

**Adopted Levels, Gammas**

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jean Blachot	NDS 113,2391 (2012)	1-Sep-2012

Q( $\beta^-$ )=6197 16; S(n)=6.59×10<sup>3</sup> 8; S(p)=11296 8; Q( $\alpha$ )=-7632 13 [2012Wa38](#)

Note: Current evaluation has used the following Q record 6197 156.59E3 7 11303 15-7634 13 [2011AuZZ](#).

Q( $\beta^-$ n)=1190 10 ([2011AuZZ](#)).

[1988Ay01](#), [1991Pa17](#) (also [1992PeZX](#) thesis): identification and production of <sup>115</sup>Rh in <sup>238</sup>U(p,f) reaction at 20 MeV followed by mass separation.

Mass measurement (Penning-trap method, jyfltrap): [2007Ha20](#) (also [2004Ko42](#)).

<sup>115</sup>Rh Levels

Cross Reference (XREF) Flags

- A <sup>115</sup>Ru  $\beta^-$  decay
- B <sup>252</sup>Cf SF decay

E(level) <sup>†</sup>	J $\pi^{\ddagger}$	T <sub>1/2</sub>	XREF	Comments
0.0	(7/2 <sup>+</sup> )	0.99 s 5	A	% $\beta^-$ =100 T <sub>1/2</sub> : from <a href="#">1988Ay01</a> .
213.31 @ 22	(9/2 <sup>+</sup> )		B	
292.38 21	(3/2 <sup>+</sup> )		A	
372.52 20	(5/2 <sup>+</sup> )		A	
461.01 # 23	(11/2 <sup>+</sup> )		B	
499.3 3	(3/2 <sup>+</sup> )		A	
599.9 & 4	(11/2 <sup>+</sup> )		B	
617.6 3	(7/2 <sup>+</sup> )		A	
695.6 3	(3/2 <sup>+</sup> )		A	
703.2 @ 3	(13/2 <sup>+</sup> )		B	
730.78 24	(1/2 <sup>+</sup> )		A	
934.8 3	(5/2 <sup>+</sup> )		A	
1001.1 <sup>a</sup> 4	(13/2 <sup>+</sup> )		B	
1002.6 3			A	
1010.6 3			A	
1117.5 3			A	
1141.8 # 3	(15/2 <sup>+</sup> )		B	
1166.1 4			A	
1258.6 4			A	
1339.3 & 4	(15/2 <sup>+</sup> )		B	
1371.0 @ 3	(17/2 <sup>+</sup> )		B	
1398.3 5			A	
1452.4 3			A	
1474.3 4			A	
1684.6 5			A	
1776.0 <sup>a</sup> 5	(17/2 <sup>+</sup> )		B	
1926.4 # 4	(19/2 <sup>+</sup> )		B	
2050.4 4			A	
2116.1 & 5	(19/2 <sup>+</sup> )		B	
2141.9 @ 4	(21/2 <sup>+</sup> )		B	
2249.4 4			A	
2280.1 6			A	

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**Adopted Levels, Gammas (continued)**

<sup>115</sup>Rh Levels (continued)

† From least-squares fit to E $\gamma$ 's, assuming uncertainty of 0.3 keV for each  $\gamma$  ray.

‡ From systematics of neighboring nuclides and bands assignments.

# Band(A): Band built on 7/2<sup>+</sup>, $\alpha=-1/2$ .

@ Band(a): Band built on 7/2<sup>+</sup>, $\alpha=+1/2$ .

& Band(B): Yrare band based on 11/2<sup>+</sup>, $\alpha=-1/2$ .

<sup>a</sup> Band(b): Yrare band based on 11/2<sup>+</sup>, $\alpha=+1/2$ .

$\gamma(^{115}\text{Rh})$								
<u>E<sub>i</sub>(level)</u>	<u>J<sub>i</sub><sup><math>\pi</math></sup></u>	<u>E<sub><math>\gamma</math></sub></u>	<u>I<sub><math>\gamma</math></sub></u>	<u>E<sub>f</sub></u>	<u>J<sub>f</sub><sup><math>\pi</math></sup></u>	<u>Mult.</u>	<u><math>\alpha</math><sup>†</sup></u>	<u>I<sub>(<math>\gamma+ce</math>)</sub></u>
213.31	(9/2 <sup>+</sup> )	213.3 3	100	0.0	(7/2 <sup>+</sup> )			
292.38	(3/2 <sup>+</sup> )	292.4 3	100	0.0	(7/2 <sup>+</sup> )	[E2]		
372.52	(5/2 <sup>+</sup> )	80.2 3	100	292.38	(3/2 <sup>+</sup> )	M1+E2		
		372.5 <sup>‡</sup> 3		0.0	(7/2 <sup>+</sup> )	[M1+E2]		
461.01	(11/2 <sup>+</sup> )	247.7 3	100 12	213.31	(9/2 <sup>+</sup> )			
		461.0 3	59	0.0	(7/2 <sup>+</sup> )			
499.3	(3/2 <sup>+</sup> )	206.8 3	100	292.38	(3/2 <sup>+</sup> )	[M1+E2]		
599.9	(11/2 <sup>+</sup> )	386.6 3	100	213.31	(9/2 <sup>+</sup> )			
617.6	(7/2 <sup>+</sup> )	245.1 2	100 14	372.52	(5/2 <sup>+</sup> )	[M1+E2]	0.043 1	3
		404.2 <sup>‡</sup> 6		213.31	(9/2 <sup>+</sup> )			
695.6	(3/2 <sup>+</sup> )	196.3 3	100	499.3	(3/2 <sup>+</sup> )	[M1+E2]		
703.2	(13/2 <sup>+</sup> )	242.2 3	100 12	461.01	(11/2 <sup>+</sup> )			
		489.9 3	84	213.31	(9/2 <sup>+</sup> )			
730.78	(1/2 <sup>+</sup> )	231.4 2	72 25	499.3	(3/2 <sup>+</sup> )	[M1+E2]	0.052 17	
		358.4 2	91 19	372.52	(5/2 <sup>+</sup> )	[E2]	0.0157	
		438.3 2	1.0×10 <sup>2</sup> 7	292.38	(3/2 <sup>+</sup> )	[M1+E2]	0.0077 7	
934.8	(5/2 <sup>+</sup> )	239.2 2	58 13	695.6	(3/2 <sup>+</sup> )	[M1+E2]	0.047 15	
		435.5 2	100 13	499.3	(3/2 <sup>+</sup> )	[M1+E2]	0.0078 8	
1001.1	(13/2 <sup>+</sup> )	401.2 3	100	599.9	(11/2 <sup>+</sup> )			
1002.6		630.0 3	5.8 14	372.52	(5/2 <sup>+</sup> )			
		710.4 3	100 4	292.38	(3/2 <sup>+</sup> )			
1010.6		638.3 3	100 5	372.52	(5/2 <sup>+</sup> )			
		718.3 3	97 5	292.38	(3/2 <sup>+</sup> )			
1117.5		618.1 2	100	499.3	(3/2 <sup>+</sup> )			
1141.8	(15/2 <sup>+</sup> )	438.6 3	100 12	703.2	(13/2 <sup>+</sup> )			
		680.8 3	58	461.01	(11/2 <sup>+</sup> )			
1166.1		231.3 3	100	934.8	(5/2 <sup>+</sup> )			
1258.6		966.2 3	100	292.38	(3/2 <sup>+</sup> )			
1339.3	(15/2 <sup>+</sup> )	338.2 3		1001.1	(13/2 <sup>+</sup> )			
		739.4 3		599.9	(11/2 <sup>+</sup> )			
1371.0	(17/2 <sup>+</sup> )	229.2 3		1141.8	(15/2 <sup>+</sup> )			
		667.8 3		703.2	(13/2 <sup>+</sup> )			
1398.3		1025.8 6	1.0×10 <sup>2</sup> 5	372.52	(5/2 <sup>+</sup> )			
		1105.9 9	45 25	292.38	(3/2 <sup>+</sup> )			
1452.4		441.9 2	100 22	1010.6				
		1079.4 5	28 22	372.52	(5/2 <sup>+</sup> )			
1474.3		974.9 <sup>‡</sup> 3	47 11	499.3	(3/2 <sup>+</sup> )			
		1182.2 5	1.0×10 <sup>2</sup> 3	292.38	(3/2 <sup>+</sup> )			
1684.6		1392.2 4	100	292.38	(3/2 <sup>+</sup> )			
1776.0	(17/2 <sup>+</sup> )	436.7 3		1339.3	(15/2 <sup>+</sup> )			
		774.9 <sup>‡</sup> 3		1001.1	(13/2 <sup>+</sup> )			
1926.4	(19/2 <sup>+</sup> )	555.4 3		1371.0	(17/2 <sup>+</sup> )			
		784.6 3		1141.8	(15/2 <sup>+</sup> )			
2050.4		1040.1 4	100 21	1010.6				

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**Adopted Levels, Gammas (continued)** $\gamma(^{115}\text{Rh})$  (continued)

$E_i(\text{level})$	$J_i^\pi$	$E_\gamma$	$I_\gamma$	$E_f$	$J_f^\pi$
2050.4		1677.3 5	89 11	372.52	(5/2 <sup>+</sup> )
		1758.2 12	46 14	292.38	(3/2 <sup>+</sup> )
2116.1	(19/2 <sup>+</sup> )	340.1 3		1776.0	(17/2 <sup>+</sup> )
		776.8 ‡ 3		1339.3	(15/2 <sup>+</sup> )
2141.9	(21/2 <sup>+</sup> )	215.5 ‡ 3		1926.4	(19/2 <sup>+</sup> )
		770.9 3		1371.0	(17/2 <sup>+</sup> )
2249.4		1246.8 9	100 24	1002.6	
		1876.7 ‡ 6	82 24	372.52	(5/2 <sup>+</sup> )
		2249.4 ‡ 5	8.×10 <sup>1</sup> 3	0.0	(7/2 <sup>+</sup> )
2280.1		1780.6 5	100	499.3	(3/2 <sup>+</sup> )

† 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.

‡ Placement of transition in the level scheme is uncertain.

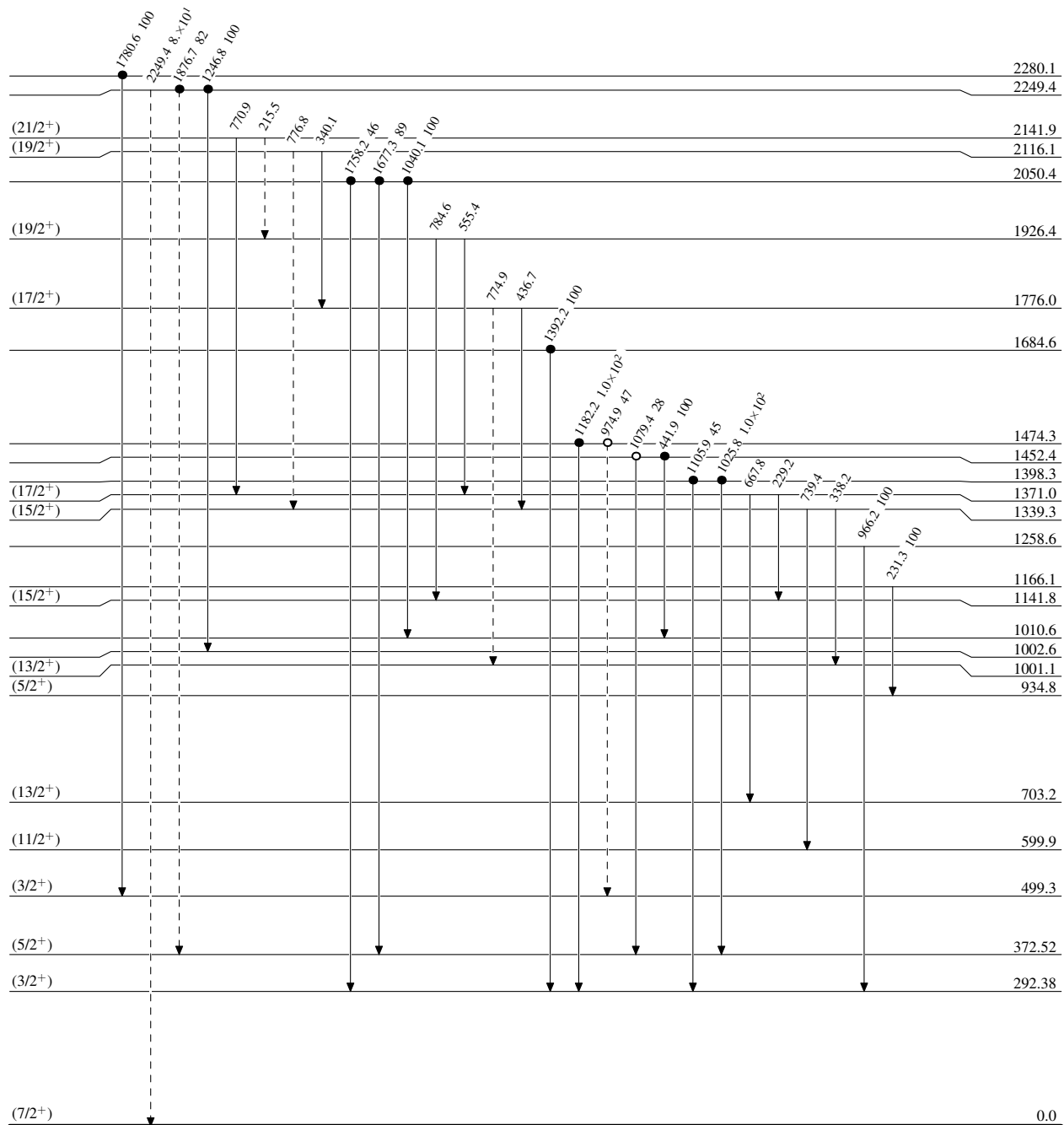
Legend

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level

- ▶  $\gamma$  Decay (Uncertain)
- Coincidence
- Coincidence (Uncertain)



<sup>115</sup>Rh<sub>70</sub>

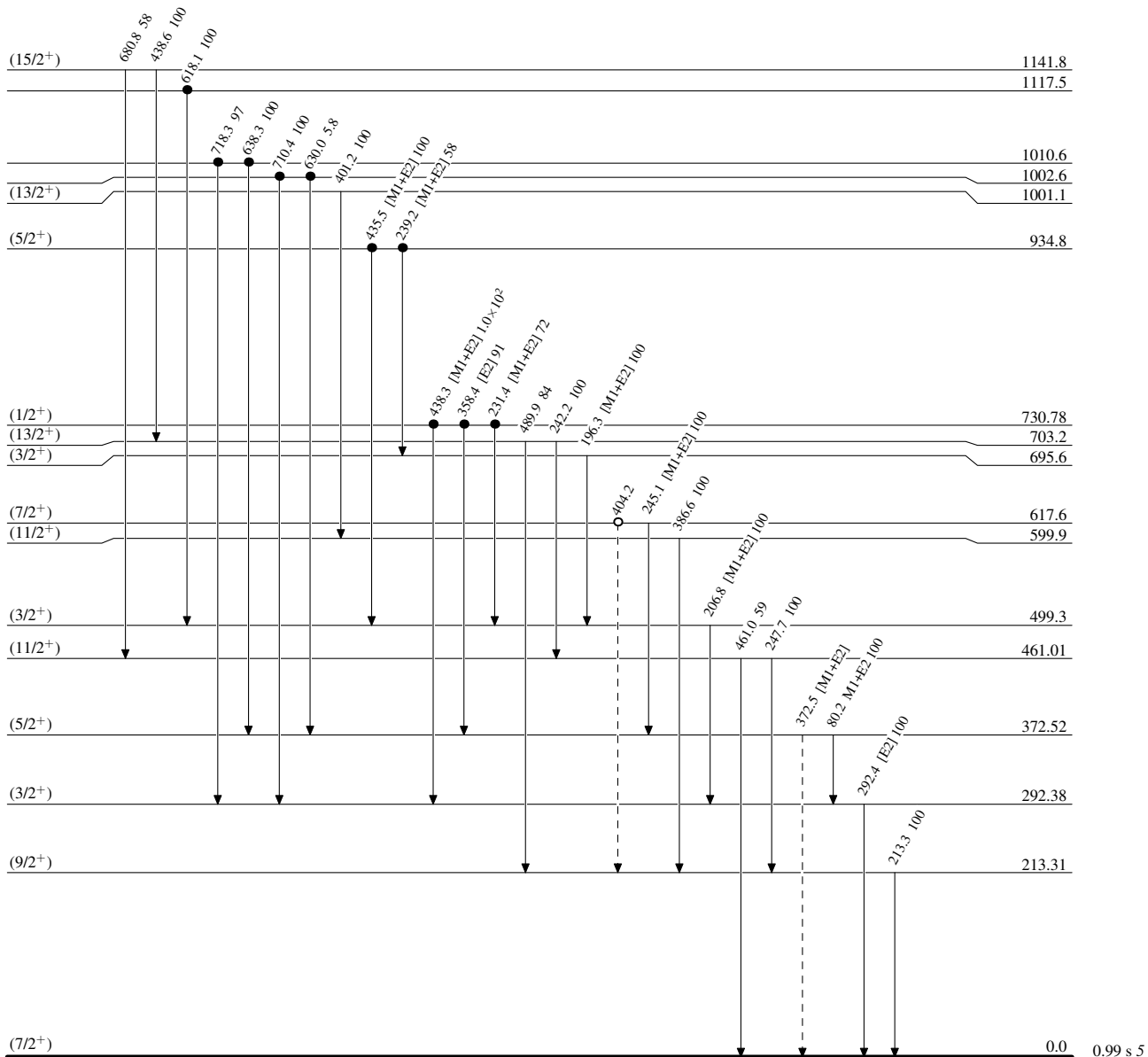
Legend

**Adopted Levels, Gammas**

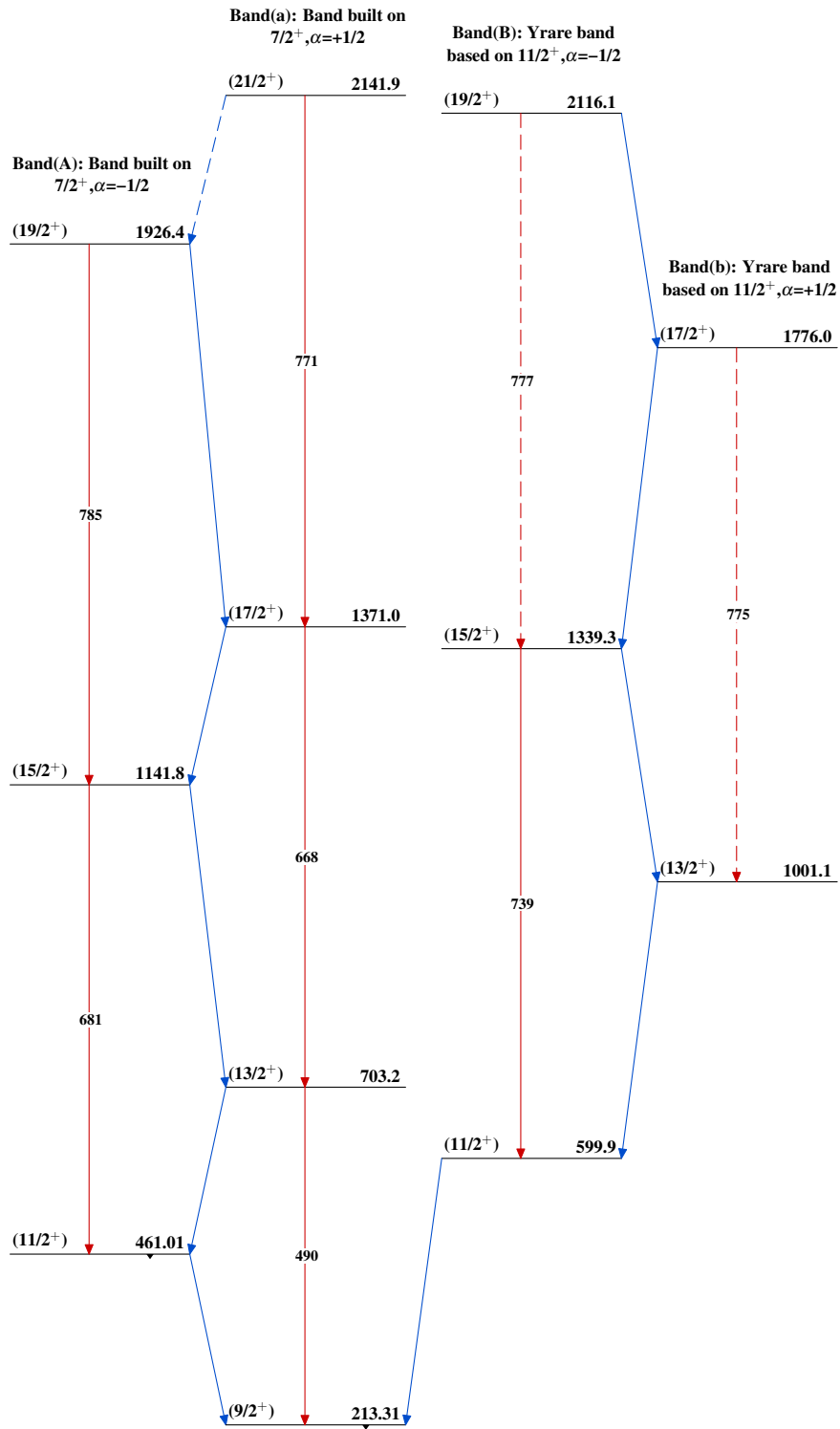
Level Scheme (continued)

Intensities: Relative photon branching from each level

- ▶  $\gamma$  Decay (Uncertain)
- Coincidence
- Coincidence (Uncertain)



$^{115}_{45}\text{Rh}_{70}$

**Adopted Levels, Gammas** $^{115}_{45}\text{Rh}_{70}$