

**Adopted Levels, Gammas**

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	S. K. Basu, G. Mukherjee, A. A. Sonzogni		NDS 111,2555 (2010)	30-Jun-2009

$Q(\beta^-) = -1.04 \times 10^4$  syst; S(n)=11935 6; S(p)=4346 5;  $Q(\alpha) = -4150$  4 [2012Wa38](#)

Note: Current evaluation has used the following Q record -9865 syst 11935 6 4346 6 -4151 5 [2009AuZZ](#).

$\Delta Q(\beta^-) = 401$ , S(2n)=26669 syst 401, S(2p)=7329 6,  $Q(\epsilon p) = 5325$  6 ([2009AuZZ](#)).

$\alpha$ : [Additional information 1](#).

<sup>95</sup>Pd Levels

Cross Reference (XREF) Flags

A	<sup>95</sup> Ag $\epsilon$ decay	D	<sup>58</sup> Ni( <sup>40</sup> Ca,2pn $\gamma$ ): set 2
B	<sup>95</sup> Pd IT decay	E	<sup>40</sup> Ca( <sup>58</sup> Ni,X $\gamma$ )
C	<sup>58</sup> Ni( <sup>40</sup> Ca,2pn $\gamma$ ): set 1		

E(level) <sup>†</sup>	J $\pi$ <sup>‡</sup>	T <sub>1/2</sub>	XREF	Comments
0.0 <sup>#</sup>	(9/2 <sup>+</sup> )	5 s 3	AB DE	$\% \epsilon + \% \beta^+ = 100$ T <sub>1/2</sub> : average of the limit of $1.7s \leq T_{1/2} \leq 7.5s$ from $\beta\gamma(t)$ ( <a href="#">1997Sc30</a> ). J $\pi$ : from the systematics of N=49 nuclei and the fact that the neighboring even-even nuclei are spherical (close to N=50) and the odd neutron (or neutron hole) occupies the g <sub>9/2</sub> orbital.
1261.80 8	(11/2 <sup>+</sup> )		AB D	
1351.12 <sup>#</sup> 9	(13/2 <sup>+</sup> )		AB D	
1686.00 8	(7/2 <sup>+</sup> ,9/2 <sup>+</sup> ,11/2 <sup>+</sup> )		A	
1800.78 10	(7/2 <sup>+</sup> ,9/2 <sup>+</sup> ,11/2 <sup>+</sup> )		A	
1875.13 <sup>@</sup> 14	(21/2 <sup>+</sup> )	13.3 s 3	BCDE	$\%IT = 11$ 3; $\% \beta^+ p = 0.93$ 15; $\% \epsilon + \% \beta^+ = 89$ 3 T <sub>1/2</sub> : from the analysis of decay-curves for the strongest <sup>95</sup> Rh $\gamma$ 's ( <a href="#">1982Ku15</a> ). Others: 14.2 s 24 from $\beta p(t)$ ( <a href="#">1982No06</a> ). J $\pi$ : strong feeding of the (21/2 <sup>+</sup> ) state in <sup>95</sup> Rh with a log <i>ft</i> $\approx$ 5.5. $\%IT$ from I(524)=10.6 3, and I(1351)=100 3 in <a href="#">1982Ku15</a> . The intensity of the 1351 $\gamma$ 's has a $10.6 \times 1.0393 = 11.0$ 3 component due to the <sup>95</sup> Pd $\gamma$ , and the I(1351) in <sup>95</sup> Rh following $\epsilon + \beta^+$ decay is equal to 89 3.
1878.5 <sup>#</sup> 8	(17/2 <sup>+</sup> )		D	
1973.02 21	(15/2 <sup>+</sup> )		A D	
2024.93 9			A	
2201.5 7	(17/2 <sup>-</sup> )		D	
2266.80 22			A	
2283.50 15			A	
2405.94 16			A	
2488.06 15			A	
2565.78 23	(23/2 <sup>+</sup> )		CDE	
2570.78 15	(7/2 <sup>+</sup> ,9/2 <sup>+</sup> ,11/2 <sup>+</sup> )		A D	
2677.5 <sup>&amp;</sup> 9	(19/2 <sup>-</sup> )		D	
2696.1 <sup>@</sup> 3	(25/2 <sup>+</sup> )		CDE	
2700.67 15			A	
2733.5 3			A	
2940.18 15			A	
3408.9 3			A	
3606.7 10	(21/2 <sup>-</sup> )		D	
3903.9 <sup>&amp;</sup> 7	(23/2 <sup>-</sup> )		D	
4070.5 <sup>@</sup> 3	(29/2 <sup>+</sup> )		CDE	
4076.2 7	(27/2 <sup>+</sup> )		D	

Continued on next page (footnotes at end of table)

**Adopted Levels, Gammas (continued)** $^{95}\text{Pd}$  Levels (continued)

<u>E(level)<sup>†</sup></u>	<u>J<sup>π</sup><sup>‡</sup></u>	<u>T<sub>1/2</sub></u>	<u>XREF</u>	<u>Comments</u>
4330.9 <sup>a</sup> 4	(31/2 <sup>-</sup> )	12 ns 3	CDE	T <sub>1/2</sub> : from $\gamma(t)$ in $^{40}\text{Ca}(^{58}\text{Ni}, X\gamma)$ (1996Go15).
4361.9 <sup>&amp;</sup> 7	(27/2 <sup>-</sup> )		D	
4395.4 12	(25/2 <sup>-</sup> )		D	
4750.5 <sup>@</sup> 4	(33/2 <sup>+</sup> )		CDE	
4893.6 16	(29/2 <sup>-</sup> )		D	
4960.1 11	(31/2 <sup>+</sup> )		D	
6418.8 <sup>a</sup> 4	(33/2 <sup>-</sup> , 35/2 <sup>-</sup> )		C E	
7497.5 4	(35/2 <sup>+</sup> , 37/2 <sup>+</sup> )		C E	
8529.7 <sup>a</sup> 5	(35/2 <sup>-</sup> to 39/2)		C E	
9015.4 5	(41/2 <sup>+</sup> )		C E	
9480.5? 6			C	
9594.8 <sup>a</sup> 11			C	
10036.5? 6			C	
10418.5 8			C	

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

<sup>‡</sup> From the tentative multipolarity of  $\gamma$ -rays, systematics and shell model calculations as given in 2003Ma24 and 1994Ar33, unless mentioned otherwise.

# Band(A): Yrast structure.

@ Band(B): Structure based on 21/2<sup>+</sup> isomer.

& Band(C): Sequence based on (19/2<sup>-</sup>).

<sup>a</sup> Band(D): Sequence based on (31/2<sup>-</sup>).

Adopted Levels, Gammas (continued)

E <sub>i</sub> (level)	J <sub>i</sub> <sup>π</sup>	γ( <sup>95</sup> Pd)		γ( <sup>95</sup> Pd)				Comments
		E <sub>γ</sub> <sup>†‡</sup>	I <sub>γ</sub>	E <sub>f</sub>	J <sub>f</sub> <sup>π</sup>	Mult.	α	
1261.80	(11/2 <sup>+</sup> )	1261.8 1	100 <sup>†</sup>	0.0	(9/2 <sup>+</sup> )			
1351.12	(13/2 <sup>+</sup> )	89.3 7	1.3 <sup>†</sup> 7	1261.80	(11/2 <sup>+</sup> )	[M1]		Mult.: deduced from the level scheme of <a href="#">2003Ma24</a> .
		1351.1 1	100 <sup>†</sup> 6	0.0	(9/2 <sup>+</sup> )			
1686.00	(7/2 <sup>+</sup> ,9/2 <sup>+</sup> ,11/2 <sup>+</sup> )	1686.0 1	100	0.0	(9/2 <sup>+</sup> )			
1800.78	(7/2 <sup>+</sup> ,9/2 <sup>+</sup> ,11/2 <sup>+</sup> )	539.0 1	100 8	1261.80	(11/2 <sup>+</sup> )			
		1800.6 2	96 9	0.0	(9/2 <sup>+</sup> )			
1875.13	(21/2 <sup>+</sup> )	524.0 1	100	1351.12	(13/2 <sup>+</sup> )	(E4)	0.0395	α(K)=0.0321 5; α(L)=0.00611 9; α(M)=0.001183 17; α(N)=0.000190 3; α(N+..)=0.000190 3 B(E4)(W.u.)=8.40 19 E <sub>γ</sub> ,Mult.: from IT decay.
1878.5	(17/2 <sup>+</sup> )	527.5	100	1351.12	(13/2 <sup>+</sup> )			
1973.02	(15/2 <sup>+</sup> )	621.9 2	100 <sup>†</sup>	1351.12	(13/2 <sup>+</sup> )			
2024.93		763.1 2	7.0 14	1261.80	(11/2 <sup>+</sup> )			
		2024.9 1	100 7	0.0	(9/2 <sup>+</sup> )			
2201.5	(17/2 <sup>-</sup> )	228.5		1973.02	(15/2 <sup>+</sup> )			
		323.1		1878.5	(17/2 <sup>+</sup> )			
2266.80		580.8 2	100	1686.00	(7/2 <sup>+</sup> ,9/2 <sup>+</sup> ,11/2 <sup>+</sup> )			
2283.50		597.5 2	26 7	1686.00	(7/2 <sup>+</sup> ,9/2 <sup>+</sup> ,11/2 <sup>+</sup> )			
		1021.7 2	100 9	1261.80	(11/2 <sup>+</sup> )			
2405.94		605.1 <sup>#</sup> 2	100 16	1800.78	(7/2 <sup>+</sup> ,9/2 <sup>+</sup> ,11/2 <sup>+</sup> )			
		720.0 2	61 13	1686.00	(7/2 <sup>+</sup> ,9/2 <sup>+</sup> ,11/2 <sup>+</sup> )			
2488.06		802.1 2	100 14	1686.00	(7/2 <sup>+</sup> ,9/2 <sup>+</sup> ,11/2 <sup>+</sup> )			
		1226.2 2	60 12	1261.80	(11/2 <sup>+</sup> )			
2565.78	(23/2 <sup>+</sup> )	690.6 2	100 <sup>‡</sup>	1875.13	(21/2 <sup>+</sup> )			
2570.78	(7/2 <sup>+</sup> ,9/2 <sup>+</sup> ,11/2 <sup>+</sup> )	1219.6 2	100 <sup>†</sup> 5	1351.12	(13/2 <sup>+</sup> )			
		2570.8 2	16.0 <sup>†</sup> 19	0.0	(9/2 <sup>+</sup> )			
2677.5	(19/2 <sup>-</sup> )	476.1	100	2201.5	(17/2 <sup>-</sup> )			
2696.1	(25/2 <sup>+</sup> )	130.3 2	100 <sup>‡</sup> 24	2565.78	(23/2 <sup>+</sup> )			
		821.3 5	15 <sup>‡</sup> 5	1875.13	(21/2 <sup>+</sup> )			
2700.67		675.7 2	100 8	2024.93				
		1014.7 2	76 9	1686.00	(7/2 <sup>+</sup> ,9/2 <sup>+</sup> ,11/2 <sup>+</sup> )			
2733.5		760.5 <sup>#</sup>		1973.02	(15/2 <sup>+</sup> )			
		1471.7 3	100 19	1261.80	(11/2 <sup>+</sup> )			
2940.18		1254.1 2	58 9	1686.00	(7/2 <sup>+</sup> ,9/2 <sup>+</sup> ,11/2 <sup>+</sup> )			
		2940.2 2	100 12	0.0	(9/2 <sup>+</sup> )			
3408.9		1384.0 3	100	2024.93				
3606.7	(21/2 <sup>-</sup> )	929.3	100	2677.5	(19/2 <sup>-</sup> )			
3903.9	(23/2 <sup>-</sup> )	297.2		3606.7	(21/2 <sup>-</sup> )			

Adopted Levels, Gammas (continued)

γ(<sup>95</sup>Pd) (continued)

<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></u>	<u>E<sub>f</sub></u>	<u>J<sub>f</sub><sup>π</sup></u>	<u>Mult.</u>	<u>α</u>	<u>Comments</u>
3903.9	(23/2 <sup>-</sup> )	1226.5 2028.8		2677.5 (19/2 <sup>-</sup> ) 1875.13 (21/2 <sup>+</sup> )				
4070.5	(29/2 <sup>+</sup> )	1374.3 2	100 <sup>‡</sup>	2696.1 (25/2 <sup>+</sup> )				
4076.2	(27/2 <sup>+</sup> )	1380.1 1510.2		2696.1 (25/2 <sup>+</sup> ) 2565.78 (23/2 <sup>+</sup> )				
4330.9	(31/2 <sup>-</sup> )	260.4 2	100 <sup>‡</sup>	4070.5 (29/2 <sup>+</sup> )		[E1]	0.01017	α(K)=0.00890 13; α(L)=0.001043 15; α(M)=0.000195 3; α(N)=3.26×10 <sup>-5</sup> 5; α(N+..)=3.26×10 <sup>-5</sup> 5 B(E1)(W.u.)=1.5×10 <sup>-6</sup> 4
		1635.4		2696.1 (25/2 <sup>+</sup> )		[E3]	0.000710 10	α(K)=0.000567 8; α(L)=6.70×10 <sup>-5</sup> 10; α(M)=1.257×10 <sup>-5</sup> 18 α(N+..)=6.35×10 <sup>-5</sup> 9 E <sub>γ</sub> : observed only by <sup>58</sup> Ni( <sup>40</sup> Ca,2pnγ): set 2, with a much smaller intensity than the 260γ.
4361.9	(27/2 <sup>-</sup> )	285.6 458.2 1665.7		4076.2 (27/2 <sup>+</sup> ) 3903.9 (23/2 <sup>-</sup> ) 2696.1 (25/2 <sup>+</sup> )				
4395.4	(25/2 <sup>-</sup> )	491.5	100	3903.9 (23/2 <sup>-</sup> )				
4750.5	(33/2 <sup>+</sup> )	680.0 2	100 <sup>‡</sup>	4070.5 (29/2 <sup>+</sup> )				
4893.6	(29/2 <sup>-</sup> )	498.2	100	4395.4 (25/2 <sup>-</sup> )				
4960.1	(31/2 <sup>+</sup> )	889.6	100	4070.5 (29/2 <sup>+</sup> )				
6418.8	(33/2 <sup>-</sup> ,35/2 <sup>-</sup> )	2087.9 2	100 <sup>‡</sup>	4330.9 (31/2 <sup>-</sup> )				
7497.5	(35/2 <sup>+</sup> ,37/2 <sup>+</sup> )	2747.0 2	100 <sup>‡</sup>	4750.5 (33/2 <sup>+</sup> )				
8529.7	(35/2 <sup>-</sup> to 39/2)	2110.9 2	100 <sup>‡</sup>	6418.8 (33/2 <sup>-</sup> ,35/2 <sup>-</sup> )				
9015.4	(41/2 <sup>+</sup> )	1517.9 2	100 <sup>‡</sup>	7497.5 (35/2 <sup>+</sup> ,37/2 <sup>+</sup> )				
9480.5?		465.1 3	100	9015.4 (41/2 <sup>+</sup> )				
9594.8?		1065 1	100	8529.7 (35/2 <sup>-</sup> to 39/2)				
10036.5?		556.0 3	100	9480.5?				
10418.5		382.0 5	100	10036.5?				

† From <sup>95</sup>Ag ε Decay.

‡ From <sup>58</sup>Ni(<sup>40</sup>Ca,2pnγ): set 1.

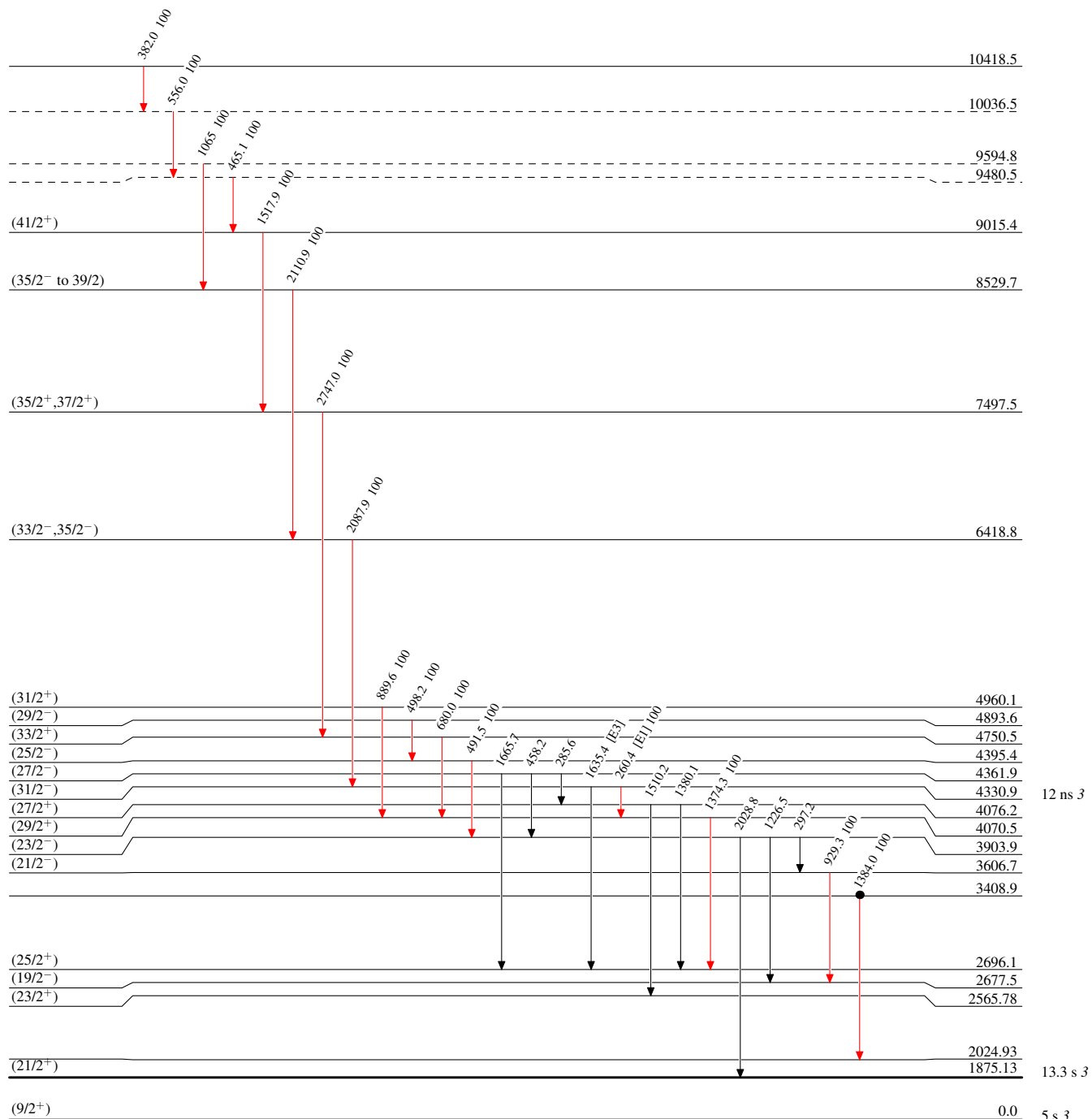
# Placement of transition in the level scheme is uncertain.

**Adopted Levels, Gammas**

Legend

**Level Scheme**  
Intensities: Type not specified

- I<sub>γ</sub> < 2% × I<sub>γ</sub><sup>max</sup>
- I<sub>γ</sub> < 10% × I<sub>γ</sub><sup>max</sup>
- I<sub>γ</sub> > 10% × I<sub>γ</sub><sup>max</sup>
- Coincidence



<sup>95</sup>Pd<sub>49</sub>

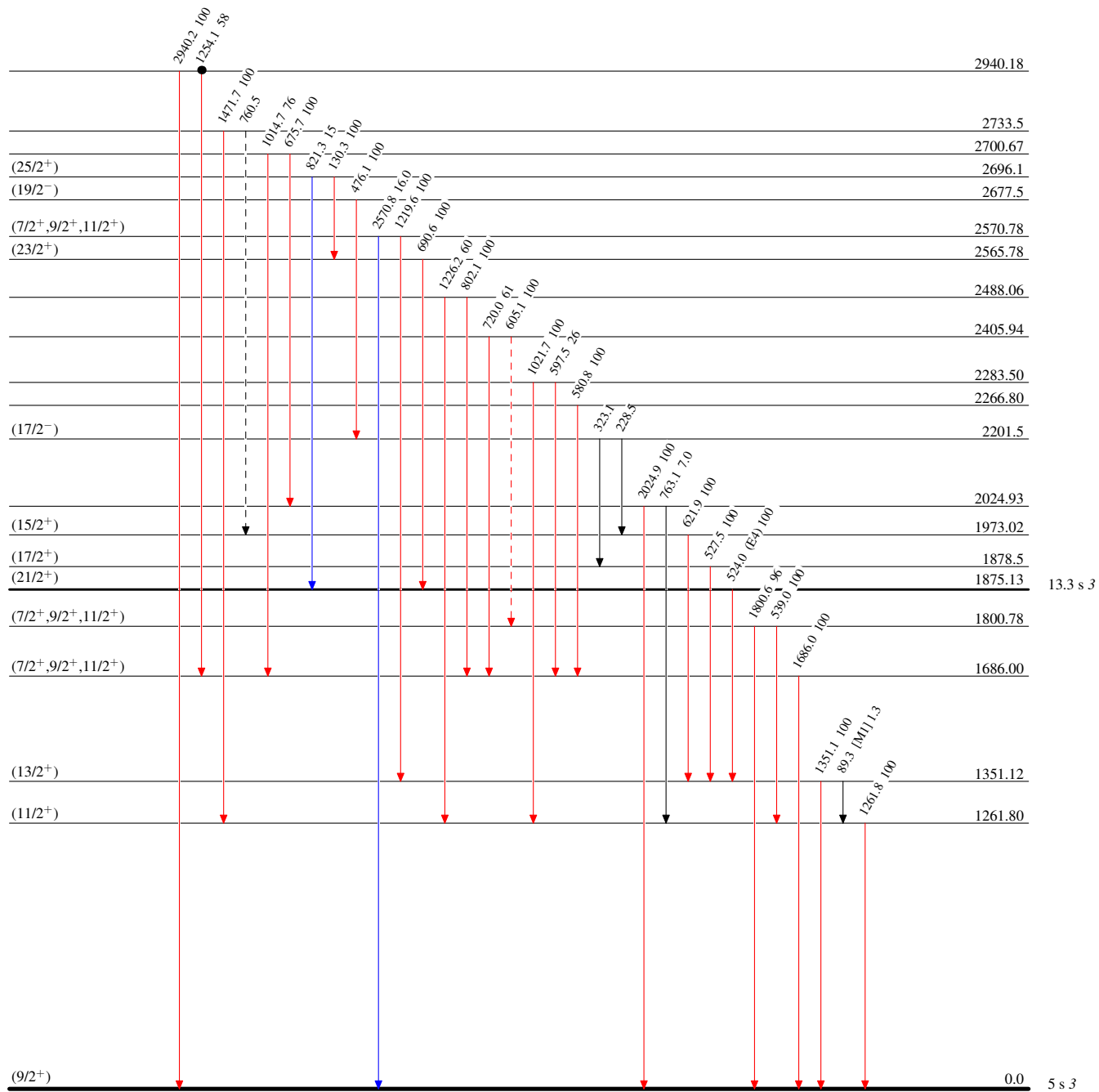
**Adopted Levels, Gammas**

**Level Scheme (continued)**

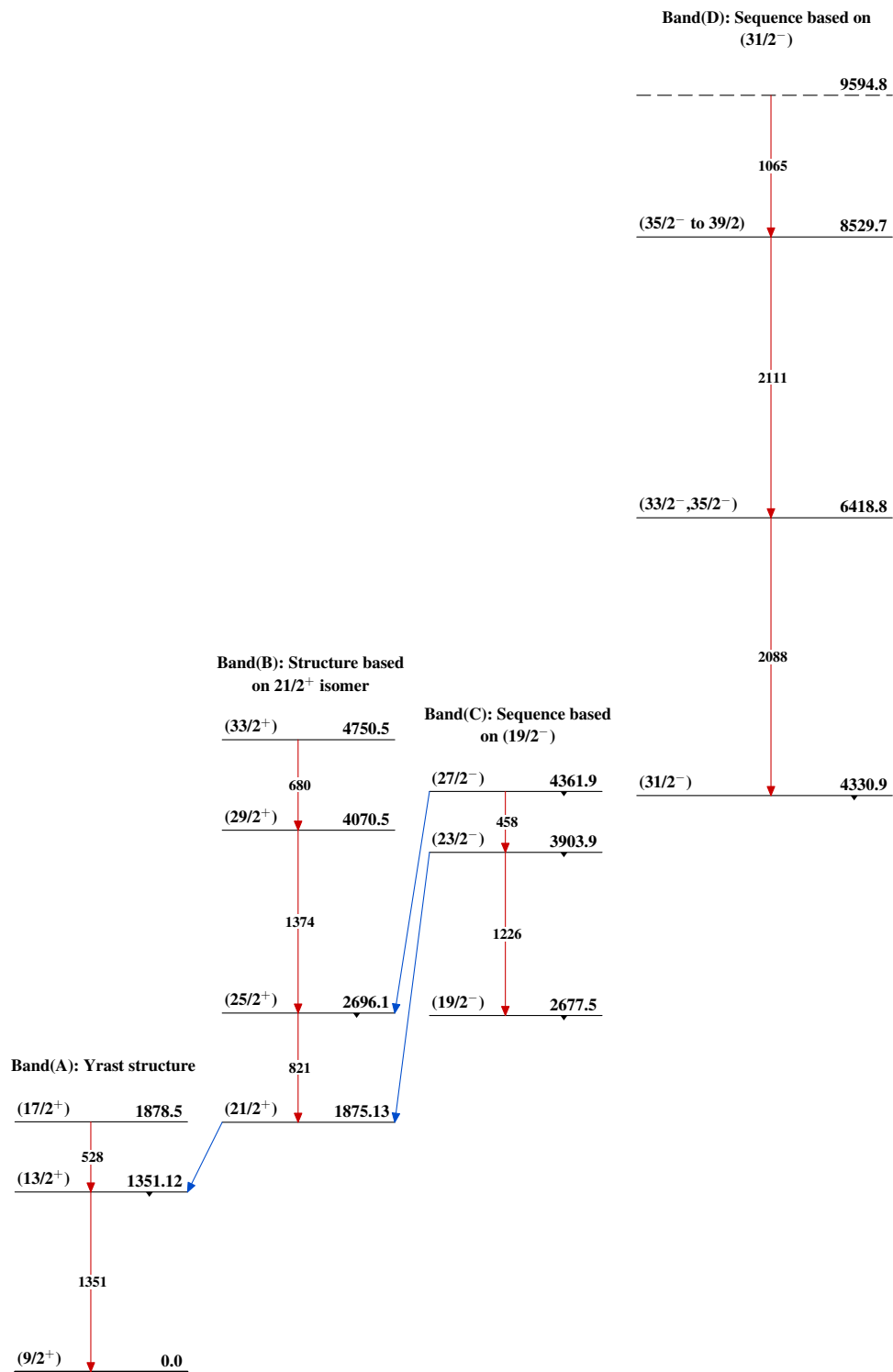
Intensities: Type not specified

**Legend**

- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$
- - - →  $\gamma$  Decay (Uncertain)
- Coincidence



<sup>95</sup>Pd<sub>49</sub>

Adopted Levels, Gammas $^{95}_{46}\text{Pd}_{49}$