^{204}Hg(d,3nγ) 1977Sl01

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	F. G. Kondev	NDS 105,1 (2005)	1-Mar-2005

E(d)=18-25 MeV; Target: metal oxide powder, 92.6% enriched in ^{204}Hg; Detectors: Ge(Li), liquid scintillator; Measured: excitation functions, Eγ, Iγ, $\gamma\gamma$ coin, nγ coin, γ(t), $\gamma(\theta)$; Deduced: J^π, $T_{1/2}$, δ.

The existence of an isomeric state with $T_{1/2}$=7.9 ns *−13+10*, a weighted average of 9.0 ns *−24+19* for 231.9γ, 7.6 ns *−21+10* for 279.1γ, 8.7 ns *−48+37* for 588.3γ and 6.5 ns *−35+23* for 795.0γ, is reported by 1977Sl01 above the (13/2) level at 2038 keV. The exact location of the isomer is unknown, since the authors quote significant prompt-time component for each level.

^{203}Tl Levels

E(level)†	J^π‡	E(level)†	J^π‡	E(level)†	J^π‡	E(level)†	J^π‡
0.0	$1/2^+$	1074.14 *13*	$7/2^+$	1449.65 *17*	$11/2^-$	2899.5 *3*	(17/2)
279.14 *9*	$3/2^+$	1184.34 *13*	$7/2^+$	1487.9?		3249.7 *5*	
680.56 *11*	$5/2^+$	1217.75 *13*	$9/2^+$	2037.95 *19*	(13/2)	3514.7?	
1043.3?	3/2,5/2,7/2	1432.4?		2571.35 *22*	(15/2)		

† From a least-squares fit to Eγ.

‡ From 1977Sl01.

^{204}Hg(d,3nγ) 1977Sl01 (continued)

$\gamma(^{203}Tl)$

E_γ †	I_γ †	E_i(level)	J_i^π	E_f	J_f^π	Mult.‡	δ‡	Comments
x31.1@ *1*	0.30 *6*							
33.4@& *1*	0.50 *7*	1217.75	9/2+	1184.34	7/2+			
x123.5 *3*	1.4 *2*							
143.6 *1*	8.7 *3*	1217.75	9/2+	1074.14	7/2+	M1(+E2)	0.05 *−5+6*	Mult.: A_2=−0.104 *18*, A_4=−0.02 *3*; α(exp)=1.6 *4*.
231.9 *1*	58.7# *22*	1449.65	11/2−	1217.75	9/2+	E1+M2	0.050 *−15+18*	I_γ: Delayed Iγ=25.6; $T_{1/2}$=9.0 ns *−24+19* from 231.9 γ(t). Mult.: A_2=−0.104 *5*, A_4=0.003 *9*; α(exp)=0.29 *6*.
265.0& *2*	3.1 *4*	3514.7?		3249.7		D		Mult.: A_2=−0.187 *60*, A_4=−0.13 *9*.
279.1 *1*	100#	279.14	3/2+	0.0	1/2+	M1+E2		I_γ: Delayed Iγ=23.5; $T_{1/2}$=7.6 ns *−21+10* from 279.1 γ(t). Mult.: A_2=0.142 *8*, A_4=−0.002 *13*.
303.6& *2*	3.1 *7*	1487.9?		1184.34	7/2+			
328.1 *2*	6.3 *4*	2899.5	(17/2)	2571.35	(15/2)	D		Mult.: A_2=−0.142 *26*, A_4=0.03 *3*.
350.2 *3*	<9	3249.7		2899.5	(17/2)			
362.9& *2*	4.8 *5*	1043.3?	3/2,5/2,7/2	680.56	5/2+	D		Mult.: A_2=−0.30 *4*, A_4=−0.01 *6*.
386.9& *3*	5.0 *11*	1432.4?		1043.3?	3/2,5/2,7/2			
401.4 *1*	16.6 *9*	680.56	5/2+	279.14	3/2+	M1+E2		Mult.: A_2=−0.123 *25*, A_4=−0.02 *4*.
503.8 *2*	3.8 *13*	1184.34	7/2+	680.56	5/2+			
533.4 *1*	8.3 *6*	2571.35	(15/2)	2037.95	(13/2)	M1(+E2)		Mult.: A_2=−0.068 *19*, A_4=−0.05 *3*.
537.2 *1*	7.3 *6*	1217.75	9/2+	680.56	5/2+	E2		Mult.: A_2=0.195 *29*, A_4=−0.05 *4*.
588.3 *1*	40.1# *16*	2037.95	(13/2)	1449.65	11/2−	D+Q	−0.29 *−5+4*	I_γ: Delayed Iγ=21.3; $T_{1/2}$=8.7 ns *−48+37* from 588.3 γ(t). Mult.: A_2=0.137 *8*, A_4=−0.024 *11*.
680.7 *2*	4.1 *5*	680.56	5/2+	0.0	1/2+			
795.0 *1*	54.6# *23*	1074.14	7/2+	279.14	3/2+	E2		I_γ: Delayed Iγ=13.9; $T_{1/2}$=6.5 ns *−35+23* from 795.0 γ(t). Mult.: A_2=0.140 *7*, A_4=−0.010 *10*.
905.2 *1*	27.3 *14*	1184.34	7/2+	279.14	3/2+	E2		Mult.: A_2=0.165 *10*, A_4=−0.011 *16*.

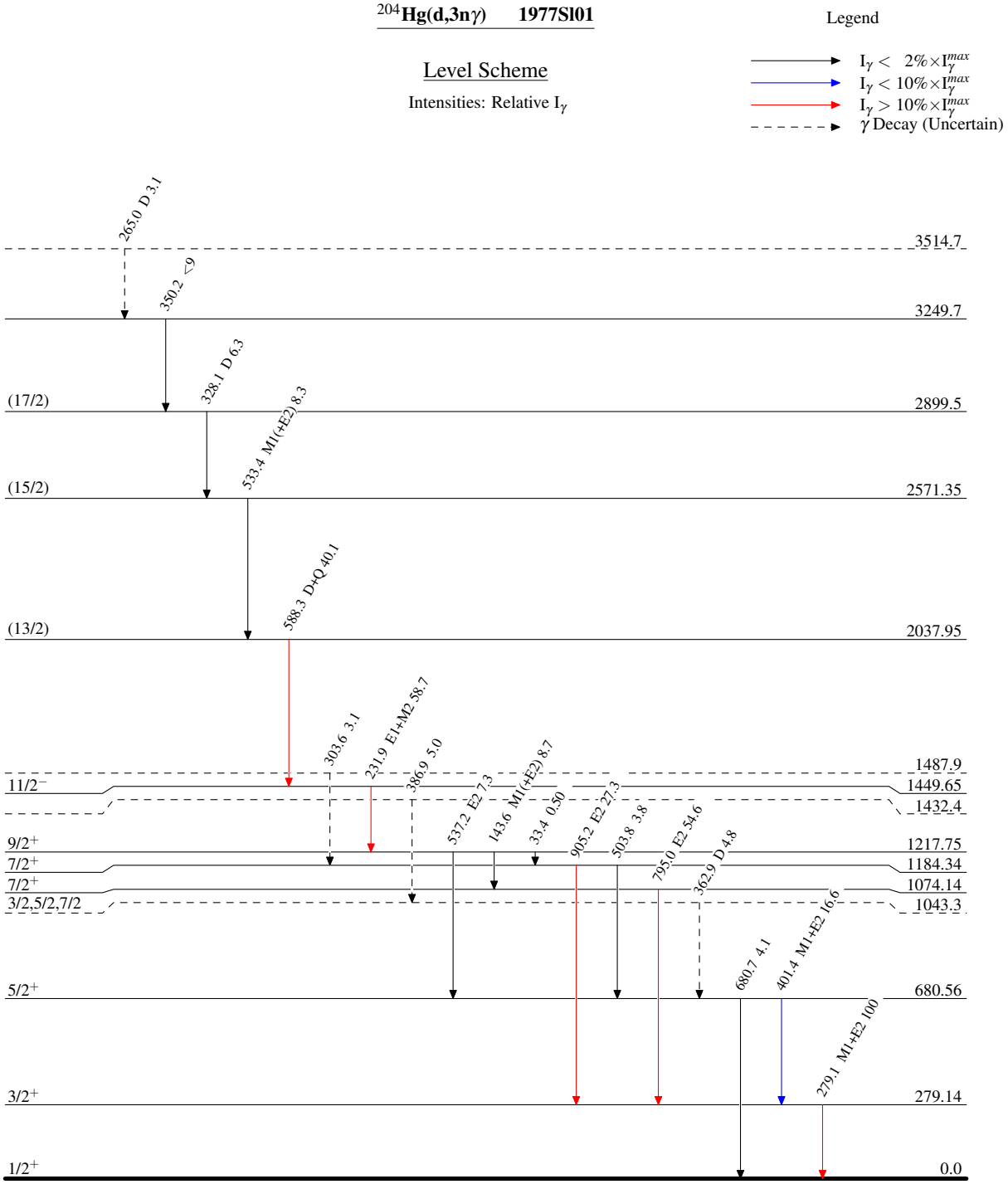
† From 1977Sl01. Iγ are from the E(d)=24 MeV data and were corrected for angular distribution effect.
‡ From $\gamma(\theta)$ and α(exp) in 1977Sl01.
# A delayed ≈8−ns component was observed.
@ Assignment to ^{203}Tl is uncertain.
& Placement of transition in the level scheme is uncertain.
x γ ray not placed in level scheme.

$^{203}_{81}Tl_{122}$-2

^{204}**Hg(d,3nγ) 1977Sl01**

Level Scheme

Intensities: Relative I_γ



$^{203}_{81}Tl_{122}$