^{188}Pt ε decay (10.16 d) 1978El11

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}Pt: E=0; $J^\pi=0^+$; $T_{1/2}$=10.16 d *18*; Q(ε)=524 *9*; %ε decay=100.0
^{188}Pt-%ε decay: %ε=99.999974 *3*, %α=2.6×10^{-5} *3*.
1978El11: Measured γ, γγ, ce-γ coin.
Others:
γ, γγ: 1970Ba53, 1970Ba10, 1969Pl07, 1968Ha23, 1967Ko22, 1965Ja06.
ce: 1963Pr12, 1962Ca27, 1964Sa30, 1962Kr05, 1961Kr02, 1958FiZZ.
ce γ(t), γγ(t): 1969Ma37, 1970Ba53, 1965Ja06, 1965Kr03.

^{188}Ir Levels

E(level)[†]	J^π[‡]	$T_{1/2}$	Comments
0.0	1⁻		
54.80 *4*	2⁻	1.93 ns *10*	$T_{1/2}$: From 54.8e(L_{ii}+L_{iii})−140.3e(K)(t) in 1969Ma37. Others: 2.3 ns *2* (1965Ja06) and 2.7 ns *8* (1965Kr03,1970Ba53), but the accuracy of those values is disputed in 1969Ma37.
96.74 *4*	2⁻	1.59 ns *12*	$T_{1/2}$: From 41.9e(L)−381.6γ(t) in 1969Ma37.
187.61 *7*	(1)⁻	56 ps *13*	$T_{1/2}$: From KLL-187.59(L_I)(t) in 1969Ma37.
195.10 *5*	1⁻	51 ps *10*	$T_{1/2}$: From KLL-195.05(L_I)(t) in 1969Ma37.
280.30 *15*	(1,2)⁻		
478.17 *7*	1⁺	<150 ps	$T_{1/2}$: From LMM − 300 (and higher)γ(t) in 1969Ma37.

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

ε radiations

E(decay)	E(level)	Iε[†]	Log *ft*	Comments
(46 *9*)	478.17	≈12.8	≈4.6	εL=0.65 *5*; εM+=0.35 *5* εK/ε(exp)<0.003 (1978El11), εL/ε(exp)=0.67 (1978El11).
(244 *9*)	280.30	≈0.37	≈8.3	εK=0.706 *7*; εL=0.219 *5*; εM+=0.0748 *19*
(329 *9*)	195.10	≈44	≈6.5	εK=0.746 *3*; εL=0.1905 *21*; εM+=0.0637 *8* εK/ε(exp)=0.741 *12*. Weighted average of 0.740 *15* (1978El11) and 0.744 *20* (1968Ha23).
(336 *9*)	187.61	≈27.8	≈6.8	εK=0.748 *3*; εL=0.1889 *20*; εM+=0.0630 *8* εK/ε(exp)=0.753 *13*. Weighted average of 0.747 *15* (1978El11) and 0.766 *23* (1968Ha23).
(524 *9*)	0.0	≤15	≥7.5	εK=0.7796 *9*; εL=0.1662 *7*; εM+=0.05420 *25*

† Absolute intensity per 100 decays.

γ(^{188}Ir)

Iγ normalization: from Σ I(γ+ce) (γ′s to g.s.) > 85%, by assuming <15% feeding to the g.s. From the measured I(K x ray) in 1968Ha23, it has been concluded by the authors that the direct feeding to the first three levels at 0.0, 54.8 and 96.7 keV is 5(10)%. However, from intensity balances in the present decay scheme no direct feeding to the 54.8 and 96.7 keV levels is deduced.

I(K x ray)=506 *50* (1978El11), 486 *50* (1969Pl07), 520 *78* (1968Ha23).

E_γ[†]	I_γ[†&]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[‡]	δ[#]	α[@]	Comments
41.98 *5*	2.7 *3*	96.74	2⁻	54.80	2⁻	M1+E2	0.070 *7*	14.8 *4*	%Iγ>0.52 α(L)=11.37 *25*; α(M)=2.64 *6* α(N)=0.649 *15*; α(O)=0.1134 *24*; α(P)=0.00789 *12* Mult.,δ: from L1/L2/L3=100/11/5.7 (1963Pr12) and L1/L2=7.1 *10* (1962Ca27).
54.85 *5*	3.9 *4*	54.80	2⁻	0.0	1⁻	M1+E2	0.65 *4*	24.5 *17*	%Iγ>0.75 α(L)=18.6 *13*; α(M)=4.7 *4* α(N)=1.13 *8*; α(O)=0.176 *12*; α(P)=0.00269 *9* Mult.,δ: from α(L)exp=12.7, L1/L2/L3=39/100/100 (1963Pr12) and L1/L2=0.27 *6*, L1/L3=0.29 *6* (1962Ca27). I_γ: Note that Iγ=1.6 *8* in 1968Ha23.
92.9[a] *2*	≈0.12	280.30	(1,2)⁻	187.61	(1)⁻	[M1,E2]		7.56 *12*	%Iγ>0.023 α(K)=6.23 *10*; α(L)=1.028 *16*; α(M)=0.237 *4* α(N)=0.0582 *9*; α(O)=0.01031 *16*; α(P)=0.000776 *12*
96.70 *5*	0.9 *4*	96.74	2⁻	0.0	1⁻	E2+M1	1.41 *4*	5.78 *9*	%Iγ>0.17 α(K)=2.38 *7*; α(L)=2.57 *5*; α(M)=0.652 *13* α(N)=0.158 *3*; α(O)=0.0245 *5*; α(P)=0.000297 *9* Mult.,δ: from K/L1/L2/L3=100/14/54/38 (1963Pr12).
98.37 *5*	1.75 *17*	195.10	1⁻	96.74	2⁻	M1(+E2)	<0.1	6.41	%Iγ>0.34 α(K)=5.27 *8*; α(L)=0.882 *17*; α(M)=0.204 *5* α(N)=0.0501 *10*; α(O)=0.00884 *17*; α(P)=0.000655 *10* Mult.,δ: from α(K)exp=6.7 and K/L1/L2=100/15/1.5 (1963Pr12).
132.86 *10*	1.3 *3*	187.61	(1)⁻	54.80	2⁻	E2		1.503	%Iγ>0.25 α(K)=0.456 *7*; α(L)=0.788 *12*; α(M)=0.202 *3* α(N)=0.0489 *7*; α(O)=0.00751 *11*; α(P)=4.60×10^{-5} *7* Mult.: α(L2)exp=0.69; L2/L3=1.5 (1962Ca27).
140.35 *10*	12.0 *6*	195.10	1⁻	54.80	2⁻	M1(+E2)	<0.13	2.32	%Iγ>2.30 α(K)=1.91 *3*; α(L)=0.316 *6*; α(M)=0.0730 *13* α(N)=0.0180 *3*; α(O)=0.00317 *5*; α(P)=0.000236 *4* Mult.,δ: from α(K)exp=1.32 and K/L1/L2/L3=100/21/1.5/<0.2 (1963Pr12).
187.59 *10*	100 *5*	187.61	(1)⁻	0.0	1⁻	E2(+M1)	≈29	0.431	%Iγ>19.1 α(K)≈0.201; α(L)≈0.1734; α(M)≈0.0441 α(N)≈0.01068; α(O)≈0.001662; α(P)≈2.01×10^{-5} Mult.,δ: K/L1/L2/L3/M/N=1.0/0.16/0.02/0.002/0.044/0.01 (1964Sa30).

γ(^{188}Ir) (continued)

E_γ[†]	I_γ[†&]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[‡]	δ[#]	α[@]	Comments
195.05 *10*	96 *5*	195.10	1⁻	0.0	1⁻	M1(+E2)	<0.1	0.918 *14*	%Iγ>18.4 α(K)=0.757 *11*; α(L)=0.1238 *18*; α(M)=0.0285 *4* α(N)=0.00701 *10*; α(O)=0.001241 *18*; α(P)=9.32×10^{-5} *14* Mult.,δ: from α(K)exp=0.89, K/L=6.55 *7*, L/M=3.47 *3* (1962Ca27). Other: K/L1/L2/L3/M/N=1.0/0.17/0.01/0.002/0.043/0.01 (1964Sa30).
197.8[a] *4*	<0.3	478.17	1⁺	280.30	(1,2)⁻	(E1)		0.0702 *11*	%Iγ>0.03 α(K)=0.0578 *9*; α(L)=0.00957 *15*; α(M)=0.00220 *4* α(N)=0.000535 *8*; α(O)=9.09×10^{-5} *14*; α(P)=5.45×10^{-6} *8* Mult.: α(K)exp<2.6.
280.30 *15*	1.6 *2*	280.30	(1,2)⁻	0.0	1⁻	E2+M1	1.16 *+27−21*	0.211 *23*	%Iγ>0.31 α(K)=0.160 *21*; α(L)=0.0388 *13*; α(M)=0.00932 *23* α(N)=0.00228 *6*; α(O)=0.000382 *14*; α(P)=1.9×10^{-5} *3* Mult.,δ: from α(K)exp=0.16.
283.15 *20*	0.54 *27*	478.17	1⁺	195.10	1⁻	[E1]		0.0290	%Iγ>0.10 α(K)=0.0240 *4*; α(L)=0.00384 *6*; α(M)=0.000882 *13* α(N)=0.000215 *3*; α(O)=3.69×10^{-5} *6*; α(P)=2.36×10^{-6} *4*
290.64 *20*	0.55 *20*	478.17	1⁺	187.61	(1)⁻	[E1]		0.0272	%Iγ>0.11 α(K)=0.0226 *4*; α(L)=0.00360 *5*; α(M)=0.000826 *12* α(N)=0.000201 *3*; α(O)=3.46×10^{-5} *5*; α(P)=2.23×10^{-6} *4*
381.43 *10*	38.5 *20*	478.17	1⁺	96.74	2⁻	E1		0.01445	%Iγ>7.4 α(K)=0.01202 *17*; α(L)=0.00188 *3*; α(M)=0.000429 *6* α(N)=0.0001047 *15*; α(O)=1.81×10^{-5} *3*; α(P)=1.217×10^{-6} *17* Mult.: α(K)exp=0.0144.
423.34 *10*	22.5 *12*	478.17	1⁺	54.80	2⁻	E1		0.01144	%Iγ>4.3 α(K)=0.00953 *14*; α(L)=0.001474 *21*; α(M)=0.000337 *5* α(N)=8.22×10^{-5} *12*; α(O)=1.429×10^{-5} *20*; α(P)=9.72×10^{-7} *14* Mult.: α(K)exp=0.0078.
478.3 *5*	9.2 *15*	478.17	1⁺	0.0	1⁻	E1		0.00876	%Iγ>1.8 α(K)=0.00731 *11*; α(L)=0.001119 *16*; α(M)=0.000256 *4* α(N)=6.24×10^{-5} *9*; α(O)=1.087×10^{-5} *16*; α(P)=7.52×10^{-7} *11* Mult.: α(K)exp<0.02.

† From 1978El11. The Iγ values reported in 1978El11, 1968Ha23 and 1969Pl07 are consistent, except as noted.
‡ From the ce data of 1963Pr12 and Iγ data of 1978El11, and sub-shell ratios of 1962Ca27, 1964Sa30 and 1963Pr12.
# Deduced using the BrIccmixing program (v.23). Uncertainties of 10% are assumed for the input data, if not specifically given by the authors.
@ Additional information 1.
& For absolute intensity per 100 decays, multiply by ≥0.191.
a Placement of transition in the level scheme is uncertain.

^{188}**Pt ε decay (10.16 d) 1978El11**