^{189}Au ε decay (4.59 min) 1973Ja16,1970Fi16,1970ErZX

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=247.25 *16*; J^π=11/2$^-$; $T_{1/2}$=4.59 min *11*; Q(ε)=2887 *22*; %ε+%$β^+$ decay=100.0

^{189}Au-Q(ε): From 2017Wa10.

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

^{189}Au-Large decay energy suggests additional γ rays and levels are probably present.

1973Ja16: measured Eγ, Iγ, ce.

1970Fi16: measured Eγ, Iγ.

1970ErZX: measured Eγ, $T_{1/2}$.

Others: 1978DaZC, 1976Pi03, 1967He06, 1967Al17, 1966Fo13.

Level scheme is considered by the evaluators as incomplete.

^{189}Pt Levels

E(level)	J^π†	$T_{1/2}$	Comments
0.0	3/2$^-$		
6.3 *5*	5/2$^-$		
172.7 *5*	9/2$^-$	464 ns *25*	$T_{1/2}$: from 1970Fi16 based on γγ(t).
191.8 *11*	(13/2$^+$)		E(level): observed in ^{188}Os(α,3nγ) (1978DaZC), expected to be populated either directly by ε decay or indirectly by γ-ray deexcitation of higher levels.
493.8 *7*	11/2$^-$		

† From Adopted Levels.

ε,$β^+$ radiations

E(decay)	E(level)	Iβ+ †	Iε†	Log *ft*	I(ε+$β^+$)†	Comments
(2640 *22*)	493.8	≈1	≈12	5.6	≈13	av Eβ=737.2 *97*; εK=0.7639 *20*; εL=0.1330 *4*; εM+=0.04234 *14*
(2962 *22*)	172.7	≈9	≈78	4.9	≈87	av Eβ=879.0 *98*; εK=0.730 *3*; εL=0.1264 *5*; εM+=0.04021 *17*

† Absolute intensity per 100 decays.

γ(^{189}Pt)

Iγ normalization: Assuming I(γ+ce)(166.4γ)=100, and unobserved transition intensity predominantly deexcites through the 173 level.

E_γ	I_γ‡	E_i(level)	J_i^π	E_f	J_f^π	Mult.	α†	Comments
(6.3 *5*)		6.3	5/2$^-$	0.0	3/2$^-$	[M1]	9.7×10^2 *27*	α(M)=7.5×10^2 *21* α(N)=1.86×10^2 *52*; α(O)=33.3 *94*; α(P)=2.24 *63* E_γ: unobserved transition.
(19.1)		191.8	(13/2$^+$)	172.7	9/2$^-$	[M2]	3.39×10^4 *99*	α(L)=2.50×10^4 *73*; α(M)=6.9×10^3 *21* α(N)=1.73×10^3 *51*; α(O)=2.96×10^2 *87*; α(P)=14.3 *42* E_γ: unobserved transition.
166.40 *5*	100 *5*	172.7	9/2$^-$	6.3	5/2$^-$	E2	0.684	L1:L2:L3=35 *10*:115 *25*:60 *20*; α(K)exp=0.19 *5* α(K)=0.267 *4*; α(L)=0.314 *5*; α(M)=0.0805 *12* α(N)=0.0197 *3*; α(O)=0.00310 *5*; α(P)=2.53×10^{-5}

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γ(^{189}Pt) (continued)

E_γ	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	δ	α[†]	Comments
									4 %Iγ=59 *3*, using the calculated normalization. E_γ: from 1970Fi16. α: from 1970Fi16.
321.1 *5*	20 *4*	493.8	11/2$^-$	172.7	9/2$^-$	M1+E2	−16.2 *+17−21*	0.0813	α(K)=0.0522 *8*; α(L)=0.0220 *4*; α(M)=0.00549 *9* α(N)=0.001346 *21*; α(O)=0.000220 *4*; α(P)=5.31×10^{-6} *8* E_γ: From 1970Fi16. Transition placed by the evaluators on the basis of Adopted Levels, Gammas dataset. I_γ: from 1973Ja16. Mult.: from Adopted Gammas.

[†] From BrIcc v2.3b (16-Dec-2014) 2008Ki07, "Frozen Orbitals" appr.
[‡] For absolute intensity per 100 decays, multiply by 0.594 *30*.

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Decay Scheme

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