^{200}Au β^- decay (18.7 h) 1972Cu07

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	F. G. Kondev	NDS 192,1 (2023)	1-Aug-2023

Parent: ^{200}Au: E=1010 *40*; $J^\pi=12^-$; $T_{1/2}$=18.7 h *5*; Q(β^-)=2263 *27*; %β^- decay=84 *1*

1972Cu07: ^{200}Au was produced in ^{202}Hg(d,α) reaction at E(d)=18 MeV. The Au was radiochemically extracted; Detectors: Ge(Li) and one Si(Li); Measured: γ, $\gamma\gamma$ coin., $\beta\gamma$ coin., Iγ, Eγ, Ice, Eβ.

Others: 1973Ba11, 1970To14, 1968Sa08.

^{200}Hg Levels

E(level)†	J^π‡	$T_{1/2}$‡	Comments
0.0	0^+	stable	
367.942 *10*	2^+	46.4 ps *4*	
947.243 *20*	4^+	3.21 ps *14*	
1706.74 *9*	6^+	0.70 ps *6*	
1851.48 *11*	5^-		
1962.61 *11*	7^-		
2143.79 *14*	9^-	1.07 ns *4*	$T_{1/2}$: From 497γ-181γ(Δt) in 1970To14.
2641.56 *17*	11^-		

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

β^- radiations

E(decay)	E(level)	Iβ^-†	Log *ft*	Comments
560 *50*	2641.56	100	6.1	av Eβ=169 *36*

† For absolute intensity per 100 decays, multiply by 0.84 *1*.

$\gamma(^{200}Hg)$

E_γ†	I_γ#b	E_i(level)	J_i^π	E_f	J_f^π	Mult.&	αa	Comments
111.12 *12*	2.3@ *6*	1962.61	7^-	1851.48	5^-	E2	3.58 *5*	%Iγ=1.9 *5* α(K)=0.560 *8*; α(L)=2.257 *34*; α(M)=0.590 *9* α(N)=0.1463 *22*; α(O)=0.0243 *4*; α(P)=8.93×10^{-5} *13* Mult.: From adopted gammas.
181.18 *8*	64.43 *3*	2143.79	9^-	1962.61	7^-	E2	0.552 *8*	%Iγ=54.1 *6* α(K)=0.2146 *30*; α(L)=0.253 *4*; α(M)=0.0655 *9* α(N)=0.01627 *23*; α(O)=0.00274 *4*; α(P)=2.68×10^{-5} *4* Mult.: α(L)exp=0.017 *4* (1972Cu07).
255.87 *8*	86.2@ *27*	1962.61	7^-	1706.74	6^+	E1	0.0405 *6*	%Iγ=72.4 *24* α(K)=0.0333 *5*; α(L)=0.00558 *8*; α(M)=0.001295 *18* α(N)=0.000322 *5*; α(O)=5.89×10^{-5} *8*; α(P)=3.68×10^{-6} *5* Mult.: α(K)exp=0.033 *23* (1972Cu07).
367.942‡ *10*	94.39 *7*	367.942	2^+	0.0	0^+	E2	0.0594 *8*	%Iγ=79.3 *9* α(K)=0.0388 *5*; α(L)=0.01553 *22*;

Continued on next page (footnotes at end of table)

^{200}Au β^- decay (18.7 h) 1972Cu07 (continued)

$\gamma(^{200}Hg)$ (continued)

E_γ [†]	I_γ [#b]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[&]	α[a]	Comments
								α(M)=0.00389 *5* α(N)=0.000970 *14*; α(O)=0.0001694 *24*; α(P)=5.08×10^{-6} *7*
497.77 *10*	97.35 *4*	2641.56	11$^-$	2143.79	9$^-$	E2	0.0272 *4*	E_γ: Other: 367.99 keV *2* in 1972Cu07. Mult.: α(K)exp=0.038 *9* (1972Cu07). %Iγ=81.8 *10* α(K)=0.01967 *28*; α(L)=0.00573 *8*; α(M)=0.001409 *20* α(N)=0.000352 *5*; α(O)=6.27×10^{-5} *9*; α(P)=2.61×10^{-6} *4*
579.300[‡] *17*	98.13 *3*	947.243	4$^+$	367.942	2$^+$	E2	0.01905 *27*	Mult.: α(K)exp=0.021 *4* (1972Cu07). %Iγ=82.4 *10* α(K)=0.01424 *20*; α(L)=0.00365 *5*; α(M)=0.000888 *12* α(N)=0.0002217 *31*; α(O)=3.99×10^{-5} *6*; α(P)=1.891×10^{-6} *26*
759.50 *10*	88.8 *27*	1706.74	6$^+$	947.243	4$^+$	E2	0.01053 *15*	E_γ: Other: 579.29 keV *10* in 1972Cu07. Mult.: α(K)exp=0.014 (1972Cu07). %Iγ=74.6 *24* α(K)=0.00823 *12*; α(L)=0.001757 *25*; α(M)=0.000420 *6* α(N)=0.0001050 *15*; α(O)=1.920×10^{-5} *27*; α(P)=1.089×10^{-6} *15*
904.23 *12*	10.5 *27*	1851.48	5$^-$	947.243	4$^+$	E1	0.00277 *4*	Mult.: α(K)exp=0.0085 *25* (1972Cu07). %Iγ=8.8 *23* α(K)=0.002316 *32*; α(L)=0.000349 *5*; α(M)=8.00×10^{-5} *11* α(N)=1.997×10^{-5} *28*; α(O)=3.75×10^{-6} *5*; α(P)=2.80×10^{-7} *4* Mult.: α(K)exp<0.004 (1972Cu07).

[†] From 1972Cu07, unless otherwise stated.
[‡] From Adopted gammas.
[#] From intensity balances, unless otherwise stated.
[@] From Iγ(111.12γ)/Iγ(255.87γ)=0.026 *8* in 1972Cu07 and intensity balance.
[&] From α(K)exp and α(L)exp in 1972Cu07.
[a] Additional information 1.
[b] For absolute intensity per 100 decays, multiply by 0.84 *1*.

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Decay Scheme

Intensities: I_γ per 100 parent decays