

**Adopted Levels**

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

$Q(\beta^-) = -5.44 \times 10^3$  3;  $S(n) = 8.34 \times 10^3$  3;  $S(p) = 5.2 \times 10^2$  4;  $Q(\alpha) = 7170.4$  25 [2012Wa38](#)

Note: Current evaluation has used the following Q record  $-5.45E+3$  3  $8.32 \times 10^3$  3 520 30 7171.3 25 [2003Au03](#).

<sup>204</sup>Fr Levels

Cross Reference (XREF) Flags

- A <sup>208</sup>Ac  $\alpha$  decay (25 ms)
- B <sup>208</sup>Ac  $\alpha$  decay (95 ms)

E(level) <sup>†</sup>	J <sup><math>\pi</math></sup>	T <sub>1/2</sub>	XREF	Comments
0	(3 <sup>+</sup> )	1.8 s 3	B	<p><math>\% \alpha = 92</math> 2; <math>\% \epsilon + \% \beta^+ = 8</math> 2  <math>\% \alpha</math>: From <a href="#">1995BiZZ</a>, but <math>\% \epsilon + \% \beta^+</math> was not measured directly. Other: <math>\% \alpha = 70\%</math> 15 in <a href="#">1974Ho27</a>.                      Identification based on the observed <math>E_{\alpha_1} - E_{\alpha_2}</math>, <sup>204</sup>Fr – <sup>200</sup>At correlations in <a href="#">2005Uu02</a> and <a href="#">1992Hu04</a>.  <math>J^\pi</math>: Favored <math>\alpha</math> decay to the (3<sup>+</sup>) state in <sup>200</sup>At and subsequent favored <math>\alpha</math> decay to the (3<sup>+</sup>) state in <sup>196</sup>Bi.  <math>T_{1/2}</math>: Weighted average of 1.9 s 5 (<a href="#">2005Uu02</a>) and 1.7 s 3 (<a href="#">1992Hu04</a>). Others: 2.1 s 2 (<a href="#">1974Ho27</a>), 2.0 s 5 (<a href="#">1964Gr04</a>), and 2.2 s 2 (<a href="#">1967Va20</a>).  <math>E\alpha = 7033</math> keV 6 (<a href="#">2005Uu02</a>), 7031 keV 5, <math>I\alpha \approx 100\%</math> (<a href="#">1992Hu04</a>), 6916 keV 8, <math>I\alpha = 0.6\%</math> 2 (<a href="#">1992Hu04</a>), 7027 keV 5 (<a href="#">1974Ho27</a>), 7028 keV 5 (<a href="#">1967Va20</a>), and 7160 keV 30 (<a href="#">1964Gr04</a>).                      Configuration = <math>((\pi h_{9/2})^{+1}(\nu f_{5/2})^{-1})_{3+}</math>.  <math>\% \alpha = 90</math> 2; <math>\% \epsilon + \% \beta^+ = 10</math> 2  <math>\% \alpha</math>: From <a href="#">1995BiZZ</a>, but <math>\% \epsilon + \% \beta^+</math> was not measured directly. Other: <math>\% \alpha = 30\%</math> 6 in <a href="#">1974Ho27</a>.                      Identification based on the observed <math>E_{\alpha_1} - E_{\alpha_2}</math>, <sup>204</sup>Fr – <sup>200</sup>At correlations in <a href="#">2005Uu02</a> and <a href="#">1992Hu04</a>.  <math>J^\pi</math>: Favored <math>\alpha</math> decay to the (7<sup>+</sup>) state in <sup>200</sup>At and subsequent favored <math>\alpha</math> decay to the (7<sup>+</sup>) state in <sup>196</sup>Bi.  <math>T_{1/2}</math>: From <a href="#">2005Uu02</a>. Others: 2.6 s 3 (<a href="#">1992Hu04</a>), 2.1 s 3 (<a href="#">1974Ho27</a>), 3.3 s 2 (<a href="#">1967Va20</a>).  <math>E\alpha = 6976</math> keV 5 (<a href="#">2005Uu02</a>), 6969 keV 5, <math>I\alpha \approx 100\%</math> (<a href="#">1992Hu04</a>), 7077 keV 8, <math>I\alpha = 0.7\%</math> 2 (<a href="#">1992Hu04</a>), 6967 keV 5 (<a href="#">1974Ho27</a>), and 6973 keV 5 (<a href="#">1967Va20</a>).                      Configuration = <math>((\pi h_{9/2})^{+1}(\nu f_{5/2})^{-1})_{7+}</math>.  <math>\% \alpha = 74</math> 8; <math>\% \epsilon + \% \beta^+ = 26</math> 8  <math>\% \alpha</math>: From <a href="#">1995BiZZ</a>, but <math>\% \epsilon + \% \beta^+</math> was not measured directly.                      Identification based on the observed <math>E_{\alpha_1} - E_{\alpha_2}</math>, <sup>204</sup>Fr – <sup>200</sup>At correlations in <a href="#">2005Uu02</a> and <a href="#">1992Hu04</a>.  <math>J^\pi</math>: Favored <math>\alpha</math> decay to the (10<sup>-</sup>) state in <sup>200</sup>At and subsequent favored <math>\alpha</math> decay to the (10<sup>-</sup>) state in <sup>196</sup>Bi.  <math>T_{1/2}</math>: From <a href="#">2005Uu02</a>. Others: <math>\approx 1</math> s (<a href="#">1992Hu04</a>).  <math>E\alpha = 7017</math> keV 6 (<a href="#">2005Uu02</a>) and 7013 keV 5 (<a href="#">1992Hu04</a>).                      Configuration = <math>((\pi h_{9/2})^{+1}(\nu i_{13/2})^{-1})_{10-}</math>.</p>
41 7	(7 <sup>+</sup> )	1.6 s +5-3		
316 7	(10 <sup>-</sup> )	0.8 s 2	A	

<sup>†</sup> From [1992Hu04](#).