^{189}Au ε decay (28.7 min) 1973Ja16,1970Fi16,1970Jo02

History

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

Parent: ^{189}Au: E=0.0; $J^{\pi}=1/2^+$; $T_{1/2}$=28.7 min *4*; Q(ε)=2887 *22*; %ε+%β^+ decay=100.0

^{189}Au-J^{π},$T_{1/2}$: From ^{189}Au Adopted Levels.

^{189}Au-Q(ε): From 2017Wa10.

1973Ja16: measured Eγ, Iγ, ce.

1970Fi16: measured Eγ, Iγ.

1970Jo02: measured Eγ, Iγ, I(ce), $T_{1/2}$.

Others: 1967Na02, 1965Ki06.

^{189}Pt Levels

E(level)	J^{π}†	$T_{1/2}$†
0.0	$3/2^-$	10.87 h *12*
6.40 *4*	$5/2^-$	
45.731 *23*	$(1/2)^-$	
88.334 *25*	$3/2^-$	
222.29 *4*	$(3/2,5/2)^-$	
237.5	$(7/2)^-$	
348.44 *5*	$(5/2,3/2)^-$	
447.64 *7*	$(3/2,5/2)^-$	
529.62 *10*	$(1/2,3/2,5/2)^-$	
1160.82 *14*	$3/2^+$	

† From Adopted Levels.

γ(^{189}Pt)

Iγ normalization: Decay scheme is incomplete, thus not normalized.

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[@]	δ[@]	α[&]	Comments
(6.40 *4*)		6.40	5/2$^-$	0.0	3/2$^-$			924 *22*	α(M)=714 *17*; α(N)=177 *5*; α(O)=31.8 *8*; α(P)=2.13 *5* E_γ: from Adopted Gammas.
39.47 *3*	0.13[#] *2*	45.731	(1/2)$^-$	6.40	5/2$^-$	E2		369	L2/L3=0.8; M2/M3=0.9; ce(L2)=115 *25* α(L)=277 *4*; α(M)=71.2 *11* α(N)=17.3 *3*; α(O)=2.67 *4*; α(P)=0.00221 *4* α: other values: L1/L2<0.05, L2/L3=0.95 *20*.
42.75[a] *5*		88.334	3/2$^-$	45.731	(1/2)$^-$	M1+E2	0.14 *2*	18.7 *14*	L1:L2:L3=5.2:1.3:1 α(L)=14.3 *11*; α(M)=3.4 *3* α(N)=0.84 *7*; α(O)=0.145 *10*; α(P)=0.00745 *12*
[x]45.05 *5*	0.23[#] *9*					M1+E2	0.39 *+7−4*	36 *8*	L1/L3=0.78 *31*; ce(L1)=45 *12* α(L)=27 *6*; α(M)=6.8 *15* α(N)=1.7 *4*; α(O)=0.27 *6*; α(P)=0.00579 *24*
45.69 *3*	0.90[#] *22*	45.731	(1/2)$^-$	0.0	3/2$^-$	M1+E2	0.32 *3*	27 *3*	L1/L2=0.6; L3/L4=1.4; ce(L2)=154 *30* α(L)=20.7 *21*; α(M)=5.1 *6* α(N)=1.25 *13*; α(O)=0.205 *20*; α(P)=0.00575 *12*
82.2 *5*		88.334	3/2$^-$	6.40	5/2$^-$	M1+E2	0.21 *2*	11.6 *3*	L2/L3=1.8 α(K)=9.17 *22*; α(L)=1.88 *7*; α(M)=0.443 *18* α(N)=0.109 *5*; α(O)=0.0191 *7*; α(P)=0.00107 *3*
88.41 *3*	10.3 *16*	88.334	3/2$^-$	0.0	3/2$^-$	M1+E2	0.21 *2*	9.43	L1:L2:L3=9.9:2.2:1; ce(L1)=158 *20* α(K)=7.49 *12*; α(L)=1.49 *4*; α(M)=0.350 *11* α(N)=0.086 *3*; α(O)=0.0152 *4*; α(P)=0.000870 *14* α: other value: L1/L2=4.3 *11*.
[x]92.3 *5*	6.5 *10*								
110.8[a] *5*	1.8 *4*	348.44	(5/2,3/2)$^-$	237.5	(7/2)$^-$	(E2)		3.22 *8*	α(exp)=3.1 *14* α(K)=0.622 *10*; α(L)=1.95 *5*; α(M)=0.505 *13* α(N)=0.123 *4*; α(O)=0.0192 *5*; α(P)=6.75×10^{-5} *12* α: from intensity balance through 237 level. Transition placed by the evaluators on the basis of energy sums.
126.31 *5*	3.8 *5*	348.44	(5/2,3/2)$^-$	222.29	(3/2,5/2)$^-$	M1+E2	0.54 *9*	3.08 *10*	α(K)exp=1.2 *5*; K:L1:L2=12:4:1; ce(L1)=27 *5* α(K)=2.29 *14*; α(L)=0.60 *4*; α(M)=0.146 *10* α(N)=0.0359 *25*; α(O)=0.0061 *4*; α(P)=0.000261 *17* α: other value: K/L1=5.6 *18*.
134.26 *4*	6.5 *9*	222.29	(3/2,5/2)$^-$	88.334	3/2$^-$	M1+E2	0.8 *3*	2.3 *3*	α(K)exp=1.8 *6*; K/L1=5; ce(K)=250 *40* α(K)=1.6 *4*; α(L)=0.56 *8*; α(M)=0.137 *23* α(N)=0.034 *6*; α(O)=0.0056 *8*; α(P)=0.00018 *5* α: other values: K/L=7.4 *16*, L1/L2>8.
176.1 *5*		222.29	(3/2,5/2)$^-$	45.731	(1/2)$^-$	[M1]		1.333 *22*	α(K)=1.098 *18*; α(L)=0.181 *3*; α(M)=0.0418 *7* α(N)=0.01036 *17*; α(O)=0.00186 *3*; α(P)=0.0001256 *21*
[x]186.5 *5*									

^{189}Au ε decay (28.7 min) 1973Ja16,1970Fi16,1970Jo02 (continued)

γ(^{189}Pt) (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[@]	δ[@]	α[&]	Comments
[x]194.9 *3*	4.0 *8*					(E1,E2)			α(K)exp=0.10 *5*; ce(K)=10 *4*
215.68 *5*	16.6 *23*	222.29	(3/2,5/2)$^-$	6.40	5/2$^-$	M1+E2	0.9 *4*	0.54 *12*	α(K)exp=0.42 *10*; ce(K)=133 *20* α(K)=0.41 *12*; α(L)=0.1032 *15*; α(M)=0.0249 *8* α(N)=0.00614 *18*; α(O)=0.001046 *16*; α(P)=4.5×10^{-5} *15*
[x]218.7 *5*	9.0 *18*					E2(+M1)	>3	0.289 *24*	α(K)exp=0.15 *4* α(K)=0.159 *24*; α(L)=0.0984 *17*; α(M)=0.0249 *5* α(N)=0.00609 *11*; α(O)=0.000980 *17*; α(P)=1.6×10^{-5} *3*
221.95 *16*	27 *3*	222.29	(3/2,5/2)$^-$	0.0	3/2$^-$	E2		0.253	α(K)exp=0.13 *4*; ce(K)=56 *15* α(K)=0.1306 *19*; α(L)=0.0926 *14*; α(M)=0.0235 *4* α(N)=0.00575 *9*; α(O)=0.000921 *14*; α(P)=1.263×10^{-5} *18*
225.7 *5*	10.8 *22*	447.64	(3/2,5/2)$^-$	222.29	(3/2,5/2)$^-$	M1(+E2)	<0.8	0.58 *9*	α(K)exp=0.55 *15* α(K)=0.47 *9*; α(L)=0.0895 *16*; α(M)=0.0211 *4* α(N)=0.00520 *9*; α(O)=0.000915 *20*; α(P)=5.3×10^{-5} *10*
231.2 *5*	6.0 *15*	237.5	(7/2)$^-$	6.40	5/2$^-$	E2		0.222	α(K)exp=0.16 *4* α(K)=0.1178 *18*; α(L)=0.0784 *13*; α(M)=0.0199 *4* α(N)=0.00486 *8*; α(O)=0.000780 *13*; α(P)=1.145×10^{-5} *18*
[x]253.67 *15*									ce(K)=31 *12*
[x]256.1 *5*	4.5 *12*								
259.68 *10*	5.4 *16*	348.44	(5/2,3/2)$^-$	88.334	3/2$^-$	M1+E2	1.4 *+8−4*	0.25 *5*	α(K)=0.184 *48*; α(L)=0.0533 *22*; α(M)=0.0130 *4* α(N)=0.00320 *9*; α(O)=0.000538 *25*; α(P)=2.01×10^{-5} *57*
[x]260.61 *25*									α(K)exp=0.19 *5*; ce(K)=23 *8* ce(K)=4 *2*
[x]262.0 *5*	3.5 *10*					M1(+E2)	<1.0	0.36 *8*	α(K)exp=0.31 *8* α(K)=0.288 *77*; α(L)=0.056 *4*; α(M)=0.0133 *6* α(N)=0.00328 *14*; α(O)=0.00058 *4*; α(P)=3.24×10^{-5} *91*
[x]265.7 *5*	2.5 *10*					M1		0.425	α(K)exp=0.4 *1* α(K)=0.351 *6*; α(L)=0.0574 *9*; α(M)=0.01326 *20* α(N)=0.00328 *5*; α(O)=0.000590 *9*; α(P)=3.99×10^{-5} *6*
[x]297.5 *5*	14.5 *25*								
302.4[a] *5*		348.44	(5/2,3/2)$^-$	45.731	(1/2)$^-$	[M1]		0.299	α(K)=0.247 *4*; α(L)=0.0402 *6*; α(M)=0.00929 *14* α(N)=0.00230 *4*; α(O)=0.000414 *6*; α(P)=2.80×10^{-5} *5*
[x]309.6 *5*	5.0 *18*								
[x]329.8 *5*	9 *3*								
[x]332.5 *5*	3.8 *12*								
342.0 *5*	8.8 *16*	348.44	(5/2,3/2)$^-$	6.40	5/2$^-$	[M1]		0.214	α(K)=0.177 *3*; α(L)=0.0288 *5*; α(M)=0.00664 *10* α(N)=0.001642 *24*; α(O)=0.000296 *5*; α(P)=2.00×10^{-5} *3*
348.15 *15*	43 *3*	348.44	(5/2,3/2)$^-$	0.0	3/2$^-$	M1(+E2)	<0.7	0.181 *24*	α(K)exp=0.16 *3*; ce(K)=149 *25* α(K)=0.148 *21*; α(L)=0.0256 *19*; α(M)=0.0060 *4* α(N)=0.00147 *10*; α(O)=0.000262 *20*; α(P)=1.67×10^{-5} *25*
359.4 *5*	4.3 *16*	447.64	(3/2,5/2)$^-$	88.334	3/2$^-$	[M1]		0.187	α(K)=0.1547 *23*; α(L)=0.0251 *4*; α(M)=0.00580 *9* α(N)=0.001435 *21*; α(O)=0.000258 *4*; α(P)=1.75×10^{-5} *3*

$^{189}_{78}Pt_{111}$-3

γ(^{189}Pt) (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[@]	δ[@]	α[&]	Comments
441.04 *14*	38 *4*	447.64	(3/2,5/2)$^-$	6.40	5/2$^-$	M1+E2	1.3 *+20−6*	0.062 *23*	α(K)exp=0.05 *3*; ce(K)=44 *20* α(K)=0.049 *20*; α(L)=0.0100 *22*; α(M)=0.0024 *5* α(N)=0.00058 *12*; α(O)=0.000102 *23*; α(P)=5.3×10^{-6} *23*
447.77 *9*	55 *7*	447.64	(3/2,5/2)$^-$	0.0	3/2$^-$	M1(+E2)	<0.7	0.092 *12*	α(K)exp=0.09 *2*; ce(K)=100 α(K)=0.076 *11*; α(L)=0.0128 *12*; α(M)=0.0030 *3* α(N)=0.00073 *7*; α(O)=0.000131 *12*; α(P)=8.5×10^{-6} *12*
484.2 *5*	4.3 *13*	529.62	(1/2,3/2,5/2)$^-$	45.731	(1/2)$^-$				
523.4 *5*	4.3 *22*	529.62	(1/2,3/2,5/2)$^-$	6.40	5/2$^-$				
529.59 *11*	34 *6*	529.62	(1/2,3/2,5/2)$^-$	0.0	3/2$^-$	M1(+E2)	<1.4	0.052 *15*	α(K)exp=0.05 *2*; ce(K)=34 *6* α(K)=0.042 *13*; α(L)=0.0073 *16*; α(M)=0.0017 *4* α(N)=0.00042 *9*; α(O)=7.5×10^{-5} *17*; α(P)=4.7×10^{-6} *15*
631.2 *9*	12.1 *23*	1160.82	3/2$^+$	529.62	(1/2,3/2,5/2)$^-$	E1		0.00511	α(K)exp<0.012; ce(K)<3 α(K)=0.00427 *6*; α(L)=0.000646 *10*; α(M)=0.0001477 *22* α(N)=3.64×10^{-5} *6*; α(O)=6.46×10^{-6} *10*; α(P)=4.12×10^{-7} *6* Mult.: both E1 and E2 are consistent with α(K)exp, but ΔJ^π supports E1.
713.24 *17*	100 *14*	1160.82	3/2$^+$	447.64	(3/2,5/2)$^-$	E1		0.00401	α(K)exp=0.0033 *6*; ce(K)=7.9 *13* α(K)=0.00335 *5*; α(L)=0.000503 *7*; α(M)=0.0001149 *17* α(N)=2.83×10^{-5} *4*; α(O)=5.04×10^{-6} *7*; α(P)=3.25×10^{-7} *5*
[x]802 *2*	5.7 *18*								
812.8 *3*	63 *9*	1160.82	3/2$^+$	348.44	(5/2,3/2)$^-$	E1		0.00311	α(K)exp=0.0024 *11*; ce(K)=3.6 *11* α(K)=0.00261 *4*; α(L)=0.000388 *6*; α(M)=8.86×10^{-5} *13* α(N)=2.18×10^{-5} *3*; α(O)=3.90×10^{-6} *6*; α(P)=2.55×10^{-7} *4*
[x]827.7 *5*	10 *3*					M1		0.0212	α(K)exp=0.033 *19*; ce(K)=4.6 *15* α(K)=0.01755 *25*; α(L)=0.00278 *4*; α(M)=0.000639 *9* α(N)=0.0001581 *23*; α(O)=2.85×10^{-5} *4*; α(P)=1.95×10^{-6} *3*
[x]902 *2*	10 *3*					(E1,E2)			α(K)exp<0.013
1071.5 *6*	27 *5*	1160.82	3/2$^+$	88.334	3/2$^-$	E1		0.00187	α(K)exp<0.0023 α(K)=0.001572 *22*; α(L)=0.000230 *4*; α(M)=5.24×10^{-5} *8*

^{189}Au ε decay (28.7 min) 1973Ja16,1970Fi16,1970Jo02 (continued)

γ(^{189}Pt) (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[@]	α[&]	Comments
								α(N)=1.290×10^{-5} *19*; α(O)=2.31×10^{-6} *4*; α(P)=1.546×10^{-7} *22* Mult.: both E1 and E2 are consistent with α(K)exp, but ΔJ^π supports E1.
[x]1085 *2*	≈3							
1160.6 *3*	35 *5*	1160.82	3/2$^+$	0.0	3/2$^-$	E1	1.63×10^{-3}	α(K)exp<0.0015 α(K)=0.001364 *20*; α(L)=0.000199 *3*; α(M)=4.52×10^{-5} *7* α(N)=1.115×10^{-5} *16*; α(O)=2.00×10^{-6} *3*; α(P)=1.344×10^{-7} *19*; α(IPF)=7.06×10^{-6} *12* Mult.: both E1 and E2 are consistent with α(K)exp, but ΔJ^π supports E1.
[x]1177.8 *10*	16 *3*							α(K)exp<0.0075

[†] Weighted average of 1973Ja16, 1970Fi16, and 1970Jo02. In taking data from 1973Ja16, the evaluators assume 0.05-keV uncertainty when Eγ values reported with 10 eV uncertainty and 0.5-keV uncertainty when reported with uncertainty of 100 eV.
[‡] Weighted average of 1973Ja16 and 1967Na02, except where noted.
[#] Calculated from Ice and theoretical conversion coefficients.
[@] From subshell I(ce) data of 1973Ja16 and 1970Jo02, and I(ce) data of 1970Jo02 combined with the adopted Iγ. An uncertainty of 20% is assumed when not stated. The ce data from 1970Fi16 have been normalized to the 166.4(E2) from ^{189}Au ε decay (4.59 min), 713.4(E1), and 812.8(E1) transitions. To convert the Ice data to the relative intensity scale of the gammas, multiply by 0.041 *5*.
[&] From BrIcc v2.3b (16-Dec-2014) 2008Ki07, "Frozen Orbitals" appr.
[a] Placement of transition in the level scheme is uncertain.
[x] γ ray not placed in level scheme.

$^{189}_{78}Pt_{111}$-5

^{189}Au ε decay (28.7 min) 1973Ja16,1970Fi16,1970Jo02

Decay Scheme

Intensities: Relative I_γ