^{189}Pt ε decay (10.87 h) 1972He05,1972Ba21

History

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

Parent: ^{189}Pt: E=0.0; J$^{\pi}$=3/2$^-$; T$_{1/2}$=10.87 h *12*; Q(ε)=1980 *14*; %ε+%β^+ decay=100.0
^{189}Pt-J$^{\pi}$,T$_{1/2}$: From ^{189}Pt Adopted Levels.
^{189}Pt-Q(ε): From 2017Wa10.
1972He05, 1972Ba21: measured Eγ, Iγ, E(ce), I(ce), $\gamma\gamma$-coin, (ce)ce(t), γ(ce)(t).
Decay scheme is from 1972He05.
1980Be27: $\gamma(\theta$,H,Temp); deduced multipolarity, mixing ratio.
1971Pl08, 1970Pl06, 1969Pl06: Eγ, Iγ, I(ce), $\gamma\gamma$-coin, Eβ, Iβ.
1970Ba56: E(ce), I(ce), $\gamma\gamma$-coin, (x ray)γ(t), (ce)ce(t), γ(ce)(t).
1970Ba10: Eγ, Iγ.
1969Ha03: γ(ce)(t).
1966Kr08: γ(ce)(t).
1965Ja12: $\gamma\gamma$(t), γ(ce)(t); deduced level half-lives.
1964Kr03: γ(ce)-coin.
1964Le07: Eγ, Iγ, ce, half-lives of ^{189}Pt and ^{189}Ir decays; deduced multipolarities.
1955Sm42: measured half-life of ^{189}Pt decay.
Other Eγ, Iγ, ce measurements: 1962Kr04, 1962Ha24, 1962Gr27, 1961Kr02, 1960Ma28.

^{189}Ir Levels

E(level)†	J$^{\pi}$‡	T$_{1/2}$	Comments
0.0	3/2$^+$		
94.34 *3*	1/2$^+$	11.4 ns *3*	T$_{1/2}$: weighted average of 11.3 ns *3* (1969Ha03) and 11.6 ns *6* (1972Ba21). Other values: 12 ns *1* (1965Ja12), 11 ns *1* (1966Kr08).
113.834 *24*	5/2$^+$	76# ps *18*	T$_{1/2}$: other value: <300 ps (1966Kr08).
176.53 *3*	3/2$^+$	22# ps *10*	
300.50 *4*	7/2$^+$	<20 ps	
317.68 *3*	5/2$^+$		
372.17 *4*	11/2$^-$		
539.76? *7*			
607.51 *4*	5/2$^-$		
615.58 *5*	7/2$^-$	0.18@ ns *2*	
644.29 *6*	(3/2,5/2)$^+$		
721.41 *3*	3/2$^+$		
792.71 *4*	(1/2,3/2)$^+$		
828.18 *5*	3/2$^-$		
850.07? *11*	1/2,3/2,5/2$^+$		
900.16? *12*	(7/2,9/2)$^-$		
902.65 *6*	(3/2)$^+$		
912.21 *6*	3/2$^+$		
924.76 *8*	(3/2,5/2)$^-$		
958.68 *7*	(3/2$^-$,5/2$^-$)		
1106.39 *7*	(3/2,5/2)$^+$		
1184.41 *5*	5/2$^-$	<80@ ps	
1203.26 *6*	3/2$^+$		
1238.73? *12*	(3/2$^-$,5/2,7/2$^+$)		
1312.33 *10*	(3/2$^+$,5/2,7/2$^+$)		
1344.51 *5*	(3/2$^+$,5/2$^+$)		
1451.58? *10*	(5/2)$^-$		
1468.99? *12*	$^-$		
1476.46 *10*	1/2$^+$,3/2$^{(+)}$,5/2$^+$		

Continued on next page (footnotes at end of table)

^{189}Pt ε decay (10.87 h) 1972He05,1972Ba21 (continued)

^{189}Ir Levels (continued)

E(level)†	J$^{\pi}$‡	E(level)†	J$^{\pi}$‡	E(level)†	J$^{\pi}$‡
1500.19 *7*	(1/2,3/2)$^-$	1571.67 *7*	(3/2,5/2)$^+$	1767.21 *14*	3/2,5/2$^+$
1501.35 *11*	(1/2$^-$,3/2$^-$,5/2$^-$)	1610.28? *6*	(3/2,5/2)$^-$	1802.25 *8*	(5/2$^-$)
1536.89 *13*		1622.83 *11*	1/2$^+$,3/2,5/2$^+$	1814.86? *12*	(1/2,3/2)$^-$
1558.20 *8*		1672.83 *11*			

† From least-squares fit to Eγ data. Reduced χ^2=1.5 as compared to critical χ^2=1.4, with two γ ray-energies deviating by about 3σ.
‡ From Adopted Levels.
# From 1972Ba21.
@ From 1970Ba56.

ε,β^+ radiations

E(decay)†	E(level)	Iβ^+ ‡	Iε‡	Log *ft*	I($\varepsilon+\beta^+$)‡	Comments
(165# *14*)	1814.86?		0.12 *4*	6.9 *2*	0.12 *4*	εK=0.61 *4*; εL=0.29 *3*; εM+=0.103 *11*
(178 *14*)	1802.25		0.21 *6*	6.8 *2*	0.21 *6*	εK=0.63 *3*; εL=0.271 *21*; εM+=0.096 *9*
(213 *14*)	1767.21		0.12 *4*	7.3 *2*	0.12 *4*	εK=0.680 *16*; εL=0.237 *12*; εM+=0.082 *5*
(307 *14*)	1672.83		0.15 *5*	7.6 *2*	0.15 *5*	εK=0.738 *6*; εL=0.196 *4*; εM+=0.0657 *16*
(357 *14*)	1622.83		0.14 *4*	7.8 *2*	0.14 *4*	εK=0.754 *4*; εL=0.185 *3*; εM+=0.0615 *11*
(370# *14*)	1610.28?		0.12 *4*	7.9 *2*	0.12 *4*	εK=0.757 *4*; εL=0.1828 *25*; εM+=0.0606 *10*
(408 *14*)	1571.67		0.66 *19*	7.2 *2*	0.66 *19*	εK=0.764 *3*; εL=0.1772 *19*; εM+=0.0584 *8*
(422 *14*)	1558.20		0.15 *5*	7.9 *2*	0.15 *5*	εK=0.7667 *24*; εL=0.1755 *18*; εM+=0.0578 *7*
(443 *14*)	1536.89		0.081 *24*	8.2 *2*	0.081 *24*	εK=0.7700 *22*; εL=0.1731 *16*; εM+=0.0569 *6*
(479 *14*)	1501.35		0.17 *5*	8.0 *2*	0.17 *5*	εK=0.7747 *18*; εL=0.1697 *13*; εM+=0.0556 *5*
(480 *14*)	1500.19		0.30 *9*	7.7 *2*	0.30 *9*	εK=0.7749 *18*; εL=0.1696 *13*; εM+=0.0555 *5*
(504 *14*)	1476.46		0.34 *11*	7.7 *2*	0.34 *11*	εK=0.7775 *16*; εL=0.1677 *12*; εM+=0.0548 *5*
(511# *14*)	1468.99?		0.15 *6*	8.1 *2*	0.15 *6*	εK=0.7783 *15*; εL=0.1671 *11*; εM+=0.0546 *5*
(528# *14*)	1451.58?		0.072 *21*	8.4 *2*	0.072 *21*	εK=0.7801 *14*; εL=0.1659 *10*; εM+=0.0541 *4*
(635 *14*)	1344.51		0.41 *13*	7.9 *2*	0.41 *13*	εK=0.7883 *9*; εL=0.1599 *7*; εM+=0.05178 *25*
(668 *14*)	1312.33		0.11 *4*	8.5 *2*	0.11 *4*	εK=0.7902 *8*; εL=0.1585 *6*; εM+=0.05126 *23*
(741# *14*)	1238.73?		0.06 *4*	8.9 *3*	0.06 *4*	εK=0.7939 *7*; εL=0.1559 *5*; εM+=0.05025 *18*
(777 *14*)	1203.26		0.49 *14*	8.0 *2*	0.49 *14*	εK=0.7953 *6*; εL=0.1548 *4*; εM+=0.04984 *16*
(796 *14*)	1184.41		6.3 *17*	6.9 *1*	6.3 *17*	εK=0.7961 *6*; εL=0.1543 *4*; εM+=0.04964 *15*
(874 *14*)	1106.39		0.38 *11*	8.2 *2*	0.38 *11*	εK=0.7987 *5*; εL=0.1524 *4*; εM+=0.04891 *12*
(1021 *14*)	958.68		0.54 *17*	8.2 *2*	0.54 *17*	εK=0.8025 *3*; εL=0.14964 *23*; εM+=0.04787 *9*
(1055 *14*)	924.76		0.39 *11*	8.4 *2*	0.39 *11*	εK=0.8032 *3*; εL=0.14913 *21*; εM+=0.04767 *8*
(1068 *14*)	912.21		0.81 *23*	8.1 *2*	0.81 *23*	εK=0.8034 *3*; εL=0.14895 *21*; εM+=0.04760 *8*
(1077 *14*)	902.65		0.33 *11*	8.5 *2*	0.33 *11*	εK=0.8036 *3*; εL=0.14881 *20*; εM+=0.04755 *8*
(1130# *14*)	850.07?		0.10 *3*	9.0 *2*	0.10 *3*	εK=0.8046 *3*; εL=0.14812 *18*; εM+=0.04729 *7*
(1152 *14*)	828.18		0.62 *20*	8.2 *2*	0.62 *20*	εK=0.8050 *3*; εL=0.14785 *18*; εM+=0.04718 *7*
(1187 *14*)	792.71		1.3 *4*	8.0 *2*	1.3 *4*	εK=0.8055 *3*; εL=0.14743 *16*; εM+=0.04703 *7*
(1259 *14*)	721.41		21 *6*	6.8 *1*	21 *6*	εK=0.8066 *2*; εL=0.1467 *2*; εM+=0.04674 *6*
(1336 *14*)	644.29		0.84 *23*	8.3 *1*	0.84 *23*	εK=0.8075 *2*; εL=0.1459 *2*; εM+=0.04646 *5*
(1372 *14*)	607.51		2.4 *11*	7.8 *2*	2.4 *11*	εK=0.8078 *2*; εL=0.1456 *2*; εM+=0.04633 *5*
(1440# *14*)	539.76?		0.11 *5*	9.2 *2*	0.11 *5*	εK=0.8084 *1*; εL=0.1450 *2*; εM+=0.04612 *5*
(1662 *14*)	317.68	0.037 *10*	15 *4*	7.2 *1*	15 *4*	av Eβ=307.2 *62*; εK=0.8086; εL=0.1433 *1*; εM+=0.04548 *4*
(1680# *14*)	300.50		<1.8	>9.1^{1u}	<1.8	εK=0.7966 *2*; εL=0.15352 *19*; εM+=0.04940 *7*
(1803 *14*)	176.53	0.07 *3*	13 *5*	7.3 *2*	13 *5*	av Eβ=369.4 *62*; εK=0.8072 *3*; εL=0.1422 *2*; εM+=0.04507 *5*

Continued on next page (footnotes at end of table)

^{189}Pt ε decay (10.87 h) 1972He05,1972Ba21 (continued)

ϵ,β^+ radiations (continued)

E(decay)†	E(level)	Iβ^+ ‡	Iε‡	Log *ft*	I($\varepsilon+\beta^+$)‡	Comments
(1866# *14*)	113.834	<0.0085	<1.2	>8.4	<1.2	av Eβ=397.0 *62*; εK=0.8061 *3*; εL=0.1416 *2*; εM+=0.04489 *5*
(1886 *14*)	94.34	0.09 *5*	12 *6*	7.4 *2*	12 *6*	av Eβ=405.5 *62*; εK=0.8057 *3*; εL=0.1414 *2*; εM+=0.04483 *5*
(1980# *14*)	0.0	0.24 *24*	21 *21*	>6.9	21 *21*	av Eβ=446.9 *62*; εK=0.8033 *5*; εL=0.1406 *2*; εM+=0.04452 *5* I($\varepsilon+\beta^+$): 1972He05 determined 43% *15* from their K x-ray and Auger electron intensities, but the values for K x-ray intensities were not given. Value of 21% *21* given here is deduced by the evaluators from γ normalization factor of 0.079 *21*.

† 1971Pl08 report two positron components with endpoint energies of 885 *10* and 479 *20*, respectively, and Iβ^+(885)/Iβ^+(479)=11 *2*. These cannot be ascribed directly to known levels and are probably composite.

‡ Absolute intensity per 100 decays.

Existence of this branch is questionable.

γ(^{189}Ir)

Iγ normalization: Weighted average of 0.061 *21* (from Iε+Iβ feeding of 43% *15* to the ground state as determined by 1972He05 from measured K x-ray and Auger electron intensities, the latter are given in 1972Ba21, but the K x-ray intensities are not given in either 1972He05 or 1972Ba21); and 0.104 *25* (deduced by evaluators using the measured Auger electron intensities from 1972Ba21, on the same relative scale as Iγ, and the theoretical Auger probabilities per K vacancy from 1991PeZY, Evaluated Atomic Data Library from LLNL). The total K vacancies were corrected for the contribution from internal conversion, and εK/ε=0.81 was assumed. 15% uncertainty, as recommended by 1991PeZY was assigned to the theoretical Auger intensities. 1963Th07 reported I(K x-ray)=1270, which corresponds to Iγ normalization of 0.11.

Measured Auger electron intensities (on scale as relative Iγ) from Table 2 in 1972Ba21: KL_1L_1=4.9 *7*, KL_1L_2=7.0 *5*, KL_1L_3=5.0 *8*, KL_2L_3=8.9 *6*, KL_3L_3=3.3 *7*.

Unless otherwise stated, experimental K-conversion coefficients are from 1972He05 and experimental subshell ratios are from 1972Ba21, both papers are from the same group.

A_2U_2 from 1980Be27 defined by W(θ)=$\Sigma_K B_K A_K U_K P_K$(cosθ), where B_K is related to the magnetic field and U_K is the disorientation coefficient.

E_γ[†]	I_γ[†b]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[‡]	δ[#]	α[a]	Comments
62.65 *6*	1.01 *22*	176.53	3/2+	113.834	5/2+	M1+E2	<1.8	16 *12*	α(L)=12.3 *91*; α(M)=3.1 *24* α(N)=0.75 *57*; α(O)=0.116 *84*; α(P)=0.00164 *81* L1:L2:L3=2.9 *6*:1.5 *6*:<0.9. I_γ: calculated from I(ce(L1) 62γ)/I(721γ)=2.9 *6*/100 *4*.
71.69 *4*	1.03 *23*	372.17	11/2−	300.50	7/2+	M2(+E3)	<0.1	76 *4*	α(L)=57 *3*; α(M)=14.6 *8* α(N)=3.63 *18*; α(O)=0.62 *3*; α(P)=0.0361 *6* L1:L2:L3=41 *4*:<6:13.8 *14* (1972Ba21); L1:L2:L3:M12=100:11:38:90 (1964Le07); L1:L2:L3=50:10:16 (1962Ha24). I_γ: from I(ce(L1) 71γ)/I(721γ)=41 *3*/100 *4*. δ: from L1/L3 in 1972Ba21 and L1/L2 (with 20% uncertainty) in 1964Le07.
82.22 *4*	31 *3*	176.53	3/2+	94.34	1/2+	M1+E2	0.17 *+3−4*	10.71	α(K)=8.59 *16*; α(L)=1.63 *7*; α(M)=0.381 *19* α(N)=0.093 *5*; α(O)=0.0162 *7*; α(P)=0.001079 *19* α(L1)exp=1.3 *2*; L1:L2:L3=40 *4*:6.7 *9*:3.7 *10*
94.34 *4*	82 *6*	94.34	1/2+	0.0	3/2+	M1+E2	3.2 *3*	5.99	α(K)=1.26 *10*; α(L)=3.56 *7*; α(M)=0.914 *19* α(N)=0.221 *5*; α(O)=0.0338 *7*; α(P)=0.000162 *12* K:L1:L2:L3=88 *35*:10.6 *11*:126 *7*:113 *6*; α(K)exp=1.1 *5* I_γ: %Iγ=7.63 *57*.
113.82 *4*	31.1 *22*	113.834	5/2+	0.0	3/2+	M1+E2	0.55 *5*	3.88 *8*	α(K)=2.82 *11*; α(L)=0.81 *4*; α(M)=0.196 *10* α(N)=0.0479 *23*; α(O)=0.0079 *4*; α(P)=0.000347 *13* K:L2:L3=86 *7*:7.0 *7*:4.9 *5*; α(K)exp=2.8 *4* I_γ: %Iγ=2.89 *28*. α: other values: K:L1:L2:L3=110 *10*:<60:15 *5*:14 *5* (1964Le07). K:L1:L2:L3::>92:≈33:11:7 (1962Ha24).

γ(^{189}Ir) (continued)

E_γ [†]	I_γ [†b]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [‡]	δ [#]	α [a]	Comments
130.54 *10*	0.80 *24*	958.68	(3/2⁻,5/2⁻)	828.18	3/2⁻	[M1+E2]		2.2 *7*	α(K)=1.4 *10*; α(L)=0.62 *24*; α(M)=0.15 *7*; α(N)=0.037 *16*; α(O)=0.0060 *22*
141.18 *4*	45.2 *23*	317.68	5/2⁺	176.53	3/2⁺	M1+E2	<0.17	2.27	α(K)=1.87 *4*; α(L)=0.313 *6*; α(M)=0.0723 *16* α(N)=0.0178 *4*; α(O)=0.00313 *6*; α(P)=0.000230 *5* K:L2:L3=88 *5*:1.53 *23*:0.23 *12*; α(K)exp=1.94 *14*
176.53 *7*	10.6 *5*	176.53	3/2⁺	0.0	3/2⁺	M1+E2	0.7 *2*	0.99 *9*	α(K)=0.75 *10*; α(L)=0.184 *9*; α(M)=0.044 *3* α(N)=0.0108 *7*; α(O)=0.00181 *7*; α(P)=9.1×10^{-5} *13* K:L1:L2:L3=11.2 *3*:1.23 *13*:0.72 *7*:0.47 *8*; α(K)exp=1.1 *3* I_γ: %Iγ=0.986 *90*.
181.30 *10*	1.20 *18*	902.65	(3/2)⁺	721.41	3/2⁺	[M1+E2]		0.8 *4*	α(K)=0.6 *4*; α(L)=0.176 *25*; α(M)=0.043 *8*; α(N)=0.0105 *19*; α(O)=0.00172 *20*
186.70 *6*	24.0 *24*	300.50	7/2⁺	113.834	5/2⁺	M1+E2	−0.7 *2*	0.84 *8*	α(K)=0.64 *9*; α(L)=0.152 *6*; α(M)=0.0364 *18* α(N)=0.0089 *4*; α(O)=0.00150 *5*; α(P)=7.8×10^{-5} *11* α(K)exp=0.66 *8* δ: negative sign from parametric plots of A_2 from ce(θ) and γ(θ) (1983Fa11) in ^{192}Os(d,xn) reaction. K:L1:L2:L3:M=15.8 *12*:2.2 *3*:0.54 *11*:0.37 *10*:0.83 *9* (1972Ba21).
190.83 *10*	1.2 *3*	912.21	3/2⁺	721.41	3/2⁺	M1		0.978	α(K)=0.808 *12*; α(L)=0.1316 *19*; α(M)=0.0303 *5* α(N)=0.00745 *11*; α(O)=0.001319 *19*; α(P)=9.95×10^{-5} *14* α(K)exp=0.92 *30*
203.78 *8*	5.2 *5*	317.68	5/2⁺	113.834	5/2⁺	M1+E2	<0.7	0.73 *9*	α(K)=0.59 *9*; α(L)=0.112 *3*; α(M)=0.0262 *11* α(N)=0.00641 *24*; α(O)=0.001110 *20*; α(P)=7.2×10^{-5} *11* α(K)exp=0.77 *25* K:L1:L2:L3=4.0 *12*:0.8 *2*:<0.25:<0.2.
212.72[f] *10*	1.1 *3*	828.18	3/2⁻	615.58	7/2⁻	[E2]		0.281	α(K)=0.1450 *21*; α(L)=0.1024 *15*; α(M)=0.0259 *4* α(N)=0.00628 *9*; α(O)=0.000983 *14*; α(P)=1.477×10^{-5} *21*
223.34 *10*	16.0 *11*	317.68	5/2⁺	94.34	1/2⁺	E2		0.239	α(K)exp=0.109 *19* α(K)=0.1279 *18*; α(L)=0.0838 *12*; α(M)=0.0212 *3* α(N)=0.00513 *8*; α(O)=0.000806 *12*; α(P)=1.313×10^{-5} *19*
243.50 *6*	75 *11*	615.58	7/2⁻	372.17	11/2⁻	E2		0.181	α(K)=0.1024 *15*; α(L)=0.0591 *9*; α(M)=0.01487 *21* α(N)=0.00361 *5*; α(O)=0.000569 *8*; α(P)=1.065×10^{-5} *15* K:L1:L2:L3=8.1 *6*:1.1 *3*:2.2 *4*:1.5 *3*; α(K)exp=0.108 *19* K:L12:L3=160 *20*:75 *20*:42 *13* (1964Le07) K:L2:L3=100:70:17 (1962Ha24)
[x]251.99 *25*	0.45 *14*					E2(+M1)	>2.5	0.182 *21*	α(K)=0.113 *20*; α(L)=0.0522 *10*; α(M)=0.01302 *21* α(N)=0.00316 *5*; α(O)=0.000505 *11*; α(P)=1.23×10^{-5} *25* K/L12=2.1 (1964Le07)
258.37 *6*	3.4 *3*	372.17	11/2⁻	113.834	5/2⁺	E3		0.876	α(K)=0.248 *4*; α(L)=0.470 *7*; α(M)=0.1235 *18* α(N)=0.0301 *5*; α(O)=0.00468 *7*; α(P)=4.26×10^{-5} *6* K:L1:L2:L3=0.78 *8*:0.25 *13*:0.98 *10*:0.45 *6*; α(K)exp=0.23 *4*
[x]263.07 *15*	0.4 *2*								

γ(^{189}Ir) (continued)

E_γ[†]	I_γ[†b]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	δ[#]	α[a]	Comments
284.58[ef] 10	0.1[e] 1	900.16?	$(7/2,9/2)^-$	615.58	$7/2^-$				
284.58[e] 10	1.6[e] 4	1468.99?	$^-$	1184.41	$5/2^-$	[M1+E2]		0.22 11	α(K)=0.17 10; α(L)=0.038 6; α(M)=0.0090 10; α(N)=0.0022 3; α(O)=0.00037 7 I_γ: Iγ(doublet)=1.7 3.
288.34 10	0.70 11	828.18	$3/2^-$	539.76?		[D,E2]		0.17 14	α(K)=0.14 12; α(L)=0.022 20; α(M)=0.005 4
300.51 6	40.0 20	300.50	$7/2^+$	0.0	$3/2^+$	E2		0.0943	α(K)=0.0598 9; α(L)=0.0262 4; α(M)=0.00652 10 α(N)=0.001583 23; α(O)=0.000253 4; α(P)=6.43×10^{-6} 9 α(K)exp=0.059 6 I_γ: %Iγ=3.72 34.
306.80 15	0.32 6	607.51	$5/2^-$	300.50	$7/2^+$	[E1]		0.0239	α(K)=0.0199 3; α(L)=0.00316 5; α(M)=0.000723 11 α(N)=0.0001763 25; α(O)=3.04×10^{-5} 5; α(P)=1.97×10^{-6} 3
317.65 6	35.0 18	317.68	$5/2^+$	0.0	$3/2^+$	M1+E2	0.5 2	0.209 21	α(K)=0.170 19; α(L)=0.0299 15; α(M)=0.0070 3 α(N)=0.00171 8; α(O)=0.000298 16; α(P)=2.06×10^{-5} 25 α(K)exp=0.171 16; K/L12=6.7 14 (1964Le07) I_γ: %Iγ=3.26 30.
343.20 20	1.3 3	958.68	$(3/2^-,5/2^-)$	615.58	$7/2^-$	[M1,E2]		0.13 7	α(K)=0.10 6; α(L)=0.021 52; α(M)=0.0050 10; α(N)=0.0012 3; α(O)=0.00021 6
343.80 20	1.3 3	644.29	$(3/2,5/2)^+$	300.50	$7/2^+$	(M1)		0.194	α(K)=0.1609 23; α(L)=0.0259 4; α(M)=0.00595 9 α(N)=0.001462 21; α(O)=0.000259 4; α(P)=1.96×10^{-5} 3 α(K)exp(343.2+343.8)=0.15 6.
351.10 25	1.4 3	958.68	$(3/2^-,5/2^-)$	607.51	$5/2^-$	(M1+E2)		0.12 7	α(K)exp(351.1+352.6)=0.071 24.
[x]352.63 15	1.7 3								α(K)exp(351.1+352.6)=0.071 24.
[x]383.80 20	0.90 18								
384.80[d] 30	0.53[d] 11	924.76	$(3/2,5/2)^-$	539.76?					
384.80[d] 30	0.53[d] 11	1106.39	$(3/2,5/2)^+$	721.41	$3/2^+$				
403.90 15	15.2 8	721.41	$3/2^+$	317.68	$5/2^+$	M1(+E2)	<0.3	0.123 4	α(K)=0.101 4; α(L)=0.0164 4; α(M)=0.00378 9 α(N)=0.000930 21; α(O)=0.000165 4; α(P)=1.23×10^{-5} 5 α(K)exp=0.115 11 A_2U_2=+0.075 91 gives δ=−0.02 +12−8 (1980Be27).
430.84 15	1.7 3	607.51	$5/2^-$	176.53	$3/2^+$	E1		0.01100	α(K)=0.00917 13; α(L)=0.001416 20; α(M)=0.000324 5 α(N)=7.90×10^{-5} 11; α(O)=1.373×10^{-5} 20; α(P)=9.37×10^{-7} 14 α(K)exp<0.012
[x]459.60 20	0.90 18					M1		0.0897	α(K)=0.0744 11; α(L)=0.01186 17; α(M)=0.00272 4 α(N)=0.000669 10; α(O)=0.0001187 17; α(P)=9.02×10^{-6} 13 α(K)exp=0.089 33
[x]484.62 30	0.29 7								
493.30 10	3.4 3	607.51	$5/2^-$	113.834	$5/2^+$	E1		0.00819	α(K)=0.00684 10; α(L)=0.001045 15; α(M)=0.000239 4 α(N)=5.83×10^{-5} 9; α(O)=1.016×10^{-5} 15; α(P)=7.05×10^{-7} 10 α(K)exp<0.0074 E_γ: poor fit. Level-energy difference=493.67.

From ENSDF

$^{189}_{77}$Ir$_{112}$-6

$\gamma(^{189}Ir)$ (continued)

E_γ[†]	I_γ[†b]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[‡]	δ[#]	α[a]	Comments
530.42 *10*	2.50 *20*	644.29	$(3/2,5/2)^+$	113.834	$5/2^+$	M1(+E2)	<0.8	0.054 *8*	α(K)=0.044 *7*; α(L)=0.0073 *9*; α(M)=0.00168 *19* α(N)=0.00041 *5*; α(O)=7.3×10^{-5} *9*; α(P)=5.3×10^{-6} *9* α(K)exp=0.052 *14*
539.85[f] *15*	3.1 *3*	539.76?		0.0	$3/2^+$	(E1,E2)		0.013 *7*	α(K)exp<0.016 I_γ: %Iγ=0.288 *36*.
544.91 *5*	62.0 *25*	721.41	$3/2^+$	176.53	$3/2^+$	M1+E2	+0.15 *10*	0.0566 *17*	α(K)=0.0469 *14*; α(L)=0.00747 *18*; α(M)=0.00171 *4* α(N)=0.000421 *10*; α(O)=7.47×10^{-5} *19*; α(P)=5.67×10^{-6} *17* α(K)exp=0.057 *5* δ: from A_2U_2=−0.552 *52* (1980Be27).
568.85 *5*	76 *3*	1184.41	$5/2^-$	615.58	$7/2^-$	M1+E2	−0.214 *28*	0.0499 *16*	α(K)=0.0414 *14*; α(L)=0.00660 *18*; α(M)=0.00152 *4* α(N)=0.000372 *10*; α(O)=6.60×10^{-5} *18*; α(P)=4.99×10^{-6} *17* α(K)exp=0.046 *4* K:L12:L3=3.5 *3*:0.59 *6*:<0.04. δ: from A_2U_2=−0.142 *31* (1980Be27).
576.85 *15*	0.48 *10*	1184.41	$5/2^-$	607.51	$5/2^-$				
584.95 *10*	0.75 *11*	902.65	$(3/2)^+$	317.68	$5/2^+$				
594.60 *10*	1.15 *12*	912.21	$3/2^+$	317.68	$5/2^+$	M1		0.0458	α(K)=0.0380 *6*; α(L)=0.00601 *9*; α(M)=0.001378 *20* α(N)=0.000339 *5*; α(O)=6.01×10^{-5} *9*; α(P)=4.58×10^{-6} *7* α(K)exp=0.044 *10*
607.60[ef] *5*	28[e&] *11*	607.51	$5/2^-$	0.0	$3/2^+$	[E1]		0.00530	α(K)=0.00444 *7*; α(L)=0.000667 *10*; α(M)=0.0001521 *22* α(N)=3.72×10^{-5} *6*; α(O)=6.51×10^{-6} *10*; α(P)=4.63×10^{-7} *7* I_γ: %Iγ=2.6 *10*.
607.60[e] *5*	59[e&] *11*	721.41	$3/2^+$	113.834	$5/2^+$	M1+E2	+0.23 *+9−7*	0.0420 *14*	α(K)exp=0.041 *9* α(K)=0.0348 *12*; α(L)=0.00555 *16*; α(M)=0.00127 *4* α(N)=0.000313 *9*; α(O)=5.55×10^{-5} *16*; α(P)=4.20×10^{-6} *15* K:L12:L3=66 *12*:11 *1*:<1 (1964Le07). δ: from A_2U_2=+0.342 *44* (1980Be27).
616.10 *15*	0.48 *7*	792.71	$(1/2,3/2)^+$	176.53	$3/2^+$				
623.15[e] *10*	0.8[e] *4*	1238.73?	$(3/2^-,5/2,7/2^+)$	615.58	$7/2^-$				α(K)exp(623.2+623.2)=0.020 *7*. I_γ: Iγ(623.2+623.2)=2.5 *4*.
623.15[e] *15*	1.7[e] *6*	1344.51	$(3/2^+,5/2^+)$	721.41	$3/2^+$	(M1+E2)		0.027 *14*	α(K)=0.022 *12*; α(L)=0.0039 *15*; α(M)=0.0009 *4*; α(N)=0.00022 *8* α(K)exp(623.2+623.2)=0.020 *7*. I_γ: Iγ(623.2+623.2)=2.5 *4*.
627.08 *8*	25.3 *10*	721.41	$3/2^+$	94.34	$1/2^+$	M1+E2	−0.7 *4*	0.031 *7*	α(K)=0.026 *6*; α(L)=0.0043 *7*; α(M)=0.00099 *16*

γ(^{189}Ir) (continued)

$E_γ$[†]	$I_γ$[†b]	E_i(level)	$J_i^π$	E_f	$J_f^π$	Mult.[‡]	δ[#]	α[a]	Comments
									α(N)=0.00024 *4*; α(O)=4.3×10^{-5} *8*; α(P)=3.1×10^{-6} *7* α(K)exp=0.027 *5*; K/L12=4.8 *12* K/(L1+L2) from 1964Le07. δ: from A_2U_2=+0.94 *11* (1980Be27).
640.50 *40*	0.60 *18*	958.68	(3/2$^-$,5/2$^-$)	317.68	5/2$^+$				
644.30 *8*	6.8 *5*	644.29	(3/2,5/2)$^+$	0.0	3/2$^+$	M1(+E2)	<0.9	0.032 *6*	α(K)=0.026 *5*; α(L)=0.0043 *6*; α(M)=0.00099 *14* α(N)=0.00024 *4*; α(O)=4.3×10^{-5} *6*; α(P)=3.1×10^{-6} *6* α(K)exp=0.031 *9* $I_γ$: %Iγ=0.632 *68*. A_2U_2=+0.30 *18* gives δ=0.00 *+12−15* (1980Be27).
651.61[c] *8*	1.14 *11*	828.18	3/2$^-$	176.53	3/2$^+$	(E1)		0.00460	α(K)=0.00386 *6*; α(L)=0.000577 *8*; α(M)=0.0001314 *19* α(N)=3.21×10^{-5} *5*; α(O)=5.63×10^{-6} *8*; α(P)=4.04×10^{-7} *6* α(K)exp<0.0175 Mult.: Supported by parity change and α(K)exp, although α(K)exp does not exclude E2. $I_γ$: Iγ(doublet)=1.14 *11*.
651.61[cf] *8*		1610.28?	(3/2,5/2)$^-$	958.68	(3/2$^-$,5/2$^-$)				
655.61 *10*	0.50 *8*	1558.20		902.65	(3/2)$^+$				
673.31[f] *15*	0.47[@] *7*	850.07?	1/2,3/2,5/2$^+$	176.53	3/2$^+$				
678.95 *10*	0.48 *7*	792.71	(1/2,3/2)$^+$	113.834	5/2$^+$				
698.33 *8*	2.30 *23*	792.71	(1/2,3/2)$^+$	94.34	1/2$^+$	M1+E2	<1	0.025 *5*	α(K)=0.021 *5*; α(L)=0.0034 *6*; α(M)=0.00079 *12* α(N)=0.00019 *3*; α(O)=3.4×10^{-5} *6*; α(P)=2.5×10^{-6} *6* α(K)exp=0.026 *9*
708.35[f] *15*	0.38 *8*	1501.35	(1/2$^-$,3/2$^-$,5/2$^-$)	792.71	(1/2,3/2)$^+$				
714.90 *15*	0.75 *23*	828.18	3/2$^-$	113.834	5/2$^+$				$E_γ$: poor fit. Level-energy difference=714.34.
721.38 *5*	100 *4*	721.41	3/2$^+$	0.0	3/2$^+$	M1+E2	−0.87 *+23−43*	0.020 *4*	α(K)exp=0.023 *3* α(K)=0.017 *3*; α(L)=0.0028 *4*; α(M)=0.00064 *9* α(N)=0.000158 *22*; α(O)=2.8×10^{-5} *4*; α(P)=2.0×10^{-6} *4* $I_γ$: %Iγ=9.30 *81*. Mult.: from α(K)exp. δ: from A_2U_2=+0.492 *63* (1980Be27).
733.73 *15*	3.8 *6*	828.18	3/2$^-$	94.34	1/2$^+$	E1		0.00364	α(K)=0.00305 *5*; α(L)=0.000453 *7*;

$^{189}_{77}Ir_{112}$-8

γ(^{189}Ir) (continued)

E_γ [†]	I_γ [†b]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [‡]	δ [#]	α [a]	Comments
									α(M)=0.0001031 *15* α(N)=2.52×10^{-5} *4*; α(O)=4.43×10^{-6} *7*; α(P)=3.21×10^{-7} *5* α(K)exp<0.0053
735.78 *15*	4.0[@] *8*	912.21	3/2$^+$	176.53	3/2$^+$	M1(+E2)	<1.0	0.022 *5*	α(K)=0.018 *4*; α(L)=0.0030 *5*; α(M)=0.00069 *11* α(N)=0.00017 *3*; α(O)=3.0×10^{-5} *5*; α(P)=2.2×10^{-6} *5* α(K)exp=0.022 *7*
744.30 *20*	0.45 *7*	1536.89		792.71	(1/2,3/2)$^+$				
[x]751.03 *10*	0.65 *10*								
755.95[f] *15*	0.75[@] *11*	850.07?	1/2,3/2,5/2$^+$	94.34	1/2$^+$				
765.40 *15*	0.38 *8*	1558.20		792.71	(1/2,3/2)$^+$				
[x]772.00 *15*	0.20 *6*								
[x]778.10 *40*	0.17[@] *5*								
782.09[c] *15*	0.64[@] *10*	958.68	(3/2$^-$,5/2$^-$)	176.53	3/2$^+$				I_γ: main intensity of this γ belongs to the decay of 959 level, decay from a tentative level at 1610 is uncertain. I_γ: Iγ(doublet)=0.64 *10*.
782.09[cf] *15*		1610.28?	(3/2,5/2)$^-$	828.18	3/2$^-$				
788.45[e] *20*	0.8[e] *4*	902.65	(3/2)$^+$	113.834	5/2$^+$	(M1)		0.0222	α(K)=0.0184 *25*; α(L)=0.0029 *4*; α(M)=0.00066; α(N)=0.00016 α(K)exp(788.4+788.4)=0.21 *7*.
788.45[e] *20*	0.6[e] *4*	1106.39	(3/2,5/2)$^+$	317.68	5/2$^+$	(M1)		0.0222	α(K)=0.0184 *25*; α(L)=0.0029 *4*; α(M)=0.00066; α(N)=0.00016
792.67 *5*	14.5 *9*	792.71	(1/2,3/2)$^+$	0.0	3/2$^+$	M1+E2	0.9 *+4−3*	0.0158 *25*	α(K)=0.0130 *21*; α(L)=0.0022 *3*; α(M)=0.00050 *7* α(N)=0.000122 *16*; α(O)=2.1×10^{-5} *3*; α(P)=1.5×10^{-6} *3* α(K)exp=0.0131 *21* I_γ: %Iγ=1.35 *13*. δ: if J=3/2, A_2U_2=−0.03 *7* is consistent only with δ<0.4. The isotropic distribution of this γ ray favors J=1/2.
798.20 *10*	2.05 *21*	912.21	3/2$^+$	113.834	5/2$^+$	M1		0.0215	α(K)=0.01785 *25*; α(L)=0.00280 *4*; α(M)=0.000641 *9* α(N)=0.0001575 *22*; α(O)=2.80×10^{-5} *4*; α(P)=2.14×10^{-6} *3* α(K)exp=0.018 *6*
809.00 *25*	0.58 *12*	902.65	(3/2)$^+$	94.34	1/2$^+$	M1		0.0208	α(K)=0.01725 *25*; α(L)=0.00270 *4*; α(M)=0.000619 *9* α(N)=0.0001521 *22*; α(O)=2.70×10^{-5} *4*; α(P)=2.07×10^{-6} *3* α(K)exp=0.021 *8*

γ(^{189}Ir) (continued)

E_γ[†]	I_γ[†b]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[‡]	δ[#]	α[a]	Comments
811.05 *20*	1.35 *20*	924.76	(3/2,5/2)⁻	113.834	5/2⁺	E1		0.00300	α(K)=0.00252 *4*; α(L)=0.000372 *6*; α(M)=8.45×10⁻⁵ *12* α(N)=2.07×10⁻⁵ *3*; α(O)=3.63×10⁻⁶ *5*; α(P)=2.66×10⁻⁷ *4* α(K)exp<0.0037
[x]820.00 *50*	0.16 *5*								
828.06 *8*	3.2[@] *5*	828.18	3/2⁻	0.0	3/2⁺	E1+M2	0.19 *+9−15*	0.0045 *18*	α(K)=0.0038 *15*; α(L)=6.0×10⁻⁴ *26*; α(M)=1.37×10⁻⁴ *61* α(N)=3.4×10⁻⁵ *15*; α(O)=5.9×10⁻⁶ *27*; α(P)=4.4×10⁻⁷ *20* α(K)exp=0.0038 *13* I_γ: %Iγ=0.298 *52*.
836.00[f] *8*	0.90 *9*	1451.58?	(5/2)⁻	615.58	7/2⁻	M1+E2	1.0 *+20−7*	0.0133 *49*	α(K)=0.0109 *42*; α(L)=0.00181 *56*; α(M)=4.2×10⁻⁴ *13* α(N)=1.03×10⁻⁴ *31*; α(O)=1.80×10⁻⁵ *57*; α(P)=1.29×10⁻⁶ *51* α(K)exp=0.011 *4*
855.73 *20*	0.25 *6*	1500.19	(1/2,3/2)⁻	644.29	(3/2,5/2)⁺				
880.05 *15*	0.90 *14*	1672.83		792.71	(1/2,3/2)⁺	(E1,E2)		0.0047 *21*	α(K)=0.0038 *16*; α(L)=0.00067 *25*; α(M)=0.00016 *8*; α(N)=0.00004 *2* α(K)exp<0.0056
885.60 *10*	1.90[@] *19*	1203.26	3/2⁺	317.68	5/2⁺	M1+E2	0.9 *+11−6*	0.0121 *36*	α(K)=0.0100 *31*; α(L)=0.00163 *42*; α(M)=3.75×10⁻⁴ *95* α(N)=9.2×10⁻⁵ *24*; α(O)=1.62×10⁻⁵ *43*; α(P)=1.18×10⁻⁶ *38* α(K)exp=0.010 *3*
[x]892.50 *20*	0.42 *6*								
902.60 *25*	0.34 *7*	902.65	(3/2)⁺	0.0	3/2⁺				I_γ: %Iγ=0.0316 *69*.
912.30 *20*	0.44 *9*	912.21	3/2⁺	0.0	3/2⁺				I_γ: %Iγ=0.0409 *89*.
914.25 *60*	0.15 *5*	1558.20		644.29	(3/2,5/2)⁺				
924.75 *8*	3.00 *24*	924.76	(3/2,5/2)⁻	0.0	3/2⁺	E1		0.00235	α(K)=0.00197 *3*; α(L)=0.000288 *4*; α(M)=6.55×10⁻⁵ *10* α(N)=1.603×10⁻⁵ *23*; α(O)=2.82×10⁻⁶ *4*; α(P)=2.09×10⁻⁷ *3* α(K)exp<0.0023 I_γ: %Iγ=0.279 *31*.
929.71 *18*	0.41 *12*	1106.39	(3/2,5/2)⁺	176.53	3/2⁺				
[x]933.90 *30*	0.30 *6*								
952.00 *20*	0.22 *6*	1672.83		721.41	3/2⁺				
[x]955.50 *20*	0.18 *5*								
986.63[f] *12*	0.77[@] *12*	1814.86?	(1/2,3/2)⁻	828.18	3/2⁻	M1		0.01255	α(K)=0.01044 *15*; α(L)=0.001625 *23*; α(M)=0.000372 *6*

γ(^{189}Ir) (continued)

E_γ [†]	I_γ [†b]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [‡]	δ [#]	α [a]	Comments
									α(N)=9.14×10^{-5} *13*; α(O)=1.624×10^{-5} *23*; α(P)=1.248×10^{-6} *18* α(K)exp=0.016 *6*
992.76 *10*	0.86 *13*	1106.39	(3/2,5/2)$^+$	113.834	5/2$^+$	M1		0.01236	α(K)=0.01028 *15*; α(L)=0.001600 *23*; α(M)=0.000366 *6* α(N)=9.00×10^{-5} *13*; α(O)=1.599×10^{-5} *23*; α(P)=1.228×10^{-6} *18* α(K)exp=0.014 *5*
1002.65[f] *10*	0.55 *11*	1610.28?	(3/2,5/2)$^-$	607.51	5/2$^-$	M1,E2+E0		0.029 *10*	α(K)exp=0.022 *8* α: from α(K)exp, with ≈30% added for higher shells. Mult.: α(K)exp consistent with pure M1 (α(K)(M1)=0.010) within 1.5σ or with E2+E0 (α(K)(E2)=0.0042) with large E0 component.
1007.80 *10*	1.03 *15*	1184.41	5/2$^-$	176.53	3/2$^+$	E1		0.00200	α(K)=0.001685 *24*; α(L)=0.000245 *4*; α(M)=5.57×10^{-5} *8* α(N)=1.362×10^{-5} *19*; α(O)=2.40×10^{-6} *4*; α(P)=1.79×10^{-7} *3* α(K)exp<0.0039
1011.85[d] *20*	0.52[d] *10*	1106.39	(3/2,5/2)$^+$	94.34	1/2$^+$				α(K)exp(1011.8+1011.8)<0.0135.
1011.85[d] *20*	0.52[d] *10*	1312.33	(3/2$^+$,5/2,7/2$^+$)	300.50	7/2$^+$				
1026.73[e] *7*	2.9[e] *5*	1203.26	3/2$^+$	176.53	3/2$^+$	(M1+E2)		0.008 *4*	α(K)=0.007 *3*; α(L)=0.0011 *4*; α(M)=0.00025 *9*; α(N)=6.1×10^{-5} *22* α(K)exp(1026.7+1026.7)=0.0081 *18*. I_γ: Iγ(1026.7+1026.7)=3.70 *22*.
1026.73[e] *7*	0.8[e] *4*	1344.51	(3/2$^+$,5/2$^+$)	317.68	5/2$^+$				
[x]1033.74 *10*	0.50 *8*					(M1,E2+E0)			α(K)exp=0.20 *6*
1044.11 *10*	0.78 *12*	1344.51	(3/2$^+$,5/2$^+$)	300.50	7/2$^+$	(E2)		0.00479	α(K)=0.00390 *6*; α(L)=0.000681 *10*; α(M)=0.0001581 *23* α(N)=3.87×10^{-5} *6*; α(O)=6.72×10^{-6} *10*; α(P)=4.43×10^{-7} *7* α(K)exp<0.0051 Mult.: α(K)exp does not exclude E1, but additional argument for E2 comes from log *ft* support for J$^\pi$ assignment.
1070.65[e] *10*	0.4[e] *2*	1184.41	5/2$^-$	113.834	5/2$^+$	(E1)			α(K)exp(1070.6+1070.6)<0.0059. I_γ: Iγ(1070.6+1070.6)=0.85 *13*.
1070.65[ef] *10*	0.4[e] *2*	1610.28?	(3/2,5/2)$^-$	539.76?					
1080.80 *10*	0.80 *12*	1802.25	(5/2$^-$)	721.41	3/2$^+$	(E1)		0.00176	α(K)exp<0.0075 Mult.: α(K)exp allows E1, E2 or M1, but proposed ΔJ^π favors E1.
1089.55 *15*	0.30 *5*	1203.26	3/2$^+$	113.834	5/2$^+$				
1106.30 *15*	1.90 *19*	1106.39	(3/2,5/2)$^+$	0.0	3/2$^+$	M1(+E2)	<0.9	0.0083 *12*	α(K)=0.0069 *10*; α(L)=0.00108 *14*; α(M)=0.00025 *4*

From ENSDF

γ(^{189}Ir) (continued)

E_γ[†]	I_γ[†b]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[‡]	δ[#]	α[a]	Comments
									α(N)=6.1×10^{-5} *8*; α(O)=1.07×10^{-5} *14*; α(P)=8.1×10^{-7} *12*; α(IPF)=3.3×10^{-7} *3* α(K)exp=0.0079 *18* I_γ: %Iγ=0.177 *22*.
1108.73 *15*	1.00 *10*	1203.26	3/2$^+$	94.34	1/2$^+$	E2(+M1)	>0.6	0.0061 *19*	α(K)=0.0051 *16*; α(L)=8.2×10^{-4} *23*; α(M)=1.89×10^{-4} *51* α(N)=4.6×10^{-5} *13*; α(O)=8.2×10^{-6} *23*; α(P)=5.9×10^{-7} *20*; α(IPF)=3.1×10^{-7} *6* α(K)exp=0.0050 *16*
[x]1123.80 *15*	0.21 *4*								
[x]1143.94 *15*	0.33[@] *10*								
1157.95 *20*	0.21 *4*	1802.25	(5/2$^-$)	644.29	(3/2,5/2)$^+$				
1159.60 *20*	0.21 *4*	1767.21	3/2,5/2$^+$	607.51	5/2$^-$				
1167.96 *20*	0.40 *6*	1344.51	(3/2$^+$,5/2$^+$)	176.53	3/2$^+$				
1184.15 *20*	0.38 *6*	1184.41	5/2$^-$	0.0	3/2$^+$				I_γ: %Iγ=0.0353 *62*.
1195.11 *40*	0.14 *5*	1802.25	(5/2$^-$)	607.51	5/2$^-$				
1198.50 *15*	0.19 *4*	1312.33	(3/2$^+$,5/2,7/2$^+$)	113.834	5/2$^+$				
1230.70 *15*	0.80 *12*	1344.51	(3/2$^+$,5/2$^+$)	113.834	5/2$^+$	(E2)		0.00349	α(K)=0.00286 *4*; α(L)=0.000476 *7*; α(M)=0.0001099 *16* α(N)=2.69×10^{-5} *4*; α(O)=4.70×10^{-6} *7*; α(P)=3.24×10^{-7} *5*; α(IPF)=7.41×10^{-6} *11* α(K)exp<0.00375 Mult.: α(K)exp does not exclude E1, but additional argument for E2 comes from log *ft* support for J$^\pi$ assignment.
1240.66 *35*	0.21 *6*	1558.20		317.68	5/2$^+$				
1254.03 *7*	3.94 *24*	1571.67	(3/2,5/2)$^+$	317.68	5/2$^+$	M1+E2	<2.0	0.0055 *15*	α(K)=0.0045 *12*; α(L)=0.00071 *18*; α(M)=0.00016 *4* α(N)=4.0×10^{-5} *10*; α(O)=7.1×10^{-6} *18*; α(P)=5.3×10^{-7} *15*; α(IPF)=1.34×10^{-5} *22* α(K)exp=0.0046 *12*
1292.35[f] *30*	0.12 *2*	1610.28?	(3/2,5/2)$^-$	317.68	5/2$^+$				
1300.25 *30*	0.18 *5*	1476.46	1/2$^+$,3/2$^{(+)}$,5/2$^+$	176.53	3/2$^+$				
1305.25 *20*	0.14[@] *4*	1622.83	1/2$^+$,3/2,5/2$^+$	317.68	5/2$^+$				
1312.30 *15*	0.68 *10*	1312.33	(3/2$^+$,5/2,7/2$^+$)	0.0	3/2$^+$	(M1+E2,E1)		0.0033 *21*	α(K)=0.0028 *17*; α(L)=0.00042 *27*; α(M)=0.00010 *6* α(K)exp<0.0044 I_γ: %Iγ=0.063 *10*. Mult.: α(K)exp gives M1+E2 with δ>0.6 or E1.

γ(^{189}Ir) (continued)

E_γ[†]	I_γ[†b]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[‡]	δ[#]	α[a]	Comments
1323.66 *7*	2.90[@] *20*	1500.19	(1/2,3/2)$^-$	176.53	3/2$^+$	E1		1.30×10^{-3}	α(K)=0.001041 *15*; α(L)=0.0001494 *21*; α(M)=3.38×10^{-5} *5* α(N)=8.29×10^{-6} *12*; α(O)=1.466×10^{-6} *21*; α(P)=1.113×10^{-7} *16*; α(IPF)=6.91×10^{-5} *10* α(K)exp<0.0017
1344.62 *15*	0.70 *10*	1344.51	(3/2$^+$,5/2$^+$)	0.0	3/2$^+$	(E2)		0.00297	α(K)=0.00243 *4*; α(L)=0.000395 *6*; α(M)=9.10×10^{-5} *13* α(N)=2.23×10^{-5} *4*; α(O)=3.91×10^{-6} *6*; α(P)=2.75×10^{-7} *4*; α(IPF)=2.51×10^{-5} *4* α(K)exp<0.00286 I_γ: %Iγ=0.065 *10*. Mult.: α(K)exp does not exclude E1, but additional argument for E2 comes from log *ft* support for J$^\pi$ assignment.
^{x}1356.35 *30*	0.28 *6*								
1362.56 *15*	0.75 *11*	1476.46	1/2$^+$,3/2$^{(+)}$,5/2$^+$	113.834	5/2$^+$	(E1,E2)		0.0021 *8*	α(K)=0.0017 *7*; α(L)=0.00026 *12*; α(M)=0.000060 *28*; α(N)=0.000015 *7* α(K)exp<0.0027
1381.64[e] *20*	0.4[e] *2*	1476.46	1/2$^+$,3/2$^{(+)}$,5/2$^+$	94.34	1/2$^+$				I_γ: Iγ(1381.6+1381.6)=0.63 *10*.
1381.64[e] *20*	0.2[e] *2*	1558.20		176.53	3/2$^+$				
1387.75 *25*	0.70 *11*	1501.35	(1/2$^-$,3/2$^-$,5/2$^-$)	113.834	5/2$^+$				
1395.23 *30*	0.33 *8*	1571.67	(3/2,5/2)$^+$	176.53	3/2$^+$				
1405.95 *25*	0.63 *9*	1500.19	(1/2,3/2)$^-$	94.34	1/2$^+$				
^{x}1408.52 *25*	0.61 *9*								
1423.00 *20*	0.44 *9*	1536.89		113.834	5/2$^+$				
1443.67 *40*	0.25 *9*	1558.20		113.834	5/2$^+$				
1446.37 *25*	0.64[@] *10*	1622.83	1/2$^+$,3/2,5/2$^+$	176.53	3/2$^+$				
1457.85 *20*	2.30[@] *23*	1571.67	(3/2,5/2)$^+$	113.834	5/2$^+$	E2		0.00258	α(K)=0.00209 *3*; α(L)=0.000335 *5*; α(M)=7.69×10^{-5} *11* α(N)=1.89×10^{-5} *3*; α(O)=3.31×10^{-6} *5*; α(P)=2.36×10^{-7} *4*; α(IPF)=5.40×10^{-5} *8* α(K)exp=0.0022 *7*
1476.91[e] *20*	3.0[e] *7*	1476.46	1/2$^+$,3/2$^{(+)}$,5/2$^+$	0.0	3/2$^+$	(E2+M1)	>0.8	0.0031 *6*	α(K)=0.0026 *5*; α(L)=0.00040 *8*; α(M)=9×10^{-5} *2*; α(N)=2.2×10^{-5} *4* I_γ: %Iγ=0.279 *68*. α(K)exp(1476.9+1476.9)=0.0025 *6*. I_γ: Iγ(1476.9+1476.9)=4.0 *4*.
1476.91[e] *20*	1.0[e] *5*	1571.67	(3/2,5/2)$^+$	94.34	1/2$^+$				
^{x}1485.20 *30*	0.17 *3*								
1496.30[ef] *25*	0.2[e] *1*	1610.28?	(3/2,5/2)$^-$	113.834	5/2$^+$				I_γ: Iγ(1496.3+1496.3)=0.75 *19*.
1496.30[ef] *25*	0.6[e] *3*	1672.83		176.53	3/2$^+$				

$^{189}_{77}Ir_{112}$-13

γ(^{189}Ir) (continued)

E_γ [†]	I_γ [†b]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [‡]	α [a]	Comments
1501.70[d] *20*	1.08[d] *16*	1501.35	(1/2$^-$,3/2$^-$,5/2$^-$)	0.0	3/2$^+$	(E1)	1.17×10^{-3}	α(K)=0.000839 *12*; α(L)=0.0001199 *17*; α(M)=2.71×10^{-5} *4* α(N)=6.65×10^{-6} *10*; α(O)=1.177×10^{-6} *17*; α(P)=8.99×10^{-8} *13*; α(IPF)=0.000181 *3* I_γ: %Iγ=0.100 *16*. α(K)exp(1501.7+1501.7)<0.0018.
1501.70[d] *20*	1.08[d] *16*	1802.25	(5/2$^-$)	300.50	7/2$^+$	(E1)	1.17×10^{-3}	α(K)=0.000839 *12*; α(L)=0.0001199 *17*; α(M)=2.71×10^{-5} *4* α(N)=6.65×10^{-6} *10*; α(O)=1.177×10^{-6} *17*; α(P)=8.99×10^{-8} *13*; α(IPF)=0.000181 *3*
[x]1504.00 *30*	0.36 *7*							
1508.25 *40*	0.18 *3*	1622.83	1/2$^+$,3/2,5/2$^+$	113.834	5/2$^+$			
1528.42 *20*	0.67 *13*	1622.83	1/2$^+$,3/2,5/2$^+$	94.34	1/2$^+$			
1536.70 *30*	0.13 *3*	1536.89		0.0	3/2$^+$			I_γ: %Iγ=0.0121 *29*.
[x]1554.76 *40*	0.13 *4*							
1558.26[e] *25*	0.2[e@] *1*	1558.20		0.0	3/2$^+$			I_γ: %Iγ=0.0186 *94*. I_γ: Iγ(1558.3+1558.3)=0.40 *6*.
1558.26[e] *25*	0.2[e@] *1*	1672.83		113.834	5/2$^+$			
1571.60 *20*	0.80 *8*	1571.67	(3/2,5/2)$^+$	0.0	3/2$^+$			I_γ: %Iγ=0.0744 *95*.
[x]1579.85 *50*	0.09 *4*							
[x]1593.24 *20*	0.38 *6*							
[x]1601.70 *30*	0.15 *3*							
1610.85[f] *40*	0.23 *3*	1610.28?	(3/2,5/2)$^-$	0.0	3/2$^+$			I_γ: %Iγ=0.0214 *32*.
[x]1613.85 *40*	0.37 *6*							
1623.05 *30*	0.15 *5*	1622.83	1/2$^+$,3/2,5/2$^+$	0.0	3/2$^+$			I_γ: %Iγ=0.0140 *47*.
[x]1635.40 *80*	0.22 *8*							
1637.92[f] *40*	0.33 *8*	1814.86?	(1/2,3/2)$^-$	176.53	3/2$^+$			
1653.60 *25*	0.56[@] *8*	1767.21	3/2,5/2$^+$	113.834	5/2$^+$			
1672.8[cf] *4*		1672.83		0.0	3/2$^+$			I_γ: Iγ(doublet)=0.20 *3*.
1672.80[c] *40*	0.20 *3*	1767.21	3/2,5/2$^+$	94.34	1/2$^+$			
[x]1683.70 *30*	0.27 *4*							
1688.49 *30*	0.18[@] *4*	1802.25	(5/2$^-$)	113.834	5/2$^+$			
1720.92[f] *30*	0.24 *4*	1814.86?	(1/2,3/2)$^-$	94.34	1/2$^+$			
[x]1740.23 *40*	0.19 *3*							
1767.08 *40*	0.60 *6*	1767.21	3/2,5/2$^+$	0.0	3/2$^+$			I_γ: %Iγ=0.0558 *71*.
[x]1785.96 *40*	0.15 *6*							
[x]1792.00 *40*	0.20 *5*							
[x]1798.04 *40*	0.30 *6*							
1802.35 *40*	0.24[@] *7*	1802.25	(5/2$^-$)	0.0	3/2$^+$			I_γ: %Iγ=0.0223 *67*.
[x]1811.34 *80*	0.14[@] *7*							
1815.45[f] *80*	0.13 *7*	1814.86?	(1/2,3/2)$^-$	0.0	3/2$^+$			

From ENSDF

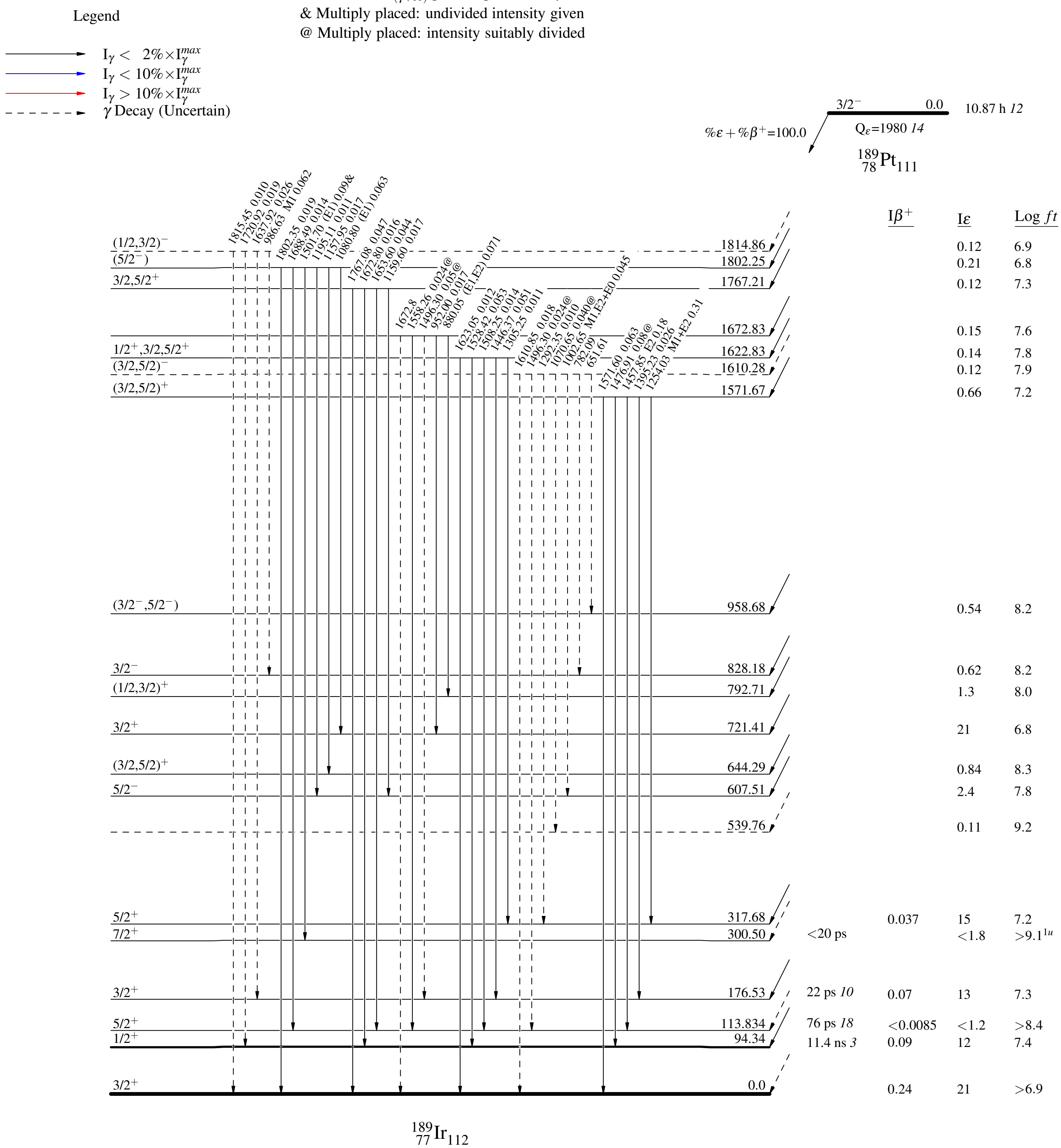
γ(^{189}Ir) (continued)

† From 1972He05.
‡ From conversion electron data of 1972He05 and 1972Ba21, except where noted.
# Magnitudes of δ values are from conversion electron data. Signs are from low temperature γ(θ) data (1980Be27).
@ Corrected for ^{188}Ir contamination.
& Iγ(tot)=87 *4*, intensity divided assuming intensity balance through the 113.8 level.
[a] Theoretical values from BrIcc code (2008Ki07) with "Frozen Orbitals" approximation, unless otherwise stated.
[b] For absolute intensity per 100 decays, multiply by 0.079 *21*.
[c] Multiply placed.
[d] Multiply placed with undivided intensity.
[e] Multiply placed with intensity suitably divided.
[f] Placement of transition in the level scheme is uncertain.
[x] γ ray not placed in level scheme.

^{189}Pt ε decay (10.87 h) 1972He05,1972Ba21

Decay Scheme

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

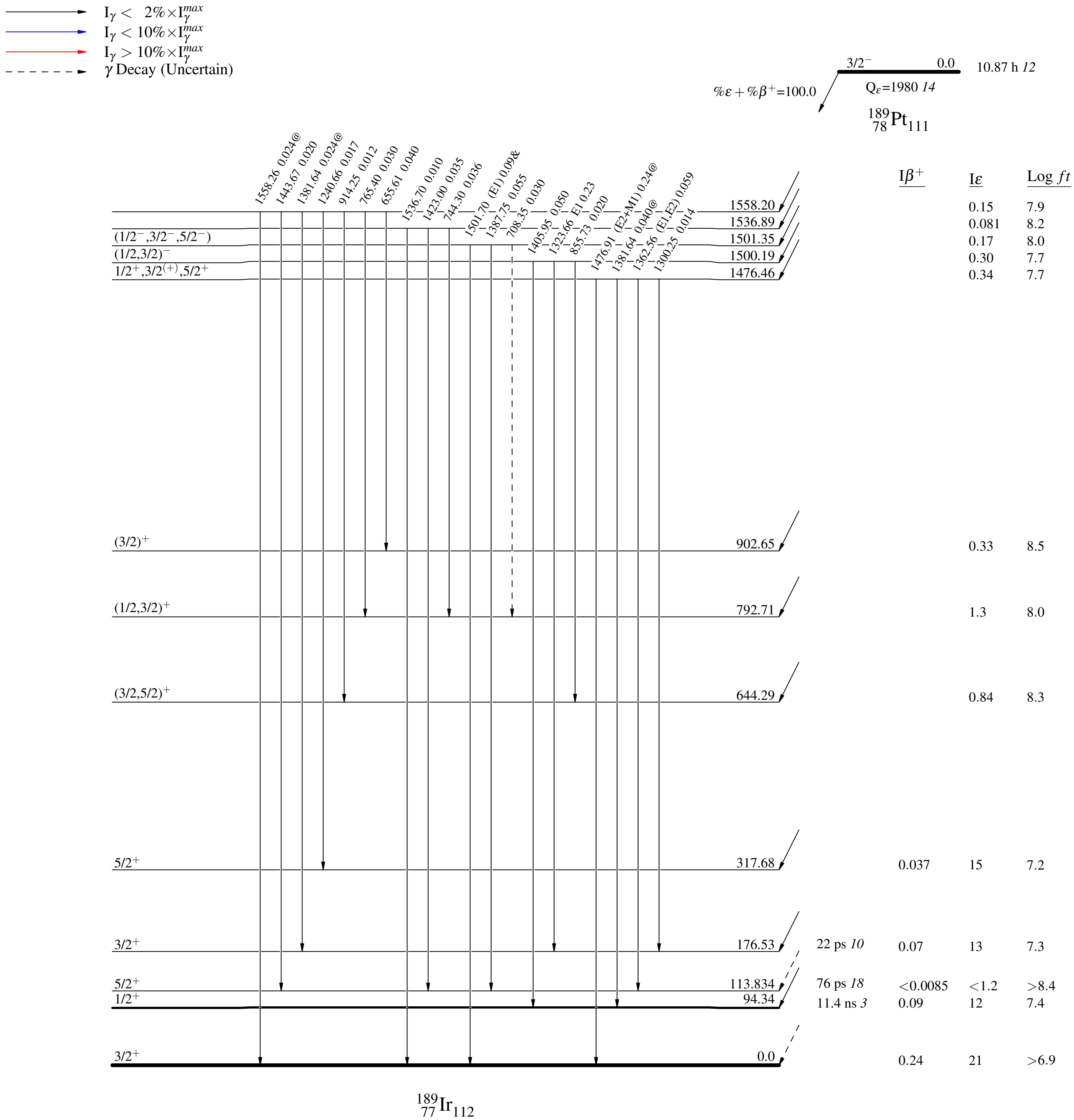


^{189}Pt ε decay (10.87 h) 1972He05,1972Ba21

Decay Scheme (continued)

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

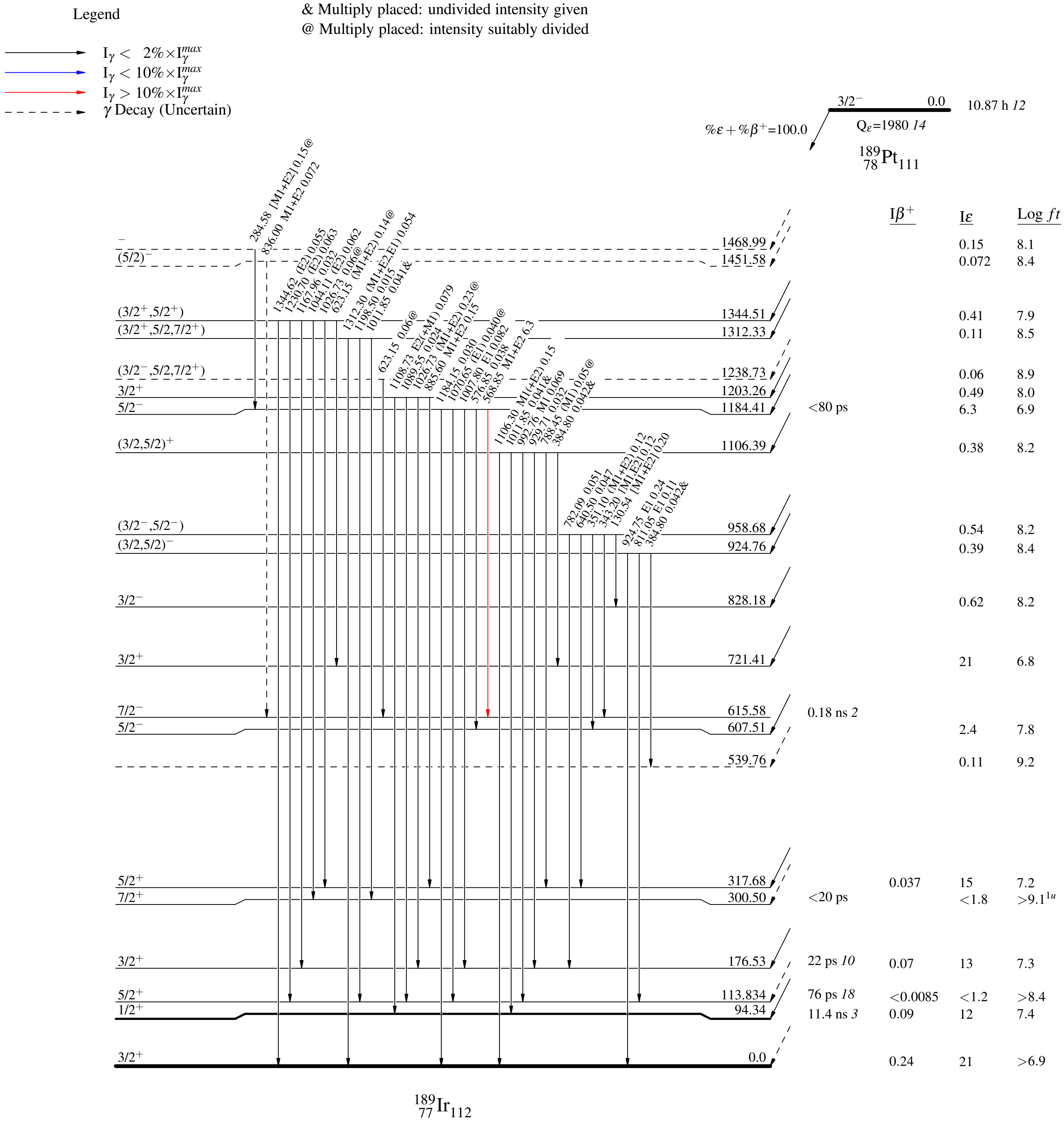
Legend



^{189}Pt ε decay (10.87 h) 1972He05,1972Ba21

Decay Scheme (continued)

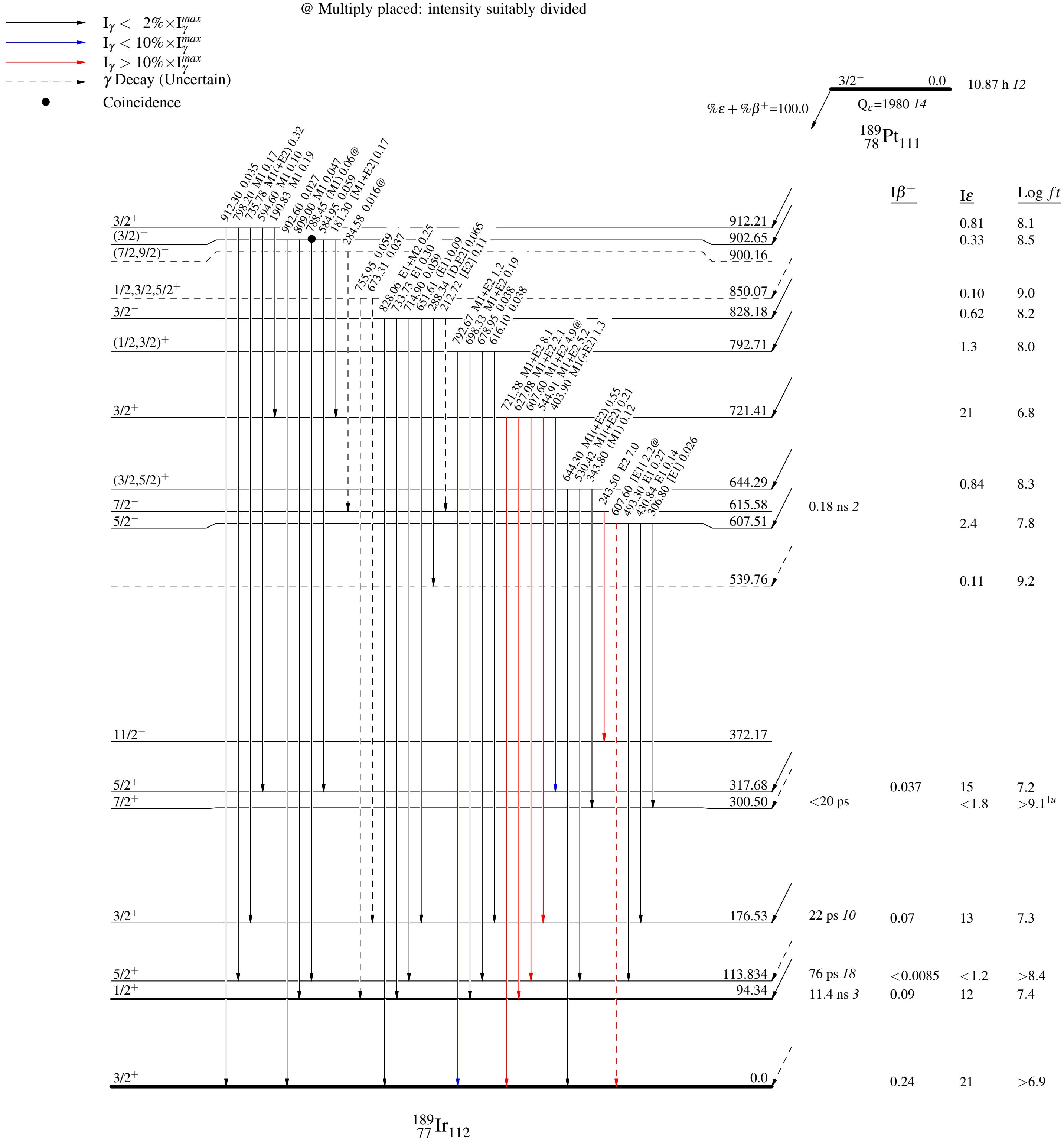
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided



^{189}Pt ε decay (10.87 h) 1972He05,1972Ba21

Decay Scheme (continued)

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



^{189}Pt ε decay (10.87 h) 1972He05,1972Ba21

Decay Scheme (continued)

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