^{203}Au β^- decay 1994We02

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	F. G. Kondev	NDS 177, 509, 2021	4-Jul-2021

Parent: ^{203}Au: E=0; $J^\pi=3/2^+$; $T_{1/2}$=60 s *6*; Q(β^-)=2126 *3*; %β^- decay=100.0

^{203}Au-Q(β^-) is from 2021Wa16. Other: Q(β^-)=2040 keV *60* using measured β^- endpoint energies by 1994We02. Others: 1952Bu80, 1972Bu42, 1979Na08. Note, that the data of 1979Na08 are in disagreement with these observed by all other authors.

1994We02: ^{203}Au produced in bombardment of W target with a ^{208}Pb beam at E=11.4 MeV/nucleon. The reaction products were extracted from an ion source. The cross section of 0.362 mb is reported using an ion-source efficiency of 35%. Detectors: on-line mass separator; two Ge(Li) detectors and a ΔE β^- detector. The counting time cycle was 64 s. Measured: mass gated β^-, $\beta\gamma$ coin, $\gamma\gamma$ coin, γ(t), Eγ, Iγ.

^{203}Hg Levels

E(level)†	J^π‡
0	$5/2^-$
7.3 *6*	$(1/2^-)$
50.8 *4*	$(3/2^-)$
224.9 *6*	$(3/2^-)$
368.9 *3*	$(1/2,3/2,5/2)^-$

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

β^- radiations

E(decay)	E(level)	Iβ^-†	Log *ft*	Comments
(1757 *3*)	368.9	1.7 *4*	6.50 *12*	av Eβ=634.3 *13*
(1901 *3*)	224.9	1.8 *4*	6.61 *11*	av Eβ=694.6 *13*
(2075 *3*)	50.8	24 *5*	5.63 *10*	av Eβ=768.1 *13*
(2119 *3*)	7.3			
(2126 *3*)	0	72 *15*	≈5.2	av Eβ=789.7 *13* Iβ^-: Upper limit. Includes contribution to the $J^\pi=(1/2^-)$ level at 7.3 keV (1994We02). Log *ft*: Lower limit. Includes contribution to the $J^\pi=(1/2^-)$ level at 7.3 keV (1994We02).

† Absolute intensity per 100 decays.

$\gamma(^{203}Hg)$

Iγ normalization: Using Iβ=24% *5* to the 50.8-keV level (1994We02) and the assumed transition multipolarities, and α.

E$_\gamma$†	I$_\gamma$†‡	E$_i$(level)	J_i^π	E$_f$	J_f^π	Mult.	α#	Comments
(7.3)		7.3	$(1/2^-)$	0	$5/2^-$			
43.5 *5*	95 *3*	50.8	$(3/2^-)$	7.3	$(1/2^-)$	[M1]	16.3 *7*	%Iγ= 0.90 *19* α(L)=12.5 *5*; α(M)=2.92 *11* α(N)=0.73 *3*; α(O)=0.138 *6*; α(P)=0.0106 *4*
50.8 *5*	88 *3*	50.8	$(3/2^-)$	0	$5/2^-$	[M1]	10.3 *4*	%Iγ= 0.84 *18* α(L)=7.9 *3*; α(M)=1.85 *6* α(N)=0.464 *16*; α(O)=0.088 *3*; α(P)=0.00671 *22*
217.6 *3*	100 *5*	224.9	$(3/2^-)$	7.3	$(1/2^-)$	[M1]	0.874	%Iγ= 0.95 *21*

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^{203}Au β^- decay 1994We02 (continued)

$\gamma(^{203}Hg)$ (continued)

E_γ [†]	I_γ [†‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	α [#]	Comments
								α(K)=0.717 *11*; α(L)=0.1204 *18*; α(M)=0.0280 *4* α(N)=0.00703 *11*; α(O)=0.001330 *20*; α(P)=0.0001018 *15*
318.1 *3*	80 *8*	368.9	(1/2,3/2,5/2)$^-$	50.8	(3/2$^-$)	[M1,E2]	0.20 *11*	%Iγ= 0.76 *18* α(K)=0.15 *10*; α(L)=0.034 *8*; α(M)=0.0082 *16* α(N)=0.0021 *4*; α(O)=0.00038 *9*; α(P)=2.1×10^{-5} *14*
368.9 *3*	77 *7*	368.9	(1/2,3/2,5/2)$^-$	0	5/2$^-$	[M1,E2]	0.13 *7*	%Iγ= 0.73 *17* α(K)=0.10 *7*; α(L)=0.022 *6*; α(M)=0.0052 *13* α(N)=0.00130 *34*; α(O)=2.4×10^{-4} *7*; α(P)=1.4×10^{-5} *9*

[†] From 1994We02. $\Delta E\gamma$ was estimated by the evaluator.

[‡] For absolute intensity per 100 decays, multiply by 0.0095 *20*.

[#] 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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Decay Scheme

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