^{204}Hg(d,pnγ) 1984Sc19

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	C. J. Chiara and F. G. Kondev	NDS 111,141 (2010)	1-Oct-2009

1984Sc19: HgS target enriched to 98.2% ^{204}Hg on thin C backing; E(d)=25 MeV; P-γ coin with plastic scin and Ge; $\gamma\gamma$ coin; $\gamma(\theta)$; Ce(t) with orange magnetic spectrometer.

^{204}Hg Levels

E(level)[†]	J$^\pi$[‡]	$T_{1/2}$	Comments
0	0^+		
436.60 *10*	2^+		
1128.50 *15*	4^+		J$^\pi$: From Adopted Levels.
1828.6 *5*			
1851.70 *25*			
1947.3 *5*			
1988.7 *5*			
2190.90 *25*	6^+		J$^\pi$: From Adopted Levels.
2236.0 *4*			
2262.9 *4*	(5^-)		Additional information 1. Proposed configuration: $\pi[(s_{1/2})^{-1}(h_{11/2})^{-1}]\nu[(p_{1/2})^{-2}]_{0+}$.
2300.5 *4*	$(2^+,3)$		J$^\pi$: From Adopted Levels. 1984Sc19 assigned 1172.0γ and 109.6γ as both decaying from a 7^- state at 2301. Other reactions find two distinct, nearly degenerate states with J$^\pi$=7^- and J=(2). See Adopted Levels.
2300.5 *4*	(7^-)	6.7 ns *5*	$T_{1/2}$: From 1984Sc19 based on Ce(t). Proposed configuration: admixture of $\pi[(s_{1/2})^{-2}]_{0+}\nu[(p_{1/2})^{-1}(i_{13/2})^{-1}]$ and $\pi[(d_{3/2})^{-1}(h_{11/2})^{-1}]\nu[(p_{1/2})^{-2}]_{0+}$.
2514.6 *6*			E(level): Not identified by 1984Sc19; from placement of 1386.1γ based on adopted level scheme.
2724.2 *4*			
2760.4 *4*			

[†] From a least-squares fit to Eγ.
[‡] From 1984Sc19 based on $\gamma(\theta)$ and ce, except as noted.

$\gamma(^{204}Hg)$

Eγ	Iγ[†]	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.[‡]	α[#]	Comments
109.6 *2*	6.0	2300.5	(7^-)	2190.90	6^+	E1	0.336	Mult.: E1 assignment from ce (value not given in 1984Sc19), stretched nature not confirmed.
423.7 *2*	4.0	2724.2		2300.5	$(2^+,3)$			
436.6 *1*	100	436.60	2^+	0	0^+	E2	0.0378	Mult.: from $\gamma(\theta)$, A_2=0.22 *3* ($A_4\equiv0$).
460.5[@] *10*	≈1	2724.2		2262.9	(5^-)			Eγ: Placement of this γ is changed to the 2761.1-keV level in Adopted Levels based on observation in (^{9}Be,^{9}Be$'\gamma$).
497.5 *2*	3.2	2760.4		2262.9	(5^-)			
569.5[@] *10*	≈1	2760.4		2190.90	6^+			
691.9 *1*	63	1128.50	4^+	436.60	2^+	[E2]	0.01284	
723.2 *2*	3.7	1851.70		1128.50	4^+			
1062.4 *2*	17	2190.90	6^+	1128.50	4^+	[E2]	0.00536	
1107.5 *3*	2.9	2236.0		1128.50	4^+			Eγ: Observed in $\gamma\gamma$ coin but not placed in level scheme by 1984Sc19. Placement in the level scheme by the evaluators based on the 1107.7γ in (n,n$'\gamma$). See also the adopted level scheme.

Continued on next page (footnotes at end of table)

^{204}Hg(d,pnγ) 1984Sc19 (continued)

$\gamma(^{204}Hg)$ (continued)

E_γ	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	α[#]	Comments
1134.4 *3*	18	2262.9	(5^-)	1128.50	4^+	E1	0.00184	Mult.: E1 assignment from ce (value not given in 1984Sc19), likely stretched from $\gamma(\theta)$, A_2=−0.12 *11* (A_4≡0).
1172.0 *3*	3.1	2300.5	(2^+,3)	1128.50	4^+			E_γ: Placement changed by evaluators from J=7 to degenerate J=(2) 2300.5-keV state based on the placement of the 1172.0γ in (n,n′γ).
1386.1 *5*	1.8	2514.6		1128.50	4^+			E_γ: Observed in $\gamma\gamma$ coin but not placed in level scheme by 1984Sc19. Placement in the level scheme by the evaluators based on the 1386.2γ in (n,n′γ). See also the adopted level scheme.
1392.0 *5*	3.1	1828.6		436.60	2^+			
1510.7 *5*	2.6	1947.3		436.60	2^+			E_γ: Value taken from table in 1984Sc19, which differs slightly from the energy shown in their level scheme.
1552.1 *5*	2.6	1988.7		436.60	2^+			E_γ: Value taken from table in 1984Sc19, which differs slightly from the energy shown in their level scheme.

[†] Estimated uncertainty 10-20%.
[‡] From $\gamma(\theta)$ and ce in 1984Sc19, except as noted.
[#] 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.
[@] Placement of transition in the level scheme is uncertain.

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Level Scheme

Intensities: Type not specified

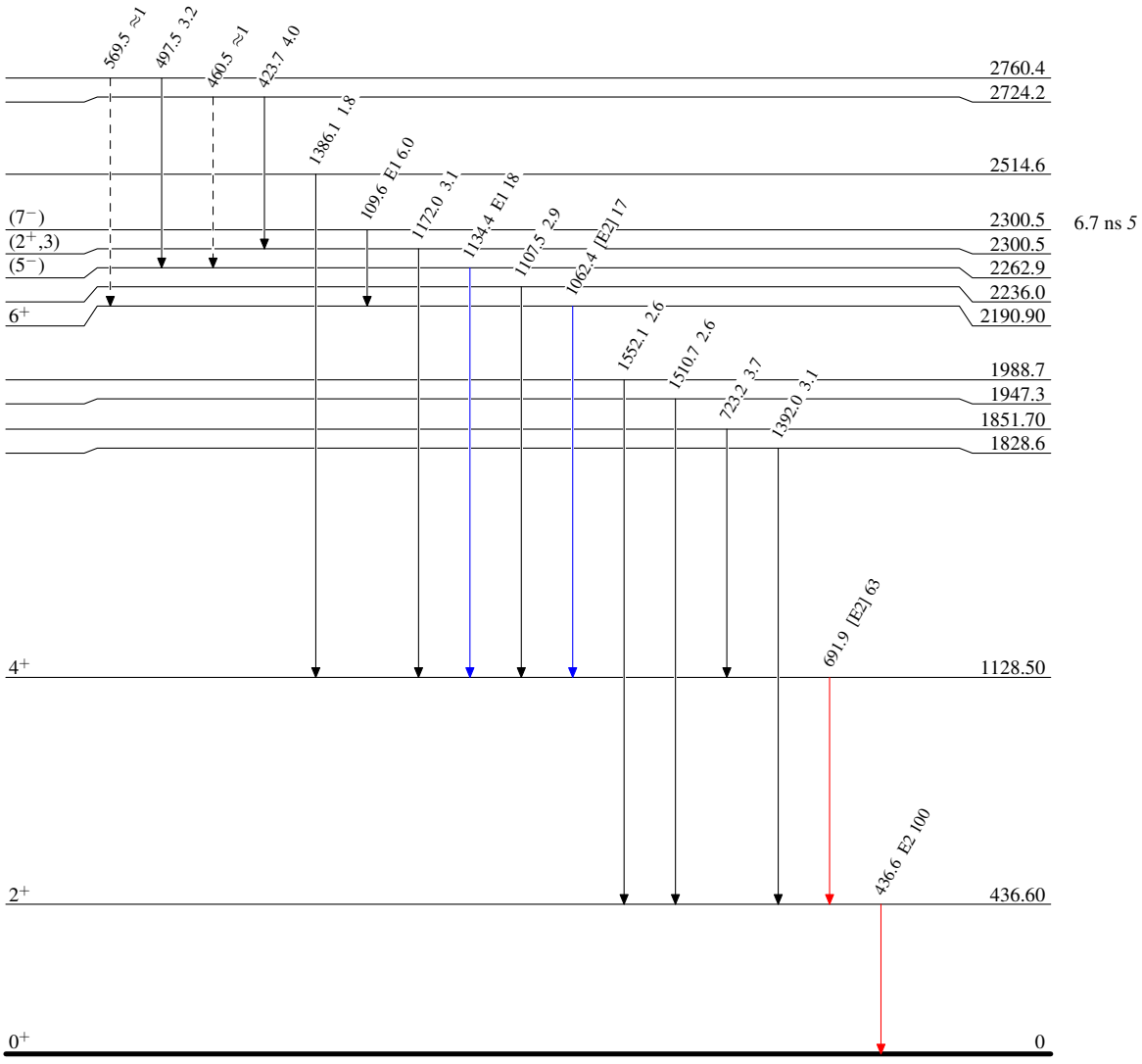
Legend

$I_\gamma < 2\% \times I_\gamma^{max}$

$I_\gamma < 10\% \times I_\gamma^{max}$

$I_\gamma > 10\% \times I_\gamma^{max}$

γ Decay (Uncertain)



$^{204}_{80}Hg_{124}$