

$^{197}\text{Au}(\text{HI}, \text{x}\gamma)$ 2021Su02

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	F. G. Kondev	NDS 196,342 (2024)	1-Sep-2023

2021Su02: $^{197}\text{Au}(^{209}\text{Bi}, \text{x}\gamma)$, $E(^{209}\text{Bi})=1450$ MeV and $^{197}\text{Au}(^{207}\text{Pb}, \text{x}\gamma)$ $E(^{207}\text{Pb})=1430$ MeV beams from the ATLAS-ANL facility. The ^{197}Au target was 50 mg/cm² thick in both the experiments. Detector: Gammasphere array with 100 Compton-suppressed HPGe detectors. Measured $E\gamma$, $I\gamma$, $\gamma\gamma(t)$ -coin, centroid-shift method in lifetime determination.

 ^{202}Hg Levels

E(level) [†]	$J^{\pi\ddagger}$	$T_{1/2}$	Comments
0 [#]	0 ⁺		
439.6 [#] 4	2 ⁺		
959.8 [#] 4	2 ⁺		
1120.0 [#] 6	4 ⁺		
1181.5 [#] 6	2 ⁺		
1311.3 [#] 5	4 ⁺		
1965.1 ^{&} 6	5 ⁻		configuration: Probable $\nu(p_{3/2}^{-1}, i_{13/2}^{-1})$.
1988.6 [#] 7	6 ⁺		
2059.3 ^{&} 8	(7 ⁻)	10.4 ns 4	$T_{1/2}$: From 164 γ -440 γ (Δt) and the centroid-shift analysis (2021Su02).
2222.6 ^{&} 9	(9 ⁻)	1.4 ns 3	$T_{1/2}$: from 404 γ -164 γ (Δt) and the centroid-shift analysis (2021Su02).
2820.7 ^{&} 10	(11 ⁻)		
3513.5 [@] 12	(12 ⁺)		configuration: Probable $\nu(i_{13/2}^{-2})$.
3776.8 ^{&} 12	(13 ⁻)		
3917.8 [@] 13			
4155.9 ^{&} 13			
4493.4 ^{&} 14			
4647.5 [@] 14			
5489.8 [@] 15			
5709.8 [@] 15			
6338.8 [@] 16			
7126.4 [@] 17			
7663.0 [@] 18			

[†] From least-squares fit to $E\gamma$.

[‡] From 2021Su02.

[#] Band(A): Ground-state band.

[@] Seq.(B): γ cascade based on the (12⁺) state.

[&] Seq.(C): γ cascade based on the 5⁻ state.

 $\gamma(^{202}\text{Hg})$

$E\gamma$ [†]	$I\gamma$ [‡]	$E_i(\text{level})$	J_i^{π}	E_f	J_f^{π}	Mult.	α [#]	Comments
(70.7 11)	5.9 13	2059.3	(7 ⁻)	1988.6	6 ⁺	[E1]	0.2183 99	$\alpha(\text{L})=0.167$ 8; $\alpha(\text{M})=0.0394$ 18 $\alpha(\text{N})=0.0097$ 4; $\alpha(\text{O})=0.00168$ 8; $\alpha(\text{P})=7.34\times 10^{-5}$ 29 $E\gamma$: From level-energy difference. 2021Su02 give 70.6 keV. $I\gamma$: From $I\gamma(868.6\gamma)=11.2$ 11, $I\gamma(653.8\gamma)=100.0$ 28 and $I\gamma(845.1\gamma)=18.7$ 13 determined from the 2021Su02 data by gating on γ rays above the (7 ⁻)

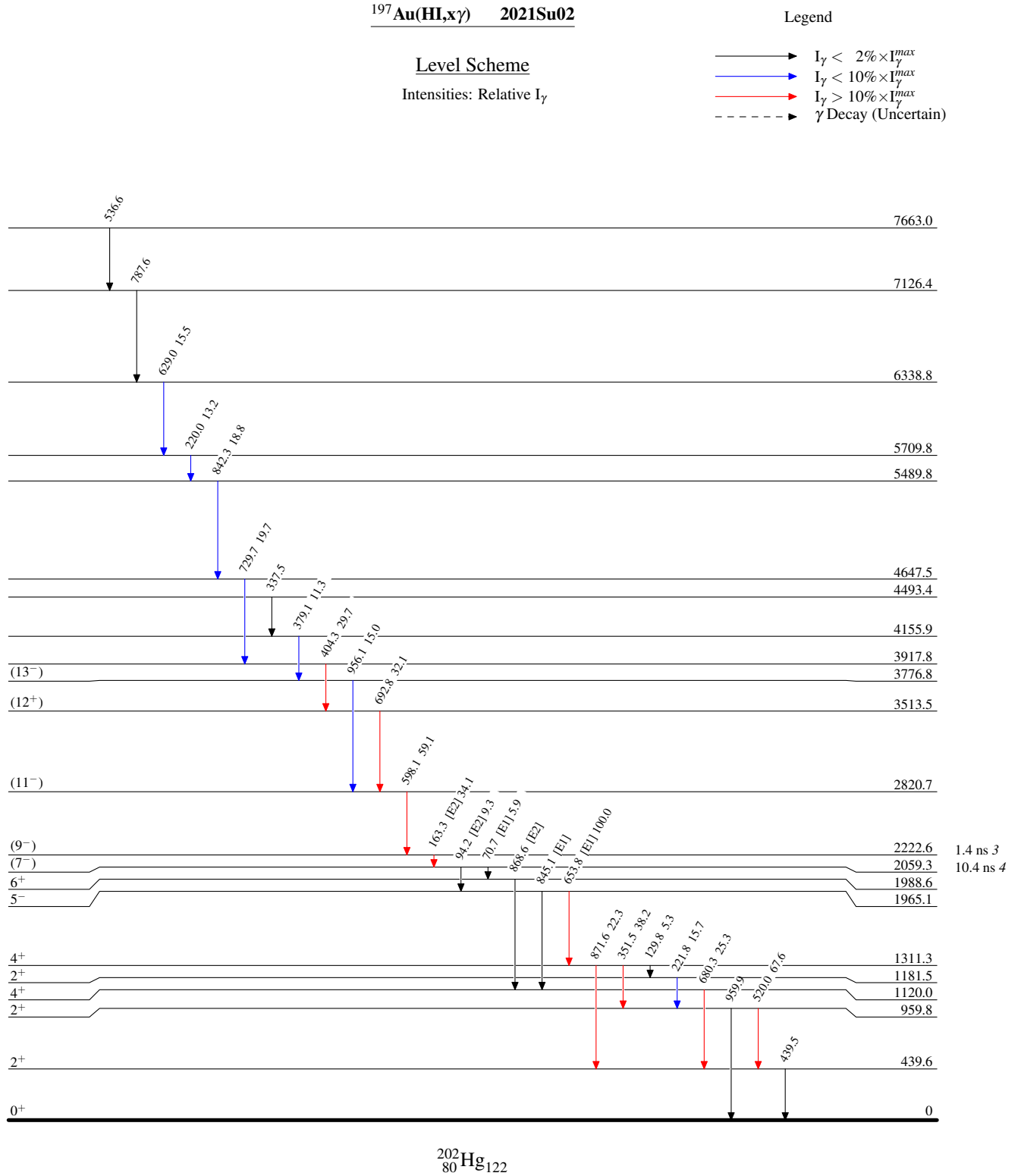
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$^{197}\text{Au}(\text{HI}, \text{x}\gamma)$ 2021Su02 (continued)							
$\gamma(^{202}\text{Hg})$ (continued)							
E_γ [†]	I_γ [‡]	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult.	α [#]
level. Values reported to the evaluator by S. Tendel on June 19, 2023.							
94.2 5	9.3 18	2059.3	(7 ⁻)	1965.1 5 ⁻		[E2]	7.14 19
$\alpha(\text{K})=0.625$ 9; $\alpha(\text{L})=4.88$ 14; $\alpha(\text{M})=1.28$ 4							
$\alpha(\text{N})=0.316$ 9; $\alpha(\text{O})=0.0524$ 15;							
$\alpha(\text{P})=0.0001383$ 28							
129.8 5	5.3 8	1311.3	4 ⁺	1181.5 2 ⁺			
163.3 5	34.1 30	2222.6	(9 ⁻)	2059.3 (7 ⁻)		[E2]	0.803 14
$\alpha(\text{K})=0.273$ 4; $\alpha(\text{L})=0.397$ 8; $\alpha(\text{M})=0.1032$ 20							
$\alpha(\text{N})=0.0256$ 5; $\alpha(\text{O})=0.00430$ 8;							
$\alpha(\text{P})=3.45 \times 10^{-5}$ 5							
220.0 5	13.2 20	5709.8		5489.8			
221.8 5	15.7 13	1181.5	2 ⁺	959.8 2 ⁺			
337.5 5		4493.4		4155.9			
351.5 5	38.2 20	1311.3	4 ⁺	959.8 2 ⁺			
379.1 5	11.3 18	4155.9		3776.8 (13 ⁻)			
404.3 5	29.7 31	3917.8		3513.5 (12 ⁺)			
439.5 5		439.6	2 ⁺	0 0 ⁺			
520.0 5	67.6 30	959.8	2 ⁺	439.6 2 ⁺			
536.6 5		7663.0		7126.4			
598.1 5	59.1 48	2820.7	(11 ⁻)	2222.6 (9 ⁻)			
629.0 5	15.5 24	6338.8		5709.8			
653.8 5	100.0 11	1965.1	5 ⁻	1311.3 4 ⁺		[E1]	0.00515 7
$\alpha(\text{K})=0.00429$ 6; $\alpha(\text{L})=0.000660$ 9;							
$\alpha(\text{M})=0.0001519$ 21							
$\alpha(\text{N})=3.79 \times 10^{-5}$ 5; $\alpha(\text{O})=7.09 \times 10^{-6}$ 10;							
$\alpha(\text{P})=5.11 \times 10^{-7}$ 7							
680.3 5	25.3 6	1120.0	4 ⁺	439.6 2 ⁺			
692.8 5	32.1 37	3513.5	(12 ⁺)	2820.7 (11 ⁻)			
729.7 5	19.7 29	4647.5		3917.8			
787.6 5		7126.4		6338.8			
842.3 5	18.8 30	5489.8		4647.5			
845.1 5		1965.1	5 ⁻	1120.0 4 ⁺		[E1]	0.00314 4
$\alpha(\text{K})=0.00262$ 4; $\alpha(\text{L})=0.000397$ 6;							
$\alpha(\text{M})=9.11 \times 10^{-5}$ 13							
$\alpha(\text{N})=2.273 \times 10^{-5}$ 32; $\alpha(\text{O})=4.27 \times 10^{-6}$ 6;							
$\alpha(\text{P})=3.16 \times 10^{-7}$ 4							
868.6 5		1988.6	6 ⁺	1120.0 4 ⁺		[E2]	0.00799 11
$\alpha(\text{K})=0.00634$ 9; $\alpha(\text{L})=0.001261$ 18;							
$\alpha(\text{M})=0.000300$ 4							
$\alpha(\text{N})=7.49 \times 10^{-5}$ 11; $\alpha(\text{O})=1.378 \times 10^{-5}$ 19;							
$\alpha(\text{P})=8.36 \times 10^{-7}$ 12							
871.6 5	22.3 19	1311.3	4 ⁺	439.6 2 ⁺			
956.1 5	15.0 27	3776.8	(13 ⁻)	2820.7 (11 ⁻)			
959.9 5		959.8	2 ⁺	0 0 ⁺			

[†] Uncertainty for E_γ is stated by **2021Su02** as up to 0.5 keV. Evaluator assigns 0.5 keV for each E_γ value.

[‡] Uncertainty is statistical only. Systematic uncertainty is not specified by **2021Su02**.

[#] [Additional information 1.](#)



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