^{200}Au IT decay 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*; %IT decay=16 *1*

1972Cu07: ^{200m}Au produced in ^{202}Hg(d,α) reaction 18 MeV; Detectors: two Ge(Li) and Si(Li); Measured: Eγ, Iγ, $\gamma\gamma$ and $\beta\gamma$. Others: 1968Sa08, 1970To14.

^{200}Au Levels

E(level)†	J^π†	$T_{1/2}$	Comments
0	(1^-)	48.4 min *3*	$T_{1/2}$: From Adopted Levels.
59.98 *3*			
1010 *40*	12^-	18.7 h *5*	%IT=16 *1*; %β^-=84 *1* %IT is from 1972Cu07; Others: %IT=14.8 *26* by the evaluator using I(γ+ce)(497.7γ,^{200}Hg) and I(γ+ce)(332.8γ) (assumed E2) from 1972Cu07, the later being the strongest γ ray assigned to follow the decay of the isomer (1972Cu07) and %IT=3 (1968Sa08). $T_{1/2}$: From 580γ(t) in 1968Sa08. μ: 5.80 *9* in 1984Ha45 determined using the NMR on oriented nuclei technique. Other: 6.10 *20* (1973Ba11). configuration: $\pi(h^{-1}_{11/2})\otimes\nu(i^{-1}_{13/2})$.

† From Adopted Levels.

$\gamma(^{200}Au)$

Iγ normalization: From I(γ+ce)(497.7γ) + I(γ+ce)(332.8γ) (assumed E2)=100 %. Iγ are from 1972Cu07. It is assumed that 332.8γ contains all the ^{200m}Au IT intensity to the ground state given the good agreement with the deduced %IT=14.8 *26* using this γ ray. 497.7γ in ^{200}Hg contains all intensity in β^- decay of the ^{200}Au isomer.

E_γ†	I_γ†‡	E_i(level)	E_f	J^π_f	Comments
60.08 *12*	3.8 *8*	59.98	0	(1^-)	%Iγ=0.53 *12*
x84.25 *35*	0.8 *3*				%Iγ=0.11 *4*
x101.43 *12*	0.9 *2*				%Iγ=0.125 *30*
x105.42 *12*	1.1 *3*				%Iγ=0.15 *4*
x120.28 *12*	1.3 *4*				%Iγ=0.18 *6*
x133.23 *12*	3.7 *6*				%Iγ=0.52 *10*
x137.28 *30*	1.5 *6*				%Iγ=0.21 *9*
x144.60 *30*	1.3 *5*				%Iγ=0.18 *7*
x146.07 *20*	4.5 *6*				%Iγ=0.63 *10*
x218.51 *12*	2.1 *4*				%Iγ=0.29 *6*
x332.82 *40*	15.7 *30*				%Iγ=2.2 *5*

† From 1972Cu07. Assignment to ^{200}Au based on anti-coincidence with the 367.99-keV, 2^+ to 0^+ transition in ^{200}Hg.

‡ For absolute intensity per 100 decays, multiply by 0.139 *13*.

x γ ray not placed in level scheme.

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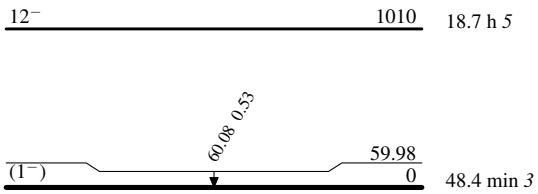
Decay Scheme

Intensities: I_γ per 100 parent decays
%IT=16 *1*



$^{200}_{79}Au_{121}$