^{188}Ir ε decay (41.5 h) 1975Th06,1969Ya02,1964Ha06

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	F. G. Kondev, S. Juutinen, D. J. Hartley	NDS 150, 1 (2018)	1-Feb-2018

Parent: ^{188}Ir: E=0.0; J$^{\pi}$=1^{-}; $T_{1/2}$=41.5 h *5*; Q(ε)=2792 *9*; %ε+%β^+ decay=100.0

1975Th06: γ, $\gamma\gamma$ data.

1969Ya02: γ, $\gamma\gamma$, $\gamma\gamma(\theta)$, ce, β^+ data.

1964Ha06: ce data.

Others:

γ: 1980Be27, 1972BaZX, 1963Gr22, 1962Wa20 (also 1962Wa37), 1961Kr02, 1958Di44, 1958Fi32, 1955Sm42, 1950Ch11.

$\gamma\gamma$: 1973ArZT, 1962Wa20, 1958Fi32.

$\gamma\gamma$(t): 1971Bo13.

$\gamma\gamma(\theta)$: 1971Kr01 (also 1970KrZW), 1975PrZU, 1963Ya01.

$\gamma(\theta)$ on oriented nuclei: 1992Ka49 (also 1992Ka48).

$\gamma(\theta$,H,T): 1980Be27.

$\gamma(\theta$,H,T) and NMR: 1985Ed02, 1988Oh05.

ce: 1966Ha08, 1964Sa30, 1962Gr02, 1961Kr02, 1960Ma28, 1959Ka09, 1958Di44, 1958Fi32, 1954Na25, 1954NiZZ.

ce ce: 1962Wa20.

ce γ: 1962Gr02.

ce γ(t): 1970Be18 (also 1971Bb09).

ce $\gamma(\theta)$: 1963Ya01 (also 1965Ya01,1963Ya07).

β^+: 1970Ag03, 1962Wa20, 1960Ka14, 1950Ch11.

β^+ γ: 1970Ag03, 1966Dz12.

^{188}Os Levels

E(level)[†]	J$^{\pi}$[‡]	$T_{1/2}$	Comments
0.0	0$^+$		
155.031 *24*	2$^+$	0.704 ns *7*	$T_{1/2}$: From Adopted Levels. Values measured in ^{188}Ie ε decay: 0.714 ns *21* ($\varepsilon\gamma$(t),1971Bo13) and 0.710 ns *30* (εce(t),1970Be18).
477.95 *3*	4$^+$	17.7 ps *10*	$T_{1/2}$: From Adopted Levels.
633.033 *23*	2$^+$		
789.96 *3*	3$^+$		
940.8 *10*	6$^+$		
965.66 *4*	4$^+$		
1086.38 *4*	0$^+$		
1304.84 *4*	2$^+$		
1457.39 *4*	2$^+$		
1462.50 *4*	(2$^-$)		
1478.08 *4*	0$^+$		
1620.47 *5*	2$^+$		
1685.28 *5*	(3$^+$)		
1704.3 *5*	0$^+$		
1729.50 *5*	2$^+$		J$^{\pi}$: 3 is not allowed by $\gamma(\theta)$ data of 1992Ka49.
1765.6 *5*	0$^+$		
1807.59 *4*	2$^+$		
1842.85 *4*	(2)$^+$		
1957.34 *11*	(1$^+$,2$^+$)		
1965.00 *7*	(2)$^+$		
2068.55 *8*	(2)$^+$		
2085.41 *9*	(1,2)$^+$		
2098.98 *5*	(1)$^+$		
2166.02 *10*	(2)$^+$		
2204.72 *8*	2$^+$		
2214.60 *5*	(1)$^+$		

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^{188}Ir ε decay (41.5 h) 1975Th06,1969Ya02,1964Ha06 (continued)

^{188}Os Levels (continued)

E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡
2251.94 *6*	2$^+$	2347.49 *14*	(1)$^+$	2415.90 *10*	(2$^+$)	2549.48 *12*	(2$^-$)
2286.24 *16*	(1$^+$,2$^+$)	2348.69 *6*	(2)$^-$	2460.49 *18*	1,2	2581.80 *24*	1,2
2299.86 *23*	1,2	2374.2 *4*	1,2	2491.0 *3*	(2$^-$)	2622.71 *20*	(2$^+$)
2326.07 *13*	1,2	2376.92 *14*	(2$^-$)	2520.48 *22*	1,2		

† From least-squares fit to Eγ′s.
‡ From Adopted Levels.

ε,β$^+$ radiations

E(decay)	E(level)	Iβ$^+$ †	Iε†	Log *ft*	I(ε+β$^+$)†	Comments
(169 *9*)	2622.71		0.100 *14*	7.61 *10*	0.100 *14*	εK=0.630 *20*; εL=0.274 *14*; εM+=0.096 *6*
(210 *9*)	2581.80		0.061 *13*	8.09 *11*	0.061 *13*	εK=0.687 *10*; εL=0.233 *7*; εM+=0.080 *3*
(243 *9*)	2549.48		0.20 *3*	7.74 *8*	0.20 *3*	εK=0.713 *7*; εL=0.214 *5*; εM+=0.0725 *18*
(272 *9*)	2520.48		0.165 *22*	7.96 *7*	0.165 *22*	εK=0.730 *5*; εL=0.202 *4*; εM+=0.0679 *13*
(301 *9*)	2491.0		0.045 *10*	8.63 *11*	0.045 *10*	εK=0.742 *4*; εL=0.1935 *25*; εM+=0.0644 *10*
(332 *9*)	2460.49		0.36 *4*	7.83 *6*	0.36 *4*	εK=0.752 *3*; εL=0.1864 *20*; εM+=0.0616 *8*
(376 *9*)	2415.90		0.235 *23*	8.15 *5*	0.235 *23*	εK=0.7628 *20*; εL=0.1785 *14*; εM+=0.0586 *6*
(415 *9*)	2376.92		0.25 *3*	8.23 *6*	0.25 *3*	εK=0.7700 *15*; εL=0.1734 *11*; εM+=0.0566 *5*
(418 *9*)	2374.2		0.220 *25*	8.29 *6*	0.220 *25*	εK=0.7704 *15*; εL=0.1731 *11*; εM+=0.0565 *5*
(443 *9*)	2348.69		9.3 *8*	6.72 *5*	9.3 *8*	εK=0.7742 *13*; εL=0.1703 *10*; εM+=0.0555 *4*
(445 *9*)	2347.49		1.02 *12*	7.69 *6*	1.02 *12*	εK=0.7744 *13*; εL=0.1702 *10*; εM+=0.0554 *4*
(466 *9*)	2326.07		0.183 *19*	8.48 *5*	0.183 *19*	εK=0.7772 *12*; εL=0.1682 *9*; εM+=0.0546 *4*
(492 *9*)	2299.86		0.172 *21*	8.56 *6*	0.172 *21*	εK=0.7802 *10*; εL=0.1660 *8*; εM+=0.0538 *3*
(506 *9*)	2286.24		0.38 *5*	8.24 *6*	0.38 *5*	εK=0.7816 *10*; εL=0.1650 *7*; εM+=0.0534 *3*
(540 *9*)	2251.94		7.0 *9*	7.04 *6*	7.0 *9*	εK=0.7848 *8*; εL=0.1627 *6*; εM+=0.05252 *22*
(577 *9*)	2214.60		26.6 *22*	6.53 *4*	26.6 *22*	εK=0.7878 *7*; εL=0.1605 *5*; εM+=0.05170 *19*
(587 *9*)	2204.72		5.4 *5*	7.24 *5*	5.4 *5*	εK=0.7885 *7*; εL=0.1600 *5*; εM+=0.05150 *18*
(626 *9*)	2166.02		0.93 *9*	8.06 *5*	0.93 *9*	εK=0.7911 *6*; εL=0.1581 *4*; εM+=0.05079 *16*
(693 *9*)	2098.98		9.2 *9*	7.16 *5*	9.2 *9*	εK=0.7948 *5*; εL=0.1554 *4*; εM+=0.04978 *13*
(707 *9*)	2085.41		1.47 *13*	7.98 *4*	1.47 *13*	εK=0.7954 *5*; εL=0.1550 *3*; εM+=0.04960 *12*
(723 *9*)	2068.55		1.61 *16*	7.96 *5*	1.61 *16*	εK=0.7962 *4*; εL=0.1544 *3*; εM+=0.04939 *12*
(827 *9*)	1965.00		0.71 *7*	8.44 *5*	0.71 *7*	εK=0.8002 *3*; εL=0.15154 *22*; εM+=0.04830 *9*
(835 *9*)	1957.34		1.37 *12*	8.17 *4*	1.37 *12*	εK=0.8004 *3*; εL=0.15136 *22*; εM+=0.04823 *8*
(949 *9*)	1842.85		8.2 *8*	7.51 *5*	8.2 *8*	εK=0.8036 *3*; εL=0.14903 *16*; εM+=0.04735 *6*
(984 *9*)	1807.59		3.2 *3*	7.95 *5*	3.2 *3*	εK=0.8044 *2*; εL=0.1484 *2*; εM+=0.04713 *6*
(1063 *9*)	1729.50		4.8 *4*	7.85 *4*	4.8 *4*	εK=0.8060 *2*; εL=0.1473 *2*; εM+=0.04669 *5*
(1107‡ *9*)	1685.28		<0.05	>10.5^{1u}	<0.05	εK=0.7844 *4*; εL=0.1629 *3*; εM+=0.05274 *12*
(1172 *9*)	1620.47		2.70 *25*	8.19 *5*	2.70 *25*	εK=0.8079 *2*; εL=0.1459 *1*; εM+=0.04618 *4*
(1314 *9*)	1478.08		0.32 *5*	9.22 *7*	0.32 *5*	εK=0.8098 *1*; εL=0.14448 *9*; εM+=0.04564 *3*
(1330 *9*)	1462.50		6.3 *6*	7.94 *5*	6.3 *6*	εK=0.8099 *1*; εL=0.14434 *8*; εM+=0.04559 *3*
(1335 *9*)	1457.39		2.8 *3*	8.29 *5*	2.8 *3*	εK=0.8100 *1*; εL=0.14430 *8*; εM+=0.04557 *3*
(1487 *9*)	1304.84		0.45 *12*	9.18 *12*	0.45 *12*	εK=0.8111; εL=0.14305 *7*; εM+=0.04511 *3*
(1706‡ *9*)	1086.38	0.00036 *15*	0.10 *4*	9.96 *18*	0.10 *4*	av Eβ=326.1 *40*; εK=0.81049 *9*; εL=0.14138 *8*; εM+=0.04450 *3*
(2002‡ *9*)	789.96	<0.0044	<1.5	>10.1^{1u}	<1.5	av Eβ=468.5 *39*; εK=0.8020; εL=0.14805 *9*; εM+=0.04705 *4*
(2159 *9*)	633.033	0.12 *1*	5.3 *6*	8.45 *5*	5.4 *6*	av Eβ=524.8 *40*; εK=0.7975 *5*; εL=0.1369 *2*; εM+=0.04300 *4* Iβ$^+$: from Iβ$^+$/Iγ(478γ)=0.0082 (1969Ya02) by assuming 10% uncertainty. Iε: from I(ε)/Iβ$^+$(theory)=43.8 *14* (1971Go40).

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^{188}Ir ε decay (41.5 h) 1975Th06,1969Ya02,1964Ha06 (continued)

ϵ,β^+ radiations (continued)

E(decay)	E(level)	Iβ^+ †	Iε†	Log *ft*	I($\varepsilon+\beta^+$)†	Comments
						E(decay): Others: measured E(β^+): 1211 *45* (1962Wa20), 1125 *20* (1969Ya02), 1030 *50* (1970Ag03). I($\varepsilon+\beta^+$): 6 *3* from intensity balance.
(2637 *9*)	155.031	0.21 *3*	2.8 *4*	8.90 *6*	3.0 *4*	av Eβ=735.1 *40*; εK=0.7609 *10*; εL=0.12928 *18*; εM+=0.04053 *6* E(decay): Others: measured E(β^+): 1650 *30* (1970Ag03), 1605 *20* (1969Ya02), 1656 *10* (1962Wa20), 1656 (1966Dz12). Iβ^+: from Iβ^+/Iγ(478γ)=0.014 (1969Ya02) by assuming 10% uncertainty. Iε: from I(ε)/Iβ^+(theory)=13.5 *3* (1971Go40). I($\varepsilon+\beta^+$): −3 *5* from intensity balance.
(2792 *9*)	0.0	0.058 *6*	0.58 *6*	9.63 *4*	0.64 *6*	av Eβ=803.5 *40*; εK=0.7437 *11*; εL=0.12602 *20*; εM+=0.03949 *7* Iβ^+: from %Iβ^+=0.058 (1969Ya02) and by assuming a 10% uncertainty. Iε: from I(ε)/Iβ^+(theory)=10.01 *19* (1971Go40).

† Absolute intensity per 100 decays.
‡ Existence of this branch is questionable.

γ(^{188}Os)

Iγ normalization: from I(ε+β^+)(g.s.)=0.64 *6*, deduced from %Iβ^+=0.058 (1969Ya02) and by assuming a 10% uncertainty, and I(ε)/Iβ^+(theory)=10.01 *19* (1971Go40).

Experimental values of α's given in the comments were deduced by the evaluators using Iγ's from 1975Th06 and Ice's from 1969Ya02 and 1964Ha06. The ce data were normalized to 478γ, using α(K)(E2)=0.0191. The Ice's from 1964Ha06 were related to those from 1969Ya02, using different normalization factors: 0.33 below 1 MeV, 0.39 between 1-2 MeV and 0.48 above 2 MeV. Uncertainties on Ice's are not given by either 1964Ha06 or 1969Ya02, 25-50% assumed by the evaluator in determining α(exp)'s.

E_γ[†]	I_γ[‡c]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	α[b]	Comments
(25.32 *8*)	3.9×10^{-7} *13*	965.66	4$^+$	940.8	6$^+$	[E2]	3.06×10^3	%Iγ=5.7×10^{-08} *20* α(L)=2.31×10^3 *4*; α(M)=583 *9* α(N)=139.0 *20*; α(O)=20.3 *3*; α(P)=0.01613 *23* E_γ: Not observed in ^{188}Ir ε decay (41.5 h).
[x]85.0[@f]								
[x]95.6[@f]								
115.7[@f]		2214.60	(1)$^+$	2098.98	(1)$^+$			
[x]123.1[@f]								
[x]150.5[@f]								
155.044 *4*	202 *16*	155.031	2$^+$	0.0	0$^+$	E2	0.810	%Iγ=29.6 *15* α(K)=0.324 *5*; α(L)=0.367 *6*; α(M)=0.0931 *13* α(N)=0.0224 *4*; α(O)=0.00334 *5*; α(P)=2.95×10^{-5} *5* E_γ: Others: 155.05 *4* (1975Th06) and 155.03 *3* (ce data,1962Gr02). Mult.: α(K)exp=0.39 *8*; L1/L2=0.195 (1966St01); L2/L3=1.38 *5* (1966St01); L1/L3=0.269 *15* (1966St01). 155γ(θ): A_2=−0.03 *1* (1985Ed02).
157.0[&f]		789.96	3$^+$	633.033	2$^+$			
[x]158.0[@f]								
162.2[@f]		1620.47	2$^+$	1457.39	2$^+$			
175.4[@f]	0.27 *3*	965.66	4$^+$	789.96	3$^+$	[M1+E2]	1.139	%Iγ=0.040 *5* α(K)=0.942 *14*; α(L)=0.1520 *22*; α(M)=0.0349 *5* α(N)=0.00851 *12*; α(O)=0.001470 *21*; α(P)=0.0001095 *16* I_γ: From Iγ(175.4γ)/Iγ(487.70γ) in the adopted gammas and and Iγ(487.70γ)=1.44 *15* in ^{188}Ir ε decay.
[x]189.3[@f]								
218.5 *5*	0.069 *3*	1304.84	2$^+$	1086.38	0$^+$	[E2]	0.247	%Iγ=0.0101 *7* α(K)=0.1346 *21*; α(L)=0.0852 *15*; α(M)=0.0214 *4* α(N)=0.00514 *9*; α(O)=0.000782 *14*; α(P)=1.281×10^{-5} *20* E_γ: Not observed in ^{188}Ir ε decay (41.5 h).
222.3[@f]		1842.85	(2)$^+$	1620.47	2$^+$			

γ(^{188}Os) (continued)

E_γ[†]	I_γ[‡c]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	δ[#]	α[b]	Comments
268.3[@f]		2520.48	1,2	2251.94	2^+				
271.8[a] *5*	0.18 *3*	1729.50	2^+	1457.39	2^+	[M1+E2]		0.339	%Iγ=0.026 *5* α(K)=0.281 *4*; α(L)=0.0450 *7*; α(M)=0.01030 *15* α(N)=0.00252 *4*; α(O)=0.000435 *6*; α(P)=3.25×10^{-5} *5*
279.6[@f]		1965.00	$(2)^+$	1685.28	(3^+)				
312.00 *2*	1.19 *4*	789.96	3^+	477.95	4^+	E2(+M1)		0.233	%Iγ=0.174 *11* α(K)=0.193 *3*; α(L)=0.0307 *5*; α(M)=0.00704 *10* α(N)=0.001720 *24*; α(O)=0.000297 *5*; α(P)=2.22×10^{-5} *4* E_γ: 312.00 *4* (1975Th06); 311.99 *4* (ce data,1962Gr02). I_γ: From Iγ(312.00γ)/Iγ(634.97γ) in the adopted gammas and and Iγ(634.97γ)=34 *5* in the ^{188}Ir ε decay. Other: 1.34 *13* in 1975Th06. Mult.: α(K)exp=0.055 *14*, K/L3=13.3.
322.92 *2*	11.0 *9*	477.95	4^+	155.031	2^+	E2		0.0736	%Iγ=1.61 *16* α(K)=0.0490 *7*; α(L)=0.0187 *3*; α(M)=0.00461 *7* α(N)=0.001112 *16*; α(O)=0.0001736 *25*; α(P)=4.97×10^{-6} *7* E_γ: Other: 322.91 *4* in 1975Th06. Mult.: α(K)exp=0.040 *9*, K/M=10 *2*. 323γ(θ): A_2=−0.08 *7* (1985Ed02) (323ce)(155γ)(θ) gives A_2=0.085 *37*,A_4=0.059 *52* (1963Ya01).
332.62 *5*	0.49 *5*	965.66	4^+	633.033	2^+	E2		0.0675	%Iγ=0.072 *9* α(K)=0.0455 *7*; α(L)=0.01680 *24*; α(M)=0.00413 *6* α(N)=0.000997 *14*; α(O)=0.0001561 *22*; α(P)=4.63×10^{-6} *7* Mult.: α(K)exp=0.066 *22*. Weak L3 observed.
^{x}346.7[@f]									
350.0[&]	1.6 *3*	1807.59	2^+	1457.39	2^+	E2		0.0584	%Iγ=0.23 *5* α(K)=0.0400 *6*; α(L)=0.01401 *20*; α(M)=0.00343 *5* α(N)=0.000829 *12*; α(O)=0.0001303 *19*; α(P)=4.11×10^{-6} *6* Mult.: α(K)exp=0.035 *9*.
^{x}351.7[@f]						(E2)		0.0576	α(K)=0.0395 *6*; α(L)=0.01377 *20*; α(M)=0.00338 *5* α(N)=0.000815 *12*; α(O)=0.0001281 *18*; α(P)=4.06×10^{-6} *6* Mult.: α(K)exp=0.035 *7*, K/L2=5.9 *12*.
^{x}352.7[@f]									
371.4[@f]		2214.60	$(1)^+$	1842.85	$(2)^+$				
^{x}379.6[@f]									
383.47[a] *8*	0.24 *4*	2549.48	(2^-)	2166.02	$(2)^+$	[E1]		0.01378	%Iγ=0.035 *7* α(K)=0.01149 *16*; α(L)=0.001773 *25*; α(M)=0.000404 *6* α(N)=9.79×10^{-5} *14*; α(O)=1.655×10^{-5} *24*; α(P)=1.103×10^{-6} *16*
385.46 *5*	1.60 *15*	1842.85	$(2)^+$	1457.39	2^+	M1+E2	1.2 *+7−5*	0.080 *23*	%Iγ=0.23 *3* α(K)=0.063 *21*; α(L)=0.0130 *20*; α(M)=0.0031 *4* α(N)=0.00075 *10*; α(O)=0.000124 *20*; α(P)=7.1×10^{-6} *25*

γ(^{188}Os) (continued)

E_γ[†]	I_γ[‡c]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ[#]	α[b]	Comments
									Mult.,δ: α(K)exp=0.088 *20*, L1/M=2.8 *6*, α(L1)exp=0.0175, α(M)exp=0.0063.
[x]389.94[a] *15*	0.13 *3*								%Iγ=0.019 *5*
399.0[@f]		2204.72	2^+	1807.59	2^+				
411.77[a] *20*	0.08 *3*	2376.92	(2^-)	1965.00	$(2)^+$	[E1]		0.01173	%Iγ=0.012 *5* α(K)=0.00979 *14*; α(L)=0.001502 *21*; α(M)=0.000342 *5* α(N)=8.29×10^{-5} *12*; α(O)=1.404×10^{-5} *20*; α(P)=9.45×10^{-7} *14*
413.73[a] *8*	0.24 *4*	2098.98	$(1)^+$	1685.28	(3^+)				%Iγ=0.035 *7*
424.71 *15*	0.23 *4*	1729.50	2^+	1304.84	2^+	M1+E2	≤1.2	0.082 *20*	%Iγ=0.034 *7* α(K)=0.067 *18*; α(L)=0.0116 *19*; α(M)=0.0027 *4* α(N)=0.00065 *10*; α(O)=0.000111 *19*; α(P)=7.6×10^{-6} *21* Mult.: α(K)exp=0.08 *3*.
448.10 *8*	0.51 *10*	2068.55	$(2)^+$	1620.47	2^+	E2		0.0300	%Iγ=0.075 *16* α(K)=0.0220 *3*; α(L)=0.00609 *9*; α(M)=0.001472 *21* α(N)=0.000356 *5*; α(O)=5.71×10^{-5} *8*; α(P)=2.32×10^{-6} *4* Mult.: α(K)exp=0.019 *6*.
453.34 *4*	0.2476 *25*	1086.38	0^+	633.033	2^+	(E2)		0.0291	%Iγ=0.0363 *20* α(K)=0.0215 *3*; α(L)=0.00587 *9*; α(M)=0.001418 *20* α(N)=0.000343 *5*; α(O)=5.50×10^{-5} *8*; α(P)=2.26×10^{-6} *4* E_γ: 453.26 *20* (1975Th06). I_γ: From Iγ(453.34γ)/Iγ(931.34γ) in the adopted gammas and Iγ(931.34γ)=1.79 *17* in the ^{188}Ir ε decay. Other: 0.21 *8* (1975Th06). Mult.: α(K)exp≈0.045. Deduced mult=M1,E2.
478.00 *2*	100	633.033	2^+	155.031	2^+	E2+M1+E0	−12 *3*	0.031 *4*	%Iγ=14.7 *8* α(K)=0.0193 *4*; α(L)=0.00500 *8*; α(M)=0.001203 *18* α(N)=0.000291 *5*; α(O)=4.70×10^{-5} *7*; α(P)=2.04×10^{-6} *4* E_γ: 477.99 *4* in 1975Th06; 478.07 *4* (ce data,1962Gr02). I_γ: I(E0)=0.19 *17*, deduced from ce(K)(E0)/ce(K)(E2)=0.10 *9* (1963Ya01). Mult.: 478$\gamma(\theta)$: A_2=0.06 *1* (1985Ed02). A_2=−0.015 *14*, A_4=0.288 *21* (1971Kr01). (478γ)(155ce)(θ): A_2=−0.018 *11*, A_4=−0.186 *17* (1963Ya01). (478ce)(155γ)(θ): A_2=0.033 *11*, A_4=0.000 *14* (1963Ya01). K/L/M=1/0.26/0.08 (1964Ha06). γce(θ) gives E0 strength parameter=2.2×10^{-2} *+8−14* and ce(K)(E0)/ce(K)(E2)=0.10 *9* (1963Ya01,1965Ya01). δ: (E2/M1) value from (478γ)(155γ)(θ) in 1971Kr01. α: 0.031 *4*, deduced from α(K)exp=0.023 *3* (1959Ki44) and T/K=1.34 *3* from BrICC.

γ(^{188}Os) (continued)

E_γ[†]	I_γ[‡c]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	δ[#]	α[b]	Comments
487.70 *6*	1.44 *15*	965.66	4^+	477.95	4^+	E2+M1	+3.2 *+13−3*	0.0284 *20*	%Iγ=0.211 *25* α(K)=0.0217 *18*; α(L)=0.00508 *21*; α(M)=0.00121 *5* α(N)=0.000294 *11*; α(O)=4.79×10^{-5} *21*; α(P)=2.35×10^{-6} *21* Mult.: α(K)exp=0.020 *5*.
491.64[a] *8*	0.35 *6*	1457.39	2^+	965.66	4^+	[E2]		0.0238	%Iγ=0.051 *10* α(K)=0.01779 *25*; α(L)=0.00456 *7*; α(M)=0.001095 *16* α(N)=0.000265 *4*; α(O)=4.28×10^{-5} *6*; α(P)=1.89×10^{-6} *3*
[x]503.0[@f]									
514.88 *4*	1.20 *4*	1304.84	2^+	789.96	3^+	E2(+M1)	≥3.3	0.0229 *18*	%Iγ=0.176 *11* α(K)=0.0175 *15*; α(L)=0.00413 *18*; α(M)=0.00099 *4* α(N)=0.000239 *10*; α(O)=3.89×10^{-5} *18*; α(P)=1.88×10^{-6} *18* E_γ: 514.77 *10* (1975Th06). I_γ: 0.89 *9* (1975Th06). Mult.,δ: α(K)exp=0.015 *4*.
522.68 *10*	0.14 *4*	2251.94	2^+	1729.50	2^+	[M1]		0.0591	%Iγ=0.021 *6* α(K)=0.0491 *7*; α(L)=0.00771 *11*; α(M)=0.001763 *25* α(N)=0.000430 *6*; α(O)=7.45×10^{-5} *11*; α(P)=5.60×10^{-6} *8*
534.21[a] *20*	0.09 *4*	2376.92	(2^-)	1842.85	$(2)^+$	[E1]		0.00666	%Iγ=0.013 *6* α(K)=0.00558 *8*; α(L)=0.000838 *12*; α(M)=0.000191 *3* α(N)=4.62×10^{-5} *7*; α(O)=7.87×10^{-6} *11*; α(P)=5.47×10^{-7} *8*
538.06[a] *8*	1.32 *15*	1842.85	$(2)^+$	1304.84	2^+	[M1]		0.0548	%Iγ=0.193 *25* α(K)=0.0455 *7*; α(L)=0.00714 *10*; α(M)=0.001633 *23* α(N)=0.000399 *6*; α(O)=6.90×10^{-5} *10*; α(P)=5.19×10^{-6} *8*
566.59 *8*	1.44 *14*	2251.94	2^+	1685.28	(3^+)	M1(+E2)	0.5 *5*	0.042 *10*	%Iγ=0.211 *24* α(K)=0.034 *8*; α(L)=0.0056 *10*; α(M)=0.00128 *22* α(N)=0.00031 *6*; α(O)=5.4×10^{-5} *10*; α(P)=3.9×10^{-6} *10* Mult.: α(K)exp=0.034 *8*.
581.9 *4*	0.066 *8*	2286.24	$(1^+,2^+)$	1704.3	0^+				%Iγ=0.0097 *13* E_γ: Not observed in ^{188}Ir ε decay.
581.9 *4*	0.185 *21*	2347.49	$(1)^+$	1765.6	0^+	[M1]		0.0447	%Iγ=0.027 *4* α(K)=0.0371 *6*; α(L)=0.00582 *9*; α(M)=0.001329 *19* α(N)=0.000325 *5*; α(O)=5.61×10^{-5} *8*; α(P)=4.23×10^{-6} *6* E_γ: Not observed in ^{188}Ir ε decay.
[x]586.44 *15*	0.24 *4*					(M1)		0.0438	%Iγ=0.035 *7* α(K)=0.0364 *6*; α(L)=0.00570 *8*; α(M)=0.001303 *19* α(N)=0.000318 *5*; α(O)=5.50×10^{-5} *8*; α(P)=4.15×10^{-6} *6* Mult.: α(K)exp≈0.055.
594.06 *8*	0.65 *8*	2214.60	$(1)^+$	1620.47	2^+	M1(+E2)	≤1	0.036 *7*	%Iγ=0.095 *13* α(K)=0.029 *6*; α(L)=0.0048 *8*; α(M)=0.00110 *16* α(N)=0.00027 *4*; α(O)=4.6×10^{-5} *8*; α(P)=3.3×10^{-6} *7* Mult.,δ: α(K)exp=0.032 *8*.
596.41[a] *15*	0.18 *4*	2326.07	1,2	1729.50	2^+				%Iγ=0.026 *6*

$\gamma(^{188}Os)$ (continued)

E_γ[†]	I_γ[‡c]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ[#]	α[b]	Comments
601.09 *20*	0.19 *5*	2286.24	$(1^+,2^+)$	1685.28	(3^+)				%Iγ=0.028 *8*
^{x}623.75 *8*	1.76 *19*					E2(+M1)		0.0373	%Iγ=0.26 *3* α(K)=0.0311 *5*; α(L)=0.00485 *7*; α(M)=0.001109 *16* α(N)=0.000271 *4*; α(O)=4.68×10^{-5} *7*; α(P)=3.53×10^{-6} *5* Mult.: α(K)exp=0.012 *3*.
633.03 *3*	122 *18*	633.033	2^+	0.0	0^+	E2		0.01305	%Iγ=17.9 *23* α(K)=0.01020 *15*; α(L)=0.00219 *3*; α(M)=0.000518 *8* α(N)=0.0001258 *18*; α(O)=2.07×10^{-5} *3*; α(P)=1.092×10^{-6} *16* E_γ: 633.02 *10* in 1975Th06; 633.07 *5* (ce data,1962Gr02). Mult.: α(K)exp=0.011 *3*, L1/L2=2.4 *4* (1962Gr02). 633γ(θ): A_2=−0.27 *2* (1985Ed02).
634.97 *4*	34 *5*	789.96	3^+	155.031	2^+	E2+M1	−7 *3*	0.0134 *9*	%Iγ=5.0 *8* α(K)=0.0105 *8*; α(L)=0.00222 *10*; α(M)=0.000525 *23* α(N)=0.000127 *6*; α(O)=2.10×10^{-5} *10*; α(P)=1.13×10^{-6} *9* E_γ: 634.91 *15* (1975Th06); 634.96 *5* (ce data,1962Gr02). Mult.: ce(K)(635)/ce(K)(633)=3.55 *10* (1962Gr02). 635γ(θ): A_2=0.12 *6* (1985Ed02). α(K)exp=0.011 *3*. δ: from (635γ)(155γ)(θ): A_2=−0.312 *30*, A_4=−0.003 *19* (1971Kr01).
641.59 *5*	2.6 *3*	2098.98	$(1)^+$	1457.39	2^+	M1(+E2)	≤0.8	0.030 *5*	%Iγ=0.38 *5* α(K)=0.025 *4*; α(L)=0.0040 *5*; α(M)=0.00093 *11* α(N)=0.00023 *3*; α(O)=3.9×10^{-5} *5*; α(P)=2.8×10^{-6} *5* Mult.,δ: α(K)exp=0.029 *7*.
^{x}646.14[a] *15*	0.21 *6*								%Iγ=0.031 *9*
652.58 *15*	0.14 *5*	1957.34	$(1^+,2^+)$	1304.84	2^+				%Iγ=0.021 *8*
663.40[a] *10*	0.43 *7*	2348.69	$(2)^-$	1685.28	(3^+)				%Iγ=0.063 *11*
667.44[a] *17*	0.32 *7*	1457.39	2^+	789.96	3^+	[M1]		0.0314	%Iγ=0.047 *11* α(K)=0.0261 *4*; α(L)=0.00407 *6*; α(M)=0.000929 *13* α(N)=0.000227 *4*; α(O)=3.93×10^{-5} *6*; α(P)=2.96×10^{-6} *5*
672.52 *4*	9.41 *8*	1462.50	(2^-)	789.96	3^+	E1		0.00415	%Iγ=1.38 *8* α(K)=0.00349 *5*; α(L)=0.000515 *8*; α(M)=0.0001169 *17* α(N)=2.84×10^{-5} *4*; α(O)=4.86×10^{-6} *7*; α(P)=3.46×10^{-7} *5* I_γ: 9.8 *7* (1975Th06). Mult.: α(K)exp=0.0023 *6*. 673γ(θ): A_2=−0.04 *14* (1985Ed02).
672.6[f] *2*	0.14 *14*	1304.84	2^+	633.033	2^+	[M1+E2]		0.0308	%Iγ=0.021 *21* α(K)=0.0256 *4*; α(L)=0.00399 *6*; α(M)=0.000911 *13* α(N)=0.000222 *4*; α(O)=3.85×10^{-5} *6*; α(P)=2.91×10^{-6} *4* E_γ: Not observed in ^{188}Ir ε decay (41.5 h).
^{x}695.43[a] *15*	0.24 *4*								%Iγ=0.035 *7*
703.38[a] *18*	0.17 *6*	2166.02	$(2)^+$	1462.50	(2^-)	[E1]		0.00380	%Iγ=0.025 *9* α(K)=0.00319 *5*; α(L)=0.000470 *7*; α(M)=0.0001066 *15* α(N)=2.59×10^{-5} *4*; α(O)=4.43×10^{-6} *7*; α(P)=3.17×10^{-7} *5*

γ(^{188}Os) (continued)

E_γ[†]	I_γ[‡c]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	δ[#]	α[b]	Comments
719.58[a] 15	0.15 5	1685.28	(3+)	965.66	4+				%Iγ=0.022 8
730.52[a] 10	0.52 8	2415.90	(2+)	1685.28	(3+)				%Iγ=0.076 13
736.56 8	1.95 20	2214.60	(1)+	1478.08	0+	(M1)		0.0244	%Iγ=0.29 4 α(K)=0.0203 3; α(L)=0.00315 5; α(M)=0.000720 10 α(N)=0.0001757 25; α(O)=3.04×10^{-5} 5; α(P)=2.30×10^{-6} 4 Mult.,δ: α(K)exp=0.022 5.
747.31 15	0.33 6	2204.72	2+	1457.39	2+	M1(+E2)	≤0.7	0.0211 24	%Iγ=0.048 10 α(K)=0.0175 21; α(L)=0.0028 3; α(M)=0.00063 6 α(N)=0.000155 15; α(O)=2.7×10^{-5} 3; α(P)=1.98×10^{-6} 24 Mult.,δ: α(K)exp=0.029 9.
752.09[a] 10	0.51 8	2214.60	(1)+	1462.50	(2−)	[E1]		0.00333	%Iγ=0.075 13 α(K)=0.00280 4; α(L)=0.000411 6; α(M)=9.31×10^{-5} 13 α(N)=2.26×10^{-5} 4; α(O)=3.88×10^{-6} 6; α(P)=2.79×10^{-7} 4
757.21 8	2.64 25	2214.60	(1)+	1457.39	2+	M1(+E2)	<0.8	0.020 3	%Iγ=0.39 5 α(K)=0.0166 24; α(L)=0.0026 3; α(M)=0.00060 7 α(N)=0.000147 17; α(O)=2.5×10^{-5} 3; α(P)=1.9×10^{-6} 3 Mult.,δ: α(K)exp=0.020 5. 757γ(θ): A_2=0.15 15 (1985Ed02), deduced δ(E2/M1)=−0.2 to +0.4 or <−1.5.
763.90[a] 14	0.21 5	1729.50	2+	965.66	4+	[E2]		0.00864	%Iγ=0.031 8 α(K)=0.00690 10; α(L)=0.001338 19; α(M)=0.000314 5 α(N)=7.62×10^{-5} 11; α(O)=1.269×10^{-5} 18; α(P)=7.41×10^{-7} 11
[x]776.80 25	0.36 12								%Iγ=0.053 18
[x]777.93 20	0.65 12								%Iγ=0.095 19
[x]781.90 20	1.18 21					M1(+E2)		0.0209	%Iγ=0.17 4 α(K)=0.01744 25; α(L)=0.00270 4; α(M)=0.000617 9 α(N)=0.0001506 22; α(O)=2.61×10^{-5} 4; α(P)=1.97×10^{-6} 3 Mult.: α(K)exp=0.018 6.
794.17[a] 15	0.25 5	2098.98	(1)+	1304.84	2+	[M1+E2]		0.0201	%Iγ=0.037 8 α(K)=0.01676 24; α(L)=0.00260 4; α(M)=0.000593 9 α(N)=0.0001447 21; α(O)=2.51×10^{-5} 4; α(P)=1.90×10^{-6} 3
810.60 8	1.16 12	965.66	4+	155.031	2+	E2		0.00762	%Iγ=0.170 20 α(K)=0.00612 9; α(L)=0.001155 17; α(M)=0.000270 4 α(N)=6.56×10^{-5} 10; α(O)=1.096×10^{-5} 16; α(P)=6.57×10^{-7} 10 Mult.: α(K)exp=0.0082 20.
821.2[@f]		2299.86	1,2	1478.08	0+				
824.39 8	11.2 7	1457.39	2+	633.033	2+	M1(+E2)	≤1.2	0.015 4	%Iγ=1.64 14 α(K)=0.012 3; α(L)=0.0020 4; α(M)=0.00046 9 α(N)=0.000111 21; α(O)=1.9×10^{-5} 4; α(P)=1.4×10^{-6} 4 Mult.,δ: α(K)exp=0.014 4. Other: 824γ(θ): A_2=0.2 3 (1985Ed02).
827.0 3	1.12 11	1304.84	2+	477.95	4+	[E2]		0.00731	%Iγ=0.164 19 α(K)=0.00588 9; α(L)=0.001100 16; α(M)=0.000257 4 α(N)=6.24×10^{-5} 9; α(O)=1.044×10^{-5} 15; α(P)=6.31×10^{-7} 9 E_γ: Not observed in ^{188}Ir ε decay (41.5 h).

γ(^{188}Os) (continued)

E_γ [†]	I_γ [‡c]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [#]	δ [#]	α [b]	Comments
828.6[@f]		2286.24	(1⁺,2⁺)	1457.39	2⁺				829γ(θ): A_2=−0.14 *7* (1985Ed02).
829.47 *4*	34.9 *25*	1462.50	(2⁻)	633.033	2⁺	E1		0.00276	%Iγ=5.1 *5* α(K)=0.00232 *4*; α(L)=0.000339 *5*; α(M)=7.67×10⁻⁵ *11* α(N)=1.86×10⁻⁵ *3*; α(O)=3.20×10⁻⁶ *5*; α(P)=2.32×10⁻⁷ *4* Mult.: α(K)exp=0.0029 *7*, α(L)exp=0.00044 *22*. (829γ+824γ)(633γ)(θ): A_2=0.21 *2*, A_4=0.00 *2*, 829γ(θ): A_2=−0.44 *5* (1985Ed02).
845.05[a] *4*	1.449 *22*	1478.08	0⁺	633.033	2⁺	[E2]		0.00699	%Iγ=0.212 *12* α(K)=0.00563 *8*; α(L)=0.001044 *15*; α(M)=0.000243 *4* α(N)=5.92×10⁻⁵ *9*; α(O)=9.91×10⁻⁶ *14*; α(P)=6.05×10⁻⁷ *9* I_γ: From Iγ(845.05γ)/Iγ(1323.04γ) in the adopted gammas and and Iγ(1323.04γ)=2.75 *22* in the ^{188}Ir ε decay. Other: 1.18 *12* (1975Th06).
886.20 *8*	1.72 *17*	2348.69	(2)⁻	1462.50	(2⁻)	[M1]		0.01524	%Iγ=0.25 *3* α(K)=0.01270 *18*; α(L)=0.00196 *3*; α(M)=0.000448 *7* α(N)=0.0001092 *16*; α(O)=1.89×10⁻⁵ *3*; α(P)=1.434×10⁻⁶ *20* Mult.: α(K)exp=0.022.
895.33[a] *8*	0.95 *10*	1685.28	(3⁺)	789.96	3⁺				%Iγ=0.139 *17*
899.90[a] *10*	0.74 *8*	2204.72	2⁺	1304.84	2⁺	[M1]		0.01466	%Iγ=0.108 *13* α(K)=0.01222 *18*; α(L)=0.00189 *3*; α(M)=0.000430 *6* α(N)=0.0001050 *15*; α(O)=1.82×10⁻⁵ *3*; α(P)=1.380×10⁻⁶ *20*
ˣ905.9[@f]									
909.68[a] *15*	0.23 *6*	2214.60	(1)⁺	1304.84	2⁺	[M1]		0.01427	%Iγ=0.034 *9* α(K)=0.01189 *17*; α(L)=0.00183 *3*; α(M)=0.000419 *6* α(N)=0.0001022 *15*; α(O)=1.770×10⁻⁵ *25*; α(P)=1.342×10⁻⁶ *19*
931.34[a] *3*	1.79 *17*	1086.38	0⁺	155.031	2⁺	[E2]		0.00573	%Iγ=0.26 *3* α(K)=0.00465 *7*; α(L)=0.000829 *12*; α(M)=0.000193 *3* α(N)=4.68×10⁻⁵ *7*; α(O)=7.88×10⁻⁶ *11*; α(P)=4.99×10⁻⁷ *7* E_γ: 931.33 *8* (1975Th06).
ˣ933.95[a] *20*	1.01 *20*								%Iγ=0.15 *3*
ˣ935.26[a] *20*	1.14 *22*								%Iγ=0.17 *4*
939.57 *6*	4.5 *4*	1729.50	2⁺	789.96	3⁺	M1(+E2)	≤0.8	0.0117 *15*	%Iγ=0.66 *7* α(K)=0.0097 *13*; α(L)=0.00152 *18*; α(M)=0.00035 *4* α(N)=8.5×10⁻⁵ *10*; α(O)=1.46×10⁻⁵ *17*; α(P)=1.09×10⁻⁶ *15* Mult.: α(K)exp=0.0102 *25*, α(L)exp=0.0024 *8*.
ˣ943.6[@f]									
946.98 *8*	0.88 *9*	2251.94	2⁺	1304.84	2⁺	(M1,E2)		0.01289	%Iγ=0.129 *15* α(K)=0.01075 *15*; α(L)=0.001656 *24*; α(M)=0.000378 *6* α(N)=9.22×10⁻⁵ *13*; α(O)=1.597×10⁻⁵ *23*; α(P)=1.212×10⁻⁶ *17* Mult.: α(K)exp<0.015.
ˣ972.14[a] *20*	0.19 *6*								%Iγ=0.028 *9*

$^{188}_{76}Os_{112}$-10

γ(^{188}Os) (continued)

E_γ[†]	I_γ[‡c]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	δ[#]	α[b]	$I_{(\gamma+ce)}$[c]	Comments
979.35[a] *13*	0.64 *11*	1457.39	2^+	477.95	4^+	[E2]		0.00518		%Iγ=0.094 *17* α(K)=0.00422 *6*; α(L)=0.000739 *11*; α(M)=0.0001712 *24* α(N)=4.16×10^{-5} *6*; α(O)=7.03×10^{-6} *10*; α(P)=4.52×10^{-7} *7*
984.1 *5*	0.028 *18*	1462.50	(2^-)	477.95	4^+	[M2]		0.0290		%Iγ=0.004 *3* α(K)=0.0237 *4*; α(L)=0.00404 *6*; α(M)=0.000934 *14* α(N)=0.000228 *4*; α(O)=3.94×10^{-5} *6*; α(P)=2.90×10^{-6} *4* I_γ: From Iγ(984.1γ)/Iγ(829.47γ) in the adopted gammas and Iγ(829.47γ)=34.9 *25* in the ^{188}Ir ε decay.
987.43 *6*	6.3 *6*	1620.47	2^+	633.033	2^+	M1(+E2)	≤0.7	0.0105 *11*		%Iγ=0.92 *10* α(K)=0.0088 *10*; α(L)=0.00136 *13*; α(M)=0.00031 *3* α(N)=7.6×10^{-5} *7*; α(O)=1.31×10^{-5} *13*; α(P)=9.8×10^{-7} *11* Mult.,δ: α(K)exp=0.0103 *25*, α(L)exp=0.0022 *10*.
999.38[a] *15*	0.48 *8*	1965.00	$(2)^+$	965.66	4^+	[E2]		0.00497		%Iγ=0.070 *13* α(K)=0.00406 *6*; α(L)=0.000705 *10*; α(M)=0.0001634 *23* α(N)=3.97×10^{-5} *6*; α(O)=6.71×10^{-6} *10*; α(P)=4.35×10^{-7} *6*
1012.54 *8*	0.82 *12*	2098.98	$(1)^+$	1086.38	0^+	(M1)		0.01090		%Iγ=0.120 *19* α(K)=0.00909 *13*; α(L)=0.001397 *20*; α(M)=0.000319 *5* α(N)=7.78×10^{-5} *11*; α(O)=1.347×10^{-5} *19*; α(P)=1.024×10^{-6} *15* Mult.: α(K)exp≈0.0139.
1017.68 *5*	7.43 *11*	1807.59	2^+	789.96	3^+	M1(+E2)	≤0.6	0.0100 *8*		%Iγ=1.09 *6* α(K)=0.0083 *7*; α(L)=0.00129 *10*; α(M)=0.000294 *22* α(N)=7.2×10^{-5} *6*; α(O)=1.24×10^{-5} *10*; α(P)=9.3×10^{-7} *8* I_γ: 7.2 *6* (1975Th06). Mult.,δ: α(K)exp=0.0087 *20*, α(L)exp=0.0016 *4*.
1052.11 *20*	0.23 *7*	1685.28	(3^+)	633.033	2^+					%Iγ=0.034 *11*
1086.5		1086.38	0^+	0.0	0^+	E0			0.000147 *7*	E_γ,$I_{(\gamma+ce)}$: From Adopted Levels.
1096.3 *3*	9.9 *8*	1729.50	2^+	633.033	2^+	M1(+E2)	≤0.7	0.0081 *8*		%Iγ=1.45 *14* α(K)=0.0068 *7*; α(L)=0.00105 *10*; α(M)=0.000239 *22* α(N)=5.8×10^{-5} *6*; α(O)=1.01×10^{-5} *10*; α(P)=7.6×10^{-7} *8* Mult.: α(K)exp=0.0078 *20*, α(L)exp=0.0012 *4*. 1097γ(θ): A_2=−0.25 *15* (1985Ed02).
1128.33[a] *15*	0.43 *5*	2214.60	$(1)^+$	1086.38	0^+	[M1]		0.00831		%Iγ=0.063 *8* α(K)=0.00694 *10*; α(L)=0.001062 *15*; α(M)=0.000242 *4*

γ(^{188}Os) (continued)

E_γ[†]	I_γ[‡c]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ[#]	α[b]	Comments
									α(N)=5.91×10^{-5} *9*; α(O)=1.024×10^{-5} *15*; α(P)=7.80×10^{-7} *11*; α(IPF)=8.69×10^{-7} *13*
[x]1132.5[a] *4*	0.19 *7*								%Iγ=0.028 *11*
1142.54 *10*	2.5 *5*	1620.47	2$^+$	477.95	4$^+$	(E2)		0.00382	%Iγ=0.37 *8* α(K)=0.00314 *5*; α(L)=0.000524 *8*; α(M)=0.0001209 *17* α(N)=2.94×10^{-5} *5*; α(O)=4.99×10^{-6} *7*; α(P)=3.36×10^{-7} *5*; α(IPF)=9.43×10^{-7} *14* Mult.,δ: α(K)exp≈0.0046.
1149.80 *9*	3.6 *7*	1304.84	2$^+$	155.031	2$^+$	M1+E2	≤2.1	0.0062 *17*	%Iγ=0.53 *11* α(K)=0.0052 *15*; α(L)=0.00081 *21*; α(M)=0.00019 *5* α(N)=4.5×10^{-5} *12*; α(O)=7.8×10^{-6} *20*; α(P)=5.8×10^{-7} *17*; α(IPF)=1.55×10^{-6} *25* E_γ: From 1975Th06. Mult.,δ: α(K)exp=0.0058 *20*.
1174.57[e] *3*	9.0[e] *9*	1807.59	2$^+$	633.033	2$^+$	M1(+E2)	≤0.8	0.0068 *8*	%Iγ=1.32 *15* α(K)=0.0056 *7*; α(L)=0.00087 *10*; α(M)=0.000198 *21* α(N)=4.8×10^{-5} *5*; α(O)=8.4×10^{-6} *9*; α(P)=6.3×10^{-7} *8*; α(IPF)=3.40×10^{-6} *24* I_γ: From 1975Th06. Mult.,δ: α(K)exp=0.0063 *16*, α(L)exp=0.0011 *4*.
1174.59[ef] *10*	[e]	1965.00	(2)$^+$	789.96	3$^+$				
[x]1193.5[@f]									
[x]1205.5[@f]									
1209.80 *3*	47 *4*	1842.85	(2)$^+$	633.033	2$^+$	M1(+E2)	≤0.7	0.0064 *6*	%Iγ=6.9 *7* α(K)=0.0053 *5*; α(L)=0.00082 *8*; α(M)=0.000187 *16* α(N)=4.6×10^{-5} *4*; α(O)=7.9×10^{-6} *7*; α(P)=6.0×10^{-7} *6*; α(IPF)=7.5×10^{-6} *5* Mult.,δ: α(K)exp=0.0057 *14*, α(L)exp=0.00097 *25*. (1210γ)(633γ)(θ): A_2=−0.22 *2*, A_4=0.05 *2* (1969Ya02), 1210γ(θ): A_2=−0.06 *2* (1985Ed02).
1251.64[a] *20*	0.18 *6*	1729.50	2$^+$	477.95	4$^+$	[E2]		0.00322	%Iγ=0.026 *9* α(K)=0.00265 *4*; α(L)=0.000432 *6*; α(M)=9.92×10^{-5} *14* α(N)=2.41×10^{-5} *4*; α(O)=4.11×10^{-6} *6*; α(P)=2.83×10^{-7} *4*; α(IPF)=1.010×10^{-5} *15*
1286.35[a] *20*	0.22 *8*	2251.94	2$^+$	965.66	4$^+$	[E2]		0.00306	%Iγ=0.032 *12* α(K)=0.00251 *4*; α(L)=0.000407 *6*; α(M)=9.35×10^{-5} *14* α(N)=2.28×10^{-5} *4*; α(O)=3.88×10^{-6} *6*; α(P)=2.69×10^{-7} *4*; α(IPF)=1.491×10^{-5} *21*
1295.44 *10*	0.91 *9*	2085.41	(1,2)$^+$	789.96	3$^+$	(M1,E2)		0.00592	%Iγ=0.133 *15* α(K)=0.00492 *7*; α(L)=0.000751 *11*; α(M)=0.0001710 *24*

γ(^{188}Os) (continued)

Eγ[†]	Iγ[‡c]	Ei(level)	J^{π}_{i}	E_f	J^{π}_{f}	Mult.[#]	δ[#]	α[b]	Comments
									α(N)=4.17×10^{-5} *6*; α(O)=7.24×10^{-6} *11*; α(P)=5.52×10^{-7} *8*; α(IPF)=2.40×10^{-5} *4* Mult.: α(K)exp≈0.0073.
1302.31 *13*	3.6 *5*	1457.39	2$^+$	155.031	2$^+$	[E2+M1]		0.00584	%Iγ=0.53 *8* α(K)=0.00486 *7*; α(L)=0.000741 *11*; α(M)=0.0001688 *24* α(N)=4.12×10^{-5} *6*; α(O)=7.14×10^{-6} *10*; α(P)=5.45×10^{-7} *8*; α(IPF)=2.56×10^{-5} *4*
1304.8 *2*	0.9 *3*	1304.84	2$^+$	0.0	0$^+$	(E2)		0.00298	%Iγ=0.13 *5* α(K)=0.00245 *4*; α(L)=0.000395 *6*; α(M)=9.08×10^{-5} *13* α(N)=2.21×10^{-5} *3*; α(O)=3.77×10^{-6} *6*; α(P)=2.62×10^{-7} *4*; α(IPF)=1.78×10^{-5} *3* Eγ: 1304.7 *4* (1975Th06). Iγ: 1.26 *18* (1975Th06). Mult.: α(K)exp(1302.3γ+1304.7γ)=0.0026 *7* consistent with E2 for both, but small M1 mixture cannot be ruled out.
1307.64 *15*	1.02 *14*	1462.50	(2$^-$)	155.031	2$^+$	(E1)		1.27×10^{-3}	%Iγ=0.149 *22* α(K)=0.001019 *15*; α(L)=0.0001452 *21*; α(M)=3.28×10^{-5} *5* α(N)=7.97×10^{-6} *12*; α(O)=1.376×10^{-6} *20*; α(P)=1.032×10^{-7} *15*; α(IPF)=6.22×10^{-5} *9* Mult.: α(K)exp≈0.0019.
1307.9[f] *5*	<5.2	2098.98	(1)$^+$	789.96	3$^+$				%Iγ=0.4 *4* Eγ: Not observed in ^{188}Ir ε decay.
1323.04 *7*	2.75 *22*	1478.08	0$^+$	155.031	2$^+$	(E2)		0.00291	%Iγ=0.40 *4* α(K)=0.00239 *4*; α(L)=0.000384 *6*; α(M)=8.81×10^{-5} *13* α(N)=2.15×10^{-5} *3*; α(O)=3.66×10^{-6} *6*; α(P)=2.55×10^{-7} *4*; α(IPF)=2.11×10^{-5} *3* Mult.: α(K)exp≈0.0017.
1329.1[&]	1.5 *5*	1807.59	2$^+$	477.95	4$^+$				%Iγ=0.22 *8*
1331.94 *7*	3.19 *25*	1965.00	(2)$^+$	633.033	2$^+$	M1(+E2)	≤1.4	0.0047 *9*	%Iγ=0.47 *5* α(K)=0.0039 *8*; α(L)=0.00059 *11*; α(M)=0.000135 *25* α(N)=3.3×10^{-5} *6*; α(O)=5.7×10^{-6} *11*; α(P)=4.3×10^{-7} *9*; α(IPF)=3.0×10^{-5} *4* Mult.,δ: α(K)exp=0.0042 *10*.
^{x}1336.38 *15*	0.95 *9*								%Iγ=0.139 *15*
^{x}1349.54[a] *15*	0.43 *6*								%Iγ=0.063 *10*
1414.57[a] *20*	0.52 *5*	2204.72	2$^+$	789.96	3$^+$	[M1]		0.00480	%Iγ=0.076 *9* α(K)=0.00396 *6*; α(L)=0.000602 *9*; α(M)=0.0001372 *20* α(N)=3.35×10^{-5} *5*; α(O)=5.81×10^{-6} *9*; α(P)=4.43×10^{-7} *7*; α(IPF)=6.19×10^{-5} *9*
^{x}1430.0[&f]	1.7 *4*								%Iγ=0.25 *6*

γ(^{188}Os) (continued)

E_γ[†]	I_γ[‡c]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	δ[#]	α[b]	$I_{(\gamma+ce)}$[c]	Comments
1435.42 *15*	10.1 *8*	2068.55	(2)$^+$	633.033	2$^+$	M1+E2	1.2 *+49−7*	0.0034 *9*		%Iγ=1.48 *14* α(K)=0.0028 *7*; α(L)=0.00043 *10*; α(M)=9.8×10^{-5} *23* α(N)=2.4×10^{-5} *6*; α(O)=4.1×10^{-6} *10*; α(P)=3.04×10^{-7} *82*; α(IPF)=5.7×10^{-5} *9* Mult.,δ: α(K)exp=0.0028 *7*.
[x]1445.8[&f]	2.8 *4*									%Iγ=0.41 *7*
1452.28 *15*	7.2 *6*	2085.41	(1,2)$^+$	633.033	2$^+$	M1(+E2)	≤0.9	0.0041 *5*		%Iγ=1.05 *11* α(K)=0.0033 *4*; α(L)=0.00051 *6*; α(M)=0.000116 *13* α(N)=2.8×10^{-5} *3*; α(O)=4.9×10^{-6} *6*; α(P)=3.7×10^{-7} *5*; α(IPF)=7.2×10^{-5} *6* Mult.,δ: α(K)exp=0.0039 *9*. 1452γ(θ): A_2=−0.15 *15* (1985Ed02).
1457.49 *9*	11.9 *10*	1457.39	2$^+$	0.0	0$^+$	E2		0.00246		%Iγ=1.74 *17* α(K)=0.00200 *3*; α(L)=0.000315 *5*; α(M)=7.21×10^{-5} *10* α(N)=1.755×10^{-5} *25*; α(O)=3.00×10^{-6} *5*; α(P)=2.13×10^{-7} *3*; α(IPF)=5.44×10^{-5} *8* Mult.: α(K)exp=0.0018 *4*. 1457γ(θ): A_2=−0.17 *9* (1985Ed02).
1462.7[&f]	2.8 *3*	2251.94	2$^+$	789.96	3$^+$	[M1]		0.00444		%Iγ=0.41 *5* α(K)=0.00365 *6*; α(L)=0.000554 *8*; α(M)=0.0001262 *18* α(N)=3.08×10^{-5} *5*; α(O)=5.34×10^{-6} *8*; α(P)=4.08×10^{-7} *6*; α(IPF)=8.15×10^{-5} *12*
1463.0[f] *6*	0.066 *24*	1462.50	(2$^-$)	0.0	0$^+$	[M2]		0.01031		%Iγ=0.010 *4* α(K)=0.00850 *12*; α(L)=0.001375 *20*; α(M)=0.000316 *5* α(N)=7.73×10^{-5} *11*; α(O)=1.336×10^{-5} *19*; α(P)=1.001×10^{-6} *14*; α(IPF)=2.79×10^{-5} *4* E_γ: Not observed in ^{188}Ir ε decay (41.5 h).
1465.24 *15*	9.2 *9*	1620.47	2$^+$	155.031	2$^+$	M1+E2	0.9 *+16−8*	0.0035 *9*		%Iγ=1.35 *15* α(K)=0.00289 *73*; α(L)=0.00044 *11*; α(M)=0.000101 *24* α(N)=2.5×10^{-5} *6*; α(O)=4.3×10^{-6} *11*; α(P)=3.19×10^{-7} *86*; α(IPF)=7.1×10^{-5} *12* Mult.,δ: α(K)exp=0.0029 *7*. Other: 1465γ(θ): A_2=0.2 *4* (1985Ed02).
1478.0		1478.08	0$^+$	0.0	0$^+$	E0			0.00073 *4*	$I_{(\gamma+ce)}$: from adopted gammas.
1487.01[a] *25*	0.51 *7*	1965.00	(2)$^+$	477.95	4$^+$	[E2]		0.00238		%Iγ=0.075 *11*

From ENSDF

γ(^{188}Os) (continued)

E_γ [†]	I_γ [‡c]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [#]	δ [#]	α [b]	Comments
									α(K)=0.00192 *3*; α(L)=0.000302 *5*; α(M)=6.92×10^{-5} *10* α(N)=1.684×10^{-5} *24*; α(O)=2.88×10^{-6} *4*; α(P)=2.05×10^{-7} *3*; α(IPF)=6.33×10^{-5} *9*
1530.06[a] *15*	1.55 *19*	1685.28	(3$^+$)	155.031	2$^+$				%Iγ=0.23 *3*
1558.66 *15*	5.9 *5*	2348.69	(2)$^-$	789.96	3$^+$	E1		1.12×10^{-3}	%Iγ=0.86 *9* α(K)=0.000756 *11*; α(L)=0.0001069 *15*; α(M)=2.41×10^{-5} *4* α(N)=5.87×10^{-6} *9*; α(O)=1.014×10^{-6} *15*; α(P)=7.67×10^{-8} *11*; α(IPF)=0.000223 *4* Mult.: α(K)exp=0.0008 *2*.
1571.6[a] *4*	0.78 *11*	2204.72	2$^+$	633.033	2$^+$	[M1]		0.00379	%Iγ=0.114 *18* α(K)=0.00306 *5*; α(L)=0.000464 *7*; α(M)=0.0001055 *15* α(N)=2.58×10^{-5} *4*; α(O)=4.47×10^{-6} *7*; α(P)=3.42×10^{-7} *5*; α(IPF)=0.0001332 *19*
1574.52 *12*	17.9 *14*	1729.50	2$^+$	155.031	2$^+$	M1+E2	+0.65 *8*	0.00330 *10*	%Iγ=2.62 *25* α(K)=0.00265 *8*; α(L)=0.000404 *12*; α(M)=9.2×10^{-5} *3* α(N)=2.25×10^{-5} *7*; α(O)=3.89×10^{-6} *12*; α(P)=2.94×10^{-7} *9*; α(IPF)=0.000122 *3* Mult.: α(K)exp=0.0023 *6*, α(L)exp=0.00043 *22*. 1574$\gamma(\theta)$: A_2=0.75 *15* (1985Ed02). δ: from $\gamma(\theta)$: A_2U_2=−0.58 *3* (1992Ka49,1992Ka48).
1618.8 *4*	3.3 *3*	2251.94	2$^+$	633.033	2$^+$	M1(+E2)	0.5 *5*	0.0032 *4*	%Iγ=0.48 *5* α(K)=0.0025 *3*; α(L)=0.00039 *5*; α(M)=8.8×10^{-5} *10* α(N)=2.15×10^{-5} *25*; α(O)=3.7×10^{-6} *5*; α(P)=2.8×10^{-7} *4*; α(IPF)=0.000146 *13* Mult.: α(K)exp=0.0031 *8*.
1619.1 *7*	1.6 *3*	1620.47	2$^+$	0.0	0$^+$	[E2]		0.00209	%Iγ=0.23 *5* α(K)=0.001647 *23*; α(L)=0.000255 *4*; α(M)=5.82×10^{-5} *9* α(N)=1.418×10^{-5} *20*; α(O)=2.43×10^{-6} *4*; α(P)=1.753×10^{-7} *25*; α(IPF)=0.0001089 *16* E_γ: Not observed in ^{188}Ir ε decay (41.5 h).
1651.2[f] *7*		2286.24	(1$^+$,2$^+$)	633.033	2$^+$				E_γ: Not observed in ^{188}Ir ε decay.
1652.42 *8*	1.54 *4*	1807.59	2$^+$	155.031	2$^+$	M1(+E2)	≤0.9	0.0031 *4*	%Iγ=0.226 *14* α(K)=0.0025 *3*; α(L)=0.00037 *4*; α(M)=8.5×10^{-5} *9* α(N)=2.07×10^{-5} *21*; α(O)=3.6×10^{-6} *4*; α(P)=2.7×10^{-7} *3*; α(IPF)=0.000164 *13* I_γ: 2.12 *17* (1975Th06). Mult.: α(K)exp=0.0031 *8*.
1688.04[d] *15*	5.0[d] *4*	1842.85	(2)$^+$	155.031	2$^+$	M1+E2	1.1 *9*	0.00255 *67*	%Iγ=0.73 *7*

From ENSDF

γ(^{188}Os) (continued)

E_γ[†]	I_γ[‡c]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	δ[#]	α[b]	Comments
									α(K)=0.00200 *53*; α(L)=3.04×10^{-4} *79*; α(M)=6.9×10^{-5} *18* α(N)=1.69×10^{-5} *44*; α(O)=2.92×10^{-6} *77*; α(P)=2.19×10^{-7} *64*; α(IPF)=0.00016 *3* Mult.,δ: α(K)exp=0.0020 *5*. 1688γ(θ): A_2=0.15 *25* (1985Ed02).
1688.04 *15*	2.27 *17*	2166.02	$(2)^+$	477.95	4^+				%Iγ=0.33 *3* I_γ: 5.0 *4* in 1975Th06 (unresolved doublet).
^{x}1704.9[&f]	7.1 *10*					(E2)		0.00194	%Iγ=1.04 *16* α(K)=0.001499 *21*; α(L)=0.000230 *4*; α(M)=5.25×10^{-5} *8* α(N)=1.279×10^{-5} *18*; α(O)=2.20×10^{-6} *3*; α(P)=1.595×10^{-7} *23*; α(IPF)=0.0001427 *20* Mult.: α(K)exp≈0.0013.
1715.67 *10*	42 *3*	2348.69	$(2)^-$	633.033	2^+	E1(+M2)	+0.071 *+24−36*	0.00113 *3*	%Iγ=6.2 *6* α(K)=0.000670 *22*; α(L)=9.5×10^{-5} *4*; α(M)=2.14×10^{-5} *8* α(N)=5.21×10^{-6} *20*; α(O)=9.0×10^{-7} *4*; α(P)=6.8×10^{-8} *3*; α(IPF)=0.000337 *5* E_γ: from 1980Be27. 1975Th06 give 1715.75 *15*. Mult.: α(K)exp=0.0005 *1*. δ: from γ(θ): A_2U_2=−0.297 *19* (1992Ka49,1992Ka48). Other: −0.06 *7* from γ(θ,H,T) study (1980Be27). (1716γ)(633γ)(θ): A_2=+0.20 *2*, A_4=0.00 *2* (from a graph shown by 1969Ya02), deduced δ≈+0.07. 1716γ(θ): A_2=−0.26 *8* (1985Ed02), deduced δ(M2/E1)= −0.2 to +0.4 or +1 to +5.
^{x}1720.7[@f]									
1726.9 *5*	0.80 *8*	2204.72	2^+	477.95	4^+	[E2]		0.00191	%Iγ=0.117 *14* α(K)=0.001464 *21*; α(L)=0.000224 *4*; α(M)=5.12×10^{-5} *8* α(N)=1.247×10^{-5} *18*; α(O)=2.14×10^{-6} *3*; α(P)=1.557×10^{-7} *22*; α(IPF)=0.0001517 *22*
^{x}1731.6[@f]									
1760.2[@f]		2549.48	(2^-)	789.96	3^+				
1774.2 *4*	0.41 *5*	2251.94	2^+	477.95	4^+	[E2]		0.00184	%Iγ=0.060 *8* α(K)=0.001394 *20*; α(L)=0.000213 *3*; α(M)=4.85×10^{-5} *7* α(N)=1.182×10^{-5} *17*; α(O)=2.03×10^{-6} *3*; α(P)=1.482×10^{-7} *21*; α(IPF)=0.0001715 *24* Mult.: α(K)exp≈0.010 implies E0 in conflict with ΔJ=2.
1782.8 *5*	0.46 *5*	2415.90	(2^+)	633.033	2^+				%Iγ=0.067 *9* Mult.: α(K)exp≈0.012 implies E0 component.
^{x}1788.9[@f]									
1802.18 *20*	6.6 *5*	1957.34	$(1^+,2^+)$	155.031	2^+				%Iγ=0.97 *9* Mult.: α(K)exp<0.00057 gives (E1), in conflict with (E2)

$^{188}_{76}$Os$_{112}$-16

γ(^{188}Os) (continued)

E_γ[†]	I_γ[‡c]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	δ[#]	α[b]	Comments
									from α(pair) in ^{188}Re β^-. α(K)(E2)=0.0014. 1802γ(θ): A_2=0.3 *2* (1985Ed02).
1807.36[a] *12*	0.432 *18*	1807.59	2^+	0.0	0^+	[E2]		0.00180	%Iγ=0.063 *5* α(K)=0.001348 *19*; α(L)=0.000205 *3*; α(M)=4.68×10^{-5} *7* α(N)=1.139×10^{-5} *16*; α(O)=1.96×10^{-6} *3*; α(P)=1.433×10^{-7} *20*; α(IPF)=0.000186 *3* I_γ: 0.79 *15* (1975Th06).
1809.85 *26*	0.77 *20*	1965.00	$(2)^+$	155.031	2^+	M1+E2+E0		0.00285	%Iγ=0.11 *3* α(K)=0.00216 *3*; α(L)=0.000327 *5*; α(M)=7.43×10^{-5} *11* α(N)=1.81×10^{-5} *3*; α(O)=3.15×10^{-6} *5*; α(P)=2.41×10^{-7} *4*; α(IPF)=0.000269 *4* I_γ: 2.33 *21* (1975Th06). I(E0)=0.020 *5* (deduced from Ice data). Mult.: α(K)exp=0.0101 *25*. 1810γ(θ): A_2=0.05 *20* (1985Ed02). α: 0.013 3 from α(K)exp and K/T=0.78.
1823.6 *11*		2460.49	1,2	633.033	2^+				E_γ: Not observed in ^{188}Ir ε decay.
1843.0[a] *4*	1.08 *19*	1842.85	$(2)^+$	0.0	0^+				%Iγ=0.16 *3*
1887.9[a] *4*	0.55 *8*	2520.48	1,2	633.033	2^+				%Iγ=0.081 *13*
^{x}1904.0[a] *4*	0.92 *9*								%Iγ=0.135 *15*
1930.65 *25*	1.95 *18*	2085.41	$(1,2)^+$	155.031	2^+	[M1]		0.00255	%Iγ=0.29 *3* α(K)=0.00185 *3*; α(L)=0.000278 *4*; α(M)=6.33×10^{-5} *9* α(N)=1.546×10^{-5} *22*; α(O)=2.68×10^{-6} *4*; α(P)=2.06×10^{-7} *3*; α(IPF)=0.000344 *5*
1939.0 *5*	0.073 *9*	2415.90	(2^+)	477.95	4^+				%Iγ=0.0107 *15* E_γ: Not observed in ^{188}Ir ε decay.
1944.08 *20*	26.7 *19*	2098.98	$(1)^+$	155.031	2^+	(E2)		1.66×10^{-3}	%Iγ=3.9 *4* α(K)=0.001181 *17*; α(L)=0.0001782 *25*; α(M)=4.05×10^{-5} *6* α(N)=9.88×10^{-6} *14*; α(O)=1.701×10^{-6} *24*; α(P)=1.254×10^{-7} *18*; α(IPF)=0.000247 *4* Mult.: α(K)exp=0.00092 *25*, α(L)exp=0.00014 *7*. Mult=E1 not completely excluded. 1944γ(θ): A_2=−0.11 *7* (1985Ed02).
1957.29[a] *25*	2.65 *3*	1957.34	$(1^+,2^+)$	0.0	0^+				%Iγ=0.388 *21* I_γ: 2.9 *3* (1975Th06).
^{x}1971.7 *5*	1.14 *11*								%Iγ=0.167 *19*
2011.39 *25*	4.2 *4*	2166.02	$(2)^+$	155.031	2^+	(E2)		1.60×10^{-3}	%Iγ=0.62 *7* α(K)=0.001110 *16*; α(L)=0.0001669 *24*; α(M)=3.80×10^{-5} *6* α(N)=9.24×10^{-6} *13*; α(O)=1.593×10^{-6} *23*; α(P)=1.179×10^{-7} *17*; α(IPF)=0.000278 *4* Mult.: α(K)exp=0.0011 *3*.

From ENSDF

γ(^{188}Os) (continued)

E_γ[†]	I_γ[‡c]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ[#]	α[b]	Comments
[x]2040.76[a] *25*	3.3 *3*								%Iγ=0.48 *5*
2049.78 *20*	33.9 *24*	2204.72	2^+	155.031	2^+	M1+E2	+0.117 *+26−22*	0.00232	%Iγ=5.0 *5* α(K)=0.001589 *23*; α(L)=0.000239 *4*; α(M)=5.44×10^{-5} *8* α(N)=1.327×10^{-5} *19*; α(O)=2.30×10^{-6} *4*; α(P)=1.77×10^{-7} *3*; α(IPF)=0.000419 *6* Mult.: α(K)exp=0.0012 *3*, α(L)exp=0.00018 *4*. γ(θ): A_2U_2=−0.327 *15* (1992Ka49,1992Ka48). 2050γ(θ): A_2=−0.26 *4* (1985Ed02). δ: from γ(θ): A_2U_2=−0.327 *15* (1992Ka49,1992Ka48).
2059.65 *20*	48 *3*	2214.60	$(1)^+$	155.031	2^+	M1+E2	−0.20 *7*	0.00228	%Iγ=7.0 *6* α(K)=0.00156 *3*; α(L)=0.000234 *4*; α(M)=5.33×10^{-5} *10* α(N)=1.301×10^{-5} *23*; α(O)=2.26×10^{-6} *4*; α(P)=1.73×10^{-7} *3*; α(IPF)=0.000422 *7* δ: from γ(θ,H,T) measurement (1980Be27), but J^π(^{188}Ir g.s.)=2^- was assumed, instead of 1^-. Mult.: α(K)exp=0.0011 *2*, α(L)exp=0.00011 *5*. Deduced mult=E2, in conflict with that from γ(θ,H,T) data. 2060γ(θ): A_2=0.01 *5* (1985Ed02), deduced δ(E2/M1)=−0.2 to +0.1 or −5 to −2.
2068.9[a] *5*	0.39 *6*	2068.55	$(2)^+$	0.0	0^+	[E2]		1.56×10^{-3}	%Iγ=0.057 *10* α(K)=0.001055 *15*; α(L)=0.0001581 *23*; α(M)=3.59×10^{-5} *5* α(N)=8.75×10^{-6} *13*; α(O)=1.509×10^{-6} *22*; α(P)=1.120×10^{-7} *16*; α(IPF)=0.000304 *5*
2096.9 *4*	39 *5*	2251.94	2^+	155.031	2^+	[M1]		0.00225	%Iγ=5.7 *8* α(K)=0.001510 *22*; α(L)=0.000227 *4*; α(M)=5.16×10^{-5} *8* α(N)=1.261×10^{-5} *18*; α(O)=2.19×10^{-6} *3*; α(P)=1.681×10^{-7} *24*; α(IPF)=0.000451 *7* Mult.: (2097γ+2099γ)(θ): A_2=0.13 *3* (1985Ed02).
2099.1 *4*	32 *4*	2098.98	$(1)^+$	0.0	0^+				%Iγ=4.7 *6*
2130.9 *3*	1.83 *22*	2286.24	$(1^+,2^+)$	155.031	2^+				%Iγ=0.27 *4*
[x]2133.7 *5*	0.65 *8*								%Iγ=0.095 *13*
2144.85 *25*	1.09 *11*	2299.86	1,2	155.031	2^+				%Iγ=0.160 *19*
2145.8 *5*	0.088 *13*	2622.71	(2^+)	477.95	4^+				%Iγ=0.0129 *21* E_γ: Not observed in ^{188}Ir ε decay.
2171.4[a] *3*	0.49 *6*	2326.07	1,2	155.031	2^+				%Iγ=0.072 *10*
2192.3 *4*	2.4 *4*	2347.49	$(1)^+$	155.031	2^+	[M1]		0.00213	%Iγ=0.35 *7*

γ(^{188}Os) (continued)

E_γ[†]	I_γ[‡c]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	α[b]	Comments
								α(K)=0.001355 *19*; α(L)=0.000204 *3*; α(M)=4.63×10^{-5} *7* α(N)=1.130×10^{-5} *16*; α(O)=1.96×10^{-6} *3*; α(P)=1.508×10^{-7} *22*; α(IPF)=0.000513 *8*
2193.7 *4*	13.7 *24*	2348.69	(2)$^-$	155.031	2$^+$	E1	1.19×10^{-3}	%Iγ=2.0 *4* α(K)=0.000432 *6*; α(L)=6.04×10^{-5} *9*; α(M)=1.359×10^{-5} *19* α(N)=3.31×10^{-6} *5*; α(O)=5.73×10^{-7} *8*; α(P)=4.40×10^{-8} *7*; α(IPF)=0.000679 *10* Mult.: α(K)exp(2193.67γ+2192.3γ)=0.00071 *18* consistent with E1 for 2193.7γ and M1,E2 for 2192.3γ. 2194$\gamma(\theta)$: A$_2$=−0.4 *2* (1985Ed02).
2214.59 *20*	127 *9*	2214.60	(1)$^+$	0.0	0$^+$	(M1)	0.00211	%Iγ=18.6 *15* α(K)=0.001322 *19*; α(L)=0.000199 *3*; α(M)=4.52×10^{-5} *7* α(N)=1.102×10^{-5} *16*; α(O)=1.91×10^{-6} *3*; α(P)=1.471×10^{-7} *21*; α(IPF)=0.000527 *8* Mult.: α(K)exp=0.00091 *25*, α(L)exp=0.00011 *5*, consistent with E2 $\gamma(\theta$,H,T) measurement (1980Be27), but the analysis assumed J^π(^{188}Ir g.s.)=2$^-$, instead of 1$^-$. 2215$\gamma(\theta)$: A$_2$=0.67 *2* (1985Ed02). This transition was used in NMR studies on oriented ^{188}Ir nuclei to obtain J^π(^{188}Ir g.s.)=1.
2219.1 *5*	1.30 *13*	2374.2	1,2	155.031	2$^+$			%Iγ=0.190 *22*
2222.0 *5*	1.55 *15*	2376.92	(2$^-$)	155.031	2$^+$	[E1]	1.20×10^{-3}	%Iγ=0.23 *25* α(K)=0.000423 *6*; α(L)=5.91×10^{-5} *9*; α(M)=1.331×10^{-5} *19* α(N)=3.24×10^{-6} *5*; α(O)=5.61×10^{-7} *8*; α(P)=4.31×10^{-8} *6*; α(IPF)=0.000698 *10*
2252.09 *25*	2.35 *21*	2251.94	2$^+$	0.0	0$^+$	[E2]	1.47×10^{-3}	%Iγ=0.34 *4* α(K)=0.000906 *13*; α(L)=0.0001345 *19*; α(M)=3.05×10^{-5} *5* α(N)=7.44×10^{-6} *11*; α(O)=1.284×10^{-6} *18*; α(P)=9.61×10^{-8} *14*; α(IPF)=0.000390 *6*
2261.3 *3*	0.56 *7*	2415.90	(2$^+$)	155.031	2$^+$			%Iγ=0.082 *12*
2286.2 *4*	0.52 *7*	2286.24	(1$^+$,2$^+$)	0.0	0$^+$			%Iγ=0.076 *11*
2299.7[a] *5*	0.09 *4*	2299.86	1,2	0.0	0$^+$			%Iγ=0.013 *6*
2305.61 *25*	0.93 *12*	2460.49	1,2	155.031	2$^+$			%Iγ=0.136 *19*
2326.22 *25*	0.58 *7*	2326.07	1,2	0.0	0$^+$			%Iγ=0.085 *12*
2336.0[a] *3*	0.31 *6*	2491.0	(2$^-$)	155.031	2$^+$			%Iγ=0.045 *10*
^{x}2344.2[@f]								
2347.50 *15*	4.4 *5*	2347.49	(1)$^+$	0.0	0$^+$	(M1)	0.00198	%Iγ=0.64 *8* α(K)=0.001148 *16*; α(L)=0.0001721 *24*; α(M)=3.91×10^{-5} *6* α(N)=9.55×10^{-6} *14*; α(O)=1.658×10^{-6} *24*; α(P)=1.276×10^{-7} *18*; α(IPF)=0.000613 *9* E$_\gamma$: from 1980Be27. 1975Th06 give 2347.3 *4*. Mult.: α(K)exp=0.0007 *3* gives mult=M1,E2. A$_2$=+0.60 *12* in $\gamma(\theta$,H,T) (1980Be27). The analysis assumed J^π=2$^-$ for ^{188}Ir g.s.
2365.3 *3*	0.50 *9*	2520.48	1,2	155.031	2$^+$			%Iγ=0.073 *14*

γ(^{188}Os) (continued)

E_γ[†]	I_γ[‡c]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	α[b]	Comments
2374.2[a] *4*	0.21 *5*	2374.2	1,2	0.0	0^+			%Iγ=0.031 *8*
[x]2385.7[a] *4*	0.13 *4*							%Iγ=0.019 *6*
2394.35 *25*	1.12 *17*	2549.48	(2^-)	155.031	2^+	[E1]	1.25×10^{-3}	%Iγ=0.16 *3* α(K)=0.000376 *6*; α(L)=5.24×10^{-5} *8*; α(M)=1.180×10^{-5} *17* α(N)=2.87×10^{-6} *4*; α(O)=4.98×10^{-7} *7*; α(P)=3.83×10^{-8} *6*; α(IPF)=0.000811 *12*
[x]2406.2[a] *3*	0.24 *5*							%Iγ=0.035 *8*
2426.9[a] *4*	0.14 *4*	2581.80	1,2	155.031	2^+			%Iγ=0.021 *6*
2460.51 *25*	1.56 *18*	2460.49	1,2	0.0	0^+			%Iγ=0.23 *3*
2467.6[a] *4*	0.05 *3*	2622.71	(2^+)	155.031	2^+			%Iγ=0.007 *5*
[x]2486.8 *3*	0.21 *6*							%Iγ=0.031 *9*
[x]2504.87 *25*	0.81 *4*							%Iγ=0.119 *9*
2520.1 *5*	0.08 *4*	2520.48	1,2	0.0	0^+			%Iγ=0.012 *6* Mult.: 1964Ha06 report a conversion line for Eγ=2525.1. If same as 2520γ, α(K)exp=0.029 is too high to be an E2 or M1 transition. It is possible that line reported by 1964Ha06 is from an impurity.
[x]2565.6[a] *5*	0.08 *4*							%Iγ=0.012 *6*
2581.7[a] *3*	0.28 *7*	2581.80	1,2	0.0	0^+			%Iγ=0.041 *11*
2622.45 *25*	0.55 *8*	2622.71	(2^+)	0.0	0^+			%Iγ=0.081 *13* Mult.: α(K)exp=0.0042 *14*, too large for mult=D,E2. Marginally agrees with M2.
[x]2699.7[@f]								

[†] From adopted gammas.

[‡] From 1975Th06, unless otherwise stated.

[#] From adopted gammas, unless otherwise stated.

[@] Reported only in the ce data of 1964Ha06. Intensity not given by the authors.

[&] Reported by 1969Ya02 and 1964Ha06.

[a] Reported only by 1975Th06.

[b] Additional information 1.

[c] For absolute intensity per 100 decays, multiply by 0.146 *8*.

[d] Multiply placed with undivided intensity.

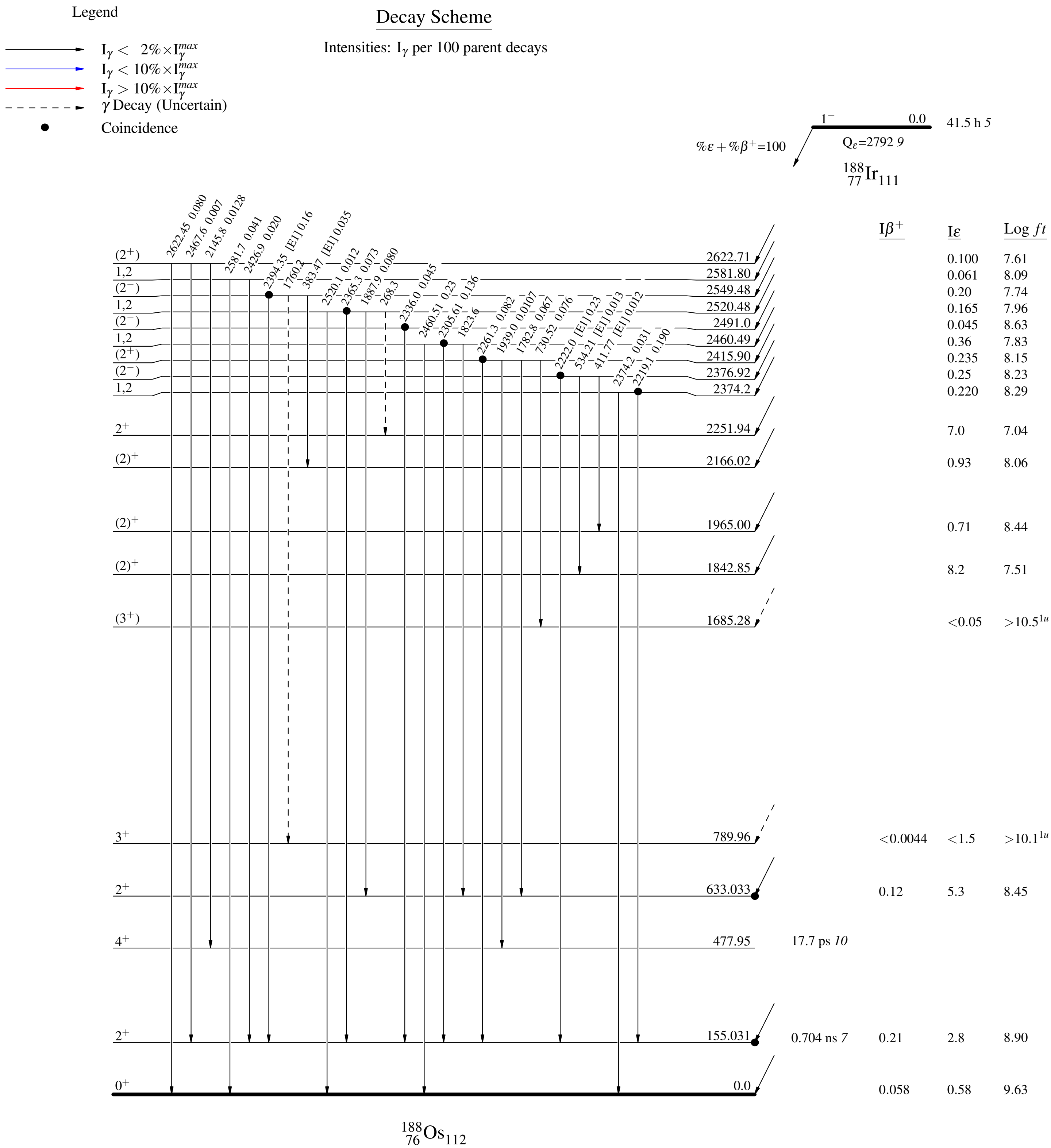
[e] Multiply placed with intensity suitably divided.

[f] Placement of transition in the level scheme is uncertain.

[x] γ ray not placed in level scheme.

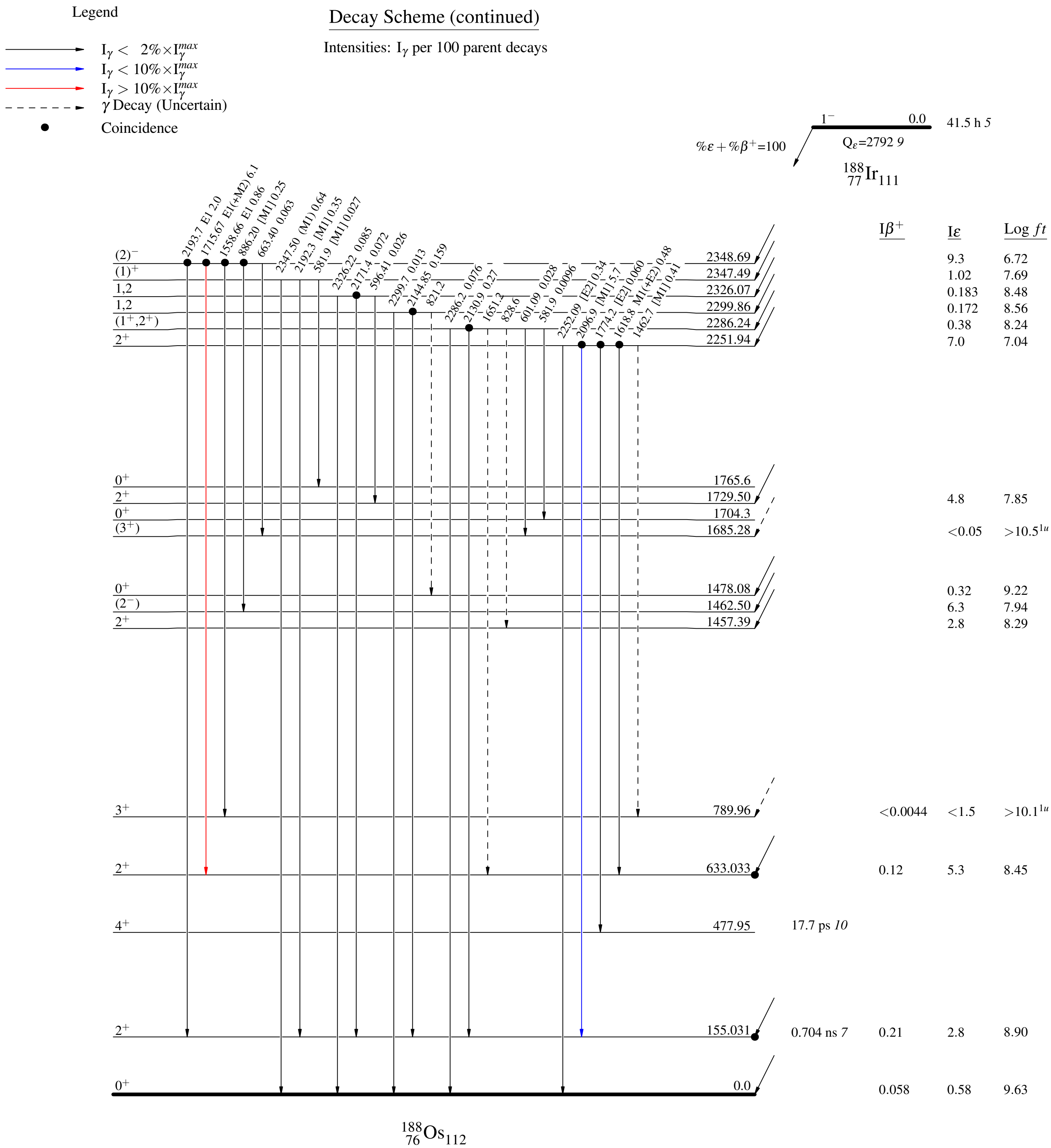
$^{188}_{76}$Os$_{112}$-20

^{188}Ir ε decay (41.5 h) 1975Th06,1969Ya02,1964Ha06

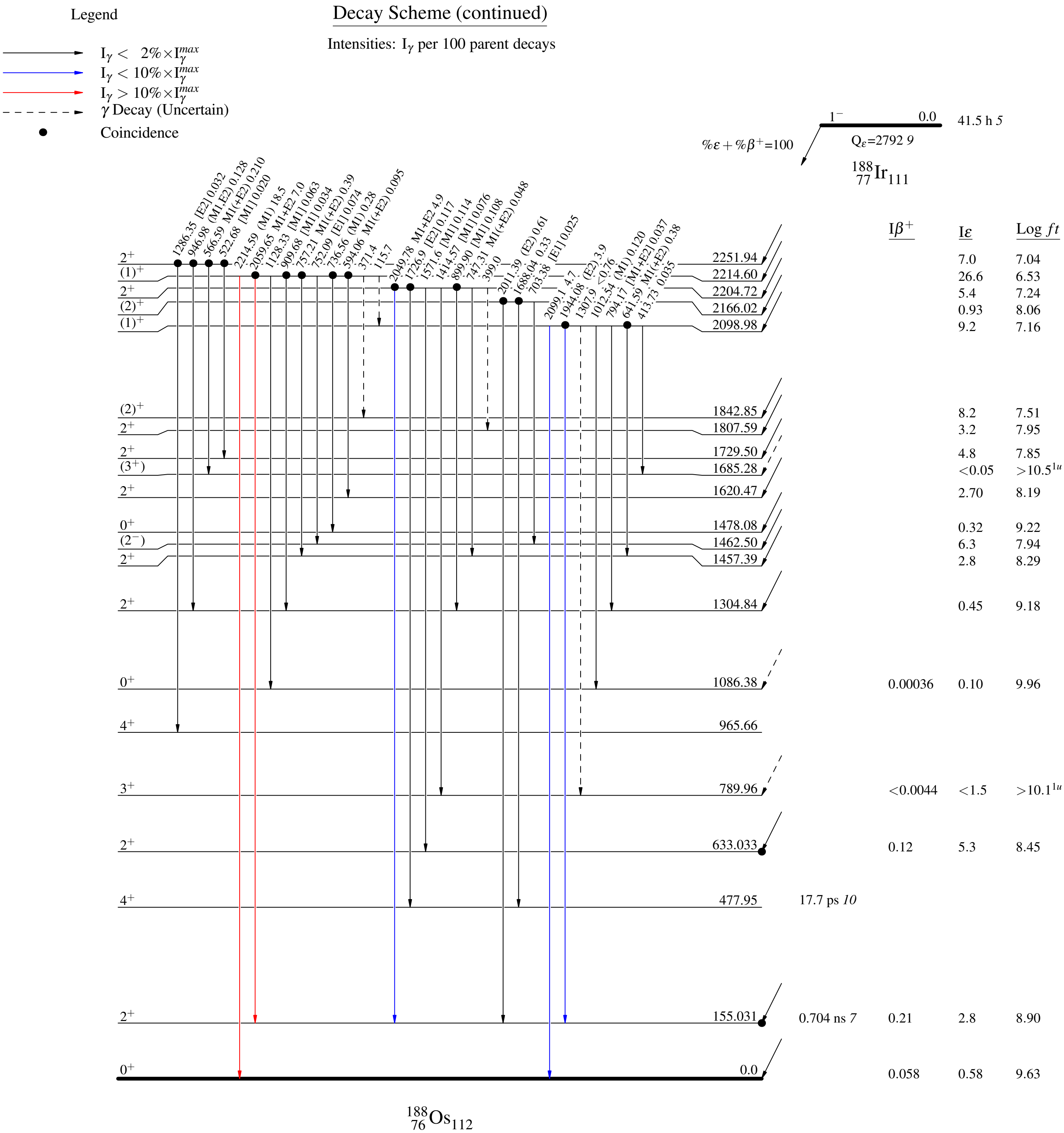


^{188}Ir ε decay (41.5 h) 1975Th06,1969Ya02,1964Ha06

Decay Scheme (continued)



^{188}Ir ε decay (41.5 h) 1975Th06,1969Ya02,1964Ha06

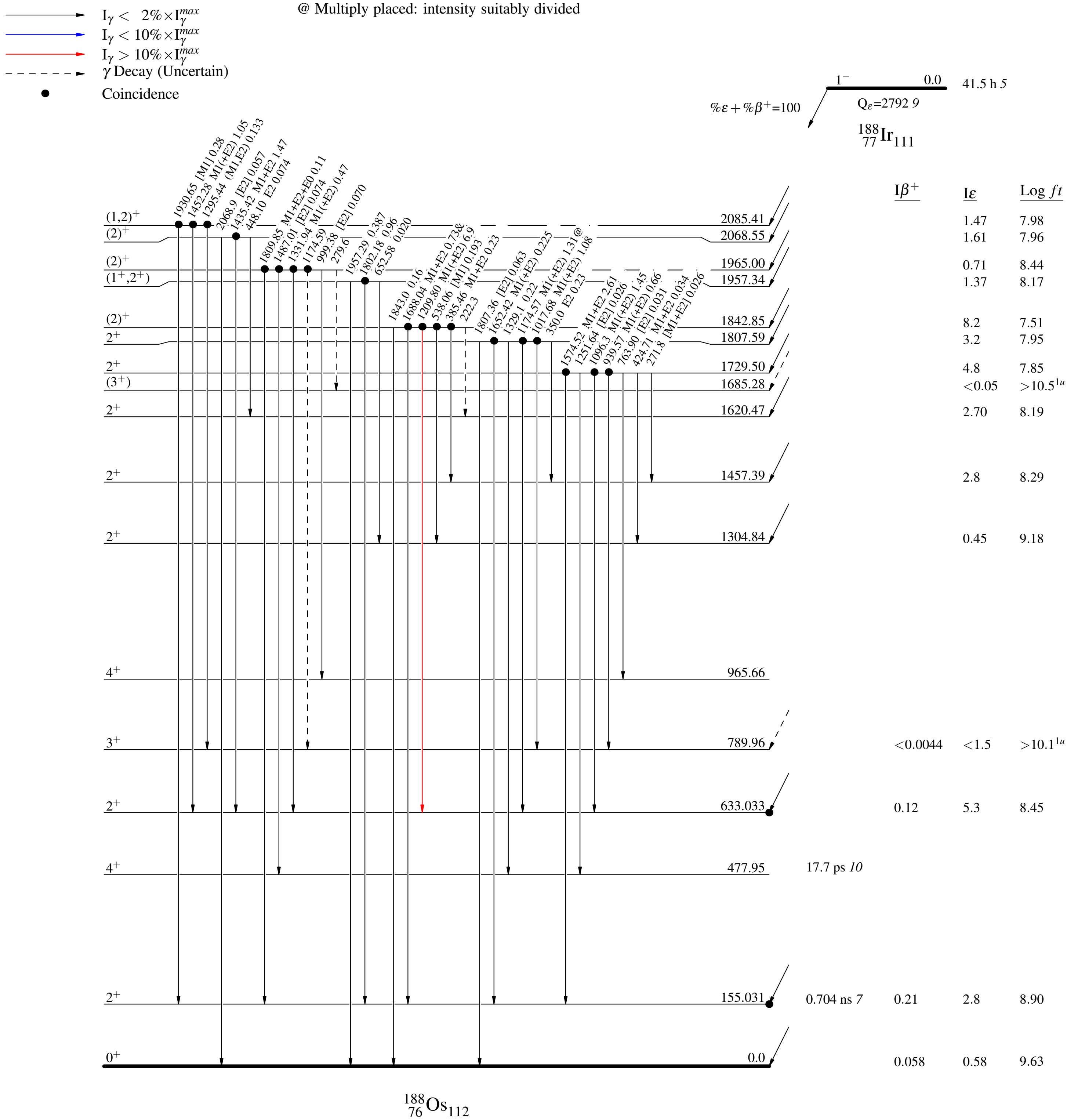


^{188}Ir ε decay (41.5 h) 1975Th06,1969Ya02,1964Ha06

Decay Scheme (continued)

Intensities: I_γ per 100 parent decays
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided

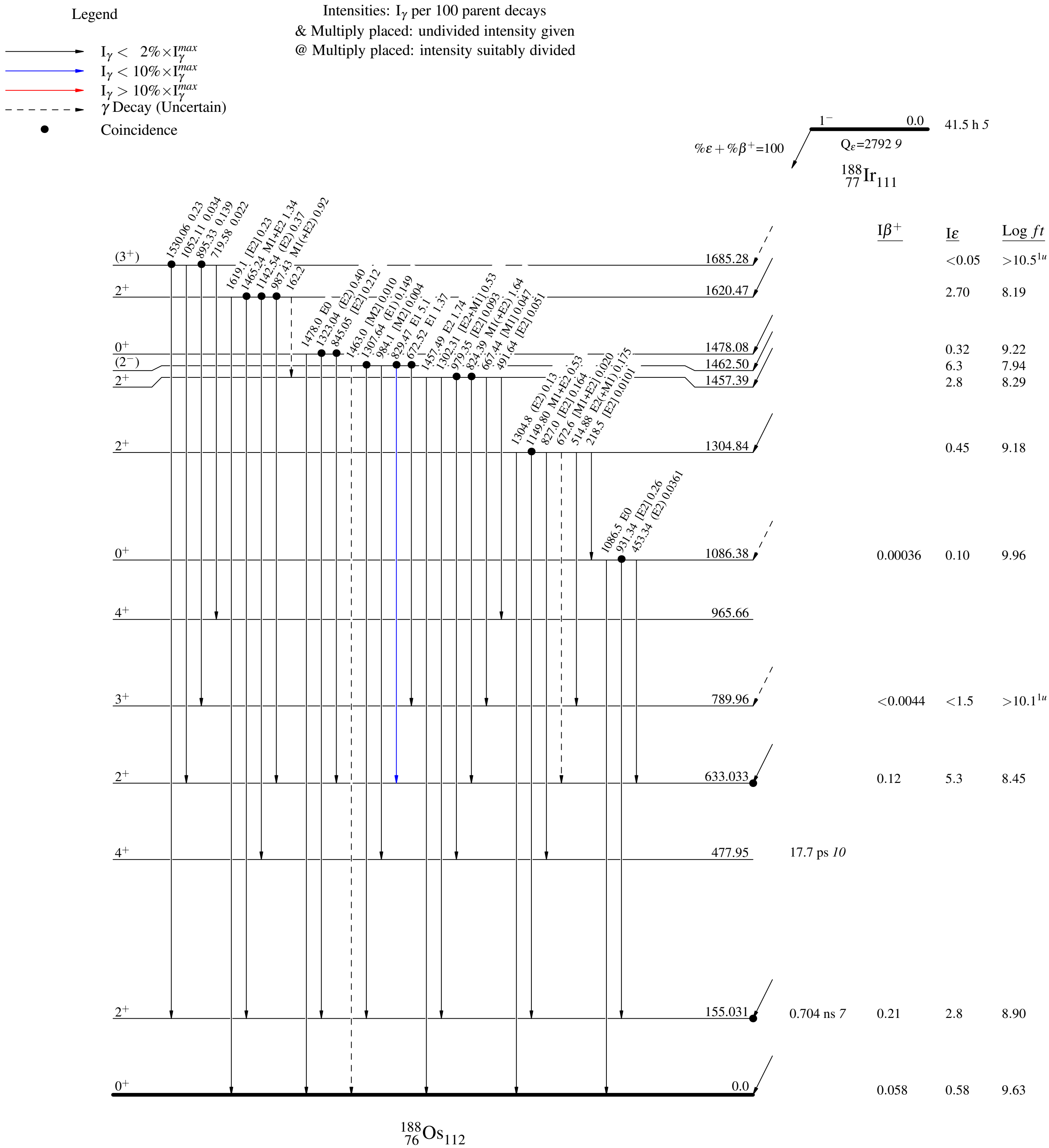
Legend



^{188}Ir ε decay (41.5 h) 1975Th06,1969Ya02,1964Ha06

Decay Scheme (continued)

Intensities: I_γ per 100 parent decays
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided



^{188}Ir ε decay (41.5 h) 1975Th06,1969Ya02,1964Ha06

Decay Scheme (continued)