

**Adopted Levels, Gammas**

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	F. G. Kondev	NDS 109,1527 (2008)	31-Jan-2008

Q( $\beta^-$ )=1308 21; S(n)=6729 21; S(p)=9.47×10<sup>3</sup> syst; Q( $\alpha$ )=-6.8×10<sup>2</sup> 4 2012Wa38  
 Note: Current evaluation has used the following Q record 1308 206729 219500 syst-800 syst 2003Au03.

<sup>206</sup>Hg Levels

Cross Reference (XREF) Flags

- A <sup>210</sup>Pb  $\alpha$  decay (22.20 y)
- B <sup>204</sup>Hg(t,p $\gamma$ )
- C <sup>204</sup>Hg(<sup>18</sup>O,<sup>16</sup>O $\gamma$ )
- D (HI,xn $\gamma$ )

E(level) <sup>†</sup>	J $\pi^{\ddagger}$	T <sub>1/2</sub>	XREF	Comments
0.0	0 <sup>+</sup>	8.32 min 7	ABCD	% $\beta^-$ =100 T <sub>1/2</sub> : Weighted average of 8.5 min 1 (1962Ka27), 8.1 min 4 (1964Wo05) and 8.15 min 10 (1968Wo08). Other: 7.5 min 10 (1961Nu01). $\Delta\langle r^2 \rangle(^{204}\text{Hg}, ^{206}\text{Hg}) = -0.107$ 5 and $\Delta\langle r^2 \rangle(^{205}\text{Hg}, ^{206}\text{Hg}) = -0.071$ 5 (2000Ga58).
1068.20 20	2 <sup>+</sup>	<21 ns	BCD	J $\pi$ : 1068.2 $\gamma$ E2 to 0 <sup>+</sup> . T <sub>1/2</sub> : Upper limit deduced from $\gamma\gamma$ coin. data in <sup>204</sup> Hg(t,p $\gamma$ ) (1982Be38). Configuration= $\pi(s_{1/2}^{-1}, d_{3/2}^{-1})$ .
2102.4 3	5 <sup>-</sup>	2.15 $\mu$ s 21	BCD	$\mu = 5.45$ 5; Q=0.74 15 J $\pi$ : 1034.2 $\gamma$ E3 to 2 <sup>+</sup> . T <sub>1/2</sub> : From 1034 $\gamma$ (t) and 1068 $\gamma$ (t) using the pulsed-beam technique in <sup>204</sup> Hg(t,p $\gamma$ ) (1982Be38). $\mu$ : From the measured g-factor=1.09 1 in <sup>204</sup> Hg(t,p $\gamma$ ) (1982Be38) using the perturbed angular distribution technique. The value is corrected for diamagnetic shielding and Knight shift. Q: From Q=0.65 13 determined in 1984Ma43 using the perturbed angular distribution technique and relative to Q( <sup>199</sup> Hg)=0.83 9. The value was corrected by the evaluator to the adopted Q( <sup>199</sup> Hg)=0.95 7 (2007Si02). Configuration= $\pi(s_{1/2}^{-1}, h_{11/2}^{-1})$ .
2466.4 11	(7 <sup>-</sup> ) <sup>#</sup>		D	Configuration= $\pi(d_{3/2}^{-1}, h_{11/2}^{-1})$ .
3623.4 14	(8 <sup>+</sup> ) <sup>#</sup>		D	Configuration= $\pi(h_{11/2}^{-2})$ .
3625	0 <sup>+</sup>		B	E(level): From <sup>204</sup> Hg(t,p) (1978Fl08). J $\pi$ : L=0 in <sup>204</sup> Hg(t,p) (1978Fl08).
3723.4 14	(10 <sup>+</sup> ) <sup>#</sup>	92 ns 8	D	T <sub>1/2</sub> : From $\gamma$ (t) in (HI,xn $\gamma$ ) (2001Fo08) using a time spectrum produced by summing gates on 364 $\gamma$ (t), 1157 $\gamma$ (t) and 1257 $\gamma$ (t). Other: 90 ns 10 in (HI,xn $\gamma$ ) (2001La09) using a time spectrum produced by gating on the same transitions as in 2001Fo08. Configuration= $\pi(h_{11/2}^{-2})$ .
4606.2 16	(10 <sup>+</sup> ) <sup>#</sup>		D	Configuration= $\nu(g_{9/2}, i_{13/2}^{-1})$ .
4987.5 16	(11 <sup>+</sup> ) <sup>#</sup>		D	Configuration= $\nu(g_{9/2}, i_{13/2}^{-1})$ .
5643.8 16	(12 <sup>+</sup> ) <sup>#</sup>		D	Configuration= $\pi(d_{3/2}^{-1}, h_{11/2}^{-1})_{7-} \nu(g_{9/2} p_{1/2}^{-1})_{5--}$ .
6067.6 16	(13 <sup>-</sup> ) <sup>#</sup>		D	Configuration= $\nu(h_{11/2}^{-2})_{10+}$ coupled to 3 <sup>-</sup> octupole phonon.
6276.6? 19			D	Configuration= $\nu(j_{15/2}, i_{13/2}^{-1})$ . The assignment is tentative.

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**Adopted Levels, Gammas (continued)** $^{206}\text{Hg}$  Levels (continued)

† From a least-squares fit to  $E_\gamma$ , unless otherwise specified.

‡ From deduced transition multiplicities ( $^{204}\text{Hg}(t,\gamma)$ ) using  $\gamma(\theta)$  in 1982Be38 and 1984Ma43, and L values in 1978F108, unless otherwise specified.

# From (HI,xn $\gamma$ ) (2001Fo08). The assignment is tentative.

$E_i(\text{level})$	$J_i^\pi$	$E_\gamma^\dagger$	$I_\gamma^\dagger$	$E_f$	$J_f^\pi$	Mult.	$\alpha^\#$	$\gamma(^{206}\text{Hg})$	Comments
1068.20	2 <sup>+</sup>	1068.2 2	100	0.0	0 <sup>+</sup>	E2	0.00531		$\alpha(\text{K})=0.00429$ 6; $\alpha(\text{L})=0.000782$ 11; $\alpha(\text{M})=0.000184$ 3; $\alpha(\text{N}+..)=5.51\times 10^{-5}$ 8 $\alpha(\text{N})=4.60\times 10^{-5}$ 7; $\alpha(\text{O})=8.54\times 10^{-6}$ 12; $\alpha(\text{P})=5.62\times 10^{-7}$ 8 B(E2)(W.u.)>0.00027 Mult.: From $A_2=+0.22$ 2 in $^{204}\text{Hg}(t,\gamma)$ (1982Be38). The positive sign argues against a $\Delta J=1$ transition; Mult.=M2 is excluded from systematics of first excited states in neighboring even-even nuclei.
2102.4	5 <sup>-</sup>	1034.2 2	100	1068.20	2 <sup>+</sup>	E3	0.01283		$\alpha(\text{K})=0.00969$ 14; $\alpha(\text{L})=0.00239$ 4; $\alpha(\text{M})=0.000581$ 9; $\alpha(\text{N}+..)=0.0001735$ 25 $\alpha(\text{N})=0.0001455$ 21; $\alpha(\text{O})=2.66\times 10^{-5}$ 4; $\alpha(\text{P})=1.442\times 10^{-6}$ 21 B(E3)(W.u.)=0.175 17 Mult.: $A_2=0.38$ 5 in in $^{204}\text{Hg}(t,\gamma)$ (1982Be38). The measured ratio of $A_2(1068\gamma)/A_2(1034\gamma)=0.58$ 9 is consistent with a J=5 to 2 transition for which $A_2(2$ to 0)/ $A_2(5$ to 2)=0.6 can be expected, whereas $A_2(2$ to 0)/ $A_2(4$ to 2)=1.0 could be expected if 1034 $\gamma$ were E2 (1982Be38).
2466.4	(7 <sup>-</sup> )	364 $\ddagger$ 1	100	2102.4	5 <sup>-</sup>				$I_\gamma$ : From (HI,xn $\gamma$ ) (2001Fo08).
3623.4	(8 <sup>+</sup> )	1157 $\ddagger$ 1		2466.4	(7 <sup>-</sup> )				
3723.4	(10 <sup>+</sup> )	100 $\ddagger$ 1	49 5	3623.4	(8 <sup>+</sup> )	[E2]	5.5 3		$\alpha(\text{K})=0.617$ 10; $\alpha(\text{L})=3.69$ 19; $\alpha(\text{M})=0.96$ 5; $\alpha(\text{N}+..)=0.279$ 14 $\alpha(\text{N})=0.239$ 12; $\alpha(\text{O})=0.0396$ 20; $\alpha(\text{P})=0.000118$ 4 B(E2)(W.u.)=0.99 18 $I_\gamma$ : From $I(\gamma+ce)(100\gamma)/I(\gamma+ce)(1257\gamma)=3.2$ 3, determined using the $I(\gamma+ce)(1157\gamma)/I(\gamma+ce)(1257\gamma)$ ratio in (HI,xn $\gamma$ ) (2001Fo08).
		1257 $\ddagger$ 1	100 5	2466.4	(7 <sup>-</sup> )	[E3]	0.00833		$\alpha(\text{K})=0.00648$ 10; $\alpha(\text{L})=0.001401$ 20; $\alpha(\text{M})=0.000336$ 5; $\alpha(\text{N}+..)=0.0001041$ 15 $\alpha(\text{N})=8.42\times 10^{-5}$ 12; $\alpha(\text{O})=1.552\times 10^{-5}$ 22; $\alpha(\text{P})=9.37\times 10^{-7}$ 14; $\alpha(\text{IPF})=3.41\times 10^{-6}$ 7 B(E3)(W.u.)=0.25 4
4606.2	(10 <sup>+</sup> )	883 $\ddagger$ 1	100	3723.4	(10 <sup>+</sup> )				$I_\gamma$ : From (HI,xn $\gamma$ ) (2001Fo08).
4987.5	(11 <sup>+</sup> )	381 $\ddagger$ 1		4606.2	(10 <sup>+</sup> )				
		1264 $\ddagger$ 1		3723.4	(10 <sup>+</sup> )				
5643.8	(12 <sup>+</sup> )	656 $\ddagger$ 1		4987.5	(11 <sup>+</sup> )				
		1038 $\ddagger$ 1		4606.2	(10 <sup>+</sup> )				
6067.6	(13 <sup>-</sup> )	424 $\ddagger$ 1		5643.8	(12 <sup>+</sup> )				

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**Adopted Levels, Gammas (continued)** $\gamma(^{206}\text{Hg})$  (continued)

<u><math>E_i(\text{level})</math></u>	<u><math>J_i^\pi</math></u>	<u><math>E_\gamma^\dagger</math></u>	<u><math>I_\gamma^\dagger</math></u>	<u><math>E_f</math></u>	<u><math>J_f^\pi</math></u>	<u>Comments</u>
6067.6	(13 <sup>-</sup> )	2344 <sup>‡</sup>	1	3723.4	(10 <sup>+</sup> )	
6276.6?		209 <sup>‡</sup>	1	6067.6	(13 <sup>-</sup> )	$I_\gamma$ : From (HI,xn $\gamma$ ) (2001Fo08).

<sup>†</sup> From  $^{204}\text{Hg}(t,p\gamma)$  (1982Be38), unless otherwise specified.

<sup>‡</sup> From (HI,xn $\gamma$ ) (2001Fo08).

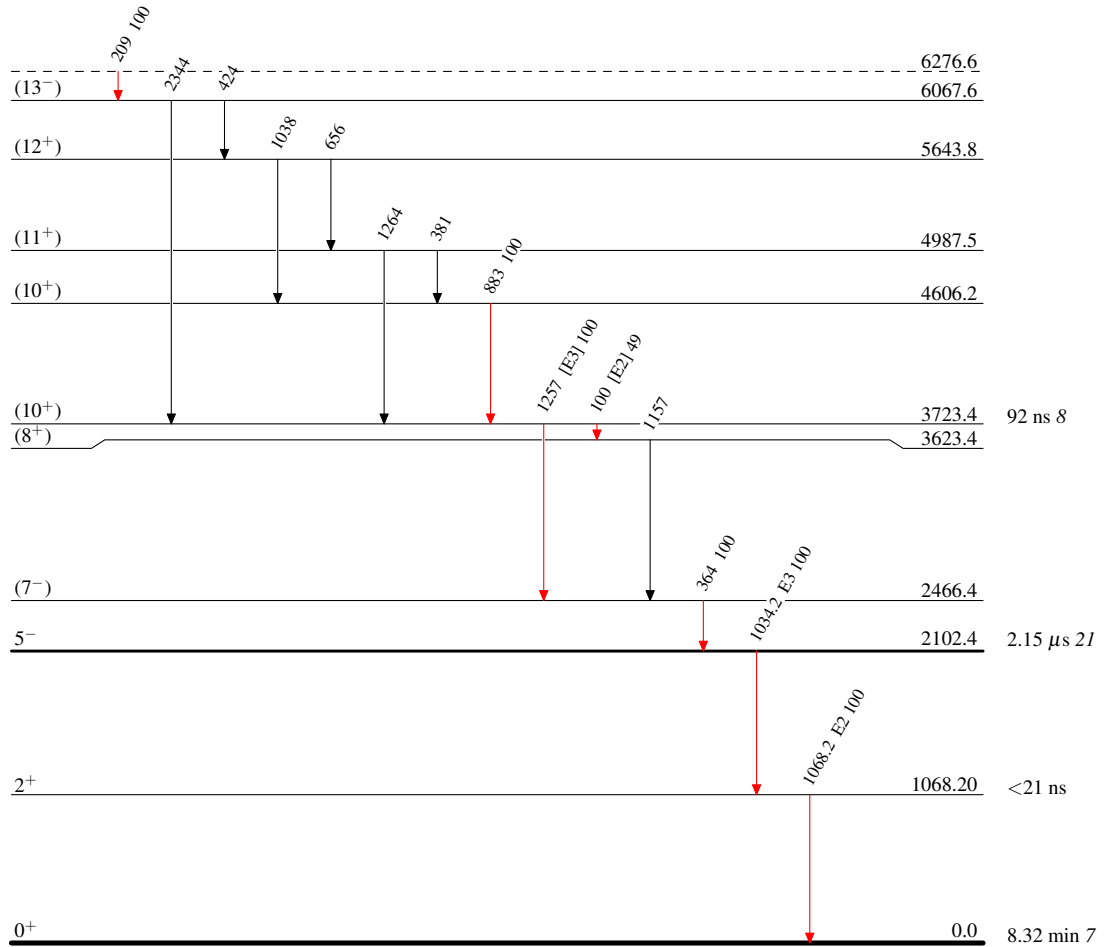
# Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on  $\gamma$ -ray energies, assigned multiplicities, and mixing ratios, unless otherwise specified.

**Adopted Levels, Gammas****Level Scheme**

Intensities: Type not specified

## Legend

- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$

 $^{206}_{80}\text{Hg}_{126}$