^{206}Hg β^- decay 1970As05,1968Wo08

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	F. G. Kondev	NDS 201,346 (2025)	21-Jan-2025

Parent: ^{206}Hg: E=0.0; $J^\pi=0^+$; $T_{1/2}$=8.32 min *13*; Q(β^-)=1308 *20*; %β^- decay=100

^{206}Hg-J^π,$T_{1/2}$: From Adopted Levels for ^{206}Hg.

^{206}Hg-Q(β^-): From 2021Wa16.

1968Wo08: ^{206}Hg produced by ^{208}Pb(p,3p) reaction and isotope separation. β^- measured in proportional counter, ce in Si(Li) detectors, γ singles and $\gamma\gamma$ coincidences in NaI and Ge detector, and $\gamma\beta^-$ coincidences with NaI and Si(Li) detectors.

1970As05: ^{206}Hg produced by ^{208}Pb(p,3p) reaction with E(p)=600 MeV. γ singles measured with Ge detector, lifetime measured with plastic scintillators.

Others: 1969Ha03. The 0^+ to 0^- β^- decay transition has been also of theoretical interest; see discussions in 1963Bu23, 1969Da25, 1980Kr09, 1985To20, and 1987Ki11.

^{206}Tl Levels

E(level)[†]	J^π[‡]	$T_{1/2}$[‡]
0.0	0^-	4.202 min *14*
265.832 *5*	2^-	2.29 ns *14*
304.896 *6*	1^-	4.2 ps *14*
649.42 *4*	1^-	

[†] From a least-squares fit to Eγ.
[‡] From Adopted Levels.

β^- radiations

av Eβ: Additional information 1.

E(decay)	E(level)	Iβ^-[†‡]	Log *ft*	Comments
(659 *20*)	649.42	3.2 *12*	5.74 *17*	av Eβ=202 *7* Iβ^-: Other: 5% *2* in 1968Wo08.
(1003 *20*)	304.896	38 *11*	5.29 *13*	av Eβ=329 *8* Iβ^-: Other: 36% *7* in 1968Wo08. E(decay): 935 keV *62* in 1968Wo08.
(1308 *20*)	0.0	59 *12*	5.52 *9*	av Eβ=449 *8* Iβ^-: From 1968Wo08.

[†] From the decay scheme and intensity balances considerations.
[‡] Absolute intensity per 100 decays.

γ(^{206}Tl)

Iγ normalization: From (100 − 59 *12*)/ΣI(γ+ce)(g.s.).

E_γ[†]	I_γ[‡@]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	α[#]	Comments
265.832 *5*	0.0139 *14*	265.832	2^-	0.0	0^-	E2	0.1603 *22*	%Iγ=0.0039 *12* α(K)=0.0855 *12*; α(L)=0.0561 *8*; α(M)=0.01440 *20* α(N)=0.00361 *5*; α(O)=0.000639 *9*; α(P)=3.09×10^{-5} *4*

Continued on next page (footnotes at end of table)

^{206}Hg β^- decay 1970As05,1968Wo08 (continued)

$\gamma(^{206}Tl)$ (continued)

E_γ[†]	I_γ[‡@]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	α[#]	Comments
								I_γ: From intensity balance considerations by assuming that there is no direct β^- feeding to the 2^- level.
304.896 *6*	100	304.896	1^-	0.0	0^-	M1	0.375 *5*	%Iγ=28 *8* α(K)=0.308 *4*; α(L)=0.0519 *7*; α(M)=0.01211 *17* α(N)=0.00306 *4*; α(O)=0.000594 *8*; α(P)=5.62×10^{-5} *8* Mult.: α(K)exp=0.28 *5* and K/L/M=1/0.2/0.04 in 1968Wo08.
344.5 *1*	2.1 *4*	649.42	1^-	304.896	1^-	M1	0.269 *4*	%Iγ=0.59 *21* α(N)=0.002188 *31*; α(O)=0.000425 *6*; α(P)=4.02×10^{-5} *6* α(K)=0.2208 *31*; α(L)=0.0371 *5*; α(M)=0.00866 *12*
383.59 *6*	0.0134 *13*	649.42	1^-	265.832	2^-	[M1]	0.2016 *28*	%Iγ=0.0038 *12* α(K)=0.1654 *23*; α(L)=0.0277 *4*; α(M)=0.00647 *9* α(N)=0.001633 *23*; α(O)=0.000317 *4*; α(P)=3.00×10^{-5} *4* I_γ: From Iγ(384γ)/Iγ(649γ) branching ratio in adopted gammas. E_γ: From level energy differences.
649.42 *5*	8.4 *8*	649.42	1^-	0.0	0^-	M1	0.0501 *7*	%Iγ=2.4 *7* α(K)=0.0412 *6*; α(L)=0.00681 *10*; α(M)=0.001585 *22* α(N)=0.000400 *6*; α(O)=7.78×10^{-5} *11*; α(P)=7.38×10^{-6} *10*

[†] From adopted gammas.
[‡] From 1970As05, unless otherwise stated. ΔIγ of 20% and 10% for 344.52γ and 649.42γ were estimated by the evaluator.
[#] Additional information 2.
[@] For absolute intensity per 100 decays, multiply by 0.28 *8*.

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Decay Scheme

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