^{193}Hg IT decay (11.8 h) 1974ViZS

History

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

Parent: ^{193}Hg: E=140.76 *5*; $J^\pi=13/2^{(+)}$; $T_{1/2}$=11.8 h *2*; %IT decay=7.1 *7*

^{193}Hg-%IT decay: Deduced by evaluator using data from 1974ViZS: I(γ+ce)(isomeric decay)=8.5 *3* from weighted average of I(γ+ce)(39.51γ)=8.7 *5* and I(γ+ce)(101.25γ)=8.4 *3*; total $\varepsilon+\beta^+$ intensity from I(γ+ce)(to ^{193}Au 290 level)=111 *7* (from ^{193}Hg (11.8 h) decay). ^{193}Hg IT decay branching=[8.5 *3*/(8.5 *3*+111 *7*)]=0.071 *7*. I(γ+ce) normalization from Σ I(γ+ce) to g.s.=100.

Sources from (p,xn) reactions on gold, E(p)=70, 80 MeV, isotope separation; measured E(ce), Ice (Si(Li) (FWHM=1.2-2.5 keV), mag spect (resolution=0.1%)).

Others: 1969Ba42, 1962Di05, 1958Br88, 1957Br53, 1956Br04, 1955Br12, 1954Gi04.

^{193}Hg Levels

E(level)	J^π[†]	$T_{1/2}$	Comments
0.0	$3/2^{(-)}$	3.80 h *15*	
39.51 *3*	$5/2^{(-)}$	0.63 ns *3*	$T_{1/2}$: (ce)(ce)(t) (1969Ba42). Other value: 0.8 ns *1* ((ce)(ce)(t) (1961Re12)).
140.76 *5*	$13/2^{(+)}$	11.8 h *2*	%IT=7.1 *7* $T_{1/2}$: from resolution of complex decay curves for ce(K) peaks in combined ^{193}Hg (3.80 h) and ^{193}Hg (11.8 h) sources (1974ViZS). Other values: 10.0 h *5* (1952Fi06), 11 h *1* (1958Br88), 11.1 h *5* (1970Pl01).

[†] From Adopted Levels.

$\gamma(^{193}Hg)$

I(γ+ce) normalization: Deduced by evaluator using data from 1974ViZS: I(γ+ce)(isomeric decay)=8.5 *3* from weighted average of I(γ+ce)(39.51γ)=8.7 *5* and I(γ+ce)(101.25γ)=8.4 *3*; total $\varepsilon+\beta^+$ intensity from I(γ+ce)(to ^{193}Au 290 level)=111 *7* (from ^{193}Hg (11.8 h) decay). ^{193}Hg IT decay branching=[8.5 *3*/(8.5 *3*+111 *7*)]=0.071 *7*. I(γ+ce) normalization from Σ I(γ+ce) to g.s.=100.

All data are from 1974ViZS, unless otherwise noted. The Ice intensities have been normalized to the Iγ of ^{193}Hg ε decay (11.8 h). For normalization, see footnote on multipolarity in ^{193}Hg ε decay (11.8 h) data set.

E_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.	α[†]	$I_{(\gamma+ce)}$[‡]	Comments
39.51 *3*	39.51	$5/2^{(-)}$	0.0	$3/2^{(-)}$	M1	21.7	8.7 *5*	ce(L)/(γ+ce)=0.733 *7*; ce(M)/(γ+ce)=0.171 *3* ce(N)/(γ+ce)=0.0429 *9*; ce(O)/(γ+ce)=0.00811 *16*; ce(P)/(γ+ce)=0.000620 *13* α(L)=16.64 *24*; α(M)=3.88 *6* α(N)=0.972 *14*; α(O)=0.184 *3*; α(P)=0.01406 *20* Mult.: L1/L2=8.2 *10*, M1/M2=7.6 *12* (1974ViZS). Theory: M1: L1/L2=9.7, M1/M2=8.9; E1: L1/L2=1.22, M1/M2=1.39; E2: L1/L2=0.0197, M1/M2=0.0213. $I_{(\gamma+ce)}$: From (Ice(L12) + Ice(M12)) expt. + Ice (other) theory + Iγ from Ice(L1)=5.6 *4* expt. (1974ViZS) and α(L1)=14.94 (theory).
101.25 *4*	140.76	$13/2^{(+)}$	39.51	$5/2^{(-)}$	M4	6.13×10^3	8.4 *3*	ce(K)/(γ+ce)=0.0278 *6*; ce(L)/(γ+ce)=0.672 *8*; ce(M)/(γ+ce)=0.229 *4* ce(N)/(γ+ce)=0.0602 *12*; ce(O)/(γ+ce)=0.01001 *20*; ce(P)/(γ+ce)=0.000212 *5* α(K)=170.4 *24*; α(L)=4.12×10^3 *6*; α(M)=1405

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^{193}Hg IT decay (11.8 h) 1974ViZS (continued)

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

E_γ	E_i(level)	Comments
		20 α(N)=369 *6*; α(O)=61.4 *9*; α(P)=1.298 *19* Mult.: L1:L2:L3=1.25 *7*: 0.24 *2*: 4.10 *16* (1974ViZS). Theory: L1:L2:L3=1.20: 0.24: 4.05. $I_{(\gamma+ce)}$: From (Ice(L) + Ice(M)) expt. + Ice (other) theory + Iγ deduce from from Ice(L)=5.59 *18* expt. (1974ViZS) and α(L)=4120.

† Additional information 1.
‡ For absolute intensity per 100 decays, multiply by 0.84 *8*.

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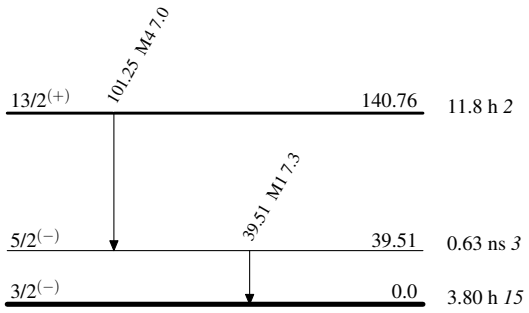
Decay Scheme

%IT=7.1 *7*



$^{193}_{80}Hg_{113}$