

$^{202}\text{Hg}(\text{d,pn}\gamma)$ 1984Sc19

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

1984Sc19: E(d)=25 MeV; Target: 1 mg/cm² of HgS enriched to 96.3% in ^{202}Hg ; Detectors: four 5-mm thick plastic scintillators, four Ge(Li), an orange spectrometer; Measured: $\text{p}\gamma$ coin, $\gamma\gamma$ coin, $\text{ce}(\text{t})$, $\gamma(\theta)$.

Delayed components in $\text{ce}(\text{K})(\text{t})$ spectra of 351 γ and 520 γ indicate at least 2 isomeric states with lifetimes between 1 and 10 ns.

The excitation energies and decay properties of the isomers are unknown.

 ^{202}Hg Levels

E(level) [†]	J π [‡]	Comments
0	0 ⁺	
439.64 25	2 ⁺	
959.90 20	2 ⁺	
1119.7 11	4 ⁺	
1182.23 22	2 ⁺	
1311.56 22	4 ⁺	
1624.2 3	(4 ⁺)	J π : From Adopted Levels.
1724.84 23		
1965.36 24	(5 ⁻)	
1988.3 11	6 ⁺	
2249.3 3		

[†] From a least-squares fit to E_γ .

[‡] From 1984Sc19, unless otherwise stated.

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

E_γ [†]	I_γ [†]	$E_i(\text{level})$	J π_i	E_f	J π_f	Mult. [#]	Comments
129.2 2	2.6	1311.56	4 ⁺	1182.23	2 ⁺		
^x 163.1 3	2.2						E_γ : In coincidence with 351 γ , 439 γ , 520 γ and 653 γ .
222.3 1	11	1182.23	2 ⁺	959.90	2 ⁺		
^x 276.8 3	1.0						E_γ : In coincidence with 351 γ , 439 γ , 520 γ and 653 γ .
312.6 2	1.5	1624.2	(4 ⁺)	1311.56	4 ⁺		E_γ : Placement based on Adopted Levels. Observed in coincidence with 351 γ , 439 γ , and 520 γ in 1984Sc19.
351.7 [‡] 1	13	1311.56	4 ⁺	959.90	2 ⁺		
^x 366.5 5	1.1						E_γ : In coincidence with 222 γ , 351 γ , and 439 γ .
^x 381.5 3	1.0						E_γ : In coincidence with 222 γ , (351 γ), 439 γ , 520 γ and 653 γ .
413.3 2	3.0	1724.84		1311.56	4 ⁺		
439.5 [@]	100	439.64	2 ⁺	0	0 ⁺	E2	Mult.: $A_2=0.08$ 2.
520.2 ^{@‡}	41	959.90	2 ⁺	439.64	2 ⁺	M1+E2	Mult.: $A_2=0.11$ 3, $\Delta J=0$ transition.
524.5 2	2.5	2249.3		1724.84			
542.6 1	4.9	1724.84		1182.23	2 ⁺		
653.8 1	19	1965.36	(5 ⁻)	1311.56	4 ⁺	(E1)	Mult.: $A_2=-0.12$ 6, possibly a stretched E1.
680.1 [@]	19	1119.7	4 ⁺	439.64	2 ⁺	E2	E_γ : Prompt component only in the $\text{ce}(\text{K})(\text{t})$ spectrum. Mult.: $A_2=0.21$ 5.
742.6 2	4.0	1182.23	2 ⁺	439.64	2 ⁺		
845 ^{&} 1	≈ 4	1965.36	(5 ⁻)	1119.7	4 ⁺		
868.6 2	4.2	1988.3	6 ⁺	1119.7	4 ⁺		
871.9 2	8.0	1311.56	4 ⁺	439.64	2 ⁺		
959.9 2	5.1	959.90	2 ⁺	0	0 ⁺		

Continued on next page (footnotes at end of table)

 $^{202}\text{Hg}(\text{d,pn}\gamma)$ **1984Sc19 (continued)**

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

[†] From [1984Sc19](#). Estimated I_γ uncertainties are 10-20% by the authors.

[‡] Delayed components in the ce(K)(t) spectrum.

[#] From $\gamma(\theta)$ ([1984Sc19](#)), by assuming $A_4=0$.

[@] Used for energy calibration by [1984Sc19](#).

[&] Placement of transition in the level scheme is uncertain.

^x γ ray not placed in level scheme.

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Legend

Level Scheme
Intensities: Relative I_γ

- ▶ $I_\gamma < 2\% \times I_\gamma^{\text{max}}$
- ▶ $I_\gamma < 10\% \times I_\gamma^{\text{max}}$
- ▶ $I_\gamma > 10\% \times I_\gamma^{\text{max}}$
- - - - -▶ γ Decay (Uncertain)

