^{204}Hg(n,n′γ) 1989Ga07

History

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

1989Ga07: 1.705-g HgO target enriched to 98.07% ^{204}Hg; E(n)=1.5-3 MeV; one Ge and oneGe(Li) detector, 2.0 keV resolution at 1332 keV for both; measured γ(θ), excitation function from 1.5 to 3 MeV.

^{204}Hg Levels

E(level)†	Jπ‡	Comments
0	0^+	
436.57 *4*	2^+	Additional information 1.
1128.37 *9*	4^+	Additional information 2.
1635.77 *11*	0^+	
1716.77 *11*	(2)	Additional information 3.
1828.87 *11*	2^+	Jπ: Note that the level is assigned (2^-) in Adopted Levels. Additional information 4.
1841.49 *8*	$1,2^+$	Additional information 5.
1851.42 *9*	$(2,3)^+$	Jπ: From Adopted Levels. Additional information 6.
1947.67 *11*	(2^+)	Additional information 7.
1989.37 *11*	(2^+)	Additional information 8.
2088.51 *10*	(2^+)	Additional information 9.
2094.48 *21*	$3,4^+$	
2117.48 *10*	2^+	Additional information 10.
2131.28 *21*		Additional information 11.
2140.88 *11*	(1,2,3)	Additional information 12.
2191.17 *14*	6^+	Additional information 13.
2236.07 *14*		Additional information 14.
2263.07 *14*	5^-	Additional information 15.
2263.98 *11*		Additional information 16.
2295.68 *11*		Additional information 17.
2300.32 *13*	(2)	Additional information 18.
2385.9 *4*		Additional information 19.
2465.48 *21*		
2514.57 *22*		
2568.97 *14*		Additional information 20.
2628.28 *11*		Additional information 21.
2675.34 *18*	(3^-)	Additional information 22.

† From a least-squares fit to Eγ.
‡ From 1989Ga07, based on γ(θ), γ deexcitation, and excitation function, unless otherwise specified.

γ(^{204}Hg)

Eγ†	Iγ‡	Ei(level)	J_i^π	Ef	J_f^π	Mult.#	α@	Comments
436.58 *4*	1000	436.57	2^+	0	0^+	E2	0.0378	Mult.: A_2=0.17 *2*; value of A_2 may be smaller than typical for an E2 due to deorientation.
x615.7 *3*	2.8 *11*							
691.8 *1*	331 *18*	1128.37	4^+	436.57	2^+	E2	0.01284	Mult.: A_2=0.35 *3*.
723.0 *1*	55 *4*	1851.42	$(2,3)^+$	1128.37	4^+	M1+E2		Mult.: A_2=−0.03 *3*; Jπ assignments by 1989Ga07 would require this γ to be E2, inconsistent with the deduced A_2. Additional information 24.
x738.1 *3*	3.7 *14*							

Continued on next page (footnotes at end of table)

^{204}Hg(n,n′γ) 1989Ga07 (continued)

γ(^{204}Hg) (continued)

E_γ [†]	I_γ [‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[@]	Comments
[x]806.7 *3*	5.9 *13*							
1062.8 *1*	15.1 *18*	2191.17	6^+	1128.37	4^+			Mult.: A_2=0.45 *17*. Additional information 25.
1107.7 *1*	31 *3*	2236.07		1128.37	4^+			Mult.: A_2=0.15 *18*.
1134.7 *1*	31 *3*	2263.07	5^-	1128.37	4^+	D		Mult.: A_2=−0.20 *7*.
1172.0 *1*	27 *3*	2300.32	(2)	1128.37	4^+			Mult.: A_2=−0.05 *12*; J^π assignments by 1989Ga07 would require this γ to be Q, which is inconsistent with the deduced A_2. Additional information 26.
1199.2 *1*	27 *3*	1635.77	0^+	436.57	2^+	(E2)		Mult.: A_2=−0.03 *4*; consistent with M1+E2, or with isotropic γ(θ) from a J=0 initial level.
1280.2 *1*	26 *3*	1716.77	(2)	436.57	2^+	(M1+E2)	0.0060 *22*	Mult.: A_2=0.13 *5*.
1386.2 *2*	10.8 *18*	2514.57		1128.37	4^+			Mult.: A_2=0.30 *10*. Additional information 28.
1392.3 *1*	79 *5*	1828.87	2^+	436.57	2^+			Mult.: A_2=0.29 *2*.
1405.0 *1*	36 *3*	1841.49	$1,2^+$	436.57	2^+	M1+E2	0.0048 *17*	Mult.: A_2=−0.04 *5*.
1414.9 *1*	22.2 *22*	1851.42	$(2,3)^+$	436.57	2^+	M1+E2	0.0048 *17*	Mult.: A_2=−0.05 *6*.
1440.6 *1*	7.7 *15*	2568.97		1128.37	4^+	M1+E2	0.0046 *16*	Mult.: A_2=−0.55 *6*.
1511.1 *1*	68 *5*	1947.67	(2^+)	436.57	2^+			Mult.: A_2=0.31 *6*.
1547.0 *2*	9.2 *19*	2675.34	(3^-)	1128.37	4^+	(D)		Mult.: A_2=−0.23 *19*.
1552.8 *1*	62 *4*	1989.37	(2^+)	436.57	2^+			Mult.: A_2=0.37 *4*.
1657.9 *2*	14.7 *21*	2094.48	$3,4^+$	436.57	2^+	M1+E2	0.0034 *10*	Mult.: A_2=0.03 *7*.
1680.9 *1*	32 *3*	2117.48	2^+	436.57	2^+	M1+E2	0.0034 *10*	Mult.: A_2=0.38 *12*, E2 and ΔJ=0 E1 ruled out by parallel 2117.5γ to g.s.
1694.7 *2*	11.8 *21*	2131.28		436.57	2^+			Mult.: A_2=0.1 *3*.
1704.3 *1*	29 *3*	2140.88	(1,2,3)	436.57	2^+	(M1+E2)		Mult.: A_2=−0.03 *16*.
1827.4 *1*	37 *3*	2263.98		436.57	2^+			Mult.: A_2=0.67 *31*.
1841.4 *1*	25.3 *24*	1841.49	$1,2^+$	0	0^+	M1	0.00357	Mult.: A_2=−0.19 *11*, E1 ruled out by parallel 1405.0γ decay. Additional information 23.
1859.1 *1*	29 *3*	2295.68		436.57	2^+			Mult.: A_2=0.15 *10*.
1863.3 *3*	5.8 *17*	2300.32	(2)	436.57	2^+			
2028.9 *2*	17 *3*	2465.48		436.57	2^+			Mult.: A_2=0.38 *14*. Additional information 27.
2088.5 *1*	27 *3*	2088.51	(2^+)	0	0^+	E2	0.00183	Mult.: A_2=0.13 *6*; γ to 0^+ cannot be D with Q admixture or be ΔJ=0, and pure dipole has A_2<0, thus this γ must be E2 despite the somewhat small value of A_2.
2117.5 *2*	13 *3*	2117.48	2^+	0	0^+	E2	0.00180	Mult.: A_2=0.68 *11*; γ to 0^+ cannot be D with Q admixture or be ΔJ=0, and pure dipole has A_2<0, thus this γ must be E2 despite the somewhat large value of A_2.
2191.7 *1*	4.4 *10*	2628.28		436.57	2^+	D		Mult.: A_2=−0.8 *6*.
2238.7 *3*	11.6 *23*	2675.34	(3^-)	436.57	2^+	(D)		Mult.: A_2=−0.3 *3*.
2385.9 *4*	19 *4*	2385.9		0	0^+			Mult.: A_2=−0.1 *4*.

[†] From 1989Ga07.
[‡] At E(n)=2.80 MeV. Uncertainties include 5% syst uncertainty for Eγ>500 keV and 10% syst uncertainty for Eγ<500 keV.
[#] Not given in 1989Ga07; assigned by evaluators based on γ(θ) in 1989Ga07.
[@] 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.
[x] γ ray not placed in level scheme.

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Level Scheme

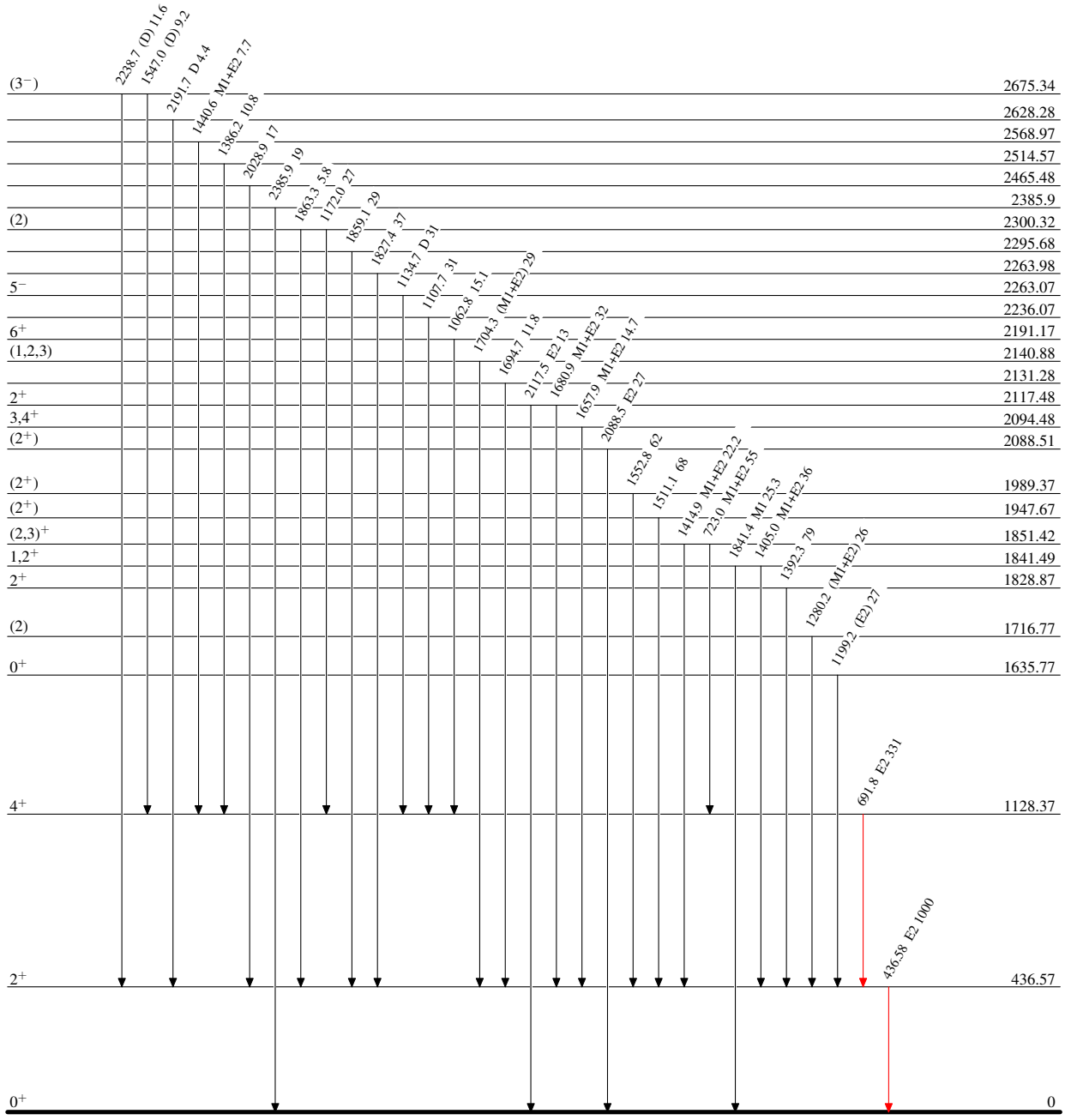
Intensities: Type not specified

Legend

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

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

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



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