278 *19*;

$^{189}_{79}Au_{110}$-19

Adopted Levels, Gammas (continued)

γ(^{189}Au) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[#]	E_f	J_f^π	Mult.[@]	δ[@]	α[‡]	Comments
									α(M)=0.000303 *5* α(N)=7.51×10^{-5} *11*; α(O)=1.341×10^{-5} *20*; α(P)=7.16×10^{-7} *11*
1654.2	13/2$^-$,15/2$^-$	972.1 *3*	100[a] *9*	681.90	15/2$^-$	M1+E2	0.7 *5*	0.012 *3*	α(K)=0.0101 *23*; α(L)=0.0016 *4*; α(M)=0.00038 *8* α(N)=9.5×10^{-5} *18*; α(O)=1.7×10^{-5} *4*; α(P)=1.2×10^{-6} *3*
		1407.2 *3*	42[a] *9*	247.25	11/2$^-$				
1662.4	21/2$^-$	557.0 *3*	100	1105.35	17/2$^-$	(E2)			E$_\gamma$,Mult.: from γ(θ) in (α,6nγ).
1688.1		582.7		1105.35	17/2$^-$				
1730.6		1049 *1*	41[a] *14*	681.90	15/2$^-$				
		1483.3 *4*	100[a] *23*	247.25	11/2$^-$				
1739.4	13/2$^+$,15/2$^+$	356 *1*	100[a] *15*	1383.25	13/2$^+$	M1+E2	0.9 *+6−4*	0.143 *37*	α(K)=0.113 *33*; α(L)=0.023 *3*; α(M)=0.0054 *7* α(N)=0.00135 *16*; α(O)=0.00024 *4*; α(P)=1.32×10^{-5} *40*
		926.8 *3*	25[a] *8*	812.67	13/2$^-$	[E1]		0.00254	α(K)=0.00213 *3*; α(L)=0.000317 *5*; α(M)=7.24×10^{-5} *11* α(N)=1.80×10^{-5} *3*; α(O)=3.28×10^{-6} *5*; α(P)=2.17×10^{-7} *3*
		1057.0 *10*	15[a] *6*	681.90	15/2$^-$				
		1093 *1*	48[a] *12*	646.17	13/2$^-$	[E1]		0.00188	α(K)=0.001580 *23*; α(L)=0.000233 *4*; α(M)=5.32×10^{-5} *8* α(N)=1.320×10^{-5} *19*; α(O)=2.42×10^{-6} *4*; α(P)=1.620×10^{-7} *23*
1745.6		393 *1*	100	1352.6	(15/2,13/2,11/2)$^-$				
1755.0		844 *1*	100	911.01	7/2$^-$				
1756.7	$^-$	1074.8 *3*	100	681.90	15/2$^-$	M1		0.01177	α(K)=0.00976 *14*; α(L)=0.001549 *22*; α(M)=0.000357 *5* α(N)=8.90×10^{-5} *13*; α(O)=1.640×10^{-5} *23*; α(P)=1.129×10^{-6} *16*
1760.2		999.5 *3*	100	760.67	9/2$^+$				
1764.3		1003.6 *3*	100	760.67	9/2$^+$				
1767.0		1283[c] *1*	100	484.02	7/2$^-$				
1774.5		1013.8 *5*	100	760.67	9/2$^+$				
1788.3	($^+$)	676 *1*	100	1112.48	11/2$^+$	(E2)		0.01290	α(K)=0.00998 *15*; α(L)=0.00223 *4*; α(M)=0.000534 *8* α(N)=0.0001324 *20*; α(O)=2.34×10^{-5} *4*; α(P)=1.109×10^{-6} *16*
1800.6	(15/2$^+$)	417 *1*	85[a] *15*	1383.25	13/2$^+$				
		695.3 *5*	100[a] *12*	1105.35	17/2$^-$	(E1)		0.00438	α(K)=0.00366 *6*; α(L)=0.000556 *8*; α(M)=0.0001274 *18* α(N)=3.16×10^{-5} *5*; α(O)=5.75×10^{-6} *8*; α(P)=3.70×10^{-7} *6*

$^{189}_{79}Au_{110}$-20

Adopted Levels, Gammas (continued)

γ(^{189}Au) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[#]	E_f	J_f^π	Mult.[@]	δ[@]	α[‡]	Comments
1808.4		1559.8 *3*	100	248.56	5/2$^+$				
1822.2	−	1140.3 *3*	100[a]	681.90	15/2$^-$	M1(+E2)	<1.6	0.0081 *21*	α(K)=0.0067 *18*; α(L)=0.0011 *3*; α(M)=0.00025 *6* α(N)=6.2×10^{-5} *15*; α(O)=1.1×10^{-5} *3*; α(P)=7.7×10^{-7} *21*; α(IPF)=1.13×10^{-6} *19*
1835.1	(13/2$^+$,15/2$^+$)	451 *1*	80[a] *29*	1383.25	13/2$^+$				
		1022.6 *3*	17[a] *9*	812.67	13/2$^-$				
		1153 *1*	29[a] *9*	681.90	15/2$^-$				
		1188.9 *5*	100[a] *11*	646.17	13/2$^-$				
1851.0		1367 *1*	100	484.02	7/2$^-$				
1862.9	−	952 *1*	100[&] *11*	911.01	7/2$^-$	M1		0.01601	α(K)=0.01326 *19*; α(L)=0.00211 *3*; α(M)=0.000488 *7* α(N)=0.0001215 *18*; α(O)=2.24×10^{-5} *4*; α(P)=1.538×10^{-6} *22*
		1555 *1*	47[&] *15*	307.76	5/2$^+$				
1863.4		1379.4 *2*	100	484.02	7/2$^-$				
1877.1	−	1064.4 *4*	100	812.67	13/2$^-$	M1+E2	≈0.7		
1879.0		1571.3 *5*	70[&] *19*	307.76	5/2$^+$				
		1675.2 *3*	100[&] *23*	203.74	3/2$^+$				
1905.2		1259 *1*	100	646.17	13/2$^-$				
1913.5		1664.9 *4*	100	248.56	5/2$^+$				
1935.02	+	400 *1*	35[a] *5*	1534.79	13/2$^+$				
		1122.2 *2*	100[a] *10*	812.67	13/2$^-$	E1			
		1253.3 *2*	69[a] *8*	681.90	15/2$^-$				
		1289 *1*	27[a] *4*	646.17	13/2$^-$				
		1687.8 *3*	22[a] *3*	247.25	11/2$^-$				
1939.02	+	479.1 *3*	19[a] *4*	1459.97	11/2$^+$	M1+E2	0.6 *2*	0.077 *9*	α(K)=0.063 *8*; α(L)=0.0110 *9*; α(M)=0.00255 *19* α(N)=0.00064 *5*; α(O)=0.000116 *10*; α(P)=7.4×10^{-6} *9*
		1126.4 *3*	19[a] *4*	812.67	13/2$^-$	(E1)			
		1257.3 *3*	15[a] *2*	681.90	15/2$^-$				
		1292.7 *3*	15[a] *3*	646.17	13/2$^-$				
		1691.7 *3*	100[a] *8*	247.25	11/2$^-$				
1960.1		1476.1 *3*	100	484.02	7/2$^-$				
1970.8		1487 *1*	44[&] *26*	484.02	7/2$^-$				
		1663.0 *4*	100[&] *23*	307.76	5/2$^+$				
2030.87		926 *1*	33[&] *11*	1104.80	3/2$^-$				
		933.4[c] *4*	38[&] *8*	1098.1					
		972 *1*	24[&] *10*	1058.73	3/2$^-$				
		1428.1 *2*	100[&] *19*	602.90	1/2$^+$,3/2$^+$				
		1826.6 *4*	38[&] *13*	203.74	3/2$^+$				
2031.04		2021.5 *3*	100[&] *10*	9.94	3/2$^+$				

$^{189}_{79}Au_{110}$-21

Adopted Levels, Gammas (continued)

γ(^{189}Au) (continued)

E_i(level)	J_i^π	E_γ †	I_γ #	E_f	J_f^π	Mult. @	δ @	α ‡	Comments
2031.04		2030.3 *4*	30& *7*	0.0	1/2$^+$				
2034.2		2034.2 *3*	100	0.0	1/2$^+$				
2034.7		1221 *1*	100& *35*	814.30	1/2$^-$				
		1431.7 *3*	100& *35*	602.90	1/2$^+$,3/2$^+$				
2036.1		1787.5 *5*	100	248.56	5/2$^+$				
2045.8	+	746.9 *3*	100[a] *11*	1298.87	11/2$^+$	M1+E2	1.2 *+6−4*	0.018 *4*	α(K)=0.015 *4*; α(L)=0.0026 *5*; α(M)=0.00062 *11* α(N)=0.00015 *3*; α(O)=2.8×10^{-5} *5*; α(P)=1.7×10^{-6} *4*
		1364 *1*	59[a] *15*	681.90	15/2$^-$				
2061.5		1570 *1*	100	491.53	5/2$^-$				
2062.6	(21/2$^+$)	650.3 *3*	100	1412.2	19/2$^-$	D			E$_\gamma$,Mult.: from (α,6nγ).
2066.2		1179 *1*	100	887.24	(3/2,5/2)$^-$				
2066.47	3/2$^-$,5/2$^-$	1007.7 *2*	100& *11*	1058.73	3/2$^-$	M1		0.01386	α(K)=0.01148 *16*; α(L)=0.00183 *3*; α(M)=0.000421 *6* α(N)=0.0001049 *15*; α(O)=1.93×10^{-5} *3*; α(P)=1.330×10^{-6} *19*
		1463.5 *3*	41& *9*	602.90	1/2$^+$,3/2$^+$				
		1818.3 *5*	23& *9*	248.56	5/2$^+$				
		1862.7 *3*	40& *9*	203.74	3/2$^+$				
2074.05	−	969.0 *3*	28& *7*	1104.80	3/2$^-$				
		1015.3 *3*	63& *7*	1058.73	3/2$^-$	M1		0.01360	α(K)=0.01127 *16*; α(L)=0.00179 *3*; α(M)=0.000413 *6* α(N)=0.0001029 *15*; α(O)=1.90×10^{-5} *3*; α(P)=1.305×10^{-6} *19*
		1259.9 *3*	31& *7*	814.30	1/2$^-$				
		1471 *1*	19& *10*	602.90	1/2$^+$,3/2$^+$				
		1766.4 *3*	100& *10*	307.76	5/2$^+$				
2074.7	−	918.8 *3*	98& *11*	1156.0	(5/2,7/2)$^-$	M1+E2	0.8 *+8−6*	0.0133 *38*	α(K)=0.0110 *32*; α(L)=0.0018 *5*; α(M)=0.00042 *11* α(N)=0.00010 *3*; α(O)=1.92×10^{-5} *49*; α(P)=1.26×10^{-6} *38*
		958.6 *3*	100& *11*	1116.05	7/2$^-$,5/2$^-$	M1		0.01573	α(K)=0.01303 *19*; α(L)=0.00208 *3*; α(M)=0.000479 *7* α(N)=0.0001193 *17*; α(O)=2.20×10^{-5} *3*; α(P)=1.511×10^{-6} *22*
2092.8	−	936.6 *3*	100& *11*	1156.0	(5/2,7/2)$^-$	M1		0.01669	α(K)=0.01382 *20*; α(L)=0.00220 *3*; α(M)=0.000509 *8* α(N)=0.0001267 *18*; α(O)=2.33×10^{-5} *4*; α(P)=1.604×10^{-6} *23*
		1278 *1*	41& *11*	814.30	1/2$^-$				
		2093.2 *4*	61& *13*	0.0	1/2$^+$				
2093.61	−	977.7 *3*	45& *4*	1116.05	7/2$^-$,5/2$^-$	M1		0.01496	α(K)=0.01240 *18*; α(L)=0.00197 *3*; α(M)=0.000455 *7* α(N)=0.0001134 *16*; α(O)=2.09×10^{-5} *3*; α(P)=1.437×10^{-6} *21*
		1034.6 *3*	100& *11*	1058.73	3/2$^-$	M1		0.01296	α(K)=0.01074 *15*; α(L)=0.001708 *24*; α(M)=0.000394 *6* α(N)=9.81×10^{-5} *14*; α(O)=1.81×10^{-5} *3*; α(P)=1.244×10^{-6} *18*
		1786.0 *5*	61& *13*	307.76	5/2$^+$				
		1845.3 *5*	27& *8*	248.56	5/2$^+$				
2094.0		1447.8 *3*	100	646.17	13/2$^-$				
2099.7		1895.9 *5*	100	203.74	3/2$^+$				

$^{189}_{79}Au_{110}$-22

Adopted Levels, Gammas (continued)

γ(^{189}Au) (continued)

E_i(level)	J_i^π	E_γ [†]	I_γ [#]	E_f	J_f^π	Mult. [@]	δ [@]	α [‡]	Comments
2101.47		995.5[c] *4*	36[&] *18*	1107.4					
		1221[b] *1*	36[b] *16*	879.64	$^+$				
		1299.5 *6*	33[&] *18*	801.95	$1/2^+,3/2^+$				
		1331.0 *3*	47[&] *15*	770.68	$7/2^-$				
		1454.4 *3*	100[&] *22*	647.20	$7/2^+$				
		2091.3 *4*	87[&] *18*	9.94	$3/2^+$				
		2101.3 *3*	76[&] *18*	0.0	$1/2^+$				
2101.7	(−)	848[b] *1*	100[b&] *33*	1254.24	$5/2^-,7/2^-$	(M1)		0.0215	α(K)=0.0178 *3*; α(L)=0.00285 *4*; α(M)=0.000657 *10* α(N)=0.0001637 *24*; α(O)=3.02×10^{-5} *5*; α(P)=2.07×10^{-6} *3*
		1589.4 *4*	90[&] *27*	512.35	$7/2^+$				
		1793.8 *4*	100[&] *33*	307.76	$5/2^+$				
2109.8		1802 *1*	100	307.76	$5/2^+$				
2113.8		925.2 *3*	64[a] *12*	1188.60	$11/2^-$				
		1301.1 *5*	100[a] *20*	812.67	$13/2^-$				
2145.0		1039 *1*	14[a] *7*	1105.35	$17/2^-$				
		1498.9 *3*	100[a] *14*	646.17	$13/2^-$				
2154.6	−	900.4 *3*	100	1254.24	$5/2^-,7/2^-$	M1(+E2)			
2155.3		1096.6 *4*	100	1058.73	$3/2^-$				
2157.4		1908.8 *4*	100	248.56	$5/2^+$				
2163.3	+	780.1 *5*	100	1383.25	$13/2^+$	M1		0.0266	α(K)=0.0220 *4*; α(L)=0.00353 *5*; α(M)=0.000816 *12* α(N)=0.000203 *3*; α(O)=3.74×10^{-5} *6*; α(P)=2.56×10^{-6} *4*
2165.21	+	630.3 *2*	100[a] *11*	1534.79	$13/2^+$	M1+E2	1.2 *+4−3*	0.028 *5*	α(K)=0.022 *4*; α(L)=0.0041 *5*; α(M)=0.00097 *12* α(N)=0.00024 *3*; α(O)=4.3×10^{-5} *6*; α(P)=2.6×10^{-6} *5*
		1352.8 *3*	18[a] *7*	812.67	$13/2^-$				
		1519 *1*	18[a] *7*	646.17	$13/2^-$				
2169.19	(+)	634 *1*	37[a] *5*	1534.79	$13/2^+$	(M1+E2)	1.0 *2*	0.030 *4*	
		709.1 *4*	10[a] *3*	1459.97	$11/2^+$	E2(+M1)	>1.2	0.0162 *46*	α(K)=0.0130 *40*; α(L)=0.0025 *6*; α(M)=0.00059 *12* α(N)=0.00015 *3*; α(O)=2.6×10^{-5} *6*; α(P)=1.47×10^{-6} *47*
		1356.4 *3*	8[a] *3*	812.67	$13/2^-$				
		1487.4 *4*	12[a] *4*	681.90	$15/2^-$				
		1523 *1*	21[a] *5*	646.17	$13/2^-$				
		1922.0 *2*	100[a] *9*	247.25	$11/2^-$				
2169.6	+	749.7 *3*	100[a] *11*	1419.80	$(13/2,11/2)^+$	M1+E2	0.6 *3*	0.024 *4*	α(K)=0.020 *3*; α(L)=0.0033 *4*; α(M)=0.00077 *10* α(N)=0.000192 *23*; α(O)=3.5×10^{-5} *5*; α(P)=2.3×10^{-6} *4*
		981.2 *4*	33[a] *11*	1188.60	$11/2^-$				
		1409[c] *1*	22[a] *11*	760.67	$9/2^+$				
2176.2	+	437 *1*	67[a] *44*	1739.4	$13/2^+,15/2^+$				
		716 *1*	100[a] *44*	1459.97	$11/2^+$	E2		0.01139	α(K)=0.00889 *13*; α(L)=0.00191 *3*; α(M)=0.000457 *7*

$^{189}_{79}Au_{110}$-23

Adopted Levels, Gammas (continued)

γ(^{189}Au) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[#]	E_f	J_f^π	Mult.[@]	δ[@]	α[‡]	Comments
									α(N)=0.0001134 *17*; α(O)=2.01×10^{-5} *3*; α(P)=9.87×10^{-7} *14*
2176.8		1364 *1*	18[a] *6*	812.67	13/2$^-$				
		1495 *1*	15[a] *4*	681.90	15/2$^-$				
		1929.5 *3*	100[a] *10*	247.25	11/2$^-$				
2178.0		239 *1*	100	1939.02	$^+$				
2200.9		1519 *1*	100	681.90	15/2$^-$				
2205.3	23/2$^-$	793.2 *3*	100	1412.2	19/2$^-$	(Q)			E_γ,Mult.: from (α,6nγ).
2209.8		2006 *1*	100	203.74	3/2$^+$				
2211.01	$^+$	751.0 *5*	76[a] *29*	1459.97	11/2$^+$	M1(+E2)	<2.2	0.0215 *79*	α(K)=0.0176 *68*; α(L)=0.00299 *92*; α(M)=6.9×10^{-4} *21* α(N)=1.73×10^{-4} *52*; α(O)=3.16×10^{-5} *98*; α(P)=2.03×10^{-6} *81*
		1398.5 *3*	65[a] *18*	812.67	13/2$^-$				
		1528.9 *4*	65[a] *18*	681.90	15/2$^-$				
		1963.7 *3*	100[a] *12*	247.25	11/2$^-$				
2239.9		751 *1*	100	1488.9	(7/2,11/2)$^-$				
2240.94	(+)	1128.7 *3*	24[a] *7*	1112.48	11/2$^+$	M1(+E2)	<0.9	0.0091 *14*	α(K)=0.0075 *11*; α(L)=0.00121 *17*; α(M)=0.00028 *4* α(N)=6.9×10^{-5} *10*; α(O)=1.28×10^{-5} *18*; α(P)=8.6×10^{-7} *14*; α(IPF)=8.0×10^{-7} *8*
		1379.0 *2*	86[a] *24*	862.04	9/2$^-$				
		1594.8 *3*	100[a] *10*	646.17	13/2$^-$				
		1915.8 *3*	60[a] *7*	325.12	9/2$^-$				
		1993.2 *3*	38[a] *5*	247.25	11/2$^-$				
2250.7	(25/2$^+$)	188.0 *3*	100	2062.6	(21/2$^+$)	[E2]		0.464	E_γ: from ^{191}Ir(α,6nγ). Mult.: ΔJ=1 γ from γ(θ), and M1(+E2), δ<1.1 from α(exp) in (^{12}C,4nγ), but ΔJ^π requires E2.
2251.9		1605.7 *4*	100	646.17	13/2$^-$				
2255.1		1125[c] *1*	100	1130.10	11/2$^-$				
2257.18	(−)	318 *1*	27[a] *10*	1939.02	$^+$	(E1)		0.0862 *15*	α(K)=0.0538 *9*; α(L)=0.0245 *5*; α(M)=0.00615 *12* α(N)=0.00152 *3*; α(O)=0.000254 *5*; α(P)=5.78×10^{-6} *10*
		697.3 *4*	20[a] *4*	1559.83	$^-$				
		1395.4 *3*	12[a] *4*	862.04	9/2$^-$				
		1610 *1*	6[a] *2*	647.20	7/2$^+$				
		1744.7 *5*	16[a] *4*	512.35	7/2$^+$				
		1931.9 *3*	100[a] *10*	325.12	9/2$^-$				
		2009.9 *3*	74[a] *7*	247.25	11/2$^-$				
2257.53	(+)	837.8 *3*	73[a] *13*	1419.80	(13/2,11/2)$^+$	M1+E2	1.1 +*9*−*5*	0.0145 *40*	α(K)=0.0119 *34*; α(L)=0.0020 *5*; α(M)=0.00047 *11* α(N)=0.00012 *3*; α(O)=2.1×10^{-5} *5*; α(P)=1.36×10^{-6} *40*
		958.7 *3*	57[a] *10*	1298.87	11/2$^+$	M1(+E2)	<1.1	0.013 *3*	α(K)=0.0108 *22*; α(L)=0.0018 *4*; α(M)=0.00041 *7* α(N)=0.000102 *18*; α(O)=1.9×10^{-5} *4*; α(P)=1.2×10^{-6} *3*
		1145 *1*	80[a] *17*	1112.48	11/2$^+$	M1(+E2)	<1.0	0.0086 *14*	α(K)=0.0071 *12*; α(L)=0.00115 *18*; α(M)=0.00026 *4*

$^{189}_{79}Au_{110}$-24

Adopted Levels, Gammas (continued)

γ(^{189}Au) (continued)

E_i(level)	J_i^π	E_γ [†]	I_γ [#]	E_f	J_f^π	Mult. [@]	δ [@]	α [‡]	Comments
									α(N)=6.6×10^{-5} *10*; α(O)=1.21×10^{-5} *19*; α(P)=8.2×10^{-7} *15*; α(IPF)=1.39×10^{-6} *17*
2257.53	(+)	1444.9 *3*	73[a] *10*	812.67	13/2$^-$				
		1496.8 *3*	100[a] *33*	760.67	9/2$^+$				
		1544.7 *3*	60[a] *10*	712.70	11/2$^-$				
2258.7		1004.2 *3*	100[&] *26*	1254.24	5/2$^-$,7/2$^-$				
		1200 *1*	65[&] *23*	1058.73	3/2$^-$				
		2249.1 *4*	68[&] *23*	9.94	3/2$^+$				
2264.0		951 *1*	100	1312.96	13/2$^-$				
2264.81	+	326 *1*	35[a] *8*	1939.02	+	M1+E2	1.2 *+16−6*	0.156 *61*	α(K)=0.119 *55*; α(L)=0.028 *5*; α(M)=0.0067 *9* α(N)=0.00167 *23*; α(O)=0.00029 *5*; α(P)=1.38×10^{-5} *67*
		663.6 *2*	84[a] *8*	1601.19	13/2$^+$,15/2$^+$	M1+E2	0.5 *+3−4*	0.035 *6*	α(K)=0.029 *5*; α(L)=0.0048 *6*; α(M)=0.00111 *13* α(N)=0.00028 *4*; α(O)=5.1×10^{-5} *7*; α(P)=3.4×10^{-6} *6*
		1159.7 *5*	100[a] *9*	1105.35	17/2$^-$	(E1)			
		1167.8 *3*	24[a] *4*	1097.03	13/2$^-$				
		1451.9 *3*	39[a] *7*	812.67	13/2$^-$				
		1618.9 *4*	14[a] *3*	646.17	13/2$^-$				
2268.0		808 *1*	100	1459.97	11/2$^+$				
2268.97		1421.4[c] *3*	8[a] *2*	847.89	9/2$^+$				
		1943.8 *2*	100[a] *10*	325.12	9/2$^-$				
		2021.8 *3*	68[a] *7*	247.25	11/2$^-$				
2269.7		1557.0 *3*	100	712.70	11/2$^-$				
2271.0	+	851.2 *4*	79[a] *21*	1419.80	(13/2,11/2)$^+$	M1		0.0213	α(K)=0.01763 *25*; α(L)=0.00282 *4*; α(M)=0.000651 *10* α(N)=0.0001621 *23*; α(O)=2.99×10^{-5} *5*; α(P)=2.05×10^{-6} *3*
		1945.9 *4*	100[a] *14*	325.12	9/2$^-$				
2272.16	+	333.3 *4*	9.7[a] *23*	1939.02	+	M1(+E2)	<1.1	0.20 *5*	α(K)=0.162 *44*; α(L)=0.030 *4*; α(M)=0.0071 *8* α(N)=0.00177 *19*; α(O)=0.00032 *4*; α(P)=1.91×10^{-5} *53*
		484 *1*	7[a] *3*	1788.3	(+)				
		1083 *1*	3.3[a] *17*	1188.60	11/2$^-$				
		1511.5 *3*	13.3[a] *13*	760.67	9/2$^+$				
		1559.6 *2*	11.3[a] *23*	712.70	11/2$^-$				
		1626.0 *2*	29[a] *5*	646.17	13/2$^-$				
		2024.7 *2*	100[a] *10*	247.25	11/2$^-$				
2273.1		853 *1*	83[a] *17*	1419.80	(13/2,11/2)$^+$				
		1460.6 *8*	100[a] *33*	812.67	13/2$^-$				
2274.1		1161.0 *4*	100[a] *29*	1112.48	11/2$^+$				
		1513.7 *3*	88[a] *29*	760.67	9/2$^+$				
2274.6		1592.7 *4*	100	681.90	15/2$^-$				
2275.6	+	716 *1*	100[a] *36*	1559.83	−				

$^{189}_{79}Au_{110}$-25

Adopted Levels, Gammas (continued)

γ(^{189}Au) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[#]	E_f	J_f^π	Mult.[@]	δ[@]	α[‡]	Comments
2275.6	+	855.6 *3*	79[a] *21*	1419.80	(13/2,11/2)+	E2(+M1)	>0.7	0.0123 *45*	α(K)=0.0100 *38*; α(L)=0.00175 *53*; α(M)=4.1×10^{-4} *12* α(N)=1.02×10^{-4} *30*; α(O)=1.84×10^{-5} *56*; α(P)=1.14×10^{-6} *45*
		2029.0 *5*	86[a] *21*	247.25	11/2−				
2276.59	+	816.5 *3*	38[a] *11*	1459.97	11/2+	M1(+E2)	<1.5	0.0185 *53*	α(K)=0.0152 *45*; α(L)=0.0025 *7*; α(M)=0.00059 *14* α(N)=0.00015 *4*; α(O)=2.7×10^{-5} *7*; α(P)=1.75×10^{-6} *53*
		977.9 *3*	60[a] *6*	1298.87	11/2+	M1(+E2)	<1.0	0.0127 *23*	α(K)=0.0105 *19*; α(L)=0.0017 *3*; α(M)=0.00039 *7* α(N)=9.8×10^{-5} *16*; α(O)=1.8×10^{-5} *3*; α(P)=1.21×10^{-6} *23*
		1428.8 *3*	34[a] *11*	847.89	9/2+				
		1630.5 *3*	100[a] *13*	646.17	13/2−				
		1951.2 *3*	32[a] *4*	325.12	9/2−				
2281.00		1568.4 *5*	9.5[a] *14*	712.70	11/2−				
		1599.4 *8*	10.5[a] *19*	681.90	15/2−				
		2033.7 *2*	100[a] *27*	247.25	11/2−				
2281.9		1093 *1*	73[a] *36*	1188.60	11/2−				
		1636 *1*	100[a] *27*	646.17	13/2−				
2293.9		981 *1*	100[a] *40*	1312.96	13/2−				
		1431.8 *3*	100[a] *50*	862.04	9/2−				
2294.99	+	356 *1*	34[a] *9*	1939.02	+	M1(+E2)	<1.3	0.163 *46*	α(K)=0.131 *42*; α(L)=0.024 *4*; α(M)=0.0058 *8* α(N)=0.00143 *20*; α(O)=0.00026 *5*; α(P)=1.54×10^{-5} *50*
		360 *1*	37[a] *9*	1935.02	+	M1(+E2)	<1.1	0.16 *4*	α(K)=0.132 *35*; α(L)=0.024 *4*; α(M)=0.0057 *7* α(N)=0.00141 *17*; α(O)=0.00026 *4*; α(P)=1.55×10^{-5} *43*
		1198.0 *2*	33[a] *4*	1097.03	13/2−				
		1482.0 *4*	26[a] *5*	812.67	13/2−				
		1613 *1*	8[a] *4*	681.90	15/2−				
		1648.9 *3*	100[a] *9*	646.17	13/2−				
2295.7		1583.0 *5*	100	712.70	11/2−				
2299.5	25/2−	637.1 *3*	100	1662.4	21/2−	(Q)			E_γ,Mult.: from (α,6nγ).
2311.3		1986.3 *3*	100[a] *11*	325.12	9/2−				
		2063.8 *5*	22[a] *6*	247.25	11/2−				
2316.0		1503.6 *4*	57[a] *17*	812.67	13/2−				
		1634.0 *3*	100[a] *13*	681.90	15/2−				
2317.1	+	716 *1*	26[a] *14*	1601.19	13/2+,15/2+				
		782.2 *3*	48[a] *5*	1534.79	13/2+	M1+E2	0.7 *4*	0.021 *5*	α(K)=0.017 *4*; α(L)=0.0029 *5*; α(M)=0.00066 *11* α(N)=0.00017 *3*; α(O)=3.0×10^{-5} *6*; α(P)=2.0×10^{-6} *5*
		1671.1 *3*	100[a] *12*	646.17	13/2−				
2317.5	+	382.5 *3*	27[a] *4*	1935.02	+	M1		0.1722	α(K)=0.1419 *20*; α(L)=0.0233 *4*; α(M)=0.00539 *8* α(N)=0.001342 *19*; α(O)=0.000247 *4*; α(P)=1.677×10^{-5} *24*
		1171.8 *2*	100[a] *10*	1145.70	13/2−,15/2−	(E1)			
		1212 *1*	18[a] *6*	1105.35	17/2−				

$^{189}_{79}Au_{110}$-26

Adopted Levels, Gammas (continued)

γ(^{189}Au) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[#]	E_f	J_f^π	Mult.[@]	δ[@]	α[‡]	Comments
2319.4		256.8	100	2062.6	(21/2$^+$)				
2325.0		386 *1*	100	1939.02	$^+$				
2330.9		1649 *1*	100	681.90	15/2$^-$				
2335.1	(+)	401 *1*	69[a] *14*	1935.02	$^+$				
		734 *1*	42[a] *22*	1601.19	13/2$^+$,15/2$^+$	M1+E2	0.8 *+9−6*	0.0232 *72*	α(K)=0.0190 *61*; α(L)=0.00323 *83*; α(M)=0.00075 *19* α(N)=0.00019 *5*; α(O)=3.41×10^{-5} *89*; α(P)=2.20×10^{-6} *73*
		800 *1*	100[a] *17*	1534.79	13/2$^+$	[E2]		0.00902	α(K)=0.00713 *11*; α(L)=0.001445 *21*; α(M)=0.000343 *5* α(N)=8.51×10^{-5} *13*; α(O)=1.516×10^{-5} *22*; α(P)=7.90×10^{-7} *12*
		1222.7 *4*	28[a] *8*	1112.48	11/2$^+$				
		1238.0 *3*	33[a] *8*	1097.03	13/2$^-$				
2335.7		1523 *1*	100	812.67	13/2$^-$				
2336.1		777 *1*	100	1559.1	$^-$				
2338.6		1150 *1*	100	1188.60	11/2$^-$				
2339.7		1657.8 *3*	100	681.90	15/2$^-$				
2349.2		1703 *1*	100	646.17	13/2$^-$				
2370.3		1264.9 *4*	100	1105.35	17/2$^-$				
2384.7		1703 *1*	90[a] *30*	681.90	15/2$^-$				
		2137.4 *3*	100[a] *20*	247.25	11/2$^-$				
2400.9	(25/2$^+$)	150.1 *3*	100	2250.7	(25/2$^+$)	(M1)		2.26	α(K)=1.85 *3*; α(L)=0.310 *5*; α(M)=0.0719 *10* α(N)=0.0179 *3*; α(O)=0.00329 *5*; α(P)=0.000222 *4* E_γ,Mult.: from (α,6nγ).
2405.9		1724 *1*	100	681.90	15/2$^-$				
2417.1		1771.1 *4*	100[a] *17*	646.17	13/2$^-$				
		2169.6 *5*	50[a] *17*	247.25	11/2$^-$				
2417.9		1736 *1*	100	681.90	15/2$^-$				
2436.4		1331.0 *3*	100	1105.35	17/2$^-$				
2451.0	(23/2$^-$)	1038.8 *3*	100	1412.2	19/2$^-$	(Q)			E_γ,Mult.: from ^{191}Ir(α,6nγ).
2483.7		1671 *1*	100	812.67	13/2$^-$				
2492.1		1845.9 *4*	100	646.17	13/2$^-$				
2515.8	(27/2$^+$)	265.1 *3*	100	2250.7	(25/2$^+$)	M1(+E2)	<1.0	0.32 *17*	E_γ: from ^{191}Ir(α,6nγ). Mult.,δ: M1(+E2), δ<1.0 from (^{12}C,4nγ).
2542.7		292	100	2250.7	(25/2$^+$)				E_γ: from (^{12}C,4nγ).
2554.2	(27/2$^-$)	104[c]		2451.0	(23/2$^-$)				E_γ: from (^{19}F,4nγ). Other: 103.5 for an unplaced γ in (^{12}C,4nγ). Not reported in the other two high-spin studies. I_γ: 260 *10* for 103.5-keV unplaced γ in (^{12}C,4nγ).
		153.2 *3*	90 *9*	2400.9	(25/2$^+$)	(E1)		0.1409 *21*	α(K)=0.1146 *17*; α(L)=0.0202 *3*; α(M)=0.00468 *7* α(N)=0.001151 *18*; α(O)=0.000201 *3*; α(P)=1.002×10^{-5} *15* I_γ: from (^{12}C,4nγ). E_γ,Mult.: from (α,6nγ).

$^{189}_{79}Au_{110}$-27

Adopted Levels, Gammas (continued)

γ(^{189}Au) (continued)

E_i(level)	J_i^π	E_γ [†]	I_γ [#]	E_f	J_f^π	Mult. [@]	α [‡]	Comments
2554.2	(27/2$^-$)	349.0 *3*	100 *10*	2205.3	23/2$^-$	(E2)	0.0661	α(K)=0.0430 *6*; α(L)=0.01744 *25*; α(M)=0.00436 *7* α(N)=0.001077 *16*; α(O)=0.000182 *3*; α(P)=4.66×10^{-6} *7* I_γ: from (^{12}C,4nγ). E_γ,Mult.: from (α,6nγ).
2554.2+x	(31/2$^-$)	x		2554.2	(27/2$^-$)			
2554.8	(31/2$^+$)	38.8 *3*	100	2515.8	(27/2$^+$)	(E2)	435 *18*	α(L)=327 *14*; α(M)=84 *4*; α(N)=20.7 *9*; α(O)=3.28 *14*; α(P)=0.00288 *12* B(E2)(W.u.)=0.95 *13* E_γ,Mult.: from ^{174}Yb(^{19}F,4nγ) dataset (1997Pe26,2001MaZN).
2608.9		1796.2 *5*	100	812.67	13/2$^-$			
2862.8+x	(33/2$^-$)	308.6 *3*	100	2554.2+x	(31/2$^-$)	D		E_γ,Mult.: from ^{191}Ir(α,6nγ).
2928.8?		374 [c]		2554.8	(31/2$^+$)			
2968.7	(29/2$^-$)	669.2		2299.5	25/2$^-$			
2988.8+x	(35/2$^-$)	125.6 *3*		2862.8+x	(33/2$^-$)	D		E_γ,Mult.: from (α,6nγ).
		435.2		2554.2+x	(31/2$^-$)			E_γ: from (^{19}F,6nγ).
3003.9	29/2$^-$	704.4		2299.5	25/2$^-$			
3062.3	(35/2$^+$)	507.5 *3*	100	2554.8	(31/2$^+$)	(Q)		E_γ,Mult.: from (α,6nγ) where this γ is placed from a 3023.1+x level.
3160.5+x	(37/2$^-$)	297.7		2862.8+x	(33/2$^-$)			
3222.1	(31/2$^-$)	253.3		2968.7	(29/2$^-$)			
3359.2+x	(37/2$^-$)	370.3 *3*		2988.8+x	(35/2$^-$)	D		E_γ,Mult.: from (α,6nγ) where this γ is placed from a 3233.0 level.
		496.4		2862.8+x	(33/2$^-$)			
3377.4	(33/2$^-$)	155.2		3222.1	(31/2$^-$)			
		408.9		2968.7	(29/2$^-$)			
3559.6+x	(39/2$^-$)	200.2 *3*		3359.2+x	(37/2$^-$)			E_γ: from (α,6nγ) where this γ is shown from a 3433.2 level.
		571.2		2988.8+x	(35/2$^-$)			
3562.9	(37/2$^+$)	500.4		3062.3	(35/2$^+$)			
3709.7		332.1		3377.4	(33/2$^-$)			
3838.2+x	(39/2$^-$)	677.8		3160.5+x	(37/2$^-$)			
		848.8		2988.8+x	(35/2$^-$)			
3845.6	(39/2$^+$)	283.0		3562.9	(37/2$^+$)			
		783.4 *3*		3062.3	(35/2$^+$)	Q		E_γ,Mult.: from (α,6nγ) where this γ is shown from a 3806.6+x level.
3921.4	(37/2$^-$)	211.5		3709.7				
		544.1		3377.4	(33/2$^-$)			
3965.0+x	(39/2$^-$)	606.3		3359.2+x	(37/2$^-$)			
		975.8		2988.8+x	(35/2$^-$)			
3980.2		417.3		3562.9	(37/2$^+$)			
4102.7+x	(41/2$^-$)	542.9		3559.6+x	(39/2$^-$)			
		743.6		3359.2+x	(37/2$^-$)			
4253.5+x	(43/2$^-$)	150.7		4102.7+x	(41/2$^-$)			
		288.6		3965.0+x	(39/2$^-$)			
		693.9		3559.6+x	(39/2$^-$)			
4290.7+x	(41/2$^-$)	325.9		3965.0+x	(39/2$^-$)			
4305.6+x	(43/2$^-$)	746.3		3562.9	(37/2$^+$)			
4325.7	(41/2$^+$)	480.0		3845.6	(39/2$^+$)			

$^{189}_{79}Au_{110}$-28

Adopted Levels, Gammas (continued)

γ(^{189}Au) (continued)

E_i(level)	J_i^π	E_γ †	I_γ #	E_f	J_f^π	Mult. @	Comments
4325.7	(41/2$^+$)	762.8		3562.9	(37/2$^+$)		
4352.5	(41/2$^+$)	507.3		3845.6	(39/2$^+$)		
		789.2		3562.9	(37/2$^+$)		
4480.1	(43/2$^+$)	154.2		4325.7	(41/2$^+$)		
		634.5		3845.6	(39/2$^+$)		
4527.0+x	(43/2$^-$)	236.1		4290.7+x	(41/2$^-$)		
		688.1		3838.2+x	(39/2$^-$)		
4639.0	(43/2$^+$)	286.6		4352.5	(41/2$^+$)		
		313.3		4325.7	(41/2$^+$)		
4674.4+x	(45/2$^-$)	147.5		4527.0+x	(43/2$^-$)		
		369.0		4305.6+x	(43/2$^-$)		
4694.7+x	(45/2$^-$)	441.4		4253.5+x	(43/2$^-$)		
4698.7	(47/2$^+$)	218.6	100	4480.1	(43/2$^+$)	(Q)	Mult.,I_γ: from (^{12}C,4nγ), assuming 217.8γ in that reaction is the same as 218.6γ from (^{19}F,6nγ) and 219 or 218 in (^{19}F,4nγ).
4796.5+x		543		4253.5+x	(43/2$^-$)		
4879.7		240.6		4639.0	(43/2$^+$)		
		399.5		4480.1	(43/2$^+$)		
4903.5+x	(47/2$^-$)	649.8		4253.5+x	(43/2$^-$)		
4916.2		277.3		4639.0	(43/2$^+$)		
5085.0		386.3		4698.7	(47/2$^+$)		
5103.1	(47/2$^+$)	187.0		4916.2			
		223.3		4879.7			
		464.1		4639.0	(43/2$^+$)		
5124.6+x	(47/2$^-$)	819.0		4305.6+x	(43/2$^-$)		
5166.5		286.8		4879.7			
5174.5	(49/2$^+$)	475.7		4698.7	(47/2$^+$)		
5263.3+x	(49/2$^-$)	588.9		4674.4+x	(45/2$^-$)		
5315.6	(51/2$^+$)	141.0		5174.5	(49/2$^+$)		
		617.1		4698.7	(47/2$^+$)		
5368.1+x	(49/2$^-$)	464.7		4903.5+x	(47/2$^-$)		
		673.6		4694.7+x	(45/2$^-$)		
5428.5+x	(47/2$^-$)	754.1		4674.4+x	(45/2$^-$)		
5602.5		428		5174.5	(49/2$^+$)		
5634.9	(53/2$^+$)	319.3		5315.6	(51/2$^+$)		
5665.5		491		5174.5	(49/2$^+$)		
5707.4+x	(51/2$^-$)	803.8		4903.5+x	(47/2$^-$)		
5734.2+x	(53/2$^-$)	470.9		5263.3+x	(49/2$^-$)		
5861.2		686.7		5174.5	(49/2$^+$)		
5923.8	(55/2$^+$)	608.2		5315.6	(51/2$^+$)		
		838.7		5085.0			
5964.1+x	(51/2$^-$)	839.4		5124.6+x	(47/2$^-$)		
6096.7+x	(53/2$^-$)	389.1		5707.4+x	(51/2$^-$)		
		728.8		5368.1+x	(49/2$^-$)		

$^{189}_{79}Au_{110}$-29

Adopted Levels, Gammas (continued)

γ(^{189}Au) (continued)

E_i(level)	J_i^π	E_γ †	E_f	J_f^π	E_i(level)	J_i^π	E_γ †	E_f	J_f^π
6179.8		544.9	5634.9	(53/2$^+$)	7601.0	(65/2)	315.9	7284.7	(61/2$^-$)
6202.3		886.7	5315.6	(51/2$^+$)			720.2	6881.2	(61/2)
6234.8	(57/2$^+$)	599.9	5634.9	(53/2$^+$)	7849.4	(65/2)	968.2	6881.2	(61/2)
6305.5+x	(55/2$^-$)	598.0	5707.4+x	(51/2$^-$)	7956.2	(65/2$^+$)	864.1	7092.1	(61/2$^+$)
6305.6+x		877.1	5428.5+x	(47/2$^-$)	8182.3		1090.2	7092.1	(61/2$^+$)
6316.1+x	(57/2$^-$)	581.9	5734.2+x	(53/2$^-$)	8261.8		1169.7	7092.1	(61/2$^+$)
6359.5	(57/2)	435.7	5923.8	(55/2$^+$)	8433.9	(69/2)	832.9	7601.0	(65/2)
6379.4		1063.8	5315.6	(51/2$^+$)	8680.6	(69/2$^+$)	724.4	7956.2	(65/2$^+$)
6394.9+x		966.4	5428.5+x	(47/2$^-$)	8804.3		848.1	7956.2	(65/2$^+$)
6881.2	(61/2)	522.1	6359.5	(57/2)	9141.0		460.4	8680.6	(69/2$^+$)
7092.1	(61/2$^+$)	857.3	6234.8	(57/2$^+$)	9314.1	(73/2)	880.2	8433.9	(69/2)
7284.7	(61/2$^-$)	924.9	6359.5	(57/2)	9580.9	(73/2$^+$)	900.3	8680.6	(69/2$^+$)

† From ^{189}Hg ε decay for gamma rays from low-spin (J≤15/2) levels. Gammas from high-spin (J>15/2 or so) levels, values are from ^{176}Yb(^{19}F,6nγ), unless otherwise stated.

‡ From BrIcc v2.3b (16-Dec-2014) 2008Ki07, "Frozen Orbitals" appr.

From ^{189}Hg ε decay for gamma rays from low-spin (J≤15/2) levels. For gamma rays from high-spin (J>15/2 or so) levels, values are from ^{191}Ir(α,6nγ) and/or from ^{181}Ta(^{12}C,4nγ). Intensities from ^{176}Yb(^{19}F,6nγ) and ^{174}Yb(^{19}F,4nγ) are not available.

@ From ^{189}Hg ε decay (7.6 m) and ^{189}Hg ε decay (8.6 m), except as noted. For gammas from high-spin (J>15/2 or so) levels, assignments are from γ(θ) data in ^{191}Ir(α,6nγ) and/or in ^{181}Ta(^{12}C,4nγ). No such assignments are available from ^{176}Yb(^{19}F,6nγ) and ^{174}Yb(^{19}F,4nγ).

& From ^{189}Hg ε decay (7.6 m).

a From ^{189}Hg ε decay (8.6 m).

b Multiply placed with intensity suitably divided.

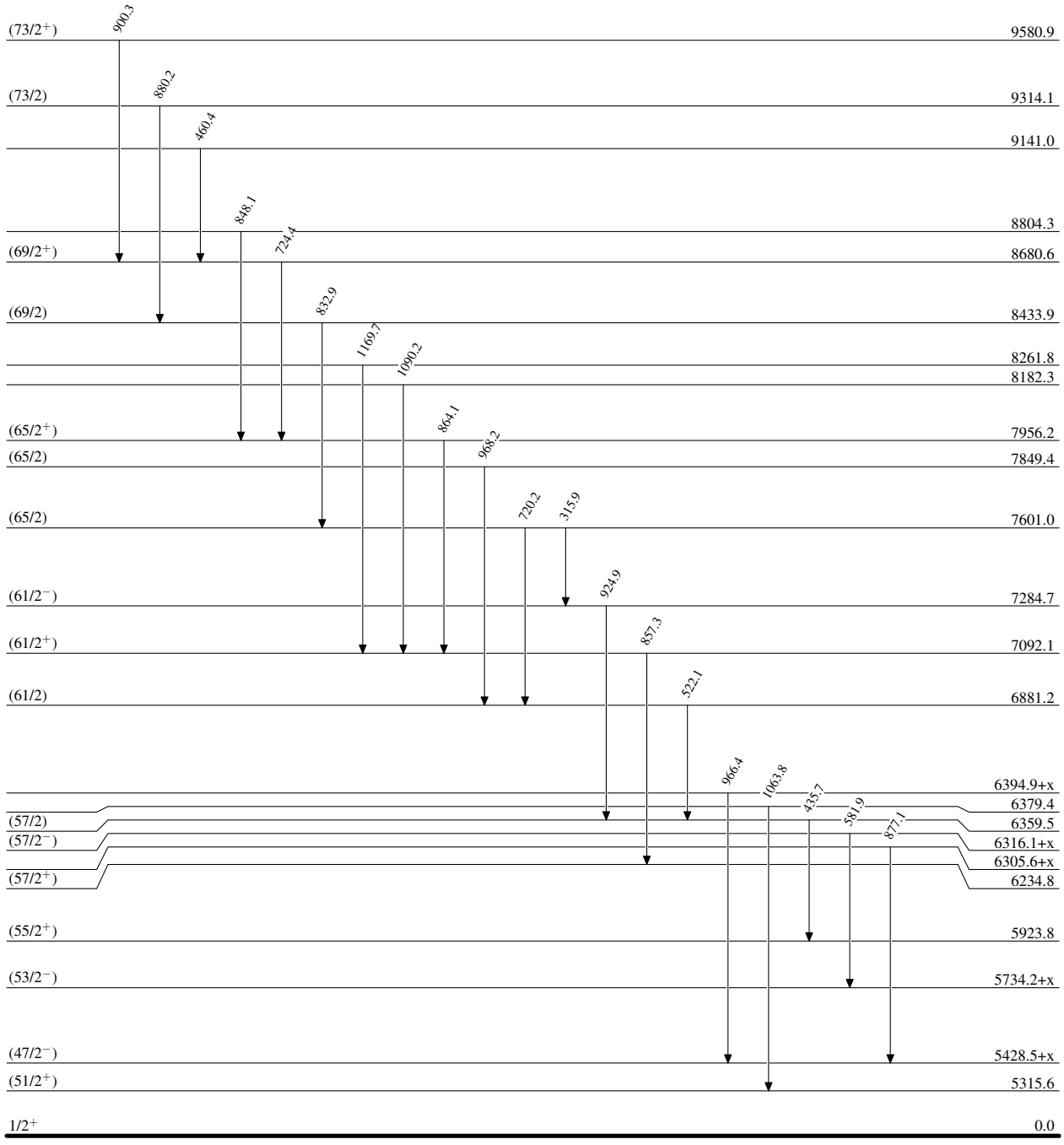
c Placement of transition in the level scheme is uncertain.

$^{189}_{79}Au_{110}$-30

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level

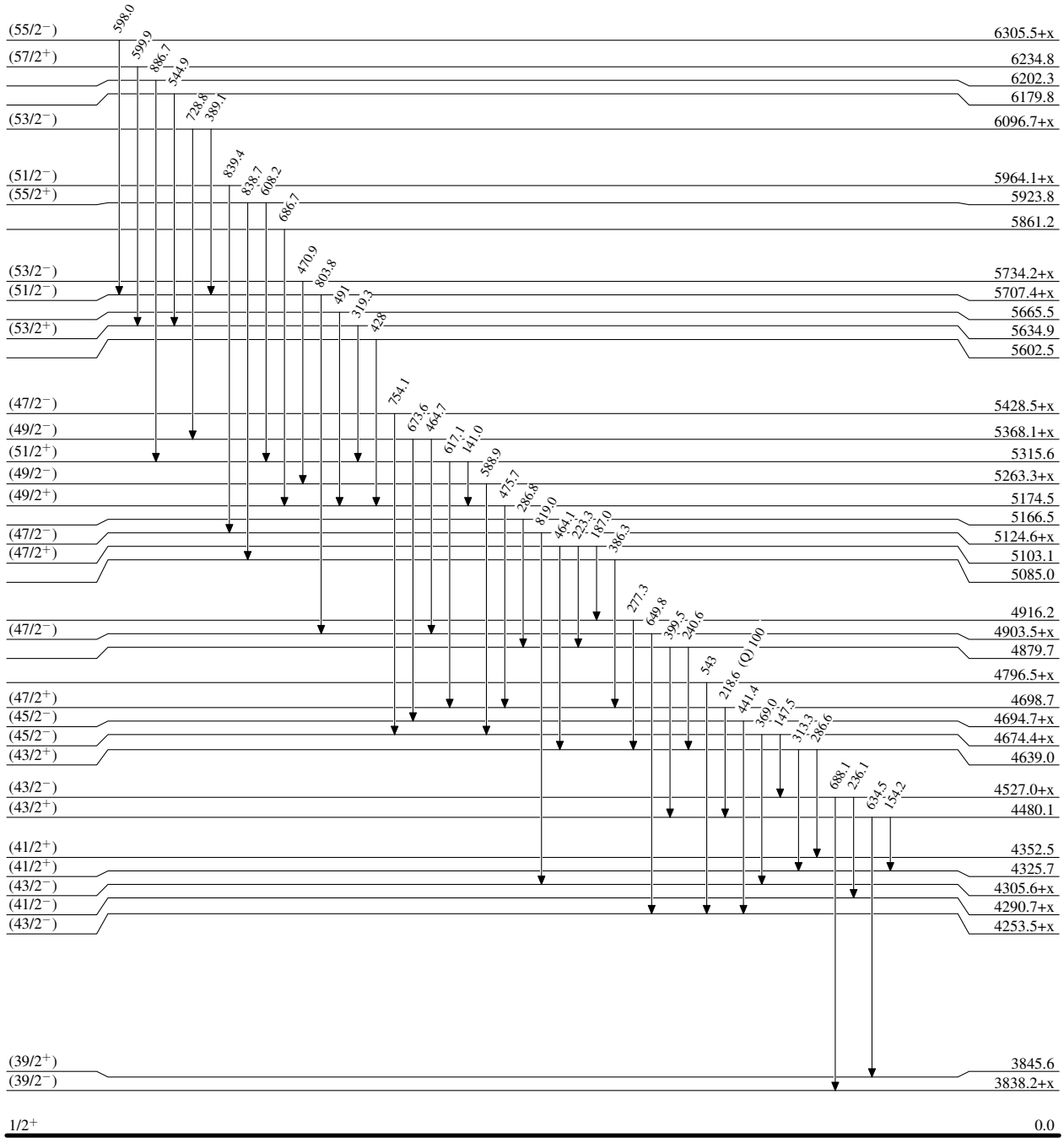


$^{189}_{79}Au_{110}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



28.7 min *4*

$^{189}_{79}Au_{110}$

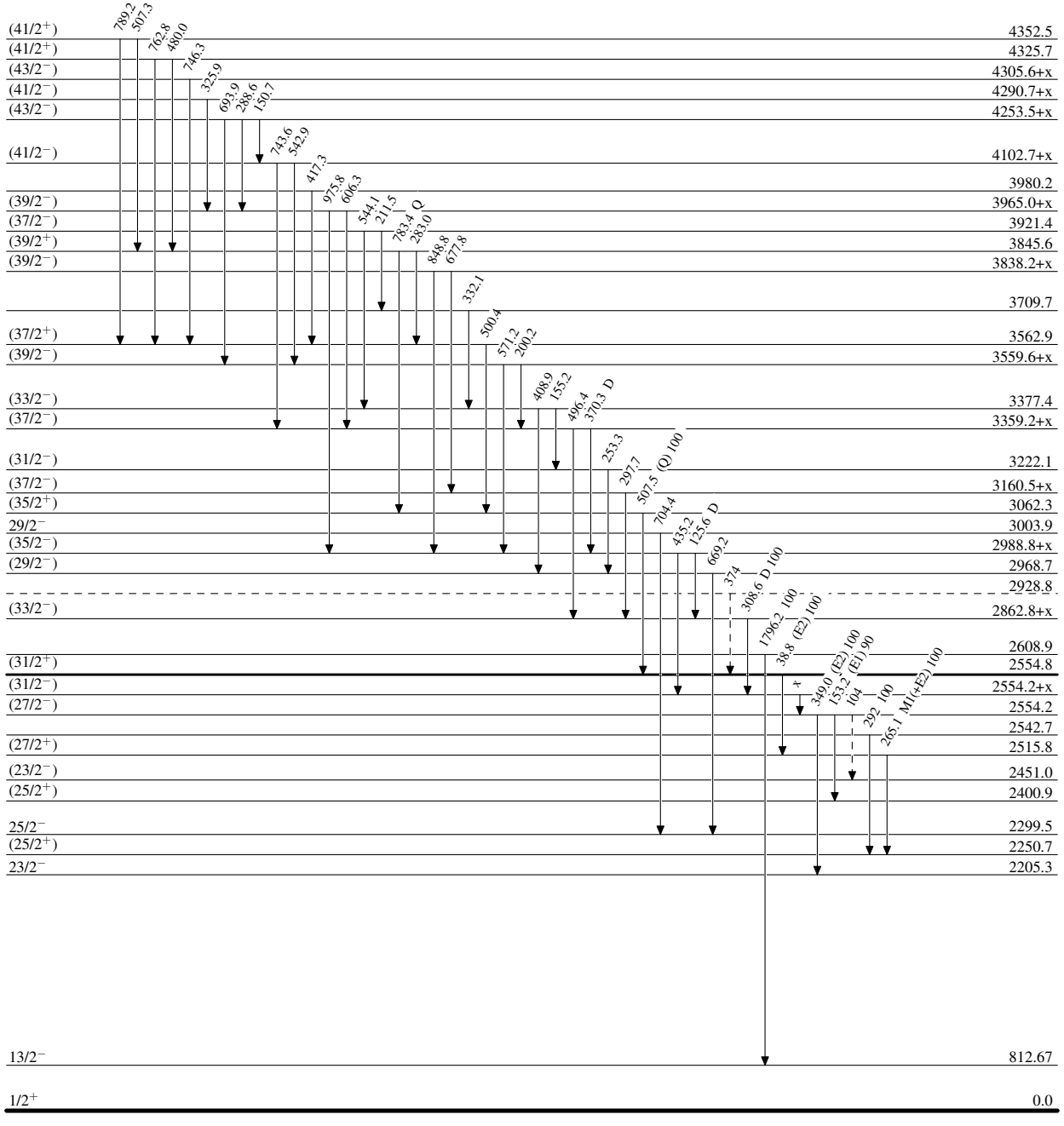
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)

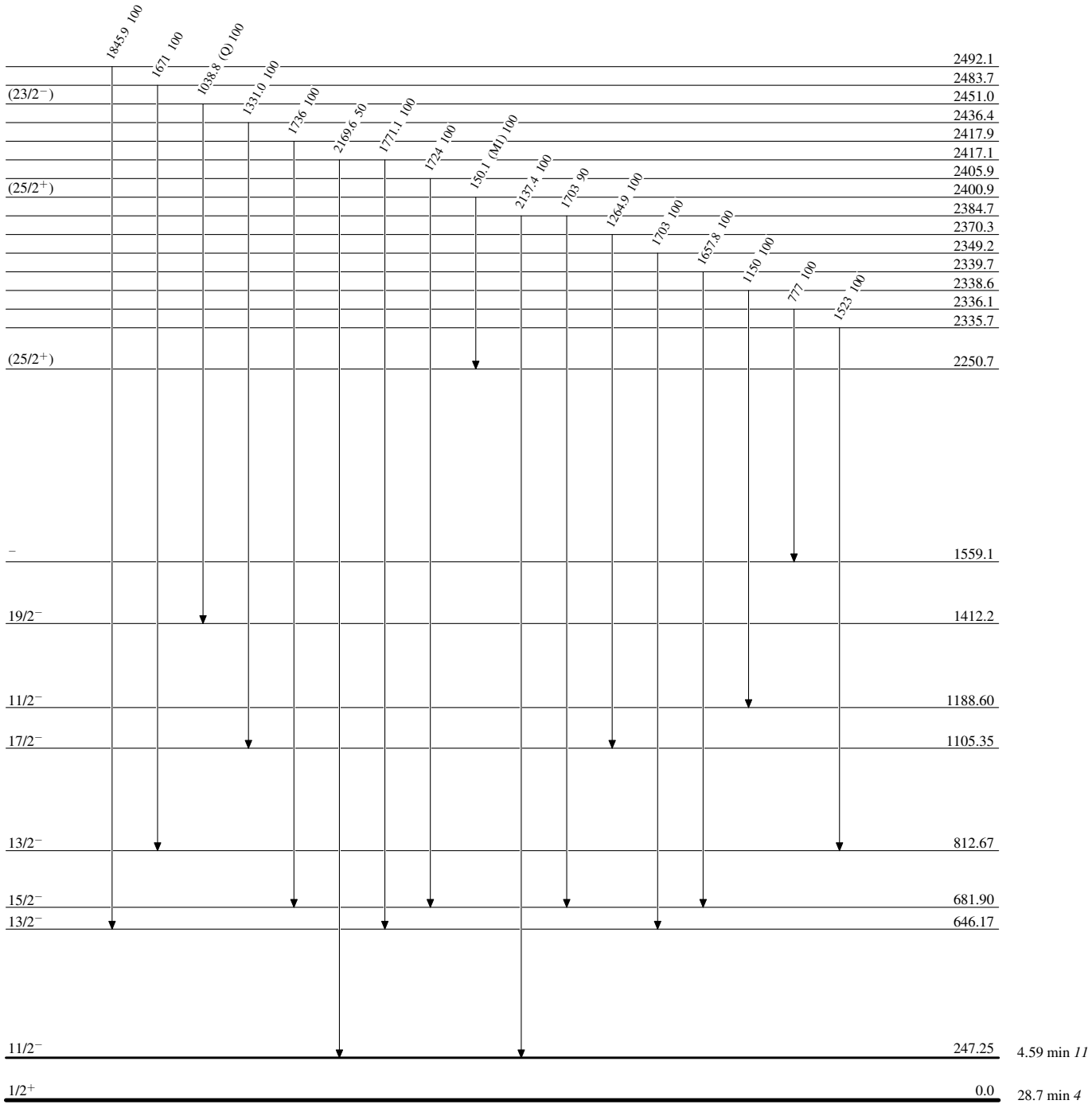


$^{189}_{79}Au_{110}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

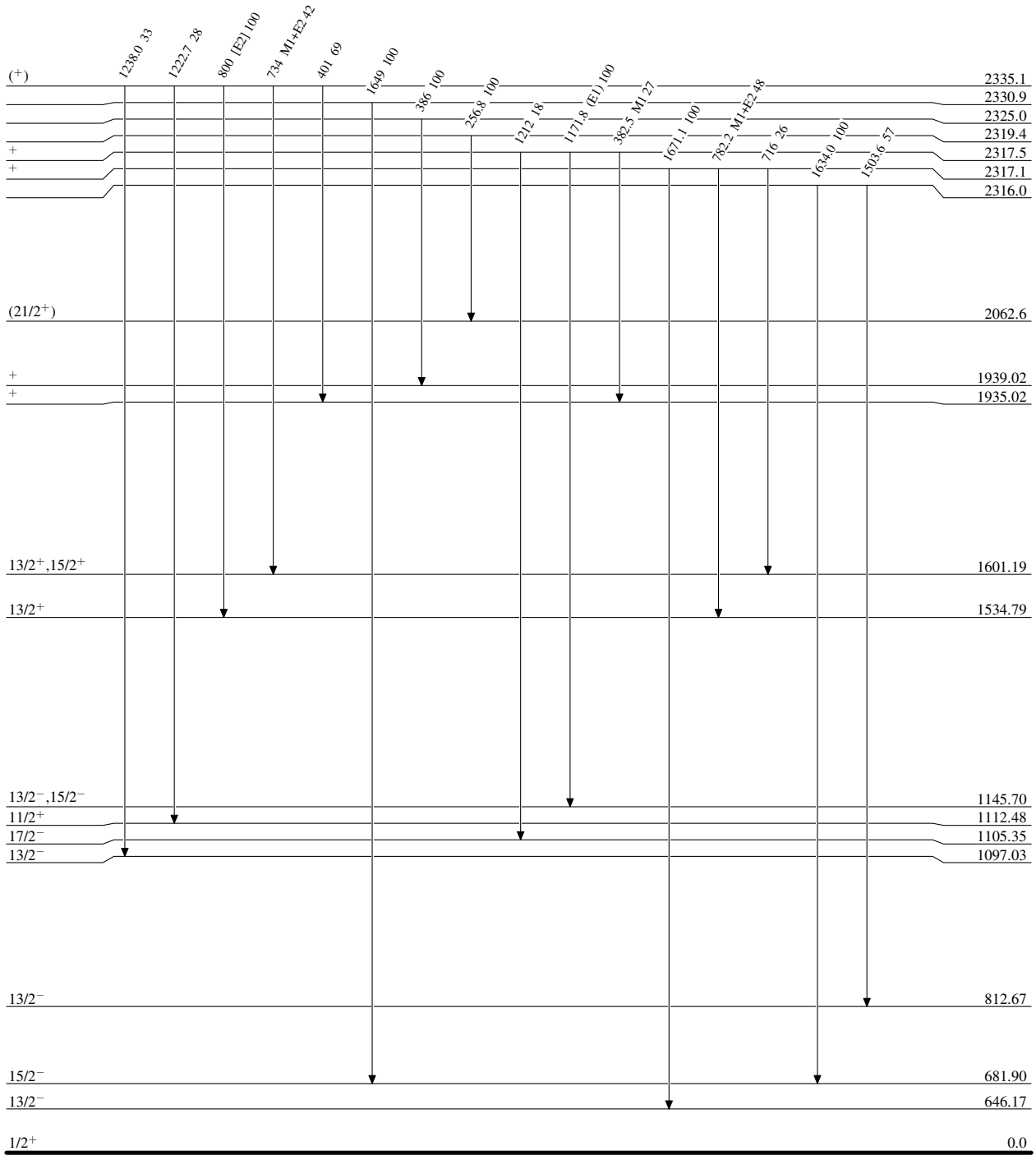


$^{189}_{79}Au_{110}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

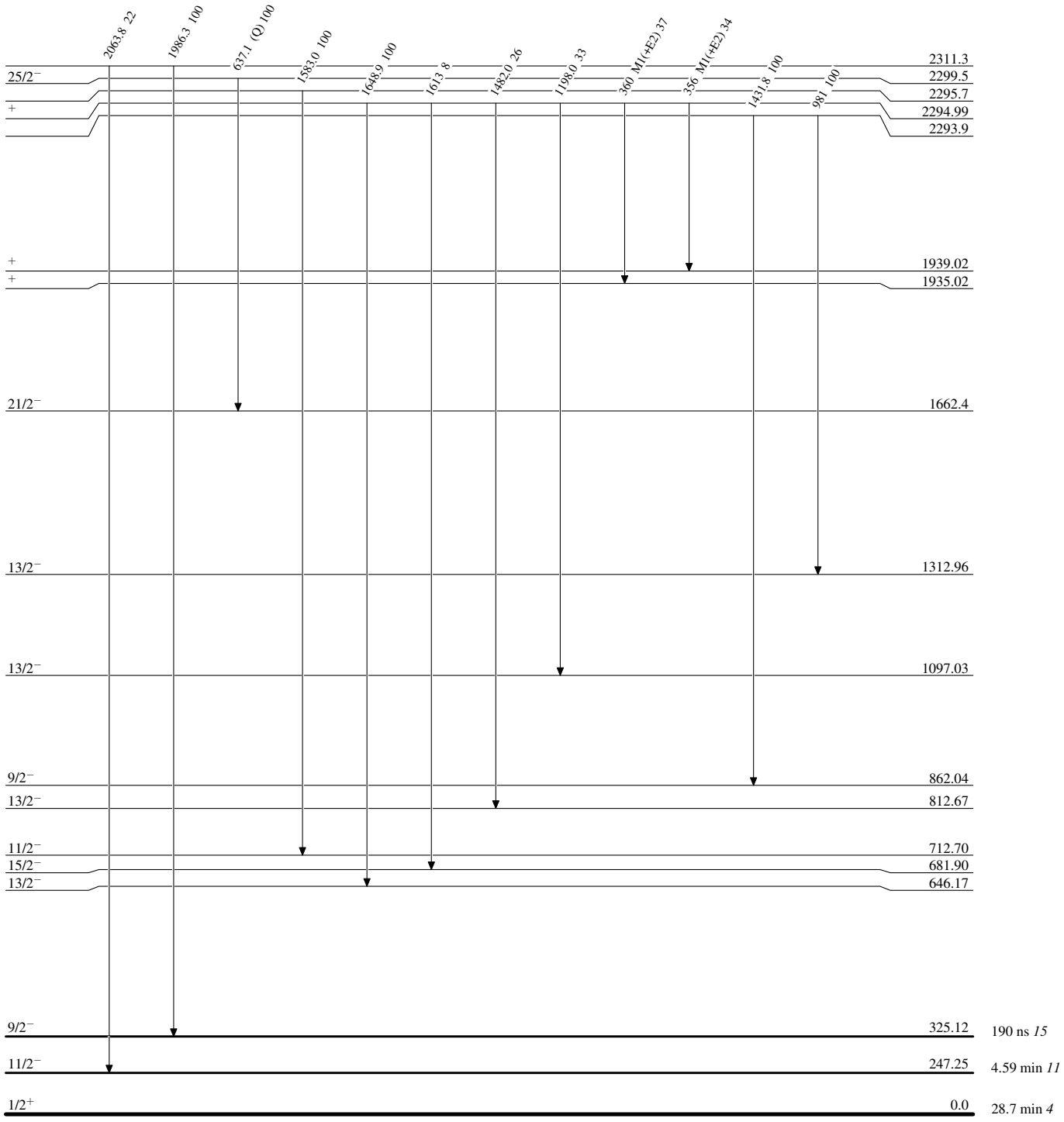


$^{189}_{79}Au_{110}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

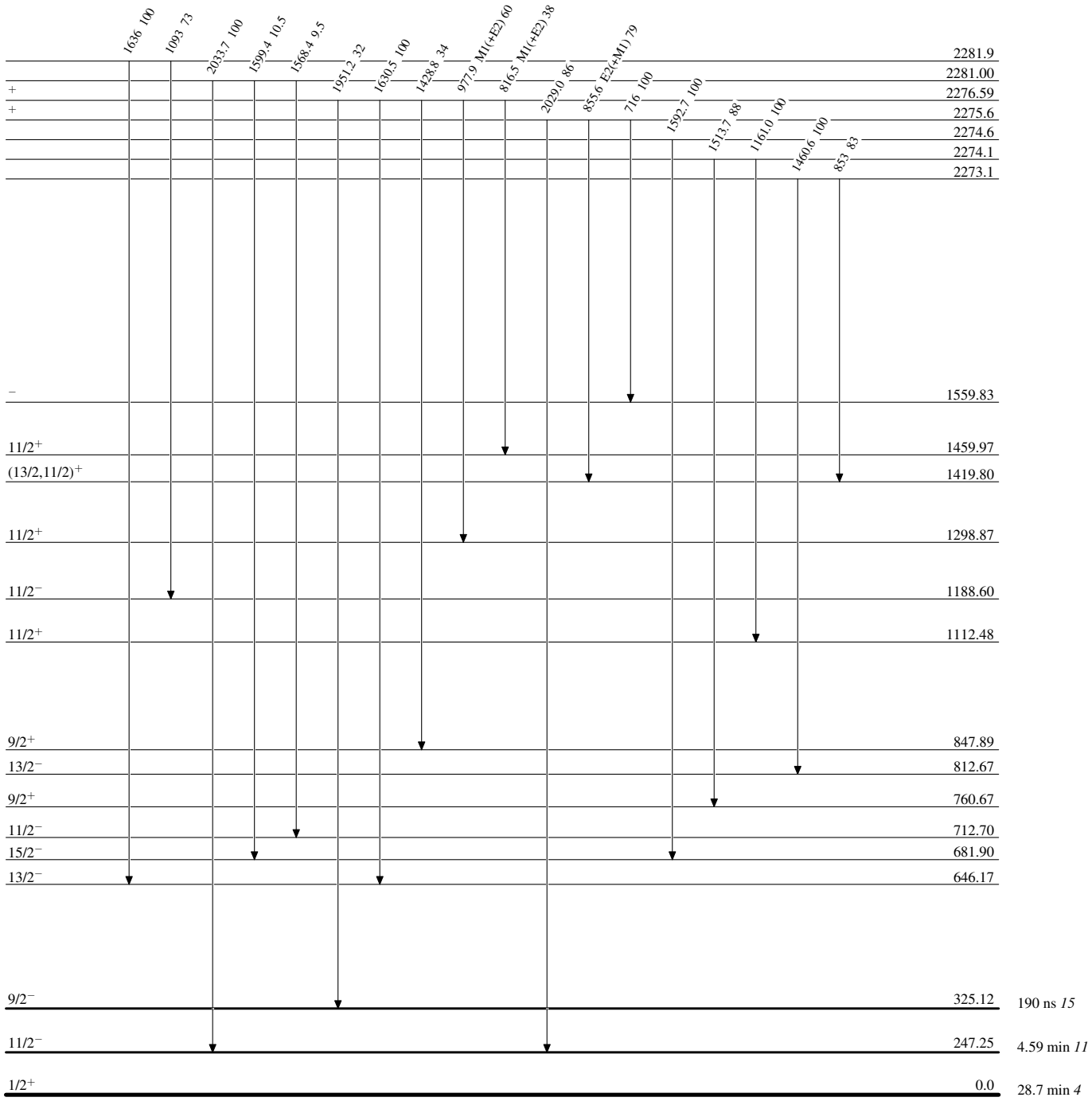


$^{189}_{79}Au_{110}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



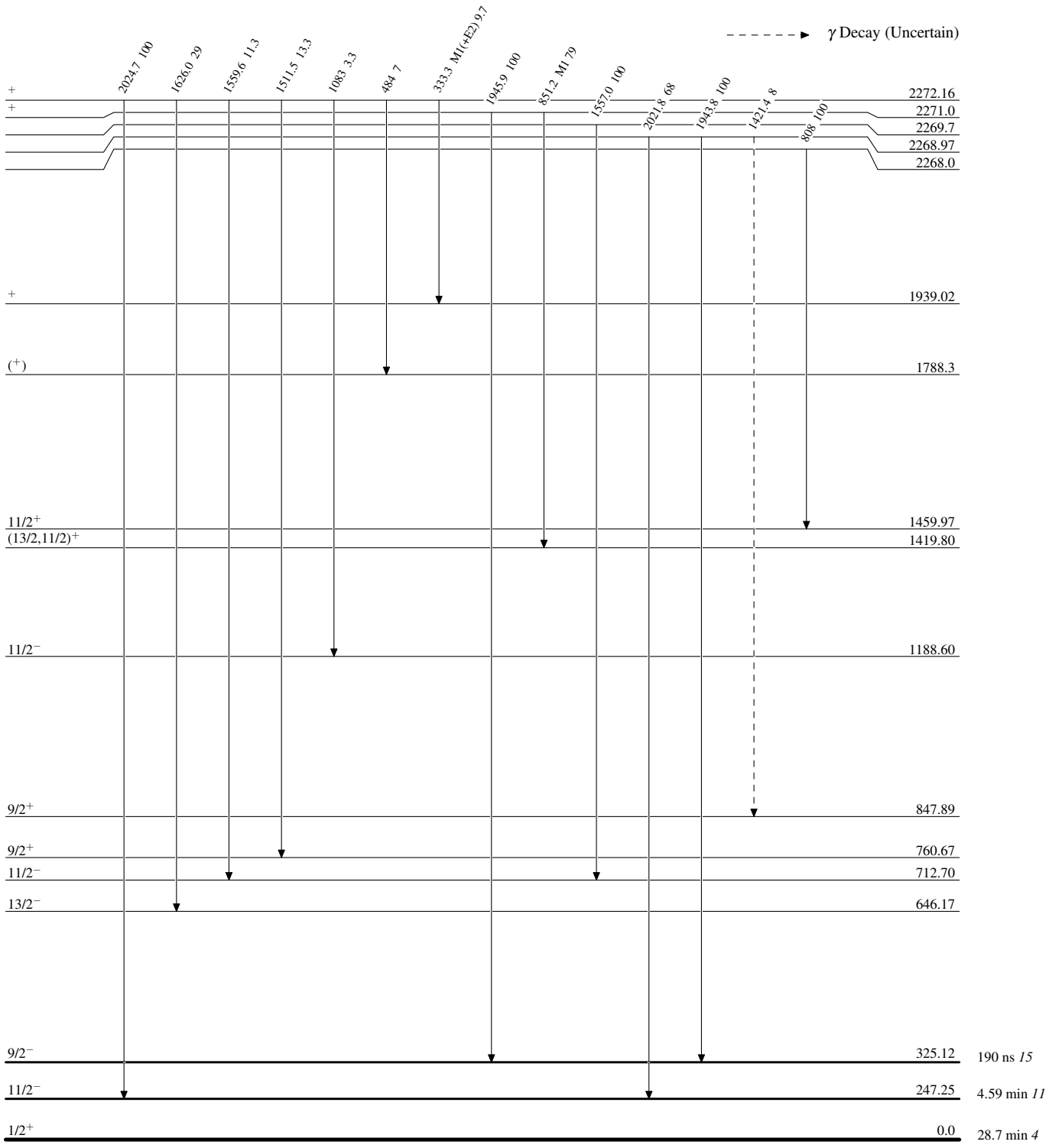
$^{189}_{79}Au_{110}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

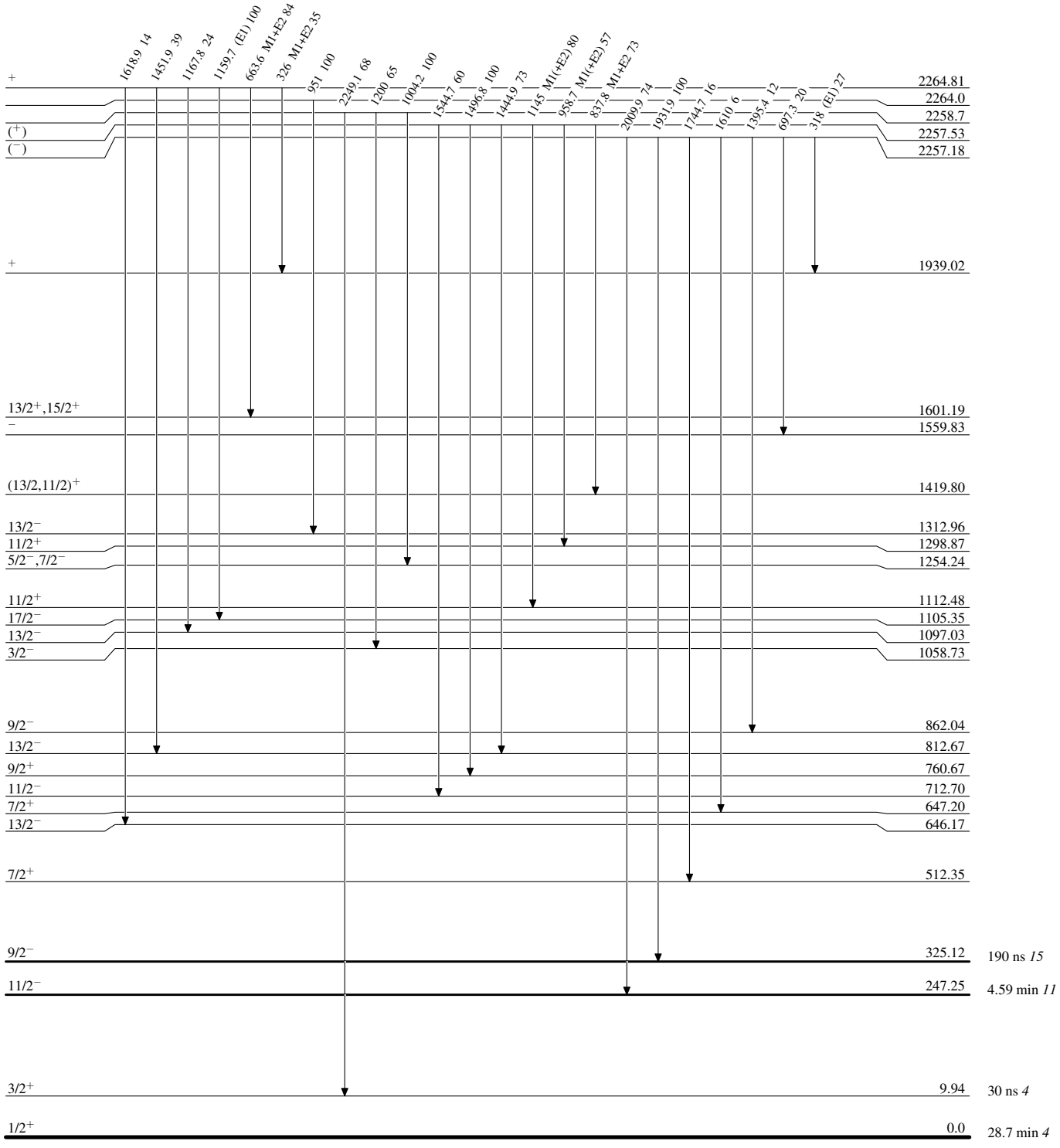
Legend



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{189}_{79}Au_{110}$

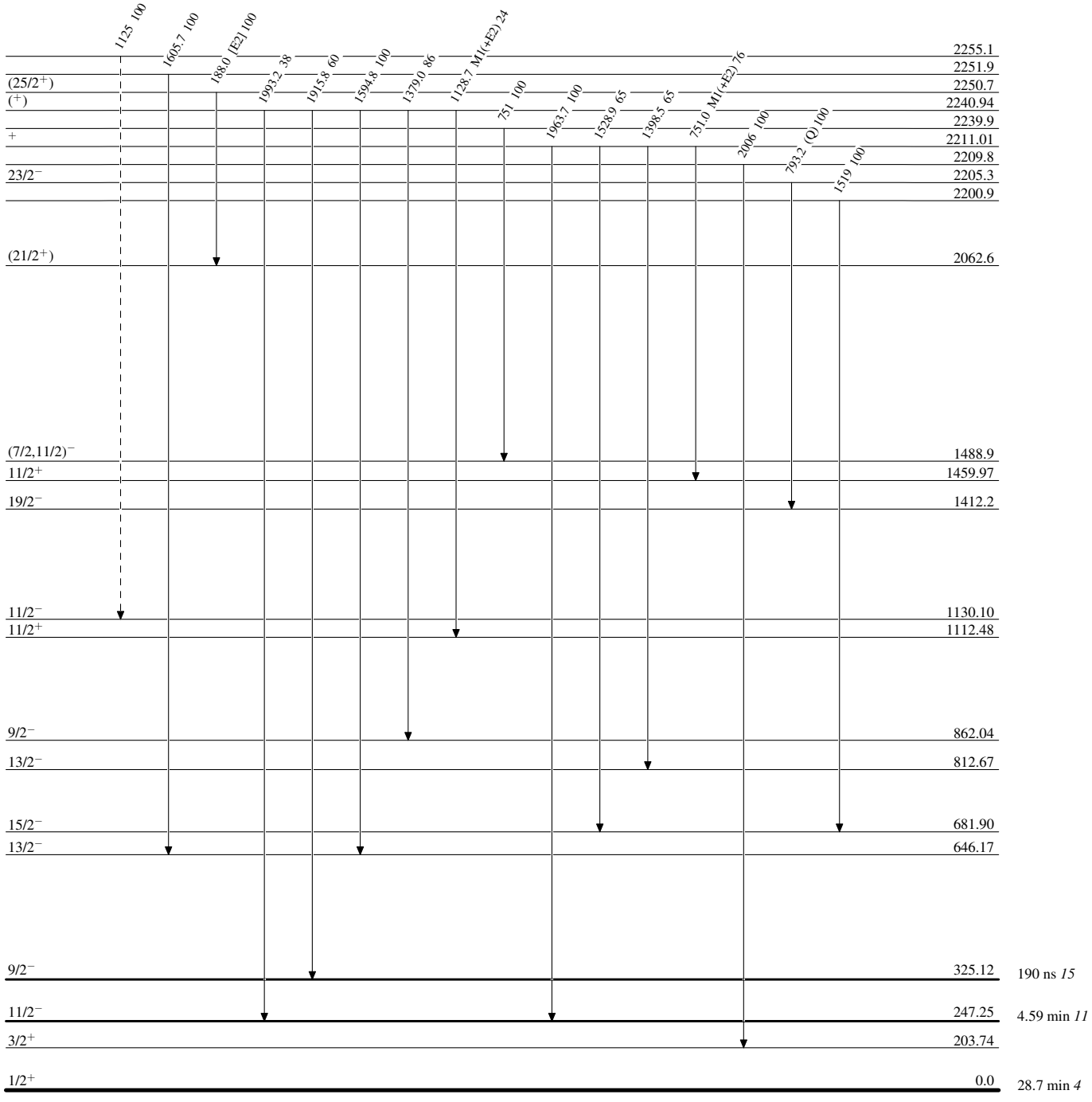
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



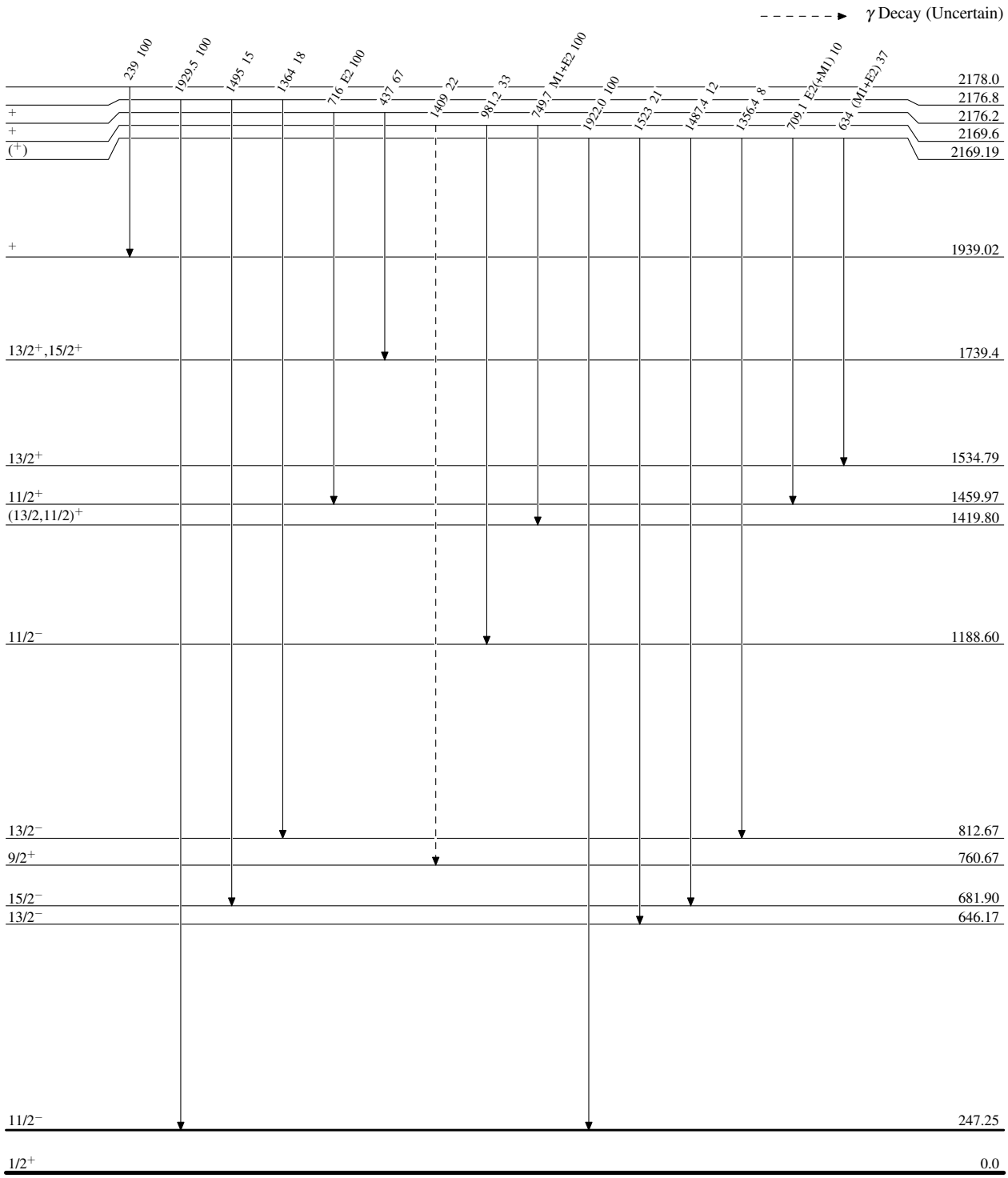
$^{189}_{79}Au_{110}$

Adopted Levels, Gammas

Level Scheme (continued)

Legend

Intensities: Relative photon branching from each level



$^{189}_{79}Au_{110}$

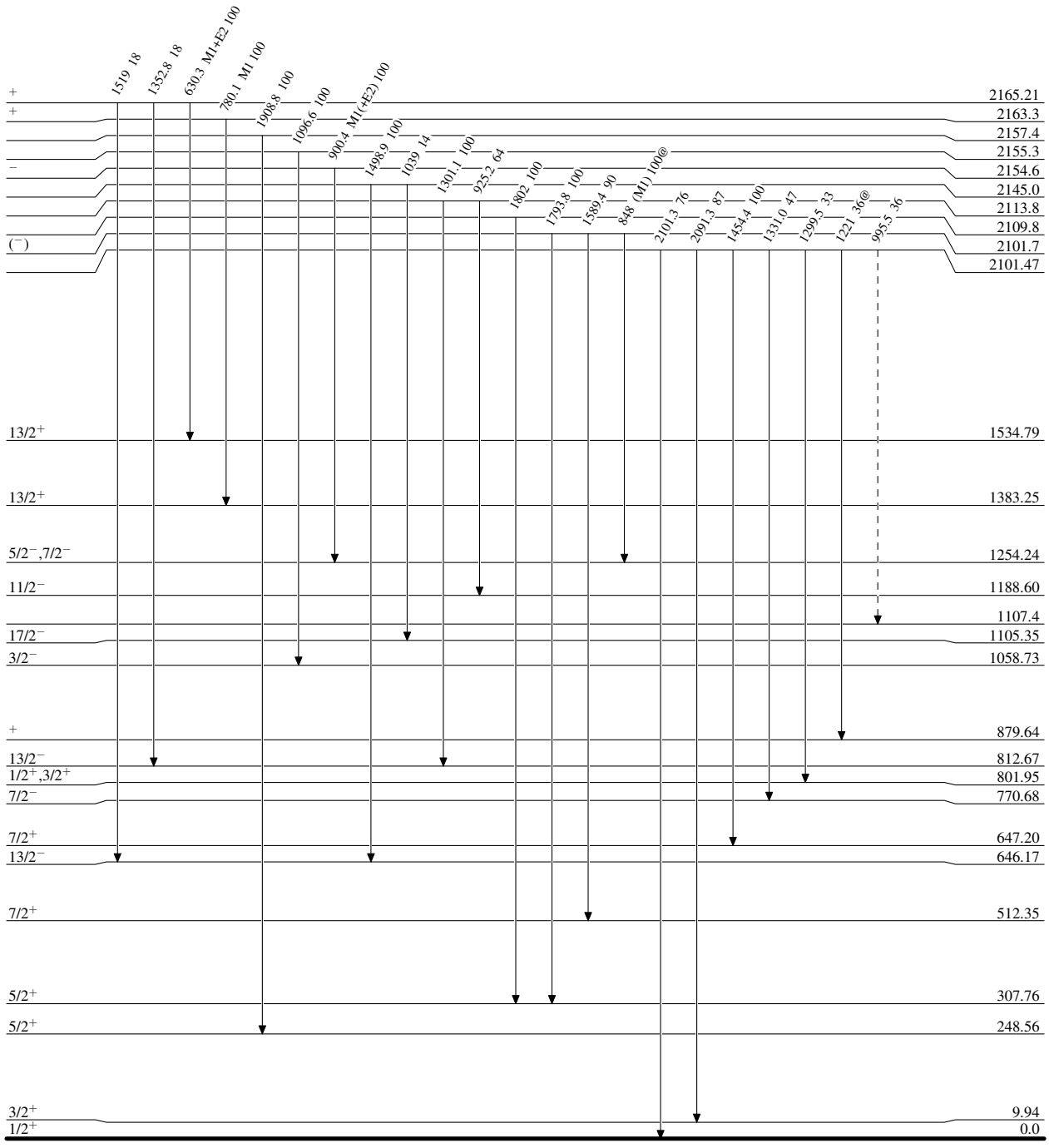
Adopted Levels, Gammas

Legend

Level Scheme (continued)

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

γ Decay (Uncertain)

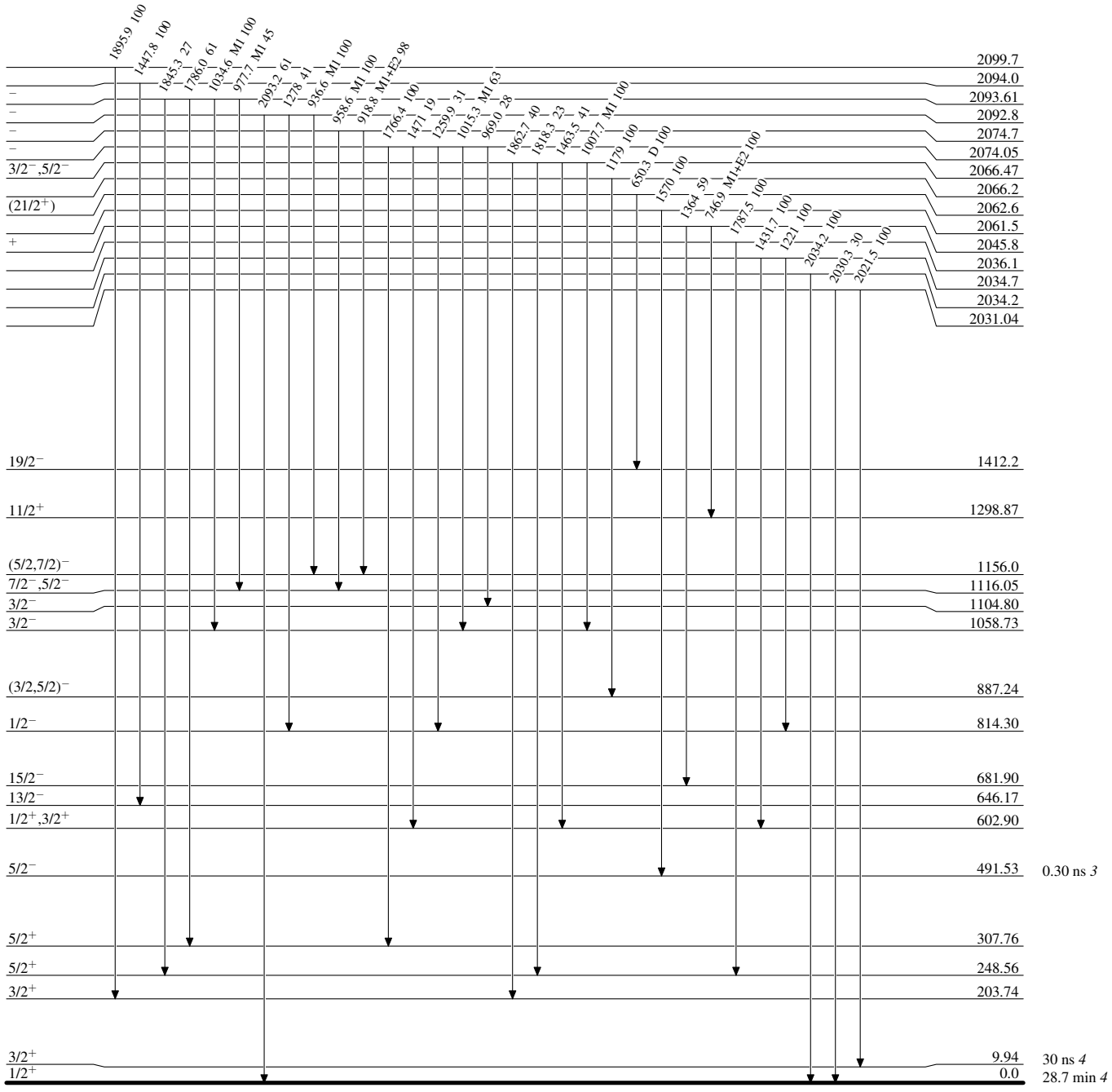


$^{189}_{79}Au_{110}$

Adopted Levels, Gammas

Level Scheme (continued)

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



$^{189}_{79}Au_{110}$

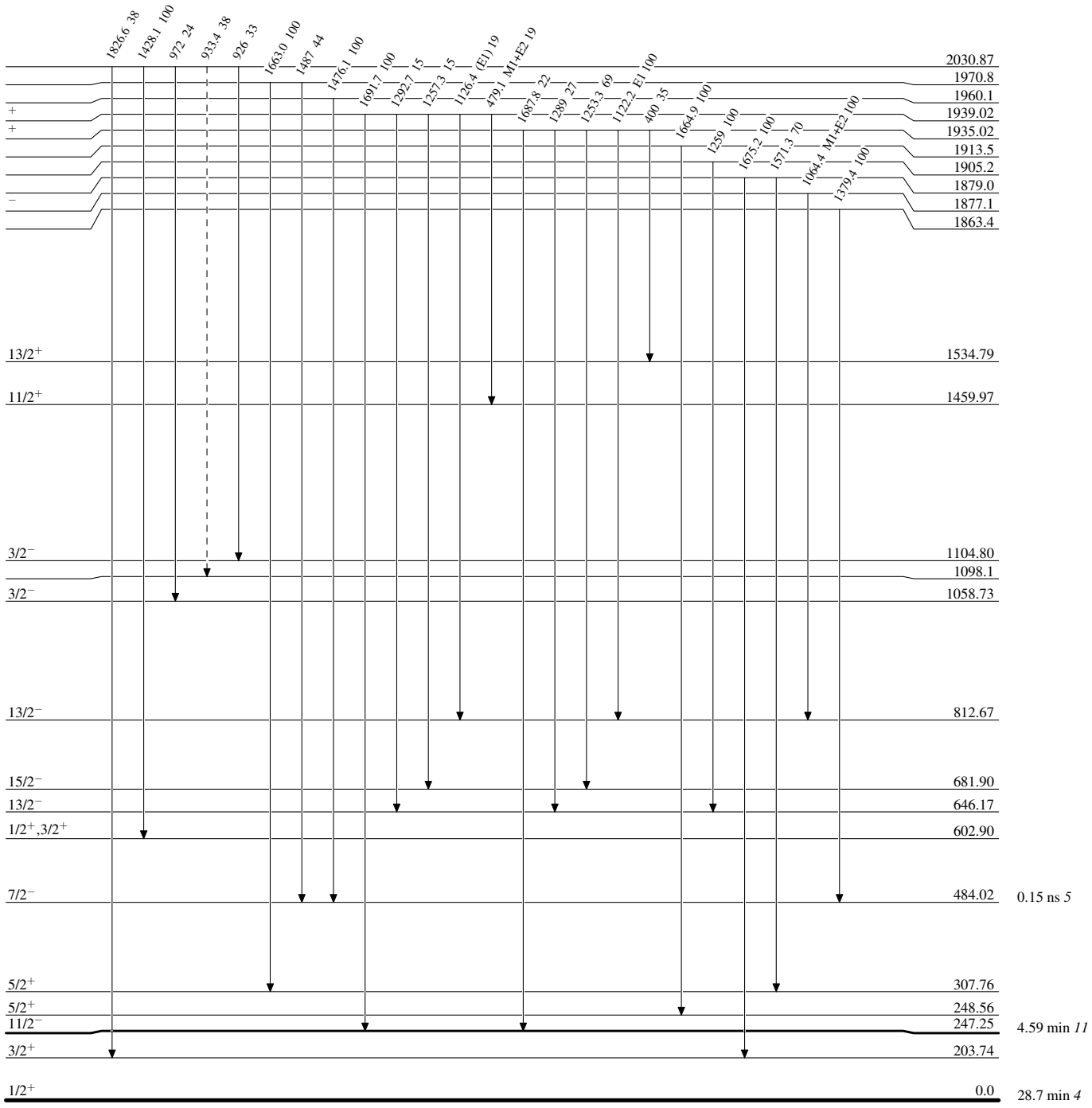
Adopted Levels, Gammas

Legend

Level Scheme (continued)

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

γ Decay (Uncertain)



$^{189}_{79}Au_{110}$

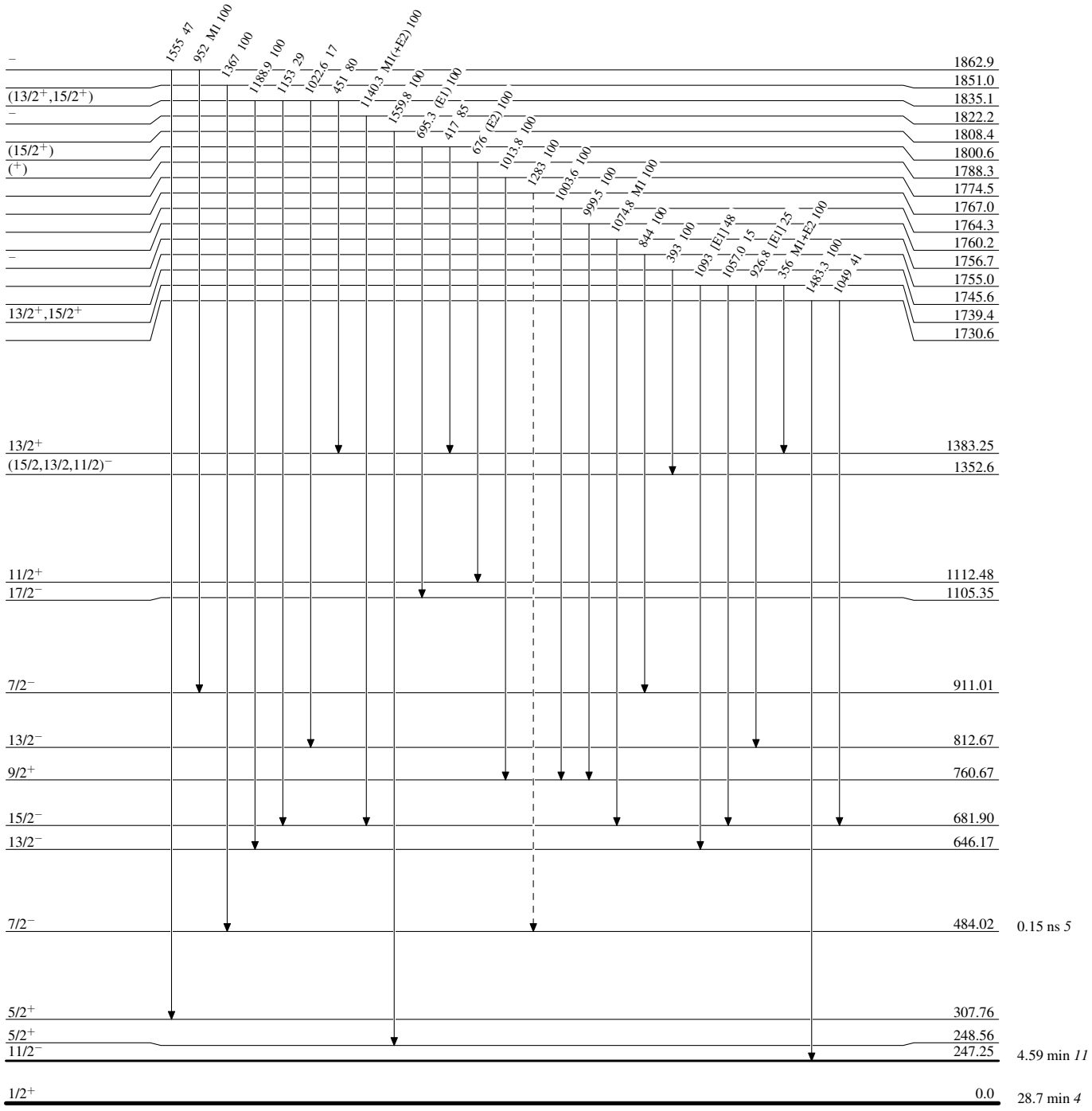
Adopted Levels, Gammas

Legend

Level Scheme (continued)

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

- - - - - - ► γ Decay (Uncertain)

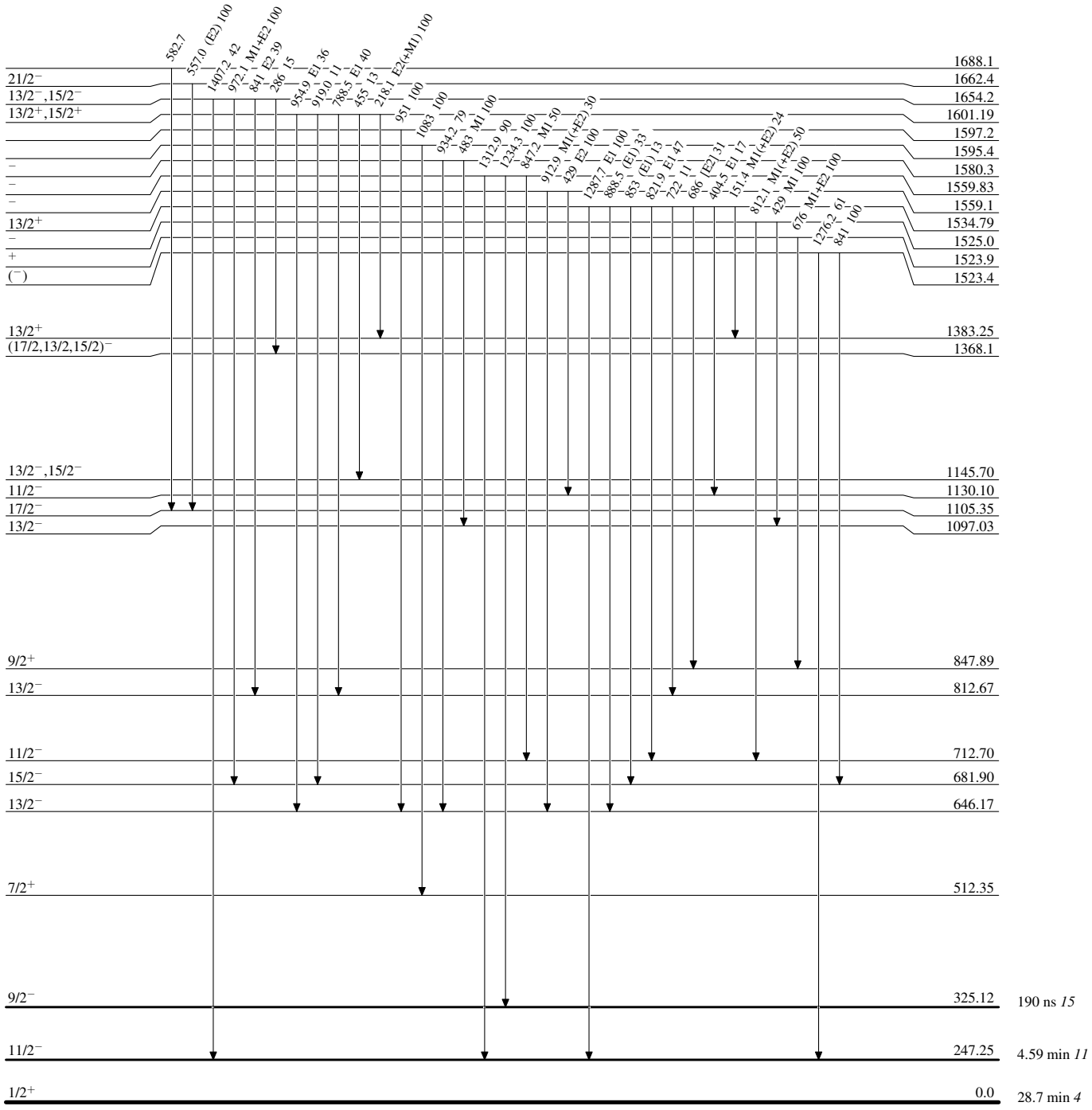


$^{189}_{79}Au_{110}$

Adopted Levels, Gammas

Level Scheme (continued)

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



$^{189}_{79}Au_{110}$

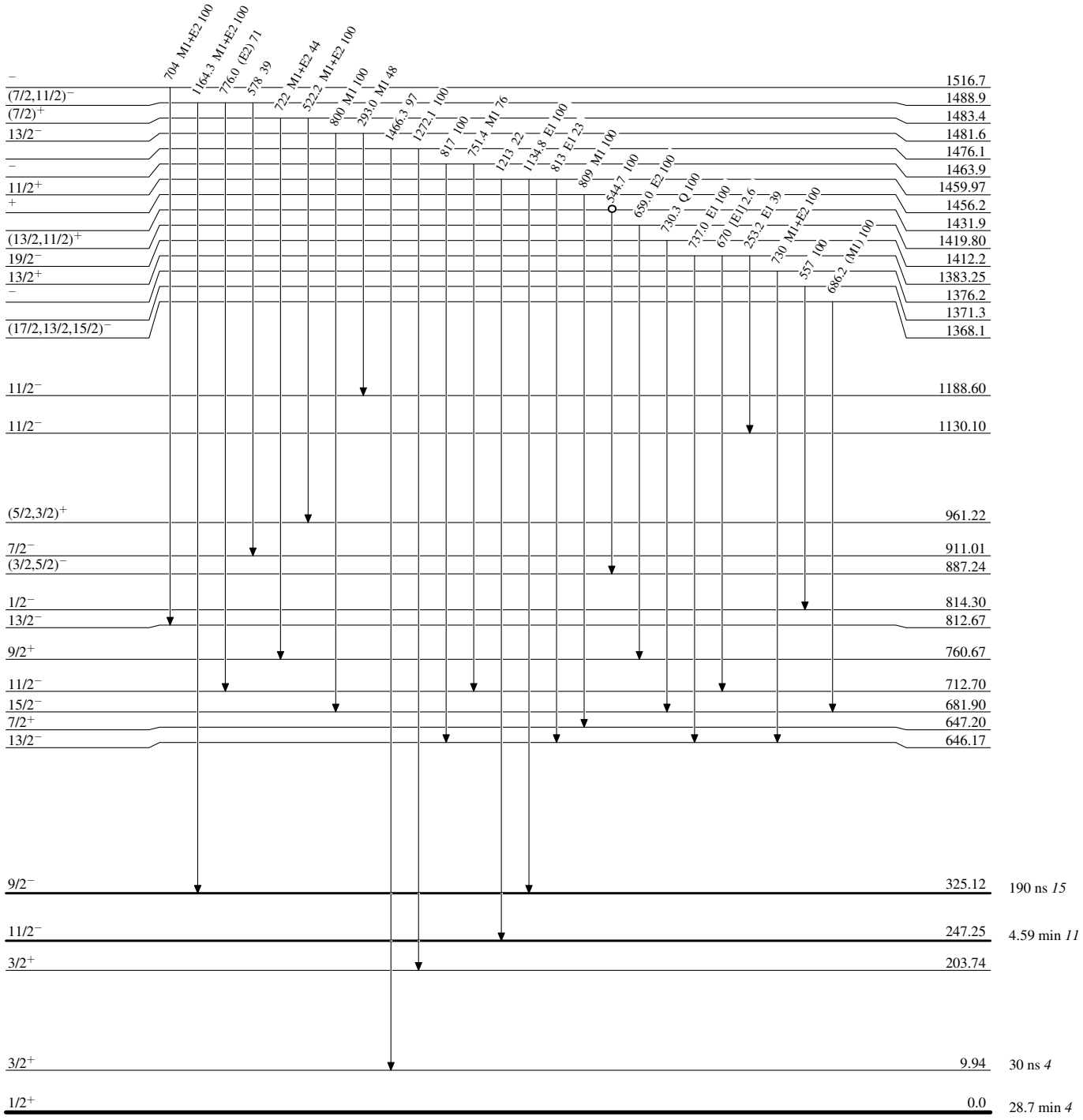
Adopted Levels, Gammas

Legend

Level Scheme (continued)

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

● Coincidence
○ Coincidence (Uncertain)



$^{189}_{79}Au_{110}$

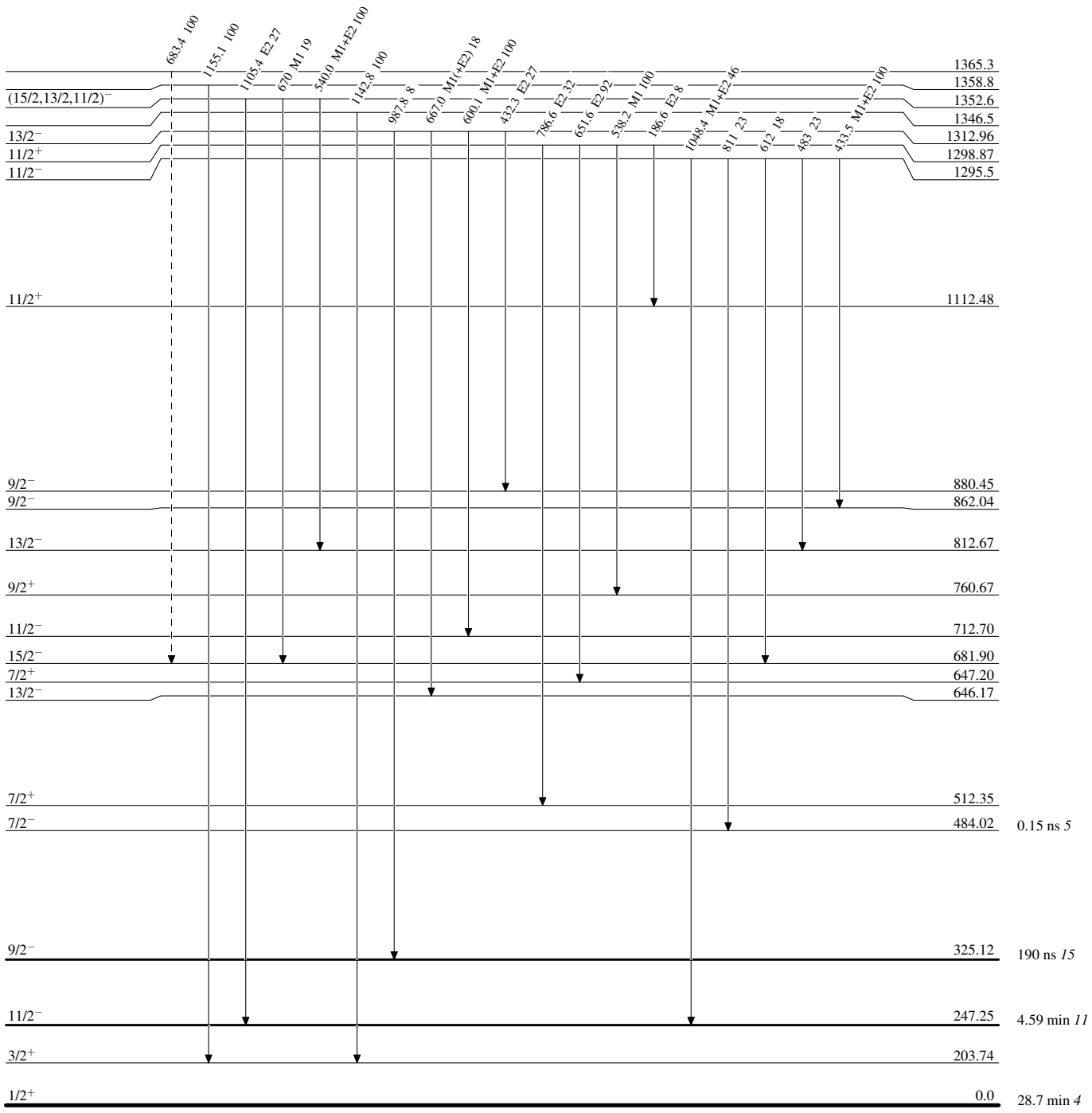
Adopted Levels, Gammas

Legend

Level Scheme (continued)

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

- - - - - - ► γ Decay (Uncertain)



$^{189}_{79}Au_{110}$

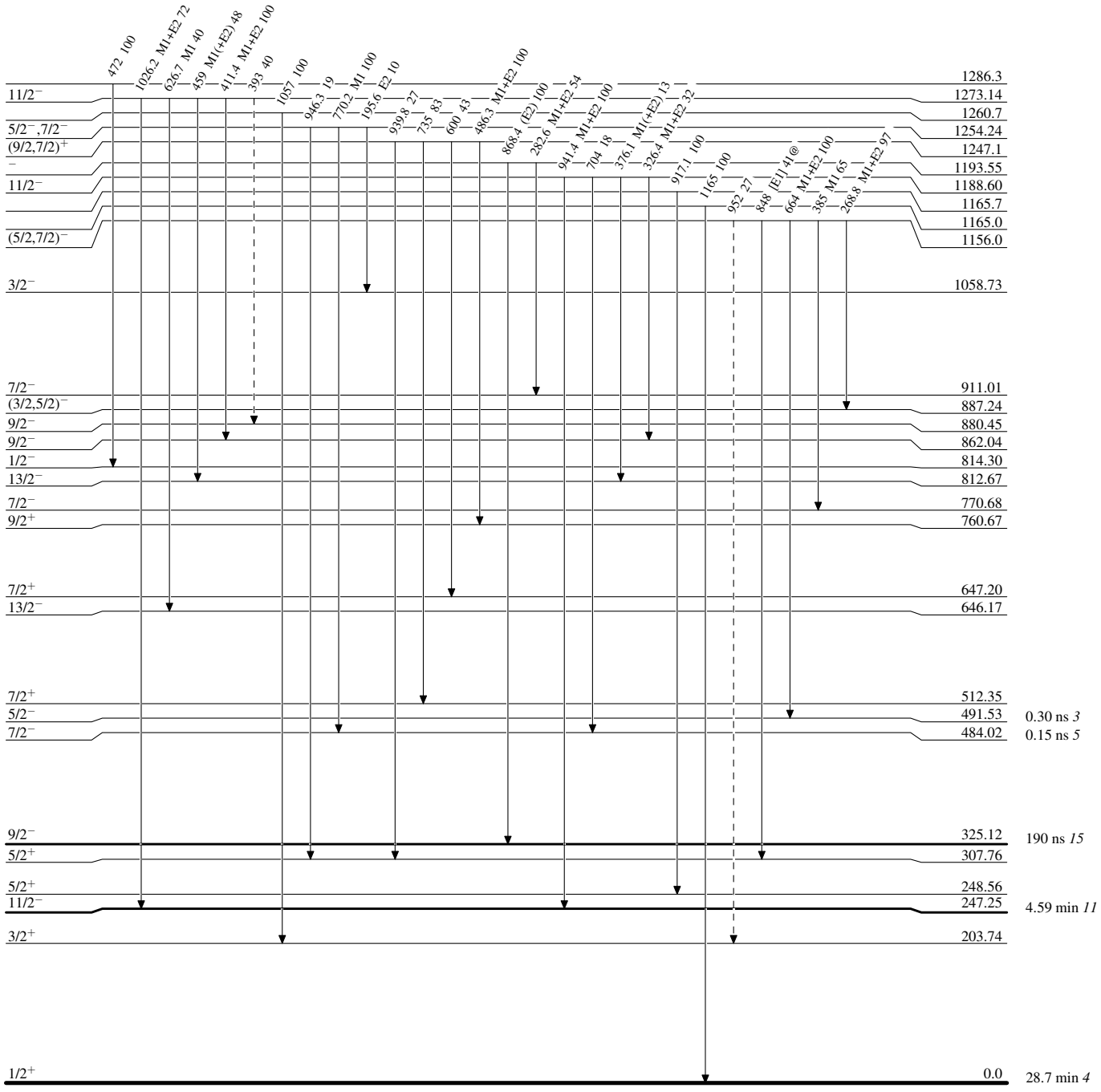
Adopted Levels, Gammas

Legend

Level Scheme (continued)

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

γ Decay (Uncertain)

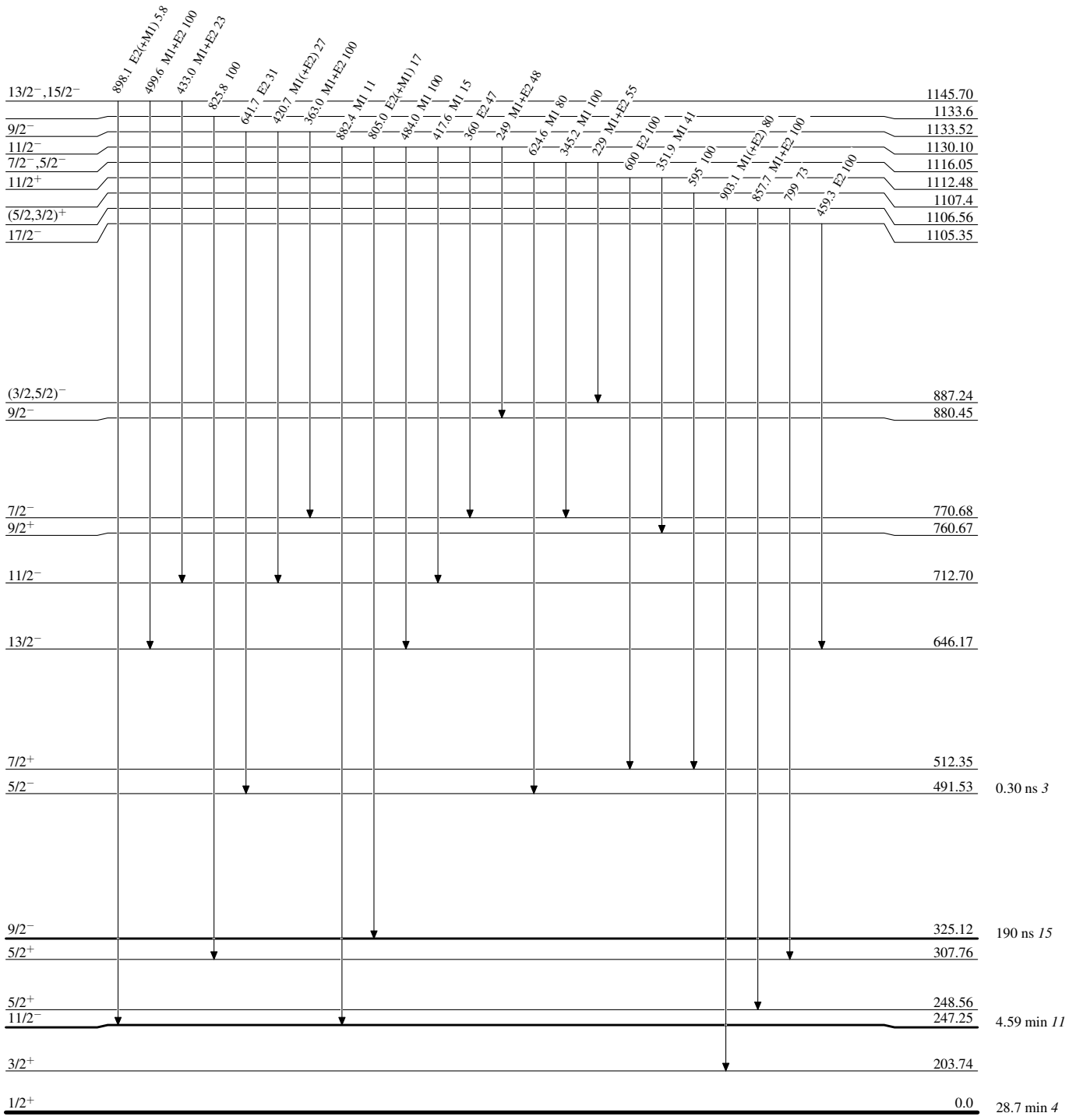


$^{189}_{79}Au_{110}$

Adopted Levels, Gammas

Level Scheme (continued)

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

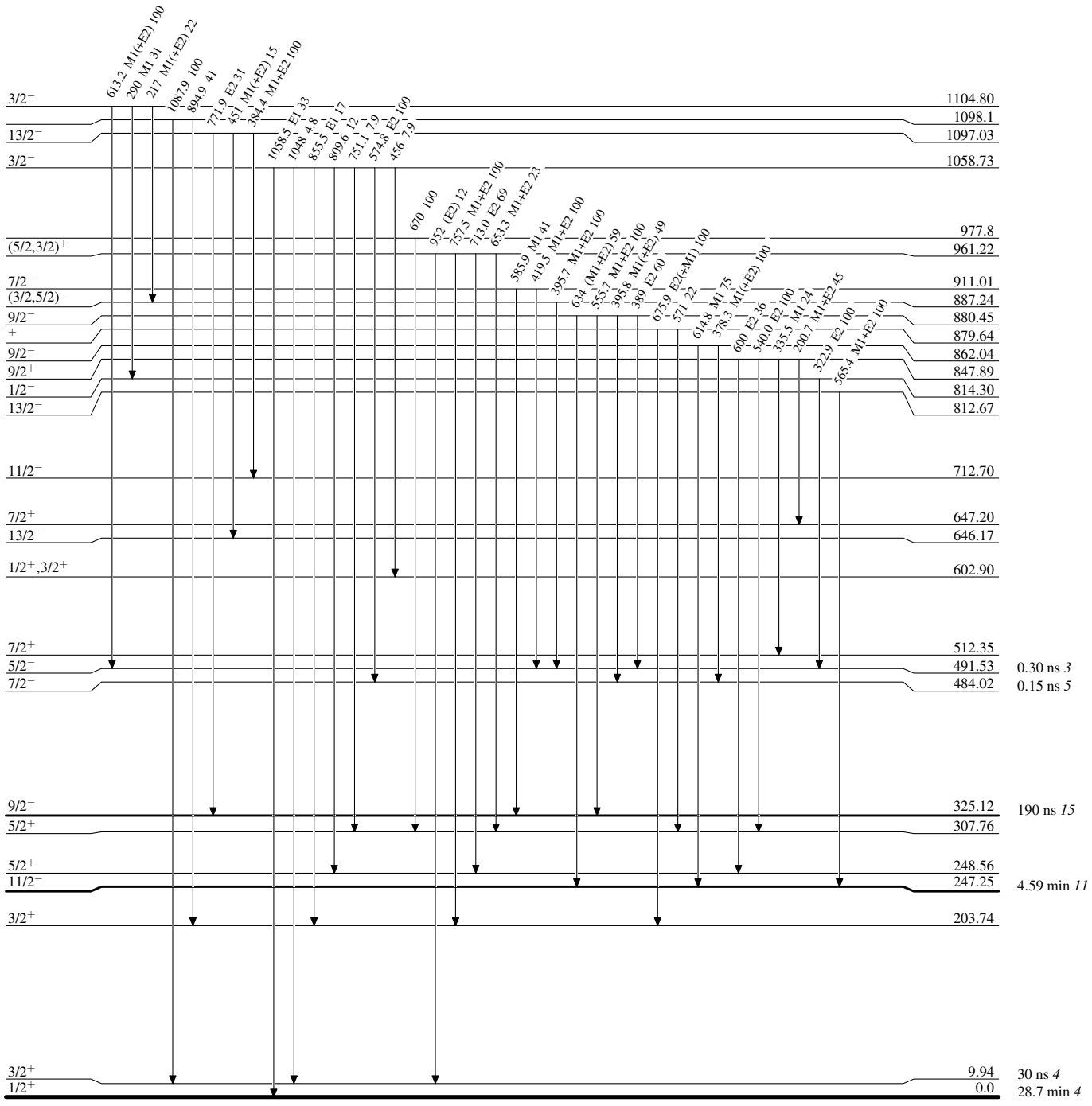


$^{189}_{79}Au_{110}$

Adopted Levels, Gammas

Level Scheme (continued)

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

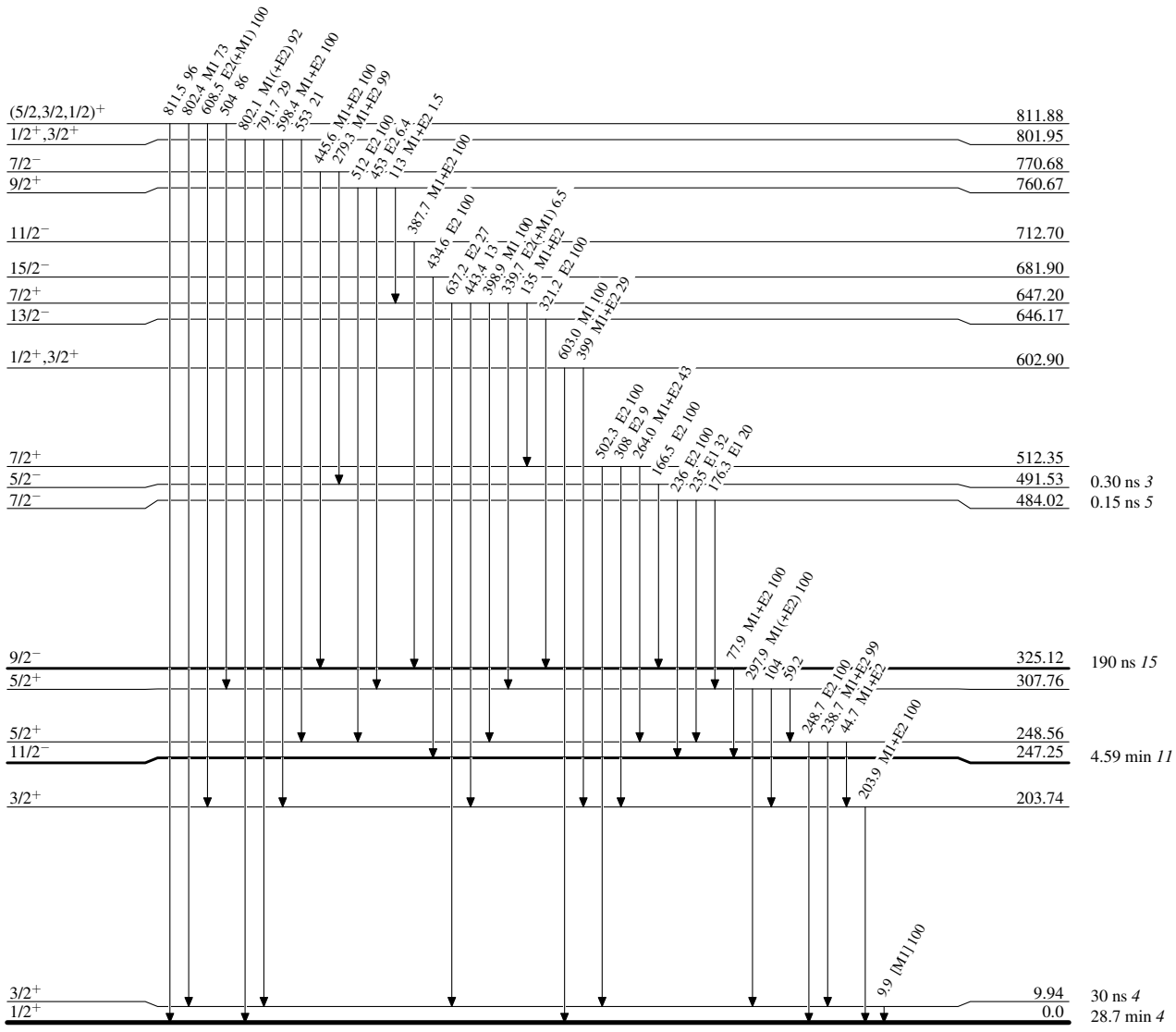


$^{189}_{79}Au_{110}$

Adopted Levels, Gammas

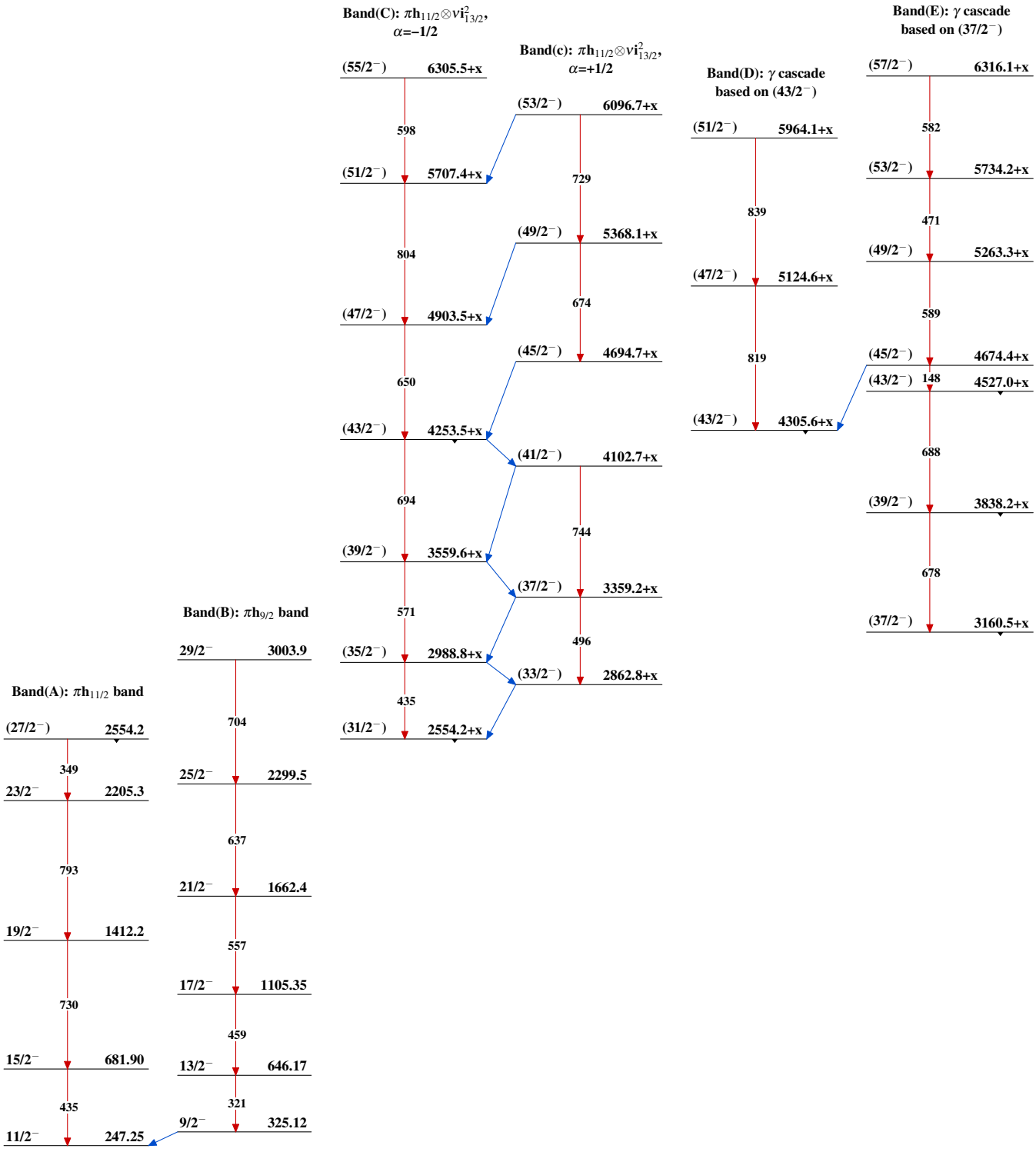
Level Scheme (continued)

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



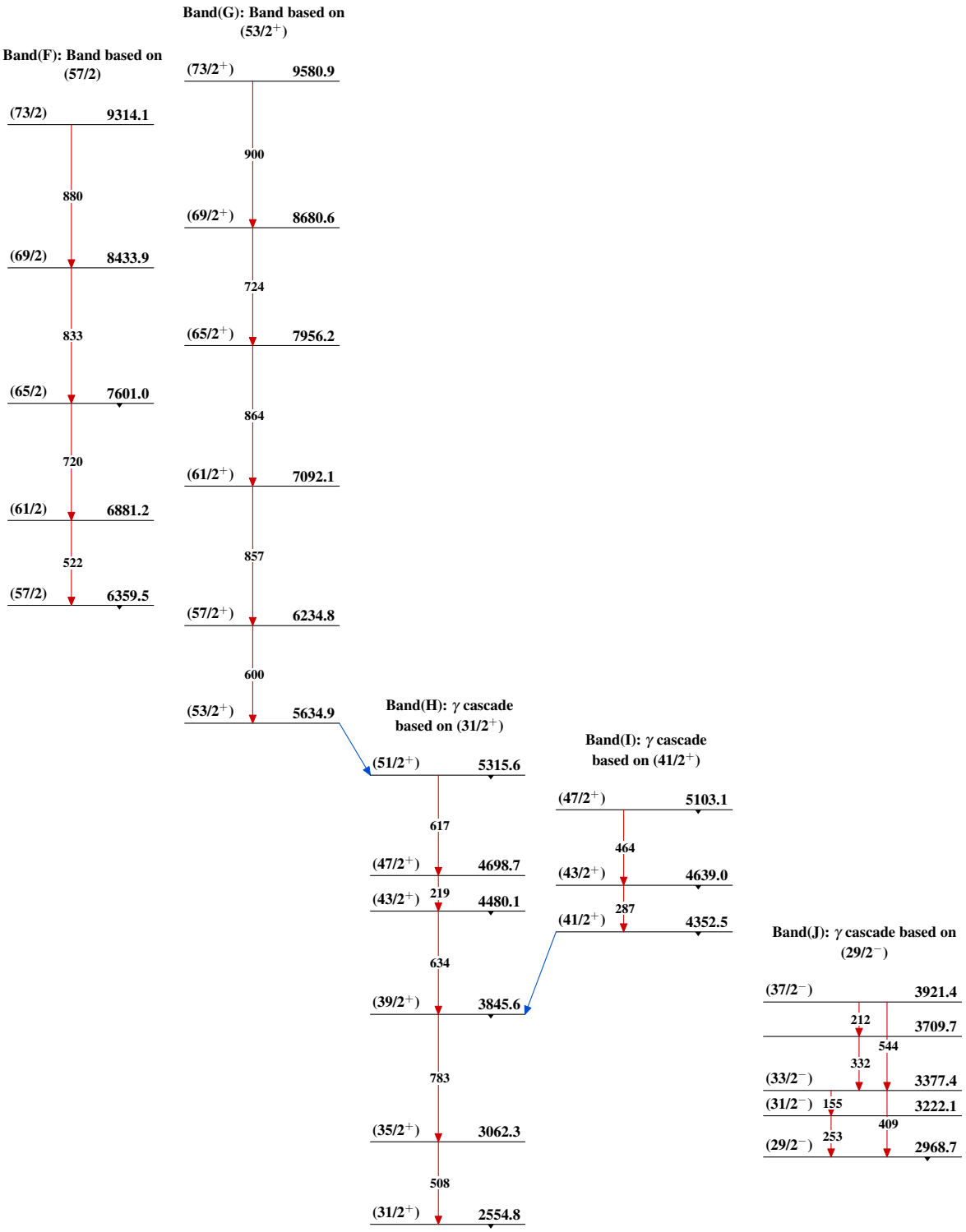
$^{189}_{79}Au_{110}$

Adopted Levels, Gammas



$^{189}_{79}Au_{110}$

Adopted Levels, Gammas (continued)



$^{189}_{79}Au_{110}$