

**Adopted Levels, Gammas**

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

Q( $\beta^-$ )=2.7×10<sup>3</sup> syst; S(n)=6.4×10<sup>3</sup> syst; S(p)=1.05×10<sup>4</sup> syst; Q( $\alpha$ )=-1.6×10<sup>3</sup> syst [2012Wa38](#)

Note: Current evaluation has used the following Q record 2320 6260 10400 1670 [1997Mo25](#).

From theoretical predictions in [1997Mo25](#).

<sup>204</sup>Pt Levels

Cross Reference (XREF) Flags

A <sup>9</sup>Be(<sup>208</sup>Pb,X $\gamma$ )

E(level) <sup>†</sup>	J $\pi$ <sup>‡</sup>	T <sub>1/2</sub>	XREF	Comments
0.0	0 <sup>+</sup>	10.3 s 14	A	% $\beta^-$ =100 T <sub>1/2</sub> : Weighted averages of 10.4 s 18 (165 $\gamma$ (t)) and 10.1 s 22 (305 $\gamma$ (t)) in <a href="#">2009Mo17</a> . The 165 $\gamma$ and 305 $\gamma$ were identified in <a href="#">2009Mo17</a> as belonging to <sup>204</sup> Au, produced following $\beta^-$ decay of <sup>204</sup> Pt.
872.0? 10	(2 <sup>+</sup> )		A	E(level): The energy of this level depends on the order of the 872 $\gamma$ and 1123 $\gamma$ , which could not be determined experimentally in <sup>9</sup> Be( <sup>208</sup> Pb,X $\gamma$ ), but were placed based on comparison with the <sup>206</sup> Hg level scheme and shell-model calculations. If the $\gamma$ 's are interchanged, this level energy is instead 1123 keV.
1995.0 15	(5 <sup>-</sup> )	5.5 <sup>#</sup> $\mu$ s 7	A	Proposed configuration: $\pi[(d_{3/2})^{-1}(h_{11/2})^{-1}]$ .
1995.0+x	(7 <sup>-</sup> )	55 <sup>#</sup> $\mu$ s 3	A	E(level): $\gamma$ decay to the 1995-keV level is expected, but not observed. <a href="#">2008St20</a> suggest E $\gamma$ is below the K x-ray threshold of 78.4 keV due to the absence of observed x rays associated with this decay. Such a low-energy transition would be dominated by internal conversion. Proposed configuration: $\pi[(d_{3/2})^{-1}(h_{11/2})^{-1}]$ .
3056+x? 1	(8 <sup>+</sup> )		A	E(level): The energy of this level depends on the order of the 1061 $\gamma$ and 97 $\gamma$ , which could not be determined experimentally in <sup>9</sup> Be( <sup>208</sup> Pb,X $\gamma$ ), but were placed based on comparison with the <sup>206</sup> Hg level scheme and shell-model calculations. If the $\gamma$ 's are interchanged, this level energy is instead 2092+x keV. Proposed configuration: $\pi[(h_{11/2})^{-2}]$ .
3153+x 1	(10 <sup>+</sup> )	146 <sup>#</sup> ns 14	A	Proposed configuration: $\pi[(h_{11/2})^{-2}]$ .

<sup>†</sup> From a least-squares fit to E $\gamma$ .

<sup>‡</sup> From <sup>9</sup>Be(<sup>208</sup>Pb,X $\gamma$ ), based on comparison with the <sup>206</sup>Hg level scheme and shell-model calculations ([2008St20](#)).

<sup>#</sup> From  $\gamma$ (t) measurements in <sup>9</sup>Be(<sup>208</sup>Pb,X $\gamma$ ) reaction ([2008St20](#)).

$\gamma$ (<sup>204</sup>Pt)

E <sub>i</sub> (level)	J $\pi$ <sub>i</sub>	E $\gamma$ <sup>‡</sup>	I $\gamma$ <sup>#</sup>	E <sub>f</sub>	J $\pi$ <sub>f</sub>	Mult.	$\alpha$ <sup>†</sup>	Comments
872.0?	(2 <sup>+</sup> )	872 1	100	0.0	0 <sup>+</sup>	[E2]	0.00720 11	$\alpha(K)=0.00577$ 9; $\alpha(L)=0.001099$ 16; $\alpha(M)=0.000258$ 4; $\alpha(N+..)=7.54\times 10^{-5}$ 11 $\alpha(N)=6.37\times 10^{-5}$ 9; $\alpha(O)=1.114\times 10^{-5}$ 16; $\alpha(P)=6.10\times 10^{-7}$ 9
1995.0	(5 <sup>-</sup> )	1123 1	100	872.0?	(2 <sup>+</sup> )	[E3]	0.00956 14	$\alpha(K)=0.00741$ 11; $\alpha(L)=0.001637$ 24; $\alpha(M)=0.000392$ 6; $\alpha(N+..)=0.0001145$ $\alpha(N)=9.67\times 10^{-5}$ 14; $\alpha(O)=1.684\times 10^{-5}$ 24;

Continued on next page (footnotes at end of table)

**Adopted Levels, Gammas (continued)**

<u>γ(<sup>204</sup>Pt) (continued)</u>								
<u>E<sub>i</sub>(level)</u>	<u>J<sub>i</sub><sup>π</sup></u>	<u>E<sub>γ</sub><sup>‡</sup></u>	<u>I<sub>γ</sub><sup>#</sup></u>	<u>E<sub>f</sub></u>	<u>J<sub>f</sub><sup>π</sup></u>	<u>Mult.</u>	<u>α<sup>†</sup></u>	<u>Comments</u>
3056+x?	(8 <sup>+</sup> )	1061 1	100	1995.0+x	(7 <sup>-</sup> )	[E1]	0.00190 3	α(P)=8.66×10 <sup>-7</sup> 13; α(IPF)=1.06×10 <sup>-7</sup> 5 B(E3)(W.u.)=0.040 5 α(K)=0.001600 23; α(L)=0.000234 4; α(M)=5.33×10 <sup>-5</sup> 8; α(N+.)=1.565×10 <sup>-5</sup> 22 α(N)=1.314×10 <sup>-5</sup> 19; α(O)=2.35×10 <sup>-6</sup> 4;
3153+x	(10 <sup>+</sup> )	97 1	49 9	3056+x?	(8 <sup>+</sup> )	[E2]	5.6 3	α(P)=1.573×10 <sup>-7</sup> 23 α(K)=0.730 12; α(L)=3.63 19; α(M)=0.94 5; α(N+.)=0.264 14 α(N)=0.229 12; α(O)=0.0356 19; α(P)=9.4×10 <sup>-5</sup> 3 B(E2)(W.u.)=0.73 20
		1158 1	100 14	1995.0+x	(7 <sup>-</sup> )	[E3]	0.00893 13	α(K)=0.00695 10; α(L)=0.001506 22; α(M)=0.000359 6; α(N+.)=0.0001055 α(N)=8.88×10 <sup>-5</sup> 13; α(O)=1.549×10 <sup>-5</sup> 22; α(P)=8.09×10 <sup>-7</sup> 12; α(IPF)=3.88×10 <sup>-7</sup> 14 B(E3)(W.u.)=0.28 7

<sup>†</sup> Additional information 1.

<sup>‡</sup> Uncertainties assigned by evaluators.

<sup>#</sup> From <sup>9</sup>Be(<sup>208</sup>Pb,Xγ) (2008StZY).

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