^{193}Au IT decay (3.9 s) 1970Fo08

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	M. Shamsuzzoha Basunia	NDS 143, 1 (2017)	31-Mar-2017

Parent: ^{193}Au: E=290.20 *3*; $J^{\pi}=11/2^{-}$; $T_{1/2}$=3.9 s *3*; %IT decay=100.0

^{193}Au-%IT decay: 99.97% from Ti(258.0γ (M1) in ^{193}Au): Ti(135.5γ (M4) in ^{193}Pt)=1000:0.3 (1955Br41). Ratio deduced from ce-intensities and theoretical conversion coefficients (not given).

1970Fo08: activity from ^{193}Hg ε (3.80 h) + ^{193}Hg (11.8 h) decay (produced by spallation of Pb by 600-MeV protons, ms). Measured Eγ, Iγ (Ge(Li)), E(ce), Ice (mag spect), γ(ce), (ce)(ce)t.

Others: 1974ViZS, 1958Br88, 1955Br12, 1955Br41, 1955Fi30, 1954Gi04, 1952Fi06.

^{193}Au Levels

The decay scheme is that proposed by 1970Fo08.

E(level)†	J^{π}†	$T_{1/2}$†	Comments
0.0	$3/2^{+}$	17.65 h *15*	
38.23 *2*	$(1/2)^{+}$	3.81 ns *18*	
257.98 *2*	$5/2^{+}$	45 ps *20*	$T_{1/2}$: from (ce(L)(32.21γ))(ce(K)(257.95γ)t) (1970Fo08).
290.20 *3*	$11/2^{-}$	3.9 s *3*	%IT=99.97 $T_{1/2}$: from 1955Fi30. Other: 3.8 s *3* (1955Br41).

† From Adopted Levels, unless otherwise noted.

^{193}Au IT decay (3.9 s) 1970Fo08 (continued)

$\gamma(^{193}Au)$

Iγ normalization: From Ti(219.75γ)+Ti(257.97γ)-Ti(289.8γ)=99.47.
All data are from 1970Fo08, unless otherwise noted.

E_γ[†]	I_γ[‡&]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	δ[@]	α[#]	$I_{(\gamma+ce)}$[a]	Comments
32.21 *3*		290.20	11/2$^-$	257.98	5/2$^+$	E3		9.29×10^4	99.47	ce(L)/(γ+ce)=0.699 *9*; ce(M)/(γ+ce)=0.232 *5* ce(N)/(γ+ce)=0.0592 *13*; ce(O)/(γ+ce)=0.00907 *20*; ce(P)/(γ+ce)=7.33×10^{-6} *16* α(L)=6.50×10^4 *10*; α(M)=2.16×10^4 *4* α(N)=5.50×10^3 *9*; α(O)=843 *13*; α(P)=0.681 *10* E_γ: from 1974ViZS. Mult.: from (M1+M2+M3)/(M4+M5)=11.3 (1958Br88); other subshell ratios allow E2 or E3, but (M1+M2+M3)/(M4+M5)=71.2 (E2 theory), =9.13 (E3 theory) is consistent only with E3. L2/L3=0.65 (1954Gi04). $I_{(\gamma+ce)}$: from 99.97 − Ti(289.8γ).
38.22 *2*		38.23	(1/2)$^+$	0.0	3/2$^+$	M1+E2	0.42 *+5−4*	89 *14*	4.81 *26*	ce(L)/(γ+ce)=0.75 *9*; ce(M)/(γ+ce)=0.19 *4* ce(N)/(γ+ce)=0.046 *10*; ce(O)/(γ+ce)=0.0076 *17*; ce(P)/(γ+ce)=0.000119 *19* α(L)=67 *11*; α(M)=17 *3* α(N)=4.2 *7*; α(O)=0.68 *11*; α(P)=0.0107 *4* $I_{(\gamma+ce)}$: from Ti(38.22)=Ti(219.75) in level scheme. Mult.: from L1:L2:L3=42 *4*:98 *9*:100. δ: from L1/L3=0.50 *10*, weighted average from 1970Fo08 and 1974ViZS (^{193}Hg (3.80 h) decay).
219.75 *5*	3.85 *20*	257.98	5/2$^+$	38.23	(1/2)$^+$	E2		0.273		α(K)=0.1344 *19*; α(L)=0.1039 *15*; α(M)=0.0266 *4* α(N)=0.00655 *10*; α(O)=0.001076 *16*; α(P)=1.385×10^{-5} *20* Mult.: from K:L1:L2:L3=14.0 *15*:2.35 *30*:6.7 *7*:5.1 *6*.
257.97 *3*	67.1	257.98	5/2$^+$	0.0	3/2$^+$	M1+E2	0.52 *15*	0.43 *4*		α(K)=0.34 *4*; α(L)=0.0654 *17*; α(M)=0.0154 *3* α(N)=0.00383 *8*; α(O)=0.000692 *19*; α(P)=4.1×10^{-5} *4* Mult.: from L1:L2:L3=100:22 *4*:4.7 *+47−30*. δ: from weighted average of ce(L) ratios from 1970Fo08 and 1974ViZS (^{193}Hg (11.8 h) decay).
289.8		290.20	11/2$^-$	0.0	3/2$^+$	[M4]		18.1	0.5	ce(K)/(γ+ce)=0.472 *7*; ce(L)/(γ+ce)=0.349 *6*; ce(M)/(γ+ce)=0.0972 *18* ce(N)/(γ+ce)=0.0247 *5*; ce(O)/(γ+ce)=0.00423 *9*; ce(P)/(γ+ce)=0.000162 *4* α(K)=9.01 *13*; α(L)=6.67 *10*; α(M)=1.86 *3* α(N)=0.472 *7*; α(O)=0.0807 *12*; α(P)=0.00310 *5*

$^{193}_{79}Au_{114}$-2

$\gamma(^{193}Au)$ (continued)

E_γ [†]	E_i(level)	Comments
		E_γ,$I_{(\gamma+ce)}$: from 1955Br41. $I_{(\gamma+ce)}$: deduced from I(ce) relative to I(ce 257.97γ) and theoretical conversion coefficients (values not given by 1955Br41). $I_{(\gamma+ce)}$: upper limit≈3% from comparison of the ce-lines of the 290 and 256 transitions (1954Gi04).

[†] Deduced from E(ce); calibrated with E(ce(K)) of the 117.99 *2* γ in ^{193}Pt.
[‡] Calculated from intensity balances in the level scheme, the conversion coefficients, and the ratio I(219.75γ)/I(257.97γ)=0.0572 *30* (1970Fo08).
[#] Additional information 1.
[@] If No value given it was assumed δ=1.00 for E2/M1, δ=1.00 for E3/M2 and δ=0.10 for the other multipolarities.
[&] Absolute intensity per 100 decays.
[a] Absolute intensity per 100 decays.

$^{193}_{79}Au_{114}$-3

^{193}Au IT decay (3.9 s) 1970Fo08

Decay Scheme

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

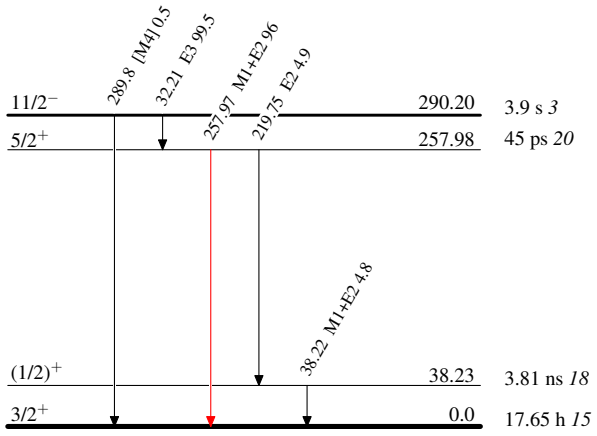
%IT=100.0

Legend

$I_\gamma < 2\% \times I_\gamma^{max}$

$I_\gamma < 10\% \times I_\gamma^{max}$

$I_\gamma > 10\% \times I_\gamma^{max}$



$^{193}_{79}Au_{114}$