^{195}Hg IT decay (41.6 h) 1973Vi09

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Huang Xiaolong and Kang Mengxiao	NDS 121, 395 (2014)	1-Mar-2014

Parent: ^{195}Hg: E=176.07 *4*; J$^{\pi}$=13/2^{+}; $T_{1/2}$=41.6 h *8*; %IT decay=54.2 *20*

^{195}Hg-%IT decay: %IT=54.2 *20* from Iγ(37γ)/Iγ(560γ)=0.247 *14* (1966Ha47,1973Vi09). Other %IT: 54.5 *21* from Ice(122.8γ)/Ice(56.8γ)=1.21 *7* (1973Vi09), 49 (1970Ca07), 47.8 *5* (1967Fr05), 51 (1971Fr03).

Others: 1957An53, 1961Ju06, 1966Ha47, 1969Ba42, and 1971Fr03.

1973Vi09: measured Eγ, Iγ, I(ce)/1×10^{4}(ε+IT decay) isomer decays; magnetic spectrometer and Si(Li) or Ge(Li).

Sources produced by ^{197}Au(p,3n) (1970Ca07,1963Ti02) and ^{194}Pt(^{3}He,2n) (1971Fr03).

^{195}Hg Levels

E(level)†	J$^{\pi}$‡	$T_{1/2}$	Comments
0.0	1/2^{-}	10.53 h *3*	
37.088 *25*	3/2^{-}	<50 ps	$T_{1/2}$: deduced from (123γ)(16γ)(t) and (123γ)(37γ)(t) (1969Ba42).
53.292 *25*	5/2^{-}	0.72 ns *3*	$T_{1/2}$: 0.72 ns *3* (1969Ba42) (ce(L3) 123γ)(ce(M) 16.2γ)(t) and 0.73 ns *3* (1969Ba42) (ce(L3) 123γ)(ce(L) 37γ)(t). Other: 0.79 ns *7* (1961Re12) (ce(L) 123γ)(ce(L) 37γ)(t).
176.07 *4*	13/2^{+}	41.6 h *8*	%IT=54.2 *20* $T_{1/2}$: from γ(t) measurement (1973Vi09). Others: 43 h *5* (1961Ju06), 42 h *3* (1954Br56), 40.0 h *5* (1953Hu44), and 38.0 h (1951Mo55).

† From Eγ and decay scheme using least-squares fit to data.

‡ From Adopted Levels.

γ(^{195}Hg)

All data are from 1973Vi09, except as noted.

Eγ	Iγ†‡	E$_{i}$(level)	J$^{\pi}_{i}$	E$_{f}$	J$^{\pi}_{f}$	Mult.	δ	α#	Comments
16.207 *30*	16.5 *21*	53.292	5/2^{-}	37.088	3/2^{-}	M1+E2	0.020 *3*	315 *7*	α(L)=240 *5*; α(M)=57.1 *13*; α(N+..)=17.2 *4* Iγ: derived from I(ce(M))=1129 *130* (1973Vi09) and α(M)=61. Mult.: from α(M1)exp:α(M2)exp: α(M3)exp:α(N1)exp:α(N2)exp: α(O+...)exp= 100 *10*:13.5 *14*:4.1 *7*:25 *2*:3.6 *6*:6.2 *5* (1973Vi09). Other α(M1)exp:α(M2)exp:α(M3)exp=100: 14.2 *29*:7.1 *19* (1969Ba42), 100:15 *6*:5 *2* (1961Ju06). δ: based on M-subshell ratios of 1973Vi09.
37.09 *3*	190 *6*	37.088	3/2^{-}	0.0	1/2^{-}	M1+E2	0.021 *4*	26.4	α(L)=20.2 *3*; α(M)=4.72 *7*; α(N+..)=1.424 *21* Iγ: from I(ce(L1))=3540 *110* and α(L1)exp=18.7, and measured total I(ce)=5155 *204* (1973Vi09). Mult.: from α(L1)exp:α(L2)exp:α(L3)exp: α(M1)exp:α(M2)exp:α(M3)exp:α(N)exp: α(O+...)exp= 100 *3*:11.4 *6*:1.5 *2*:21.9 *11*:2.7 *3*:0.33 *4*:6.3 *4*:1.50 *8*. δ: from α(L2)exp/α(L1)exp=0.114 *7* (1973Vi09), 0.112 *12* (1969Ba42), 0.115

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^{195}Hg IT decay (41.6 h) 1973Vi09 (continued)

$\gamma(^{195}Hg)$ (continued)

E_γ	I_γ †‡	E_i(level)	J^π_i	E_f	J^π_f	Mult.	α #	Comments
								(1961Re12) and α(M2)exp/α(M1)exp=0.125 *13* (1973Vi09). α(L3)exp/α(L1)exp and α(M3)exp/α(M1)exp ratios deviate below theory possibly because of penetration effect.
53.29 *3*	0.94 *7*	53.292	5/2$^-$	0.0	1/2$^-$	E2	99.8	α(L)=74.8 *11*; α(M)=19.5 *3*; α(N+..)=5.62 *8* I_γ: calculated from I(ce(L2))=38 *3*, I(ce(L3))=32 *2* (1973Vi09), and α(L2)=37.5, α(L3)=37.0. Mult.: from α(L1)exp:α(L2)exp:α(L3)exp:α(M2)exp: α(M3)exp=<7:119 *9*:100 *6*:24 *4*:30 *5*.
122.78 *3*	2.90 *8*	176.07	13/2$^+$	53.292	5/2$^-$	M4	1.84×10^3	α(K)=159.3 *23*; α(L)=1179 *17*; α(M)=385 *6*; α(N+..)=118.0 *17* I_γ: calculated from I(ce(L3))=2400 *70* and α(L3)=828, and measured total I(ce)=5535 *280* (1973Vi09). Mult.: from α(K)exp:α(L1)exp:α(L2)exp:α(L3)exp: α(M1)exp:α(M2)exp:α(M3)exp: α(M4)exp+α(M5)exp:α(N)exp= 19.3 *13*:40.2 *16*:8.2 *6*:100.0 *3*:11.8 *8*:3.2 *4*:30 *18*:2.3 *2*:13.3. Others: α(K)exp:α(L1)exp:α(L2)exp:α(L3)exp= 15.0 *24*:41 *2*:9.7 *12*:100 (1969Ba42,1961Ju06).

† Relative intensity normalized to Iγ(Eγ=122.7 keV)=2.90 *8*.

‡ For absolute intensity per 100 decays, multiply by 0.0101 *5*.

Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

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