^{190}Au ε decay (42.8 min) 1973Jo11,1972Fi12

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh, [1] and Jun Chen[2]	NDS 169, 1 (2020)	15-Oct-2020

Parent: ^{190}Au: E=0.0; J$^{\pi}$=1$^-$; T$_{1/2}$=42.8 min *10*; Q(ε)=4473 *4*; %ε+%β$^+$ decay=100.0

^{190}Au-J$^{\pi}$,T$_{1/2}$: From ^{190}Au Adopted Levels.

^{190}Au-Q(ε): From 2017Wa10.

1973Jo11: ^{190}Au activity was produced by (p,xn) reactions with 80-MeV protons from the Uppsala synchrocyclotron on natural platinum targets. Measured Eγ, Iγ, ce, β$^+$, T$_{1/2}$(^{190}Au).

1972Fi12 (also 1972HuZL,1971Hu11,1971MaXM,1971JoZK,1970Er09): ^{190}Au isotopes were from decays of ^{190}Hg produced via (p,3pxn) reactions with 600-MeV protons from the CERN Synchrocyclotron on metallic lead target and were obtained by mass separation. Measured γ, γγ, ce, ce γ(t). ^{190}Au isotope.

Others:

Eγ, Iγ: 1980GnZZ, 1970Du09, 1969Na10, 1964Ja05, 1960Al20, 1960Po07, 1959Al94.

γγ-coin: 1980GnZZ (no further details are available as per reply from one of the authors (September 1989)).

ce, γ: 1969Na10.

T$_{1/2}$ of ^{190}Au: 1969Na10, 1961An02, 1961Ja17, 1960Po07, 1960Al20, 1959Al94. Other: 1966Ch05.

β$^+$: 1973Jo11, 1974DiZQ.

β$^+$ strength function: 1975Ho03.

^{190}Pt Levels

E(level)†	J$^{\pi}$#	T$_{1/2}$	Comments
0.0	0$^+$		
295.84 *4*	2$^+$	45 ps *15*	T$_{1/2}$: ce γ(t) (1972Fi12).
597.68 *4*	2$^+$		
737.16 *7*	4$^+$		
916.66 *6*	3$^+$		
920.89 *7*	0$^+$		
1128.0?	(4$^+$)		Level proposed (evaluator) on the basis of ^{191}Ir(p,2nγ).
1203.07 *7*	2$^+$		
1353.67 *11*	3$^-$		
1395.26 *9*	2$^+$		
1602.0 *2*	(2,1)$^+$		
1737.0 *2*	1$^-$		
1877.04 *14*	1$^-$,2$^-$,3$^-$		
2212.8?‡ *4*	(1$^-$)		
2216.2?‡ *3*	(2$^+$,3,4$^+$)		
2358.3 *3*	(2)$^+$		
2382.67 *14*	(1)$^+$		
2408.4?‡ *2*	(1$^-$,2$^-$,3$^-$)		
2497.8?‡ *3*	(2$^+$)		
2679.8?‡ *4*	(1$^-$)		
2723.4?‡ *2*	(1$^-$)		
2797.0?‡ *3*			
2875.4?‡ *3*			
2942.7?‡ *5*	(0$^-$,1$^-$,2$^-$)		
2980.9 *4*	1$^-$		
3014.0 *2*	(2)$^-$		
3049.3 *2*	(2)$^-$		
3067.5 *2*	(1,2)$^-$		
3233.7?‡ *4*	(2$^-$,3$^-$)		

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^{190}Au ε decay (42.8 min) 1973Jo11,1972Fi12 (continued)

^{190}Pt Levels (continued)

† From a least-squares fit to γ-ray energies.
‡ Tentative level proposed by 1972HuZL.
# From the Adopted Levels.

ε,β+ radiations

Due to many unplaced transitions, the quoted ε,β+ feedings and associated log *ft* are given as approximate values.

E(decay)	E(level)	Iβ+ ‡	Iε‡	Log *ft*	I(ε+β+)†‡	Comments
(1239# *4*)	3233.7?		≈1.6	≈6.8	≈1.6	εK=0.8039; εL=0.14836 *5*; εM+=0.04767 *2*
(1406 *4*)	3067.5	≈0.0013	≈4.5	≈6.4	≈4.5	av Eβ=192.7 *19*; εK=0.8059; εL=0.14676 *4*; εM+=0.04706 *2*
(1424 *4*)	3049.3	≈0.0029	≈8.2	≈6.2	≈8.2	av Eβ=201.0 *19*; εK=0.8060; εL=0.14661 *4*; εM+=0.04700 *2*
(1459 *4*)	3014.0	≈0.0050	≈9.8	≈6.1	≈9.8	av Eβ=217.0 *18*; εK=0.8063; εL=0.14631 *4*; εM+=0.04689 *2*
(1492 *4*)	2980.9	≈0.0022	≈3.2	≈6.6	≈3.2	av Eβ=231.9 *18*; εK=0.8065; εL=0.14604 *4*; εM+=0.04679 *2*
(1530# *4*)	2942.7?	≈0.0012	≈1.2	≈7.1	≈1.2	av Eβ=249.0 *18*; εK=0.8066; εL=0.14573 *4*; εM+=0.04667 *2*
(1598# *4*)	2875.4?	≈0.0016	≈1.00	≈7.2	≈1.0	av Eβ=279.0 *18*; εK=0.8067; εL=0.14520 *4*; εM+=0.04647 *2*
(1676# *4*)	2797.0?	≈0.0047	≈1.8	≈7.0	≈1.8	av Eβ=313.8 *18*; εK=0.8065; εL=0.14458 *4*; εM+=0.04625 *2*
(1750# *4*)	2723.4?	≈0.0063	≈1.6	≈7.1	≈1.6	av Eβ=346.2 *18*; εK=0.8060; εL=0.14400 *4*; εM+=0.04604 *2*
(1793# *4*)	2679.8?	≈0.0084	≈1.7	≈7.1	≈1.7	av Eβ=365.3 *18*; εK=0.8055; εL=0.14364 *4*; εM+=0.04591 *2*
(1975# *4*)	2497.8?	≈0.017	≈1.6	≈7.2	≈1.6	av Eβ=445.3 *18*; εK=0.8020 *1*; εL=0.14202 *4*; εM+=0.04534 *2*
(2065# *4*)	2408.4?	≈0.019	≈1.3	≈7.3	≈1.3	av Eβ=484.5 *18*; εK=0.7993 *2*; εL=0.14112 *5*; εM+=0.04503 *2*
(2090 *4*)	2382.67	≈0.19	≈12	≈6.4	≈12	av Eβ=495.7 *18*; εK=0.7984 *2*; εL=0.14085 *5*; εM+=0.04494 *2*
(2115 *4*)	2358.3	≈0.022	≈1.3	≈7.3	≈1.3	av Eβ=506.4 *18*; εK=0.7975 *2*; εL=0.14058 *5*; εM+=0.04485 *2*
(2257# *4*)	2216.2?	≈0.039	≈1.5	≈7.3	≈1.5	av Eβ=568.7 *18*; εK=0.7911 *2*; εL=0.13889 *6*; εM+=0.04428 *2*
(2260# *4*)	2212.8?	≈0.02	≈0.7	≈7.7	≈0.7	av Eβ=570.2 *18*; εK=0.7909 *3*; εL=0.13885 *6*; εM+=0.04427 *2*
(2596 *4*)	1877.04	≈0.13	≈2.2	≈7.3	≈2.3	av Eβ=717.7 *18*; εK=0.7678 *4*; εL=0.13377 *7*; εM+=0.04260 *3*
(2736 *4*)	1737.0	≈0.53	≈6.9	≈6.8	≈7.4	av Eβ=779.4 *18*; εK=0.7549 *4*; εL=0.13117 *8*; εM+=0.04175 *3*
(2871 *4*)	1602.0	≈0.16	≈1.6	≈7.5	≈1.8	av Eβ=838.9 *18*; εK=0.7408 *5*; εL=0.12841 *9*; εM+=0.04086 *3*
(3078 *4*)	1395.26	≈0.31	≈2.3	≈7.4	≈2.6	av Eβ=930.5 *18*; εK=0.7159 *6*; εL=0.1237 *1*; εM+=0.03935 *3*
(3119# *4*)	1353.67	<0.70	<4.8	>7.1	<5.5	av Eβ=949.0 *18*; εK=0.7105 *6*; εL=0.1227 *1*; εM+=0.03902 *4* log *ft* is inconsistent with ΔJ=2,(no) transition. The apparent feeding is most likely due to unassigned γ-ray intensity.
(3270 *4*)	1203.07	≈0.66	≈3.6	≈7.3	≈4.3	av Eβ=1016.0 *18*; εK=0.6898 *6*; εL=0.1189 *1*; εM+=0.03780 *4*
(3552 *4*)	920.89	≈0.49	≈1.9	≈7.6	≈2.4	av Eβ=1142.1 *18*; εK=0.6473 *7*; εL=0.11123 *12*; εM+=0.03534 *4*
(3556# *4*)	916.66	≈0.31	≈3.5	≈9.0[1u]	≈3.8	av Eβ=1128.4 *18*; εK=0.7443 *3*; εL=0.13291 *7*; εM+=0.04250 *3*
(3875 *4*)	597.68	≈4.1	≈11	≈7.0	≈15	av Eβ=1287.3 *18*; εK=0.5947 *7*; εL=0.10187 *12*; εM+=0.03235 *4*

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^{190}Au ε decay (42.8 min) 1973Jo11,1972Fi12 (continued)

ϵ,β^+ radiations (continued)

E(decay)	E(level)	Iβ^+ ‡	Iε‡	Log *ft*	I$(\varepsilon+\beta^+)$†‡	Comments
(4177 *4*)	295.84	0.2 *1*	0.5 *1*	8.4 *1*	0.7 *2*	av Eβ=1423.6 *19*; εK=0.5441 *7*; εL=0.09297 *12*; εM+=0.02951 *4* I$(\varepsilon+\beta^+)$: from I(β^+) relative to ce(K)(296γ) (1973Jo11). Intensity balance based on γ-ray intensities gives an apparent $\varepsilon+\beta^+$ feeding of 29%, which must be due to unaccounted γ rays populating the 295.8 level.
4442 *15*	0.0	0.4 *1*	0.5 *1*	8.4 *1*	0.9 *2*	av Eβ=1557.9 *19*; εK=0.4949 *7*; εL=0.08439 *12*; εM+=0.02678 *4* E(decay): E(β^+)=3420 *15* (1973Jo11). Other: 3358 *55* (β^+ data, 1974DiZQ). I$(\varepsilon+\beta^+)$: from I(β^+) relative to ce(K)(296γ) (1973Jo11).

† From γ+ce intensity balance at each level.
‡ Absolute intensity per 100 decays.
# Existence of this branch is questionable.

γ(^{190}Pt)

Iγ normalization: from Σ(I(γ+ce) of gammas to g.s.)=98.4 *8* and requiring that ε+β^+ feeding to g.s. and 296 level is 1.6% (1973Jo11). An uncertainty of 15% is assigned to account for some uncertain features of the decay scheme. The unplaced transitions intensity of ≈28% should not affect the normalization factor significantly, as this intensity is most likely associated with deexcitations to excited states rather than to g.s. since there is an apparent intensity imbalance (from present decay scheme) at 296 level suggesting ε+β^+ feeding of ≈28% as opposed to measured 0.7% (1973Jo11). An apparent ε+β^+ feeding of ≈6% to 1354 level (ΔJ=2,Δπ=no ε transition) must also be due to unassigned γ transitions to 1354 level. See also comment above for I(β^+) feedings.

Other I(β^+) estimates: from $\gamma^{\pm}$/K x ray, %β^+=2 (1961Ja17), <1 (1959Al94). From γ-ray spectra shown by 1969Na10 and 1972HuZL (both mass-separated samples), I($\gamma^{\pm}$)/Iγ(597γ)≈0.5 (evaluators′ estimate) implying I(β^+)≈2.4% which is consistent with 2% (1961Ja17) and weak β^+ branches (to g.s. and 296 level) observed by 1973Jo11. In the present decay scheme, deduced I(β^+)≈4.1% for 597 level.

Values of α(K)exp deduced (evaluator) from averaged Iγ and ce(K) data given under comments; the quoted references indicate the source of ce data. The data were normalized to 296γ, using α(K)=0.0632. The averaging procedure gives α(K)exp values which are somewhat different from those given in 1973Jo11 and 1972Fi12.

For transitions with E0 admixtures, total conversion coefficients are deduced based on ce(K) values. Pair conversion is considered when necessary.

E_γ[†]	I_γ[†h]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[e]	δ[e]	α[i]	Comments
179.8[&] *3*	0.18[&] *2*	916.66	3$^+$	737.16	4$^+$	E2+M1	3 +2−*1*	0.59 *8*	α(K)exp=0.30 *5* (1973Jo11,1972Fi12) α(K)=0.303 *82*; α(L)=0.219 *7*; α(M)=0.0556 *20* α(N)=0.0136 *5*; α(O)=0.00218 *6*; α(P)=3.07×10^{-5} *98* For α(K)exp, Iγ from 1972Fi12 and ce(K) from 1973Jo11.
192.0[#] *3*	0.12 *1*	1395.26	2$^+$	1203.07	2$^+$	[M1,E2]		0.73 *32*	α(K)=0.53 *34*; α(L)=0.156 *14*; α(M)=0.038 *6* α(N)=0.0093 *13*; α(O)=0.00157 *12*; α(P)=5.8×10^{-5} *41*
206.1[#] *3*	0.10 *1*	1602.0	(2,1)$^+$	1395.26	2$^+$	[M1,E2]		0.59 *27*	α(K)=0.43 *28*; α(L)=0.121 *5*; α(M)=0.029 *3* α(N)=0.0072 *6*; α(O)=0.00122 *4*; α(P)=4.8×10^{-5} *33*
225.0[&k] *3*	0.40[&] *5*	1353.67	3$^-$	1128.0?	(4$^+$)				Placement from ^{191}Ir(p,2nγ).
282.3[&] *8*	1.08[&] *8*	1203.07	2$^+$	920.89	0$^+$	E2		0.1182 *20*	α(K)exp=0.073 *14* (1972Fi12,1973Jo11) α(K)=0.0711 *12*; α(L)=0.0356 *7*; α(M)=0.00895 *16* α(N)=0.00219 *4*; α(O)=0.000356 *7*; α(P)=7.10×10^{-6} *11* δ(E2/M1)>4 from α(K)exp).
286.4[&] *3*	0.54[&] *3*	1203.07	2$^+$	916.66	3$^+$	E2(+M1)	>5	0.118 *5*	α(K)exp=0.067 *14* (1972Fi12,1973Jo11) α(K)=0.073 *5*; α(L)=0.0340 *6*; α(M)=0.00851 *14* α(N)=0.00209 *4*; α(O)=0.000340 *6*; α(P)=7.4×10^{-6} *5*
295.82[a] *4*	100[a] *2*	295.84	2$^+$	0.0	0$^+$	E2		0.1027	K/L=2.09 *21*; (L1+L2)/L3=3.3 *3* (1973Jo11) α(K)=0.0632 *9*; α(L)=0.0298 *5*; α(M)=0.00748 *11* α(N)=0.00183 *3*; α(O)=0.000298 *5*; α(P)=6.36×10^{-6} *9* α(K)=0.0638 used to normalize ce data for other transitions. Mult.: from K/L and (L1+L2)/L3.

From ENSDF

γ(^{190}Pt) (continued)

E_γ[†]	I_γ[†h]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[e]	δ[e]	α[i]	Comments
301.82 3	33 1	597.68	2+	295.84	2+	E2		0.0967	α(K)exp=0.066 5 (1973Jo11,1972Fi12) K/L=2.17 18 (1973Jo11); (L1+L2)/L3=2.87 23 (1973Jo11) α(K)=0.0602 9; α(L)=0.0276 4; α(M)=0.00692 10 α(N)=0.001696 24; α(O)=0.000276 4; α(P)=6.06×10^{-6} 9 Mult.: from K/L and (L1+L2)/L3. δ(E2/M1)>5.
318.96[a] 6	6.6[a] 4	916.66	3+	597.68	2+	E2+M1	3.1 +18−7	0.099 10	α(K)exp=0.069 7 (1973Jo11,1972Fi12) K/L=2.9 5 (1973Jo11); (L1+L2)/L3=3.3 8 (1973Jo11) α(K)=0.068 9; α(L)=0.0237 8; α(M)=0.00585 16 α(N)=0.00144 4; α(O)=0.000238 8; α(P)=7.1×10^{-6} 11
323.17 7	1.45 9	920.89	0+	597.68	2+	E2		0.0792	α(K)exp=0.056 4 (1973Jo11,1972Fi12) α(K)=0.0508 8; α(L)=0.0215 3; α(M)=0.00535 8 α(N)=0.001312 19; α(O)=0.000215 3; α(P)=5.16×10^{-6} 8 δ(E2/M1)>4 from α(K)exp.
x383.2[@f]	<0.30								Suggested placement from 1737 level (1972HuZL).
x398.0[#f] 3	0.12 10								α(K)exp<0.0016 (1973Jo11) Suggested placement from 1603 level (1972Fi12).
x436.0[f] 10									Reported by 1969Na10 only and placed from 1353 level.
441.25 7	5.26 10	737.16	4+	295.84	2+	E2		0.0338	α(K)exp=0.030 3 (1973Jo11,1972Fi12); K/L=3.2 4 (1973Jo11) α(K)=0.0242 4; α(L)=0.00732 11; α(M)=0.00179 3 α(N)=0.000440 7; α(O)=7.37×10^{-5} 11; α(P)=2.53×10^{-6} 4 δ: from K/L, δ(E2/M1)>4.
x460.7[&] 3	0.18[&] 2					M1(+E2)	<0.6	0.088 9	α(K)exp=0.092 25 (1972Fi12) α(K)=0.072 8; α(L)=0.0120 9; α(M)=0.00279 20 α(N)=0.00069 5; α(O)=0.000123 10; α(P)=8.1×10^{-6} 9 I_γ: from 1972Fi12. Iγ=0.44 7 (1973Jo11).
466.0[&] 3	0.67[&] 4	1203.07	2+	737.16	4+	E2		0.0295	α(K)exp=0.021 4 (1972Fi12) α(K)=0.0214 3; α(L)=0.00615 9; α(M)=0.001500 22 α(N)=0.000369 6; α(O)=6.20×10^{-5} 9; α(P)=2.24×10^{-6} 4 δ(E2/M1)>4 from α(K)exp).
478.4[&] 3	0.45[&] 16	1395.26	2+	916.66	3+	M1(+E2)	<0.8	0.076 12	α(K)exp=0.065 12 (1972Fi12) α(K)=0.062 11; α(L)=0.0105 12; α(M)=0.0024 3 α(N)=0.00060 7; α(O)=0.000108 13; α(P)=7.0×10^{-6} 12
523.28 13	0.24 2	1877.04	1−,2−,3−	1353.67	3−	E2(+M1)	>1	0.034 12	α(K)exp=0.027 10 (1972Fi12); α(K)exp=0.029 8 (1973Jo11) α(K)=0.027 11; α(L)=0.0055 13; α(M)=0.0013 3 α(N)=0.00032 7; α(O)=5.6×10^{-5} 13; α(P)=2.9×10^{-6} 12 I_γ: from 1972Fi12. Iγ=0.60 11 (1973Jo11).
530.6[&k] 3	0.60[&] 6	1128.0?	(4+)	597.68	2+	(E2)		0.0214	α(K)exp<0.025 (1972Fi12,1973Jo11) α(K)=0.01603 23; α(L)=0.00413 6; α(M)=0.000999 14 α(N)=0.000246 4; α(O)=4.17×10^{-5} 6; α(P)=1.691×10^{-6} 24 Mult.: E1 is not excluded by α(K)exp.

$\gamma(^{190}$Pt) (continued)

E_γ[†]	I_γ[†h]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[e]	δ[e]	α[i]	Comments
[x]586.7[&] *3*	0.15[&] *1*								
597.68 *8*	13.3 *9*	597.68	2$^+$	0.0	0$^+$	E2		0.01624	α(K)exp=0.0139 *11* (1973Jo11,1972Fi12) K/L=4.0 *6* (1973Jo11); (L1+L2)/L3=7.8 *20* (1973Jo11) α(K)=0.01241 *18*; α(L)=0.00292 *4*; α(M)=0.000702 *10* α(N)=0.0001728 *25*; α(O)=2.96×10^{-5} *5*; α(P)=1.313×10^{-6} *19* δ: from K/L and (L1+L2)/L3, δ(E2/M1)>4.
605.21[a] *12*	2.11[a] *5*	1203.07	2$^+$	597.68	2$^+$	M1(+E2)	<0.4	0.0452 *23*	α(K)exp=0.040 *3* (1973Jo11,1972Fi12); K/L12=6.7 *10* (1973Jo11) α(K)=0.0373 *20*; α(L)=0.0060 *3*; α(M)=0.00139 *6* α(N)=0.000344 *14*; α(O)=6.2×10^{-5} *3*; α(P)=4.17×10^{-6} *23*
616.24[a] *14*	2.20[a] *11*	1353.67	3$^-$	737.16	4$^+$	E1		0.00536	α(K)exp=0.0049 *8* (1973Jo11,1972Fi12) α(K)=0.00448 *7*; α(L)=0.000679 *10*; α(M)=0.0001553 *22* α(N)=3.82×10^{-5} *6*; α(O)=6.79×10^{-6} *10*; α(P)=4.32×10^{-7} *6* δ(M2/E1)<0.1 from α(K)exp.
620.89[a] *12*	3.4[a] *3*	916.66	3$^+$	295.84	2$^+$	E2+M1	2.0 *+20−6*	0.021 *5*	α(K)exp=0.017 *4* (1973Jo11,1972Fi12) α(K)=0.017 *4*; α(L)=0.0033 *5*; α(M)=0.00077 *11* α(N)=0.00019 *3*; α(O)=3.3×10^{-5} *5*; α(P)=1.8×10^{-6} *4*
625.1 *2*	4.2 *2*	920.89	0$^+$	295.84	2$^+$	E2		0.01467	α(K)exp=0.012 *2* (1973Jo11,1972Fi12) α(K)=0.01129 *16*; α(L)=0.00258 *4*; α(M)=0.000618 *9* α(N)=0.0001521 *22*; α(O)=2.61×10^{-5} *4*; α(P)=1.195×10^{-6} *17* δ(E2/M1)>3 from α(K)exp.
[x]634.0[&] *3*	0.22[&] *4*					M1(+E2)	<0.7	0.037 *5*	α(K)exp=0.043 *15* (1972Fi12); α(K)exp<0.022 (1973Jo11) α(K)=0.031 *4*; α(L)=0.0050 *5*; α(M)=0.00117 *12* α(N)=0.00029 *3*; α(O)=5.2×10^{-5} *6*; α(P)=3.4×10^{-6} *5*
657.9[&] *3*	0.17[&] *2*	1395.26	2$^+$	737.16	4$^+$	(E2)		0.01309	α(K)exp<0.028 (1973Jo11) α(K)=0.01015 *15*; α(L)=0.00224 *4*; α(M)=0.000536 *8* α(N)=0.0001319 *19*; α(O)=2.27×10^{-5} *4*; α(P)=1.075×10^{-6} *15*
[x]675.3[&] *3*	0.32[&] *3*					E0+(E2,M1)		0.090 *23*	α(K)exp=0.072 *18* (1972Fi12) Mult.: M2 is also possible from α(K)exp. I(E0)=0.026 *6*.
729.88[ck] *17*	1.26 *6*	2942.7?	(0$^-$,1$^-$,2$^-$)	2212.8?	(1$^-$)	M1		0.0292	α(K)exp=0.036 *6* (1972Fi12,1973Jo11) α(K)=0.0242 *4*; α(L)=0.00385 *6*; α(M)=0.000885 *13*

γ(^{190}Pt) (continued)

E_γ[†]	I_γ[†h]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[e]	δ[e]	α[i]	$I_{(\gamma+ce)}$[h]	Comments
										α(N)=0.000219 *3*; α(O)=3.95×10^{-5} *6*; α(P)=2.70×10^{-6} *4* No E2 from α(K)exp.
756.4[k] *2*	0.20 *5*	1353.67	3^-	597.68	2^+	E1		0.00357		α(K)exp=0.0045 *14* (1973Jo11) α(K)=0.00299 *5*; α(L)=0.000448 *7*; α(M)=0.0001021 *15* α(N)=2.52×10^{-5} *4*; α(O)=4.49×10^{-6} *7*; α(P)=2.91×10^{-7} *4* δ(M2/E1)<0.2 from α(K)exp.
[x]779.0 *4*	0.41 *6*					M1(+E2)	<0.7	0.022 *3*		α(K)exp=0.023 *6* (1972Fi12,1973Jo11) α(K)=0.0183 *22*; α(L)=0.0030 *3*; α(M)=0.00068 *7* α(N)=0.000168 *17*; α(O)=3.0×10^{-5} *3*; α(P)=2.0×10^{-6} *3*
797.5 *3*	0.16 *2*	1395.26	2^+	597.68	2^+	E0+(E2,M1)		0.28 *4*		α(K)exp=0.22 *3* (1973Jo11); α(K)exp<0.19 (1972Fi12) I(E0)=0.038 *5*.
816.1[a] *2*	0.58[a] *5*	1737.0	1^-	920.89	0^+	E1		0.00309		α(K)exp=0.0033 *6* (1972Fi12,1973Jo11) α(K)=0.00259 *4*; α(L)=0.000385 *6*; α(M)=8.79×10^{-5} *13* α(N)=2.16×10^{-5} *3*; α(O)=3.86×10^{-6} *6*; α(P)=2.53×10^{-7} *4* δ(M2/E1)<0.17 from α(K)exp.
[x]836.4[&] *3*	0.20[&] *2*					M1(+E2)	<1	0.017 *4*		α(K)exp=0.015 *3* (1972Fi12); α(K)exp<0.010 (1973Jo11) α(K)=0.014 *3*; α(L)=0.0023 *4*; α(M)=0.00054 *9* α(N)=0.000133 *21*; α(O)=2.4×10^{-5} *4*; α(P)=1.6×10^{-6} *4*
864.5[&k] *3*	0.17[&] *2*	1602.0	$(2,1)^+$	737.16	4^+			0.030 *6*		α(K)exp=0.025 *5* (1973Jo11) Mult.: (E0+E2+M1) from α(K)exp, which is inconsistent with ΔJ^π. α: based on α(K)exp value.
[x]869.2 *2*	0.41 *4*					M1		0.0187		α(K)exp=0.025 *6* (1973Jo11) α(K)=0.01550 *22*; α(L)=0.00245 *4*; α(M)=0.000563 *8* α(N)=0.0001393 *20*; α(O)=2.51×10^{-5} *4*; α(P)=1.721×10^{-6} *25*
907.30 *9*	2.05 *5*	1203.07	2^+	295.84	2^+	E0+(E2,M1)		0.049 *6*		α(K)exp=0.039 *5* (1973Jo11); α(K)exp=0.050 *11* (1972Fi12) α(L1)exp+α(L2)exp=0.0071 *15*; α(L3)exp<0.00031; α(M)exp=0.0022 *6* (1971Hu11) K/L=6.8 *8* (1973Jo11); K/L=7.6 *20* (1971Hu11); L12/L3>23 (1971Hu11) I_γ: from 1972Fi12. Iγ=3.2 *4* (1973Jo11). α(M)exp value is for M1 to M5 shells. I(E0)=0.10 *2*.
[x]912.2[#] *3*	0.13 *2*					(E2)		0.00658		α(K)exp<0.010 (1973Jo11) α(K)=0.00529 *8*; α(L)=0.000988 *14*; α(M)=0.000232 *4* α(N)=5.71×10^{-5} *8*; α(O)=1.001×10^{-5} *14*; α(P)=5.58×10^{-7} *8* Mult.: E1 is also possible from α(K)exp.
921.05 *14*	<0.1	920.89	0^+	0.0	0^+	E0			0.090 *4*	$I_{(\gamma+ce)}$: deduced from ce(K)/ce(K)(296γ)=0.0124 *5* (1973Jo11), 0.0110 *25* (1972Fi12) and

From ENSDF

^{190}Au ε decay (42.8 min) 1973Jo11,1972Fi12 (continued)

γ(^{190}Pt) (continued)

E_γ [†]	I_γ [†h]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [e]	δ [e]	α [i]	$I_{(\gamma+ce)}$ [h]	Comments
										ce(L1+L2)/ce(K)(296γ)=0.0019 *5* (1971Hu11). ce(L3)/ce(K)(296γ)<0.0018 (1971Hu11). X(E0/E2)=0.62 *12* (1972Fi12).
[x]977.0 *3*	0.20 *2*					M1		0.01388		α(K)exp=0.017 *3* (1972Fi12,1973Jo11) α(K)=0.01153 *17*; α(L)=0.00181 *3*; α(M)=0.000417 *6* α(N)=0.0001032 *15*; α(O)=1.86×10^{-5} *3*; α(P)=1.277×10^{-6} *18*
987.4 *2*	0.94 *5*	2382.67	(1)$^+$	1395.26	2$^+$	M1(+E2)	<1	0.0115 *20*		α(K)exp=0.012 *4* (1972Fi12); α(K)exp=0.0088 *17* (1973Jo11) α(K)=0.0096 *17*; α(L)=0.00153 *24*; α(M)=0.00035 *6* α(N)=8.7×10^{-5} *14*; α(O)=1.57×10^{-5} *25*; α(P)=1.05×10^{-6} *20* I_γ: from 1972Fi12. Iγ=1.49 *22* (1973Jo11).
[x]1003.1 *7*	0.27 *3*					M1(+E2)	<0.7	0.0117 *13*		α(K)exp=0.014 *5* (1973Jo11) α(K)=0.0097 *11*; α(L)=0.00155 *15*; α(M)=0.00036 *4* α(N)=8.8×10^{-5} *9*; α(O)=1.59×10^{-5} *16*; α(P)=1.07×10^{-6} *12*
1005.4 *4*	0.83 *16*	1602.0	(2,1)$^+$	597.68	2$^+$	M1+E2	0.7 *5*	0.0104 *22*		α(K)exp=0.0088 *20* (1973Jo11) α(K)=0.0086 *19*; α(L)=0.0014 *3*; α(M)=0.00032 *6* α(N)=7.9×10^{-5} *15*; α(O)=1.4×10^{-5} *3*; α(P)=9.5×10^{-7} *21*
1013.1[j&ck] *4*	0.12[j&] *1*	2216.2?	(2$^+$,3,4$^+$)	1203.07	2$^+$					
1013.1[j&ck] *4*	0.12[j&] *1*	2408.4?	(1$^-$,2$^-$,3$^-$)	1395.26	2$^+$	(E1)		0.008 *5*		α(K)exp<0.016 (1973Jo11) Mult.: (D,E2) from ce data.
1054.7[ck] *3*	0.50 *5*	2408.4?	(1$^-$,2$^-$,3$^-$)	1353.67	3$^-$	(M1,E2)		0.0082 *33*		α(K)exp=0.010 *3* (1972Fi12); α(K)exp=0.0038 *12* (1973Jo11) α(K)=0.0068 *28*; α(L)=0.00110 *40*; α(M)=2.54×10^{-4} *89* α(N)=6.3×10^{-5} *22*; α(O)=1.12×10^{-5} *41*; α(P)=7.4×10^{-7} *32* I_γ: from 1972Fi12. Iγ=1.4 *4* (1973Jo11).
1057.7 *3*	4.9 *6*	1353.67	3$^-$	295.84	2$^+$	E1		0.00191		α(K)exp=0.0023 *4* (1973Jo11,1972Fi12) α(K)=0.001609 *23*; α(L)=0.000236 *4*; α(M)=5.36×10^{-5} *8* α(N)=1.322×10^{-5} *19*; α(O)=2.37×10^{-6} *4*; α(P)=1.582×10^{-7} *23* δ(M2/E1)<0.2 from α(K)exp.

$^{190}_{78}Pt_{112}$-8

γ(^{190}Pt) (continued)

E_γ[†]	I_γ[†h]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[e]	δ[e]	α[i]	Comments
1099.48 *16*	1.35 *8*	1395.26	2^+	295.84	2^+	E0+(E2,M1)		0.041 *6*	α(K)exp=0.033 *5* (1973Jo11,1972Fi12); K/L=6.1 *4* (1973Jo11) I(E0)=0.040 *7*.
1139.3[a] *3*	2.04[a] *7*	1737.0	1^-	597.68	2^+	E1		1.68×10^{-3}	α(K)exp=0.0015 *3* (1972Fi12,1973Jo11) α(K)=0.001409 *20*; α(L)=0.000206 *3*; α(M)=4.68×10^{-5} *7* α(N)=1.153×10^{-5} *17*; α(O)=2.07×10^{-6} *3*; α(P)=1.388×10^{-7} *20*; α(IPF)=3.79×10^{-6} *7* δ(M2/E1)<0.15 from α(K)exp.
[x]1154.2[‡] *4*	0.45 *11*					M1(+E2)	<1	0.0079 *13*	α(K)exp=0.0074 *21* (1973Jo11) α(K)=0.0065 *11*; α(L)=0.00104 *16*; α(M)=0.00024 *4* α(N)=5.9×10^{-5} *9*; α(O)=1.06×10^{-5} *16*; α(P)=7.2×10^{-7} *12*; α(IPF)=1.87×10^{-6} *20*
[x]1161.0[‡] *4*	1.02 *23*					E2(+M1)	>3	0.0043 *3*	α(K)exp=0.0029 *8* (1973Jo11) α(K)=0.00355 *22*; α(L)=0.00060 *3*; α(M)=0.000140 *7* α(N)=3.46×10^{-5} *18*; α(O)=6.1×10^{-6} *4*; α(P)=3.75×10^{-7} *25*; α(IPF)=1.63×10^{-6} *6*
1203.4 *4*	0.30 *3*	1203.07	2^+	0.0	0^+	(E2)		0.00382	α(K)exp=0.0039 *13* (1973Jo11,1972Fi12) α(K)=0.00313 *5*; α(L)=0.000531 *8*; α(M)=0.0001234 *18* α(N)=3.04×10^{-5} *5*; α(O)=5.39×10^{-6} *8*; α(P)=3.29×10^{-7} *5*; α(IPF)=4.50×10^{-6} *8* α(K)exp for 1203.4γ+1205.5γ. E_γ,I_γ: from 1972Fi12, who also report a 1205.5γ (Iγ=0.41). Only one γ at 1203.1 (Iγ=0.70 *20*) reported by 1973Jo11.
1205.5[#ck] *4*	0.41 *4*	2408.4?	(1^-,2^-,3^-)	1203.07	2^+				I_γ: quoted uncertainty=0.40 (1972Fi12) is probably a misprint.
1279.5 *3*	1.28 *23*	1877.04	1^-,2^-,3^-	597.68	2^+	(E1)		1.41×10^{-3}	α(K)exp=0.0015 *4* (1973Jo11); α(K)exp=0.0035 *9* (1972Fi12) α(K)=0.001150 *17*; α(L)=0.0001669 *24*; α(M)=3.79×10^{-5} *6* α(N)=9.35×10^{-6} *13*; α(O)=1.678×10^{-6} *24*; α(P)=1.136×10^{-7} *16*; α(IPF)=4.75×10^{-5} *7* I_γ: from 1973Jo11. Iγ=0.90 *5* (1972Fi12). δ(M2/E1)<0.24. α(K)exp (1972Fi12) also allows E2.
[x]1304.8 *9*	1.16 *5*					E2(+M1)	>2	0.0036 *4*	α(K)exp=0.0026 *7* (1973Jo11) α(K)=0.0030 *3*; α(L)=0.00049 *5*; α(M)=0.000113 *10* α(N)=2.80×10^{-5} *25*; α(O)=5.0×10^{-6} *5*; α(P)=3.2×10^{-7} *4*; α(IPF)=1.83×10^{-5} *11*
1307.6 *5*	0.56 *6*	1602.0	$(2,1)^+$	295.84	2^+	M1		0.00669	α(K)exp=0.0073 *15* (1973Jo11)

$^{190}_{78}Pt_{112}$-9

γ(^{190}Pt) (continued)

E_γ[†]	I_γ[†h]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[e]	δ[e]	α[i]	Comments
									α(K)=0.00554 *8*; α(L)=0.000865 *13*; α(M)=0.000199 *3* α(N)=4.91×10^{-5} *7*; α(O)=8.86×10^{-6} *13*; α(P)=6.11×10^{-7} *9*; α(IPF)=2.77×10^{-5} *4*
[x]1345.8 *3*	0.87 *12*					M1(+E2)	<1.5	0.0052 *11*	α(K)exp=0.0050 *16* (1972Fi12,1973Jo11) α(K)=0.0043 *9*; α(L)=0.00067 *14*; α(M)=0.00015 *3* α(N)=3.8×10^{-5} *8*; α(O)=6.9×10^{-6} *14*; α(P)=4.6×10^{-7} *11*; α(IPF)=3.4×10^{-5} *5*
1395.34 *20*	3.2 *4*	1395.26	2$^+$	0.0	0$^+$	E2		0.00292	α(K)exp=0.0028 *5* (1973Jo11,1972Fi12) α(K)=0.00238 *4*; α(L)=0.000390 *6*; α(M)=9.00×10^{-5} *13* α(N)=2.22×10^{-5} *4*; α(O)=3.95×10^{-6} *6*; α(P)=2.49×10^{-7} *4*; α(IPF)=3.65×10^{-5} *6* δ(E2/M1)>1.3 from α(K)exp.
1401.9[ck] *3*	0.73 *4*	2797.0?		1395.26	2$^+$	E1		1.28×10^{-3}	α(K)exp=0.0017 *3* (1973Jo11) α(K)=0.000983 *14*; α(L)=0.0001420 *20*; α(M)=3.23×10^{-5} *5* α(N)=7.95×10^{-6} *12*; α(O)=1.429×10^{-6} *20*; α(P)=9.72×10^{-8} *14*; α(IPF)=0.0001133 *16*
1441.3 *3*	5.6 *6*	1737.0	1$^-$	295.84	2$^+$	E1		1.25×10^{-3}	α(K)exp=0.0010 *2* (1973Jo11); α(K)exp<0.0024 (1972Fi12) α(K)=0.000938 *14*; α(L)=0.0001353 *19*; α(M)=3.07×10^{-5} *5* α(N)=7.58×10^{-6} *11*; α(O)=1.362×10^{-6} *19*; α(P)=9.28×10^{-8} *13*; α(IPF)=0.0001386 *20* I_γ: from 1973Jo11. Iγ=4.05 *10* (1972Fi12). δ(M2/E1)<0.16 from α(K)exp.
1461.6[&] *4*	0.83[&] *8*	2382.67	(1)$^+$	920.89	0$^+$	M1		0.00513	α(K)exp=0.0043 *11* (1972Fi12,1973Jo11) α(K)=0.00420 *6*; α(L)=0.000653 *10*; α(M)=0.0001499 *21* α(N)=3.71×10^{-5} *6*; α(O)=6.69×10^{-6} *10*; α(P)=4.62×10^{-7} *7*; α(IPF)=8.37×10^{-5} *12* δ: <1.1 from α(K)exp.
[x]1475.0[@f] *5*	<0.04					(E0)			α(K)exp≈0.057 (1972HuZL) 1972HuZL suggest placement with a 1475, 0$^+$ level, but this level is not connected to any other levels.
[x]1500.9[‡] *6*	0.57 *17*					M1		0.00483	α(K)exp=0.0060 *20* (1973Jo11) α(K)=0.00393 *6*; α(L)=0.000611 *9*; α(M)=0.0001402 *20* α(N)=3.47×10^{-5} *5*; α(O)=6.26×10^{-6} *9*; α(P)=4.33×10^{-7} *6*; α(IPF)=0.0001017 *15*
[x]1528.1[‡] *8*	0.34 *11*					E0+(E2,M1)		0.113 *39*	α(K)exp=0.0090 *31* (1973Jo11) Mult.: M2 is also possible from α(K)exp. I(E0)=0.0024 *8*.
1581.5[a] *3*	1.00[a] *8*	1877.04	1$^-$,2$^-$,3$^-$	295.84	2$^+$	E1		1.19×10^{-3}	α(K)exp<0.0012 (1972Fi12,1973Jo11)

$^{190}_{78}Pt_{112}$-10

γ(^{190}Pt) (continued)

E_γ[†]	I_γ[†h]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[e]	δ[e]	α[i]	Comments
									α(K)=0.000802 *12*; α(L)=0.0001154 *17*; α(M)=2.62×10^{-5} *4* α(N)=6.46×10^{-6} *9*; α(O)=1.161×10^{-6} *17*; α(P)=7.95×10^{-8} *12*; α(IPF)=0.000235 *4* δ(M2/E1)<0.26 from α(K)exp.
1601.5 *4*	0.25 *3*	1602.0	(2,1)$^+$	0.0	0^+	(M1,E2)		0.00326 *93*	α(K)exp=0.0038 *15* (1972Fi12); α(K)exp=0.0039 *11* (1973Jo11) α(K)=0.00260 *75*; α(L)=4.1×10^{-4} *12*; α(M)=9.4×10^{-5} *26* α(N)=2.31×10^{-5} *64*; α(O)=4.2×10^{-6} *12*; α(P)=2.81×10^{-7} *88*; α(IPF)=0.00013 *3* I_γ: from 1972Fi12. Iγ=0.60 *15* (1973Jo11).
^{x}1622.9[#] *4*	0.27 *3*					E0+(E2,M1)		0.014 *4*	α(K)exp=0.011 *3* (1972Fi12); α(K)exp<0.007 (1973Jo11) Mult.: M2 is also possible from α(K)exp. I(E0)=0.0022 *7*.
^{x}1636.5[#f] *4*	0.36 *4*								ce(K) (1972Fi12) probably corresponds to 1638.7γ. 1973Jo11 assigned this γ to double escape of 2658γ.
^{x}1638.7[‡] *6*	≤0.17					(E0)			α(K)exp≥0.014 (1973Jo11,1972Fi12)
^{x}1664.1[‡] *5*	0.68 *22*					M1(+E2)	<0.5	0.00368 *18*	α(K)exp=0.0045 *15* (1973Jo11) α(K)=0.00291 *14*; α(L)=0.000452 *21*; α(M)=0.000104 *5* α(N)=2.56×10^{-5} *12*; α(O)=4.63×10^{-6} *22*; α(P)=3.19×10^{-7} *16*; α(IPF)=0.000183 *7*
1672.4[ck] *3*		2875.4?		1203.07	2^+				Main placement from the 3067 level (1973Jo11).
1672.4 *3*	0.84 *12*	3067.5	(1,2)$^-$	1395.26	2^+	E1		1.17×10^{-3}	α(K)exp=0.0011 *2* (1973Jo11) α(K)=0.000731 *11*; α(L)=0.0001049 *15*; α(M)=2.38×10^{-5} *4* α(N)=5.87×10^{-6} *9*; α(O)=1.056×10^{-6} *15*; α(P)=7.25×10^{-8} *11*; α(IPF)=0.000301 *5* δ(M2/E1)<0.3 from α(K)exp.
^{x}1738.9[a] *3*	1.20[a] *10*					M1		0.00351	α(K)exp=0.0038 *7* (1973Jo11,1972Fi12) α(K)=0.00273 *4*; α(L)=0.000422 *6*; α(M)=9.69×10^{-5} *14* α(N)=2.40×10^{-5} *4*; α(O)=4.33×10^{-6} *6*; α(P)=3.00×10^{-7} *5*; α(IPF)=0.000234 *4*
1760.7 *3*	1.12 *7*	2358.3	(2)$^+$	597.68	2^+	M1(+E2)	<0.8	0.0032 *3*	α(K)exp=0.0030 *7* (1973Jo11,1972Fi12) α(K)=0.00243 *22*; α(L)=0.00038 *4*; α(M)=8.7×10^{-5} *8* α(N)=2.14×10^{-5} *19*; α(O)=3.9×10^{-6} *4*; α(P)=2.7×10^{-7} *3*; α(IPF)=0.000231 *17*
1760.7[ck] *3*		2497.8?	(2^+)	737.16	4^+				Main placement from 2358 level (1973Jo11).

$^{190}_{78}Pt_{112}$-11

γ(^{190}Pt) (continued)

$E_γ$[†]	$I_γ$[†h]	E_i(level)	$J^π_i$	E_f	$J^π_f$	Mult.[e]	α[i]	Comments
[x]1772.8[@] 5	0.22 2							
1784.9 3	2.91 15	2382.67	(1)$^+$	597.68	2$^+$	M1	0.00333	α(K)exp=0.0030 3 (1973Jo11); α(K)exp<0.0035 (1972Fi12) α(K)=0.00256 4; α(L)=0.000396 6; α(M)=9.07×10^{-5} 13 α(N)=2.24×10^{-5} 4; α(O)=4.05×10^{-6} 6; α(P)=2.81×10^{-7} 4; α(IPF)=0.000262 4 Additional information 1.
1802.8[ck] 3	0.66 8	2723.4?	(1$^-$)	920.89	0$^+$	E1	1.16×10^{-3}	α(K)exp=0.00057 10 (1973Jo11) α(K)=0.000645 9; α(L)=9.24×10^{-5} 13; α(M)=2.10×10^{-5} 3 α(N)=5.17×10^{-6} 8; α(O)=9.30×10^{-7} 13; α(P)=6.41×10^{-8} 9; α(IPF)=0.000397 6
1810.7[jbk] 5	0.21[j] 2	2408.4?	(1$^-$,2$^-$,3$^-$)	597.68	2$^+$			
1810.7[jbk] 5	0.21[j] 2	3014.0	(2)$^-$	1203.07	2$^+$			
[x]1821.1[@f] 5	0.08 1							
[x]1836.0[a] 4	1.22[a] 12					M1	0.00316	α(K)exp=0.0044 10 (1973Jo11,1972Fi12) α(K)=0.00239 4; α(L)=0.000369 6; α(M)=8.45×10^{-5} 12 α(N)=2.09×10^{-5} 3; α(O)=3.77×10^{-6} 6; α(P)=2.62×10^{-7} 4; α(IPF)=0.000295 5
[x]1844.2[@] 5	0.47 5							
[x]1850.9[@] 5	0.43 5							
1864.5 4	1.4[d] 3	3067.5	(1,2)$^-$	1203.07	2$^+$	(E1)	1.17×10^{-3}	α(K)exp=0.0012 3 (1973Jo11) α(K)=0.000611 9; α(L)=8.73×10^{-5} 13; α(M)=1.98×10^{-5} 3 α(N)=4.88×10^{-6} 7; α(O)=8.79×10^{-7} 13; α(P)=6.07×10^{-8} 9; α(IPF)=0.000442 7 $I_γ$: 1.00 5 (1972HuZL). Mult.: E2 also possible from α(K)exp.
[x]1871.2[@] 5	0.37 4							
1880.0[jck] 4	0.87[jd] 17	2797.0?		916.66	3$^+$	(M1)	0.00302	α(K)exp=0.0027 18 (1973Jo11) α(K)=0.00225 4; α(L)=0.000347 5; α(M)=7.96×10^{-5} 12 α(N)=1.97×10^{-5} 3; α(O)=3.56×10^{-6} 5; α(P)=2.47×10^{-7} 4; α(IPF)=0.000323 5 δ: <1 from α(K)exp. $I_γ$: 0.70 7 (1972HuZL).
1880.0[jck] 4	0.87[jd] 17	3233.7?	(2$^-$,3$^-$)	1353.67	3$^-$	(M1)	0.0027 3	α(K)=0.00203 22; α(L)=0.00031 4; α(M)=7.2×10^{-5} 8 α(N)=1.78×10^{-5} 19; α(O)=3.2×10^{-6} 4; α(P)=2.2×10^{-7} 3; α(IPF)=0.00030 3 δ: <1 from α(K)exp.
[x]1886.6[@] 5	0.23 3							
[x]1904.9[@] 5	0.40 4							
1920.4[ck] 4	1.5[d] 3	2216.2?	(2$^+$,3,4$^+$)	295.84	2$^+$	M1	0.00291	α(K)exp=0.0031 9 (1973Jo11)

$^{190}_{78}Pt_{112}$-12

γ(^{190}Pt) (continued)

E_γ[†]	I_γ[†h]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[e]	α[i]	Comments
								α(K)=0.00213 *3*; α(L)=0.000329 *5*; α(M)=7.55×10^{-5} *11* α(N)=1.87×10^{-5} *3*; α(O)=3.37×10^{-6} *5*; α(P)=2.34×10^{-7} *4*; α(IPF)=0.000350 *5* I_γ: 1.27 *13* (1972HuZL). Complex γ in 1973Jo11.
^{x}1936.8[@] *5*	0.35 *3*							
^{x}1952.0[@] *5*	0.18 *2*							
1958.8[bk] *5*	0.27 *3*	2875.4?		916.66	3$^+$			
^{x}1967.2[@] *5*	0.30 *3*							
^{x}1972.9[@] *5*	0.44 *4*							
1985.8[bk] *5*	0.32 *4*	2723.4?	(1$^-$)	737.16	4$^+$	[E3]		
^{x}2001.3[@] *5*	0.25 *3*							
^{x}2024.9[‡] *6*	<0.2					(E0)		α(K)exp>0.016 (1973Jo11)
^{x}2034.8[@] *5*	0.24 *3*							
^{x}2040.4[@] *4*	0.44 *4*							
2061.1[j] *13*	0.34[j] *4*	2358.3	(2)$^+$	295.84	2$^+$	(E0+M1+E2)	0.0094 *18*	α(K)exp=0.0075 *14* (1973Jo11) I_γ: from 1972HuZL. Iγ<0.2 (1973Jo11). α(K)exp using Iγ=0.34 (1972HuZL). I(E0)=0.0023 *6*.
2061.1[jck] *13*	0.34[j] *4*	2797.0?		737.16	4$^+$			
2081.6[bk] *5*	0.80 *8*	2679.8?	(1$^-$)	597.68	2$^+$			
2087.3 *4*	1.6[d] *3*	2382.67	(1)$^+$	295.84	2$^+$	E2,M1	0.0021 *5*	α(K)exp=0.0015 *4* (1973Jo11) α(K)=0.0014 *3*; α(L)=0.00022 *5*; α(M)=5.1×10^{-5} *11* α(N)=1.3×10^{-5} *3*; α(O)=2.3×10^{-6} *5*; α(P)=1.5×10^{-7} *4*; α(IPF)=0.00039 *8* I_γ: 1.2 *2* (1972HuZL).
2097.2 *3*	3.1[d] *4*	3014.0	(2)$^-$	916.66	3$^+$	E1	1.21×10^{-3}	α(K)exp=0.00053 *12* (1973Jo11) α(K)=0.000504 *7*; α(L)=7.18×10^{-5} *10*; α(M)=1.629×10^{-5} *23* α(N)=4.02×10^{-6} *6*; α(O)=7.24×10^{-7} *11*; α(P)=5.02×10^{-8} *7*; α(IPF)=0.000608 *9* I_γ: 2.03 *12* (1972HuZL).
2111.9[bk] *6*	0.23 *3*	2408.4?	(1$^-$,2$^-$,3$^-$)	295.84	2$^+$			
2125.0[bk] *6*	0.14 *1*	2723.4?	(1$^-$)	597.68	2$^+$			
2132.5 *3*	1.36[d] *23*	3049.3	(2)$^-$	916.66	3$^+$	E1	1.21×10^{-3}	α(K)exp=0.00070 *21* (1973Jo11) α(K)=0.000491 *7*; α(L)=6.99×10^{-5} *10*; α(M)=1.585×10^{-5} *23* α(N)=3.91×10^{-6} *6*; α(O)=7.04×10^{-7} *10*; α(P)=4.88×10^{-8} *7*; α(IPF)=0.000632 *9*

$^{190}_{78}$Pt$_{112}$-13

γ(^{190}Pt) (continued)

E_γ [†]	I_γ [†h]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [e]	α [i]	Comments
								I_γ: 0.97 *9* (1972HuZL). δ(M2/E1)<0.4 from α(K)exp.
[x]2142.8[@] *6*	0.28 *5*							
[x]2149.8[@] *8*	0.44 *5*							
[x]2185.2[@] *7*	0.16 *2*							
2212.8[ck] *4*	2.1[d] *3*	2212.8?	(1⁻)	0.0	0⁺	E1	1.23×10⁻³	α(K)exp<0.00082 (1973Jo11) α(K)=0.000463 *7*; α(L)=6.58×10⁻⁵ *10*; α(M)=1.491×10⁻⁵ *21* α(N)=3.68×10⁻⁶ *6*; α(O)=6.63×10⁻⁷ *10*; α(P)=4.60×10⁻⁸ *7*; α(IPF)=0.000687 *10* I_γ: 1.8 *1* (1972HuZL).
[x]2242.6[@] *6*	0.80 *15*							
[x]2260.7[@] *7*	0.18 *3*							
[x]2271.1[@] *7*	0.60 *9*							
2277.6[jbk] *7*	0.77[j] *8*	2875.4?		597.68	2⁺			
2277.6[jbk] *7*	0.77[j] *8*	3014.0	(2)⁻	737.16	4⁺			
[x]2288.9[@] *10*	0.10 *2*							
[x]2314.5[@] *6*	0.67 *7*							
[x]2325.4[@] *6*	0.45 *5*							
[x]2334.2[@] *6*	0.55 *6*							
2382.6 *3*	7.2[d] *6*	2382.67	(1)⁺	0.0	0⁺	(M1)	0.0018 *4*	α(K)exp=0.00109 *11* (1973Jo11) α(K)=0.00108 *18*; α(L)=0.00016 *3*; α(M)=3.8×10⁻⁵ *7* α(N)=9.3×10⁻⁶ *16*; α(O)=1.7×10⁻⁶ *3*; α(P)=1.16×10⁻⁷ *22*; α(IPF)=0.00055 *11* I_γ: 5.2 *5* (1972HuZL). Mult.: (M1,E2) from ce data. δ(E2/M1)=1.2 *+11−5* from α(K)exp; also Mult=M1 is not excluded.
[x]2401.3[@] *7*	0.50 *2*							
2416.4 *3*	6.8[d] *6*	3014.0	(2)⁻	597.68	2⁺	E1	1.30×10⁻³	α(K)exp=0.00043 *6* (1973Jo11) α(K)=0.000402 *6*; α(L)=5.70×10⁻⁵ *8*; α(M)=1.292×10⁻⁵ *18* α(N)=3.19×10⁻⁶ *5*; α(O)=5.75×10⁻⁷ *8*; α(P)=4.00×10⁻⁸ *6*; α(IPF)=0.000820 *12* I_γ: 4.7 *5* (1972HuZL).
2428.0[bk] *7*	0.60 *7*	2723.4?	(1⁻)	295.84	2⁺			
[x]2435.9[@] *8*	0.37 *4*							
[x]2448.5 *5*	0.76 *17*					E0+(E2,M1)	0.0063 *15*	α(K)exp=0.0050 *12* (1973Jo11) I(E0)=0.0040 *13*. 2451.7γ (1972HuZL) is probably a composite of 2448γ and 2452γ reported by 1973Jo11.
2452.0 *5*	1.8[d] *3*	3049.3	(2)⁻	597.68	2⁺	E1	1.31×10⁻³	α(K)exp=0.00043 *15* (1973Jo11)

From ENSDF

$^{190}_{78}Pt_{112}$-14

γ(^{190}Pt) (continued)

E_γ[†]	I_γ[†h]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[e]	α[i]	Comments
								α(K)=0.000393 *6*; α(L)=5.57×10^{-5} *8*; α(M)=1.262×10^{-5} *18* α(N)=3.11×10^{-6} *5*; α(O)=5.61×10^{-7} *8*; α(P)=3.91×10^{-8} *6*; α(IPF)=0.000842 *12* I_γ: 1.38 *15* (1972HuZL).
2469.5 *4*	1.7[d] *3*	3067.5	(1,2)$^-$	597.68	2$^+$	E1	1.31×10^{-3}	α(K)exp=0.00048 *13* (1973Jo11) α(K)=0.000389 *6*; α(L)=5.51×10^{-5} *8*; α(M)=1.248×10^{-5} *18* α(N)=3.08×10^{-6} *5*; α(O)=5.55×10^{-7} *8*; α(P)=3.87×10^{-8} *6*; α(IPF)=0.000853 *12* I_γ: complex γ in 1973Jo11. Iγ=1.40 *14* (1972HuZL).
2497.6[ck] *4*	1.81[d] *24*	2497.8?	(2$^+$)	0.0	0$^+$	(E2)	1.49×10^{-3}	α(K)exp=0.00070 *16* (1973Jo11) α(K)=0.000830 *12*; α(L)=0.0001248 *18*; α(M)=2.85×10^{-5} *4* α(N)=7.04×10^{-6} *10*; α(O)=1.267×10^{-6} *18*; α(P)=8.62×10^{-8} *12*; α(IPF)=0.000502 *7* I_γ: 1.12 *20* (1972HuZL).
^{x}2517.9[@] *8*	0.24 *3*							
^{x}2526.2[@] *8*	0.17 *2*							
^{x}2571.0[@] *8*	0.21 *3*							
2579.4[bk] *8*	0.09 *2*	2875.4?		295.84	2$^+$			
^{x}2613[@] *1*	0.12 *2*							
2636.2[bk] *8*	0.95 *10*	3233.7?	(2$^-$,3$^-$)	597.68	2$^+$			
^{x}2643.4[@] *10*	0.30 *4*							
^{x}2658.2 *5*	3.4[d] *4*					(E1)	1.38×10^{-3}	α(K)exp=0.00054 *11* (1973Jo11) α(K)=0.000346 *5*; α(L)=4.89×10^{-5} *7*; α(M)=1.109×10^{-5} *16* α(N)=2.74×10^{-6} *4*; α(O)=4.93×10^{-7} *7*; α(P)=3.45×10^{-8} *5*; α(IPF)=0.000966 *14* I_γ: 2.2 *3* (1972HuZL). Mult.: M2 is also possible from α(K)exp.
2680.2[ck] *5*	1.05[d] *17*	2679.8?	(1$^-$)	0.0	0$^+$	(E1)	1.38×10^{-3}	α(K)exp<0.00062 (1973Jo11) α(K)=0.000342 *5*; α(L)=4.83×10^{-5} *7*; α(M)=1.094×10^{-5} *16* α(N)=2.70×10^{-6} *4*; α(O)=4.87×10^{-7} *7*; α(P)=3.40×10^{-8} *5*; α(IPF)=0.000979 *14* I_γ: 0.75 *8* (1972HuZL). Mult.: E2 is also possible from α(K)exp.
2685.1 *5*	1.92[d] *21*	2980.9	1$^-$	295.84	2$^+$	E1	1.38×10^{-3}	α(K)exp<0.00045 (1973Jo11) α(K)=0.000341 *5*; α(L)=4.82×10^{-5} *7*; α(M)=1.091×10^{-5} *16* α(N)=2.69×10^{-6} *4*; α(O)=4.86×10^{-7} *7*; α(P)=3.39×10^{-8} *5*; α(IPF)=0.000982 *14* I_γ: 1.36 *15* (1972HuZL).
^{x}2697.0[@] *7*	0.34 *4*							
^{x}2726.0[@] *7*	0.11 *2*							
2753.3 *4*	6.0[d] *6*	3049.3	(2)$^-$	295.84	2$^+$	E1	1.41×10^{-3}	α(K)exp=0.00034 *7* (1973Jo11) α(K)=0.000328 *5*; α(L)=4.63×10^{-5} *7*; α(M)=1.048×10^{-5} *15* α(N)=2.59×10^{-6} *4*; α(O)=4.67×10^{-7} *7*; α(P)=3.26×10^{-8} *5*; α(IPF)=0.001020 *15* I_γ: 4.0 *5* (1972HuZL).

$^{190}_{78}Pt_{112}$-15

γ(^{190}Pt) (continued)

E_γ [†]	I_γ [†h]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[e]	α [i]	Comments
2771.2 *5*	1.03[d] *18*	3067.5	(1,2)⁻	295.84	2⁺	E1	1.41×10^{-3}	α(K)exp=0.00037 *13* (1973Jo11) α(K)=0.000324 *5*; α(L)=4.58×10^{-5} *7*; α(M)=1.038×10^{-5} *15* α(N)=2.56×10^{-6} *4*; α(O)=4.62×10^{-7} *7*; α(P)=3.23×10^{-8} *5*; α(IPF)=0.001030 *15* I_γ: 0.83 *10* (1972HuZL).
[x]2843.5[@] *10*	0.28 *3*							
[x]2875.0 *5*	1.14[d] *23*					M1,E2	0.00168 *24*	α(K)exp=0.00095 *32* (1973Jo11) α(K)=0.00072 *8*; α(L)=0.000108 *13*; α(M)=2.5×10^{-5} *3* α(N)=6.1×10^{-6} *8*; α(O)=1.11×10^{-6} *14*; α(P)=7.7×10^{-8} *10*; α(IPF)=0.00082 *15* I_γ: 0.50 *6* (1972HuZL).
[x]2881.4 *6*	1.10[d] *22*					M1,E2	0.00168 *24*	α(K)exp=0.00075 *26* (1973Jo11) α(K)=0.00072 *8*; α(L)=0.000108 *13*; α(M)=2.5×10^{-5} *3* α(N)=6.1×10^{-6} *8*; α(O)=1.10×10^{-6} *14*; α(P)=7.6×10^{-8} *10*; α(IPF)=0.00082 *15* I_γ: 0.70 *10* (1972HuZL).
[x]2921.2[@] *10*	0.23 *3*							
[x]2941.9 *7*	1.07[d] *23*					M1,E2	0.00167 *24*	α(K)exp=0.0011 *4* (1973Jo11) α(K)=0.00068 *7*; α(L)=0.000103 *12*; α(M)=2.4×10^{-5} *3* α(N)=5.8×10^{-6} *7*; α(O)=1.05×10^{-6} *12*; α(P)=7.3×10^{-8} *9*; α(IPF)=0.00085 *16* I_γ: 0.63 *7* (1972HuZL).
[x]2956.7[‡g] *9*	1.3 *4*							
[x]2959.8[‡g] *9*	1.5 *5*							
2980.9 *6*	1.6[d] *3*	2980.9	1⁻	0.0	0⁺	E1	1.49×10^{-3}	α(K)exp=0.00036 *13* (1973Jo11) α(K)=0.000290 *4*; α(L)=4.08×10^{-5} *6*; α(M)=9.25×10^{-6} *13* α(N)=2.28×10^{-6} *4*; α(O)=4.12×10^{-7} *6*; α(P)=2.88×10^{-8} *4*; α(IPF)=0.001143 *16* I_γ: 0.92 *10* (1972HuZL). δ(M2/E1)<0.4 from α(K)exp.
[x]3024.3[@] *10*	0.33 *4*							
[x]3036.1[@] *10*	0.30 *6*							
[x]3081.7 *5*	1.06[d] *22*							I_γ: 0.55 *10* (1972HuZL).
[x]3094.8 *5*	0.68[d] *14*							I_γ: 0.30 *7* (1972HuZL).
[x]3142.0[@] *10*	0.10 *2*							
[x]3178.0 *8*	0.90[d] *20*							I_γ: 0.50 *5* (1972HuZL).
[x]3199.5 *5*	0.80[d] *23*							I_γ: 0.35 *6* (1972HuZL).
[x]3206.5[@] *10*	0.29 *4*							
[x]3311.6[@] *10*	0.12 *2*							

$^{190}_{78}$Pt$_{112}$-16

$\gamma(^{190}Pt)$ (continued)

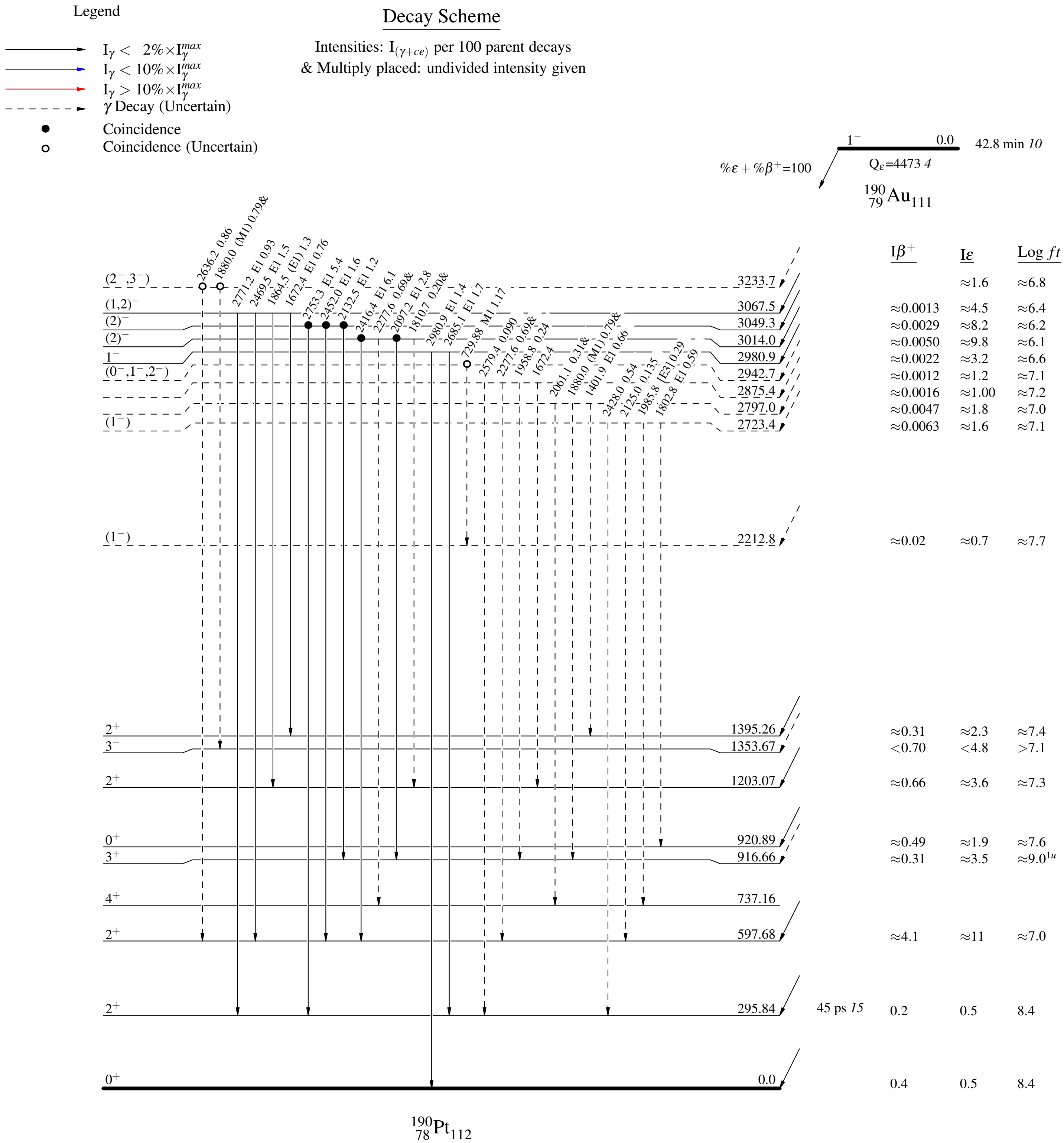
E_γ[†]	I_γ[†h]	E_i(level)	Comments
[x]3355.8 *5*	1.0[d] *2*		I_γ: 0.35 *4* (1972HuZL).
[x]3639.0[@] *10*	0.12 *2*		
[x]3652.0[@] *10*	0.11 *2*		

[†] Weighted average from 1973Jo11 and 1972Fi12 (from 1972HuZL above 1836), unless otherwise stated.
[‡] γ reported by 1973Jo11 only.
[#] γ reported by 1972Fi12 (and 1972HuZL) only.
[@] γ reported by 1972HuZL only.
[&] From 1972Fi12. In 1973Jo11, γ is complex due to contribution from impurity.
[a] Complex γ in 1973Jo11 but authors have corrected for admixtures. Values given here are weighted averages of 1973Jo11 and 1972Fi12 (from 1972HuZL above 1836 keV).
[b] γ from 1972HuZL only. Placement considered tentative (evaluator).
[c] Tentative placement suggested by 1972HuZL.
[d] From 1973Jo11. Value from 1972HuZL (given under comments) is systematically lower by ≈30% for γ rays above 1840 keV.
[e] From the Adopted Gammas. The adopted values are based on or supported by ce data in 1973Jo11 and 1972Fi12 where available, unless otherwise noted.
[f] Uncertain γ.
[g] α(K)exp(2957γ+2960γ)=0.00039 *13* (1973Jo11). Mult=E1 for both or (E2,M1) for one component and E1 for the other.
[h] For absolute intensity per 100 decays, multiply by 0.90 *14*.
[i] 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.
[j] Multiply placed with undivided intensity.
[k] Placement of transition in the level scheme is uncertain.
[x] γ ray not placed in level scheme.

^{190}Au ε decay (42.8 min) 1973Jo11,1972Fi12

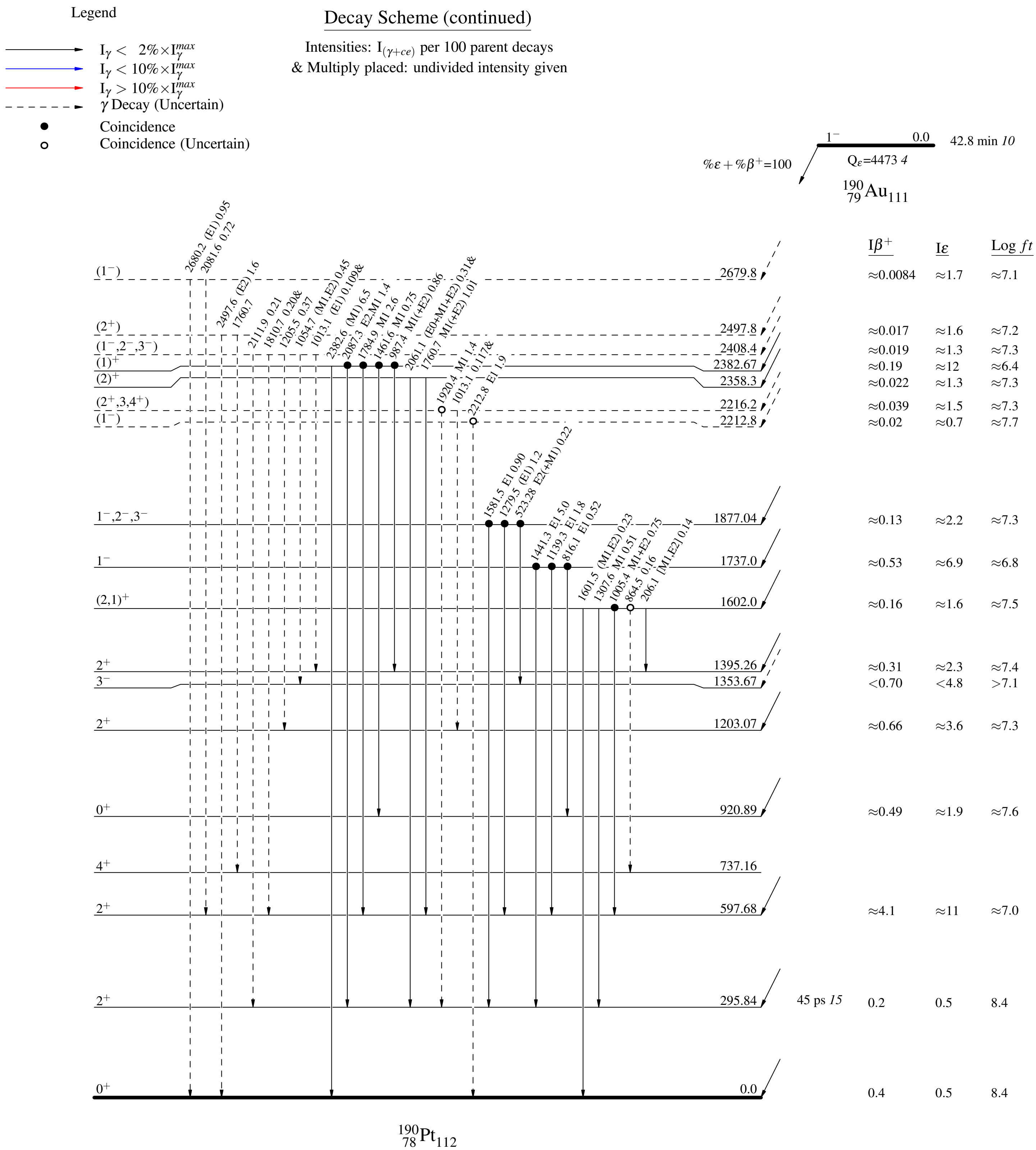
Decay Scheme

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



^{190}Au ε decay (42.8 min) 1973Jo11,1972Fi12

Decay Scheme (continued)



^{190}Au ε decay (42.8 min) 1973Jo11,1972Fi12

Decay Scheme (continued)

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays

& Multiply placed: undivided intensity given