

$^{110}\text{Pd}(^{18}\text{O},5n\gamma)$  1998Sc23,2002Ra34

Type	Author	History Citation	Literature Cutoff Date
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Also includes  $^{110}\text{Pd}(^{16}\text{O},3n\gamma)$  in 1987Ha03.

1998Sc23: E=86 MeV  $^{18}\text{O}$  beam was produced from the FN tandem facility in Riso. Target was 1 mg/cm<sup>2</sup> foil of 97.7% enriched  $^{110}\text{Pd}$  on 3 mg/cm<sup>2</sup> Tantalum backing.  $\gamma$  rays were detected with the Compton-suppressed NORDBALL spectrometer with a 60-segment BaF2-calorimeter. Measured  $E\gamma$ ,  $I\gamma$ ,  $\gamma\gamma(\text{DCO})$ ,  $\gamma\gamma$ -coin. Deduced levels, J,  $\pi$ , band structures. No data of  $I\gamma$  and DCO are given.

2002Ra34,2000Ra34: E=75  $^{18}\text{O}$  beam was produced from the XTU tandem accelerator at the Legnaro National Laboratory. Target was 10 mg/cm<sup>2</sup> enriched  $^{110}\text{Pd}$ .  $\gamma$  rays were detected with the GASP spectrometer consisting of HPGe and BGO detectors. Measured  $E\gamma$ ,  $I\gamma$ ,  $\gamma\gamma$ -coin,  $\gamma\gamma(\text{DCO})$ . Deduced levels, J,  $\pi$ , band structures,  $\gamma$ -ray multipolarities. Comparisons with theoretical calculations. Data in 2000Ra34 is superseded by those in 2002Ra34.

1987Ha03: E=65 MeV  $^{16}\text{O}$  beam was produced from the Tandem van de Graaff facility in Riso.  $\gamma$  rays were detected with four Compton-suppressed Ge detectors. Measured  $E\gamma$ ,  $I\gamma$ ,  $\gamma\gamma$ -coin. Authors proposed high spin states using 891 $\gamma$ , 1057 $\gamma$ , 807 $\gamma$ , 1080 $\gamma$ . However these  $\gamma$  rays were included in the more detailed levels proposed by 1998Sc23.

Others:

2002ChZU:  $^{110}\text{Pd}(^{18}\text{O},5n\gamma)$  E=86 MeV at LBNL. Measured  $E\gamma$ ,  $I\gamma$ ,  $\gamma\gamma$ -coin. Deduced rotational band features. No data are available.

1998NaZY: E=86 MeV. Measured  $E\gamma$ ,  $I\gamma$ . No data are available.

 $^{123}\text{Xe}$  Levels

Level scheme is from 1998Sc23 constructed based on their  $\gamma\gamma$ -coin and  $\gamma\gamma(\text{DCO})$  data and known low-spin states from 1981Lu01 via  $^{122}\text{Te}(^3\text{He},2n\gamma)$  and  $^{123}\text{Te}(^3\text{He},3n\gamma)$ , except for the part based on unknown state at E(level)=x, which is from 2002Ra34 only. Band assignments are from 1998Sc23, unless otherwise noted.

E(level) <sup>†</sup>	J $\pi$ <sup>#</sup>	Comments
0&	1/2 <sup>(+)</sup> @	
97.9 <sup>a</sup> 9	3/2 <sup>(+)</sup> @	
181.7 13	5/2 <sup>(+)</sup> @	
186.4 14	7/2 <sup>(-)</sup> @	E(level): this level is taken by 2002Ra34 from 1981Lu01, which is adopted in Adopted Levels.
206.6 <sup>c</sup> 15	(9/2 <sup>-</sup> )	
253.3 <sup>j</sup> 14	(7/2 <sup>+</sup> )	
264.2 <sup>d</sup> 15	(11/2 <sup>-</sup> )	
307.1& 9	(5/2 <sup>+</sup> )	
438.1 <sup>a</sup> 10	(7/2 <sup>+</sup> )	
519.4 <sup>i</sup> 14	(9/2 <sup>+</sup> )	
662.9 <sup>c</sup> 15	(13/2 <sup>-</sup> )	
720.2 <sup>d</sup> 15	(15/2 <sup>-</sup> )	
768.9 <sup>j</sup> 15	(11/2 <sup>+</sup> )	
877.8 <sup>e</sup> 15	(13/2 <sup>-</sup> )	
935.4 <sup>a</sup> 13	(11/2 <sup>+</sup> )	
1083.1 <sup>i</sup> 15	(13/2 <sup>+</sup> )	
1270.5 <sup>c</sup> 15	(15/2 <sup>-</sup> )	J $\pi$ : 1998Sc23 give 15/2 <sup>-</sup> , but the band assignment suggests 17/2 <sup>-</sup> .
1295.2 <sup>f</sup> 15	(17/2 <sup>-</sup> )	
1337.1 <sup>d</sup> 15	(19/2 <sup>-</sup> )	
1398.8 <sup>j</sup> 16	(15/2 <sup>+</sup> )	
1523.0 <sup>e</sup> 16	(17/2 <sup>-</sup> )	
1554.6 <sup>a</sup> 15	(15/2 <sup>+</sup> )	

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$^{110}\text{Pd}(^{18}\text{O},5n\gamma)$  [1998Sc23,2002Ra34](#) (continued) $^{123}\text{Xe}$  Levels (continued)

E(level) <sup>†</sup>	J <sup>π</sup> #
1759.1 <sup>i</sup> 16	(17/2 <sup>+</sup> )
1954.1 <sup>c</sup> 16	
2064.7 <sup>f</sup> 16	(21/2 <sup>-</sup> )
2090.6 <sup>d</sup> 15	(23/2 <sup>-</sup> )
2113.8 <sup>j</sup> 16	(19/2 <sup>+</sup> )
2231.8 <sup>a</sup> 15	(19/2 <sup>+</sup> )
2286.0 <sup>e</sup> 16	
2423.6 16	(19/2 <sup>+</sup> )
2498.8 <sup>i</sup> 16	(21/2 <sup>+</sup> )
2690.6 16	(21/2 <sup>+</sup> )
2770.8 <sup>c</sup> 16	
2823.7 <sup>k</sup> 16	(23/2 <sup>+</sup> )
2883.7 <sup>j</sup> 15	(23/2 <sup>+</sup> )
2952.6 <sup>f</sup> 17	
2966.0 <sup>a</sup> 15	(23/2 <sup>+</sup> )
2966.6 <sup>d</sup> 18	(27/2 <sup>-</sup> )
3154.8 <sup>e</sup> 17	
3170.7 <sup>g</sup> 15	(25/2 <sup>+</sup> )
3211.5 <sup>i</sup> 16	(25/2 <sup>+</sup> )
3350.7 <sup>h</sup> 15	(27/2 <sup>+</sup> )
3480.4 <sup>k</sup> 18	(27/2 <sup>+</sup> )
3653.6 18	
3821.6 <sup>g</sup> 17	(29/2 <sup>+</sup> )
3854.7 <sup>c</sup> 17	
3906.7 <sup>i</sup> 17	(29/2 <sup>+</sup> )
3909.6 <sup>b</sup> 16	(27/2 <sup>-</sup> )
3952.4 <sup>d</sup> 20	(31/2 <sup>-</sup> )
3957.6 <sup>f</sup> 19	
4105.8 <sup>e</sup> 20	
4156.6 <sup>h</sup> 17	(31/2 <sup>+</sup> )
4215.1 <sup>k</sup> 19	(31/2 <sup>+</sup> )
4355.8 20	
4611.1 <sup>b</sup> 17	(31/2 <sup>-</sup> )
4629.0 <sup>g</sup> 17	(33/2 <sup>+</sup> )
5011.6 <sup>d</sup> 22	(35/2 <sup>-</sup> )
5037.9 <sup>h</sup> 18	(35/2 <sup>+</sup> )
5044.6 <sup>f</sup> 22	
5067.8 <sup>k</sup> 20	(35/2 <sup>+</sup> )
5214.0 21	
5330.8 <sup>e</sup> 22	
5340.1 <sup>b</sup> 20	(35/2 <sup>-</sup> )
5521.1 <sup>g</sup> 18	(37/2 <sup>+</sup> )
5917.0 <sup>h</sup> 19	(39/2 <sup>+</sup> )
6035.5 <sup>k</sup> 20	(39/2 <sup>+</sup> )
6047.6 <sup>d</sup> 24	(39/2 <sup>-</sup> )
6136.1 <sup>b</sup> 23	(39/2 <sup>-</sup> )
6466.8 22	

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$^{110}\text{Pd}(^{18}\text{O},5n\gamma)$  **1998Sc23,2002Ra34** (continued) $^{123}\text{Xe}$  Levels (continued)

E(level) <sup>†</sup>	J <sup>π</sup> #	Comments
6478.5 <sup>g</sup> 19	(41/2 <sup>+</sup> )	
7069.1 <sup>b</sup> 25	(43/2 <sup>-</sup> )	
7086.3 <sup>h</sup> 19	(43/2 <sup>+</sup> )	
7111 <sup>d</sup> 3	(43/2 <sup>-</sup> )	
7116.5 <sup>k</sup> 22	(43/2 <sup>+</sup> )	
7483.8 <sup>g</sup> 20	(45/2 <sup>+</sup> )	
7992.4 <sup>h</sup> 21	(47/2 <sup>+</sup> )	
8078 <sup>b</sup> 3	(47/2 <sup>-</sup> )	
8222 <sup>d</sup> 3	(47/2 <sup>-</sup> )	
8300.6 <sup>k</sup> 24	(47/2 <sup>+</sup> )	
8455.6 <sup>g</sup> 21	(49/2 <sup>+</sup> )	
9261 <sup>b</sup> 3	(51/2 <sup>-</sup> )	
9420.6 <sup>g</sup> 23	(53/2 <sup>+</sup> )	
9428 <sup>d</sup> 3	(51/2 <sup>-</sup> )	
x <sup>‡</sup> l	(31/2 <sup>-</sup> )	Additional information 1.
152.00+x <sup>m</sup> 20	(33/2 <sup>-</sup> )	
351.3+x <sup>l</sup> 5	(35/2 <sup>-</sup> )	
577.4+x <sup>m</sup> 5	(37/2 <sup>-</sup> )	
823.1+x <sup>l</sup> 6	(39/2 <sup>-</sup> )	
1121.3+x <sup>m</sup> 6	(41/2 <sup>-</sup> )	
1478.7+x <sup>l</sup> 6	(43/2 <sup>-</sup> )	
1954.5+x <sup>m</sup> 6	(45/2 <sup>-</sup> )	
2443.8+x <sup>l</sup> 6	(47/2 <sup>-</sup> )	

<sup>†</sup> From a least-squares fit to  $\gamma$ -ray energies, assuming  $\Delta E\gamma=1$  keV where not available.

<sup>‡</sup> Decays to 2966.5, 27/2<sup>-</sup> and 3350.9, 27/2<sup>+</sup> levels through unknown transitions (2002Ra34).

# From 1998Sc23 or 2002Ra34 based on  $\gamma\gamma$ (DCO), band assignments, and known assignments of low-lying states, unless otherwise noted. 1998Sc23 use  $\gamma\gamma$ (DCO) information for their spin-parity assignments, but no data are given.

@ From Adopted Levels.

& Band(A): (1/2)<sup>+</sup> g.s. Band.

<sup>a</sup> Band(a):  $\Delta J=2$  band based on 3/2<sup>(+)</sup>.

<sup>b</sup> Band(B):  $\Delta J=2$  band based on (27/2<sup>-</sup>).

<sup>c</sup> Band(C):  $\Delta J=2$  band based on (9/2<sup>-</sup>).

<sup>d</sup> Band(D): Yrast band, based on (11/2<sup>-</sup>).

<sup>e</sup> Band(E):  $\Delta J=2$  band based on (13/2<sup>-</sup>).

<sup>f</sup> Band(F):  $\Delta J=2$  band based on (17/2<sup>-</sup>).

<sup>g</sup> Band(G): Band based on (29/2<sup>+</sup>).

<sup>h</sup> Band(g): Band based on (25/2<sup>+</sup>).

<sup>i</sup> Band(H):  $\Delta J=2$  band based on (9/2<sup>+</sup>).

<sup>j</sup> Band(I):  $\Delta J=2$  band based on (7/2<sup>+</sup>).

<sup>k</sup> Band(J):  $\Delta J=2$  band based on (23/2<sup>+</sup>).

<sup>l</sup> Band(K): Five-quasiparticle band based on (31/2<sup>-</sup>),  $\alpha=-1/2$ . Band from 2000Ra34 with updated spins and energies from 2002Ra34.

<sup>m</sup> Band(k): Five-quasiparticle band based on (33/2<sup>-</sup>),  $\alpha=+1/2$ . Band from 2000Ra34 with updated spins and energies from 2002Ra34.

$^{110}\text{Pd}(^{18}\text{O},5n\gamma)$  **1998Sc23,2002Ra34** (continued)

$\gamma(^{123}\text{Xe})$							
$E_\gamma$ <sup>†</sup>	$I_\gamma$ <sup>‡</sup>	$E_i(\text{level})$	$J_i^\pi$	$E_f$	$J_f^\pi$	Mult. <sup>a</sup>	Comments
(4.6)		186.4	$7/2^-$	181.7	$5/2^+$	[E1]	$E_\gamma$ : From Adopted Gammas.
20@		206.6	$(9/2^-)$	186.4	$7/2^-$		
58@		264.2	$(11/2^-)$	206.6	$(9/2^-)$		
72@		253.3	$(7/2^+)$	181.7	$5/2^+$		
84@		181.7	$5/2^+$	97.9	$3/2^+$		
98		97.9	$3/2^+$	0	$1/2^+$		
131@		438.1	$(7/2^+)$	307.1	$(5/2^+)$		
139		3350.7	$(27/2^+)$	3211.5	$(25/2^+)$		
152.0 <sup>‡</sup> 2	4.4 4	152.00+x	$(33/2^-)$	x	$(31/2^-)$	D	Mult.: DCO=0.4 2 (2002Ra34).
180#		3350.7	$(27/2^+)$	3170.7	$(25/2^+)$		
199.3 <sup>‡</sup> 4	2.8 2	351.3+x	$(35/2^-)$	152.00+x	$(33/2^-)$	(D) <sup>b</sup>	
205@		3170.7	$(25/2^+)$	2966.0	$(23/2^+)$		
226.1 <sup>‡</sup> 2	3.3 3	577.4+x	$(37/2^-)$	351.3+x	$(35/2^-)$	(D) <sup>b</sup>	
245.5 <sup>‡</sup> 4	2.8 2	823.1+x	$(39/2^-)$	577.4+x	$(37/2^-)$	(D) <sup>b</sup>	
249@		768.9	$(11/2^+)$	519.4	$(9/2^+)$		
255@		519.4	$(9/2^+)$	264.2	$(11/2^-)$		
266@		519.4	$(9/2^+)$	253.3	$(7/2^+)$		
267@		2690.6	$(21/2^+)$	2423.6	$(19/2^+)$		
275@		2966.0	$(23/2^+)$	2690.6	$(21/2^+)$		
287@		3170.7	$(25/2^+)$	2883.7	$(23/2^+)$		
298.2 <sup>‡</sup> 2	3.8 3	1121.3+x	$(41/2^-)$	823.1+x	$(39/2^-)$	D	Mult.: DCO=0.6 2 (2002Ra34).
307@		307.1	$(5/2^+)$	0	$1/2^+$		
314@		1083.1	$(13/2^+)$	768.9	$(11/2^+)$		
333@		519.4	$(9/2^+)$	186.4	$7/2^-$		
335@		4156.6	$(31/2^+)$	3821.6	$(29/2^+)$		
340		438.1	$(7/2^+)$	97.9	$3/2^+$		
347@		3170.7	$(25/2^+)$	2823.7	$(23/2^+)$		
357.4 <sup>‡</sup> 1	13.1 9	1478.7+x	$(43/2^-)$	1121.3+x	$(41/2^-)$	D	Mult.: DCO=0.5 2 (2002Ra34).
363@		1083.1	$(13/2^+)$	720.2	$(15/2^-)$		
385		3350.7	$(27/2^+)$	2966.0	$(23/2^+)$		
393@		1270.5	$(15/2^-)$	877.8	$(13/2^-)$		
396@		5917.0	$(39/2^+)$	5521.1	$(37/2^+)$		
398		7483.8	$(45/2^+)$	7086.3	$(43/2^+)$		
399		662.9	$(13/2^-)$	264.2	$(11/2^-)$		
409@		5037.9	$(35/2^+)$	4629.0	$(33/2^+)$		
431@		1954.1		1523.0	$(17/2^-)$		$E_\gamma$ : from level-energy difference. $E_\gamma=418$ reported by 1998Sc23 seems to be a misprint.
456		662.9	$(13/2^-)$	206.6	$(9/2^-)$		
456#		720.2	$(15/2^-)$	264.2	$(11/2^-)$		
463		8455.6	$(49/2^+)$	7992.4	$(47/2^+)$		
467		3350.7	$(27/2^+)$	2883.7	$(23/2^+)$		
471#		3821.6	$(29/2^+)$	3350.7	$(27/2^+)$		
471.8 <sup>‡</sup> 4	0.20& 5	823.1+x	$(39/2^-)$	351.3+x	$(35/2^-)$	(Q) <sup>b</sup>	
473		4629.0	$(33/2^+)$	4156.6	$(31/2^+)$		
475.7 <sup>‡</sup> 4	2.6 3	1954.5+x	$(45/2^-)$	1478.7+x	$(43/2^-)$	(D) <sup>b</sup>	
480		3170.7	$(25/2^+)$	2690.6	$(21/2^+)$		

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$^{110}\text{Pd}(^{18}\text{O},5n\gamma)$  1998Sc23,2002Ra34 (continued) $\gamma(^{123}\text{Xe})$  (continued)

$E_\gamma$ <sup>†</sup>	$I_\gamma$ <sup>‡</sup>	$E_i(\text{level})$	$J_i^\pi$	$E_f$	$J_f^\pi$	Mult. <sup>a</sup>	Comments
483		5521.1	(37/2 <sup>+</sup> )	5037.9	(35/2 <sup>+</sup> )		
489.3 <sup>‡</sup>	2	4.8	9	2443.8+x	(47/2 <sup>-</sup> )	1954.5+x	(45/2 <sup>-</sup> ) (D) Mult.: DCO=0.7 2 (2002Ra34).
497		935.4	(11/2 <sup>+</sup> )	438.1	(7/2 <sup>+</sup> )		
516		768.9	(11/2 <sup>+</sup> )	253.3	(7/2 <sup>+</sup> )		
542		2966.0	(23/2 <sup>+</sup> )	2423.6	(19/2 <sup>+</sup> )		
544.1 <sup>‡</sup>	4	0.7&	2	1121.3+x	(41/2 <sup>-</sup> )	577.4+x	(37/2 <sup>-</sup> ) (Q) <sup>b</sup>
550 <sup>@</sup>		1270.5	(15/2 <sup>-</sup> )	720.2	(15/2 <sup>-</sup> )		
562		6478.5	(41/2 <sup>+</sup> )	5917.0	(39/2 <sup>+</sup> )		
564		1083.1	(13/2 <sup>+</sup> )	519.4	(9/2 <sup>+</sup> )		
575 <sup>#</sup>		1295.2	(17/2 <sup>-</sup> )	720.2	(15/2 <sup>-</sup> )		
592		2823.7	(23/2 <sup>+</sup> )	2231.8	(19/2 <sup>+</sup> )		
608		1270.5	(15/2 <sup>-</sup> )	662.9	(13/2 <sup>-</sup> )		
608		7086.3	(43/2 <sup>+</sup> )	6478.5	(41/2 <sup>+</sup> )		
614		877.8	(13/2 <sup>-</sup> )	264.2	(11/2 <sup>-</sup> )		
617 <sup>#</sup>		1337.1	(19/2 <sup>-</sup> )	720.2	(15/2 <sup>-</sup> )		
617		1954.1		1337.1	(19/2 <sup>-</sup> )		
619		1554.6	(15/2 <sup>+</sup> )	935.4	(11/2 <sup>+</sup> )		
630		1398.8	(15/2 <sup>+</sup> )	768.9	(11/2 <sup>+</sup> )		
632 <sup>#</sup>		1295.2	(17/2 <sup>-</sup> )	662.9	(13/2 <sup>-</sup> )		
645		1523.0	(17/2 <sup>-</sup> )	877.8	(13/2 <sup>-</sup> )		
652		2883.7	(23/2 <sup>+</sup> )	2231.8	(19/2 <sup>+</sup> )		
655.2 <sup>‡</sup>	4	2.7&	5	1478.7+x	(43/2 <sup>-</sup> )	823.1+x	(39/2 <sup>-</sup> ) (Q) <sup>b</sup>
657		3480.4	(27/2 <sup>+</sup> )	2823.7	(23/2 <sup>+</sup> )		
671 <sup>@</sup>		877.8	(13/2 <sup>-</sup> )	206.6	(9/2 <sup>-</sup> )		
672 <sup>#</sup>		3170.7	(25/2 <sup>+</sup> )	2498.8	(21/2 <sup>+</sup> )		
676		1759.1	(17/2 <sup>+</sup> )	1083.1	(13/2 <sup>+</sup> )		
677		2231.8	(19/2 <sup>+</sup> )	1554.6	(15/2 <sup>+</sup> )		
684		1954.1		1270.5	(15/2 <sup>-</sup> )		
696		3906.7	(29/2 <sup>+</sup> )	3211.5	(25/2 <sup>+</sup> )		
701		4611.1	(31/2 <sup>-</sup> )	3909.6	(27/2 <sup>-</sup> )		
710		2823.7	(23/2 <sup>+</sup> )	2113.8	(19/2 <sup>+</sup> )		
713 <sup>#</sup>		3211.5	(25/2 <sup>+</sup> )	2498.8	(21/2 <sup>+</sup> )		
715		2113.8	(19/2 <sup>+</sup> )	1398.8	(15/2 <sup>+</sup> )		
728		2064.7	(21/2 <sup>-</sup> )	1337.1	(19/2 <sup>-</sup> )		
729		5340.1	(35/2 <sup>-</sup> )	4611.1	(31/2 <sup>-</sup> )		
734		2966.0	(23/2 <sup>+</sup> )	2231.8	(19/2 <sup>+</sup> )		
735		4215.1	(31/2 <sup>+</sup> )	3480.4	(27/2 <sup>+</sup> )		
740 <sup>#</sup>		2498.8	(21/2 <sup>+</sup> )	1759.1	(17/2 <sup>+</sup> )		
754 <sup>#</sup>		2090.6	(23/2 <sup>-</sup> )	1337.1	(19/2 <sup>-</sup> )		
763		2286.0		1523.0	(17/2 <sup>-</sup> )		
769 <sup>#</sup>		2064.7	(21/2 <sup>-</sup> )	1295.2	(17/2 <sup>-</sup> )		
770 <sup>@</sup>		2883.7	(23/2 <sup>+</sup> )	2113.8	(19/2 <sup>+</sup> )		
790 <sup>@</sup>		4611.1	(31/2 <sup>-</sup> )	3821.6	(29/2 <sup>+</sup> )		
796		6136.1	(39/2 <sup>-</sup> )	5340.1	(35/2 <sup>-</sup> )		
803		1523.0	(17/2 <sup>-</sup> )	720.2	(15/2 <sup>-</sup> )		
806 <sup>#</sup>		4156.6	(31/2 <sup>+</sup> )	3350.7	(27/2 <sup>+</sup> )		
807		4629.0	(33/2 <sup>+</sup> )	3821.6	(29/2 <sup>+</sup> )		
817		2770.8		1954.1			
819 <sup>#</sup>		2883.7	(23/2 <sup>+</sup> )	2064.7	(21/2 <sup>-</sup> )		
833.2 <sup>‡</sup>	2	3.7&	6	1954.5+x	(45/2 <sup>-</sup> )	1121.3+x	(41/2 <sup>-</sup> ) (Q) <sup>b</sup>

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$^{110}\text{Pd}(^{18}\text{O},5n\gamma)$  **1998Sc23,2002Ra34** (continued) $\gamma(^{123}\text{Xe})$  (continued)

$E_\gamma^\dagger$	$E_i(\text{level})$	$J_i^\pi$	$E_f$	$J_f^\pi$	$E_\gamma^\dagger$	$E_i(\text{level})$	$J_i^\pi$	$E_f$	$J_f^\pi$
853	5067.8	(35/2 <sup>+</sup> )	4215.1	(31/2 <sup>+</sup> )	1051 <sup>@</sup>	7086.3	(43/2 <sup>+</sup> )	6035.5	(39/2 <sup>+</sup> )
858 <sup>@</sup>	5214.0		4355.8		1059	5011.6	(35/2 <sup>-</sup> )	3952.4	(31/2 <sup>-</sup> )
862	2952.6		2090.6	(23/2 <sup>-</sup> )	1063	7111	(43/2 <sup>-</sup> )	6047.6	(39/2 <sup>-</sup> )
868	3154.8		2286.0		1065	3154.8		2090.6	(23/2 <sup>-</sup> )
876 <sup>#</sup>	2966.6	(27/2 <sup>-</sup> )	2090.6	(23/2 <sup>-</sup> )	1080 <sup>#</sup>	3170.7	(25/2 <sup>+</sup> )	2090.6	(23/2 <sup>-</sup> )
879	5917.0	(39/2 <sup>+</sup> )	5037.9	(35/2 <sup>+</sup> )	1081 <sup>@</sup>	7116.5	(43/2 <sup>+</sup> )	6035.5	(39/2 <sup>+</sup> )
881 <sup>#</sup>	5037.9	(35/2 <sup>+</sup> )	4156.6	(31/2 <sup>+</sup> )	1084 <sup>@</sup>	3854.7		2770.8	
888 <sup>#</sup>	2952.6		2064.7	(21/2 <sup>-</sup> )	1087	5044.6		3957.6	
892	5521.1	(37/2 <sup>+</sup> )	4629.0	(33/2 <sup>+</sup> )	1111 <sup>@</sup>	8222	(47/2 <sup>-</sup> )	7111	(43/2 <sup>-</sup> )
906	7992.4	(47/2 <sup>+</sup> )	7086.3	(43/2 <sup>+</sup> )	1121	3211.5	(25/2 <sup>+</sup> )	2090.6	(23/2 <sup>-</sup> )
933	7069.1	(43/2 <sup>-</sup> )	6136.1	(39/2 <sup>-</sup> )	1128	2423.6	(19/2 <sup>+</sup> )	1295.2	(17/2 <sup>-</sup> )
937	2231.8	(19/2 <sup>+</sup> )	1295.2	(17/2 <sup>-</sup> )	1139 <sup>@</sup>	3909.6	(27/2 <sup>-</sup> )	2770.8	
940 <sup>@</sup>	3906.7	(29/2 <sup>+</sup> )	2966.0	(23/2 <sup>+</sup> )	1162 <sup>#</sup>	2498.8	(21/2 <sup>+</sup> )	1337.1	(19/2 <sup>-</sup> )
943	3909.6	(27/2 <sup>-</sup> )	2966.0	(23/2 <sup>+</sup> )	1169	7086.3	(43/2 <sup>+</sup> )	5917.0	(39/2 <sup>+</sup> )
948	2286.0		1337.1	(19/2 <sup>-</sup> )	1183 <sup>@</sup>	9261	(51/2 <sup>-</sup> )	8078	(47/2 <sup>-</sup> )
951	4105.8		3154.8		1184 <sup>@</sup>	8300.6	(47/2 <sup>+</sup> )	7116.5	(43/2 <sup>+</sup> )
957	6478.5	(41/2 <sup>+</sup> )	5521.1	(37/2 <sup>+</sup> )	1206 <sup>@</sup>	9428	(51/2 <sup>-</sup> )	8222	(47/2 <sup>-</sup> )
965	9420.6	(53/2 <sup>+</sup> )	8455.6	(49/2 <sup>+</sup> )	1225 <sup>@</sup>	5330.8		4105.8	
968 <sup>@</sup>	6035.5	(39/2 <sup>+</sup> )	5067.8	(35/2 <sup>+</sup> )	1253 <sup>@</sup>	6466.8		5214.0	
972	8455.6	(49/2 <sup>+</sup> )	7483.8	(45/2 <sup>+</sup> )	1262	5214.0		3952.4	(31/2 <sup>-</sup> )
986 <sup>#</sup>	3952.4	(31/2 <sup>-</sup> )	2966.6	(27/2 <sup>-</sup> )	1353	2690.6	(21/2 <sup>+</sup> )	1337.1	(19/2 <sup>-</sup> )
1005	3957.6		2952.6		1389 <sup>@</sup>	4355.8		2966.6	(27/2 <sup>-</sup> )
1005	7483.8	(45/2 <sup>+</sup> )	6478.5	(41/2 <sup>+</sup> )	1455 <sup>@</sup>	6466.8		5011.6	(35/2 <sup>-</sup> )
1009 <sup>@</sup>	8078	(47/2 <sup>-</sup> )	7069.1	(43/2 <sup>-</sup> )	1563 <sup>@</sup>	3653.6		2090.6	(23/2 <sup>-</sup> )
1036	6047.6	(39/2 <sup>-</sup> )	5011.6	(35/2 <sup>-</sup> )	1764 <sup>@</sup>	3854.7		2090.6	(23/2 <sup>-</sup> )
1039	1759.1	(17/2 <sup>+</sup> )	720.2	(15/2 <sup>-</sup> )					

<sup>†</sup> From the level scheme in Fig.1 of [1998Sc23](#), unless otherwise noted. No  $\Delta E_\gamma$  is given in [1998Sc23](#).

<sup>‡</sup> From [2002Ra34](#), with uncertainties of  $\gamma$  energies based on a general comment of between 0.1 keV and 0.4 keV in Table I of [2002Ra34](#) and assigned by the evaluator as  $\Delta E_\gamma=0.4$  keV for  $I_\gamma<3$ , 0.2 keV for  $3<I_\gamma<10$ , and 0.1 keV for  $I_\gamma>10$ , accordingly.

<sup>#</sup> Large-intensity gamma ray, as shown in Figure 1 of [1998Sc23](#).

<sup>@</sup> Weak-intensity gamma ray, as shown in Figure 1 of [1998Sc23](#).




<sup>&</sup> From  $\gamma\gamma$ -coin, with gate on M1 transition that directly populates level ([2002Ra34](#)).

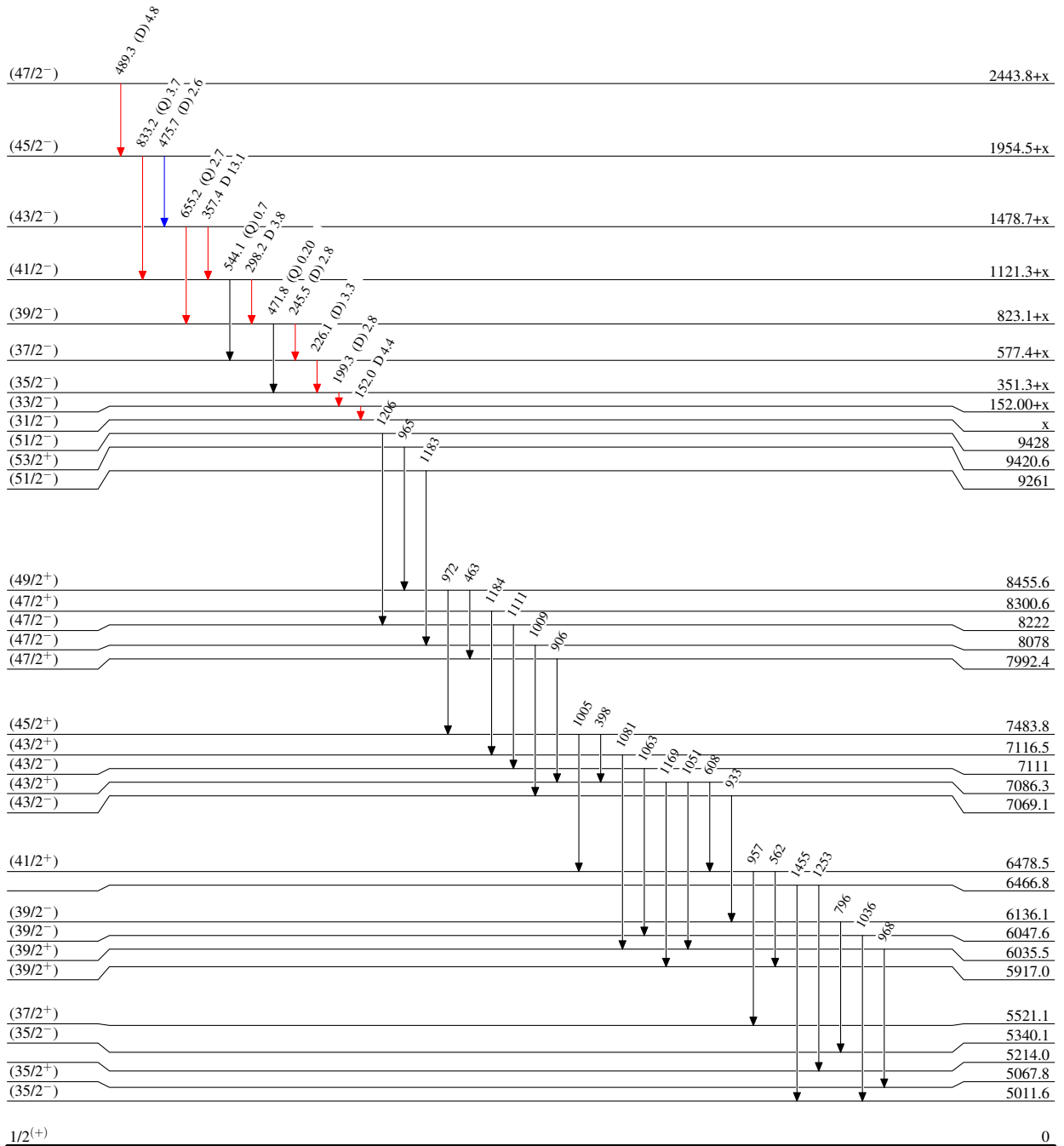
<sup>a</sup> From  $\gamma\gamma(\text{DCO})$  in [2002Ra34](#), unless noted otherwise.

<sup>b</sup> Proposed in [2002Ra34](#), but no DCO values given.

$^{110}\text{Pd}(^{18}\text{O},5n\gamma)$  1998Sc23,2002Ra34Level Scheme  
Intensities: Relative  $I_\gamma$ 

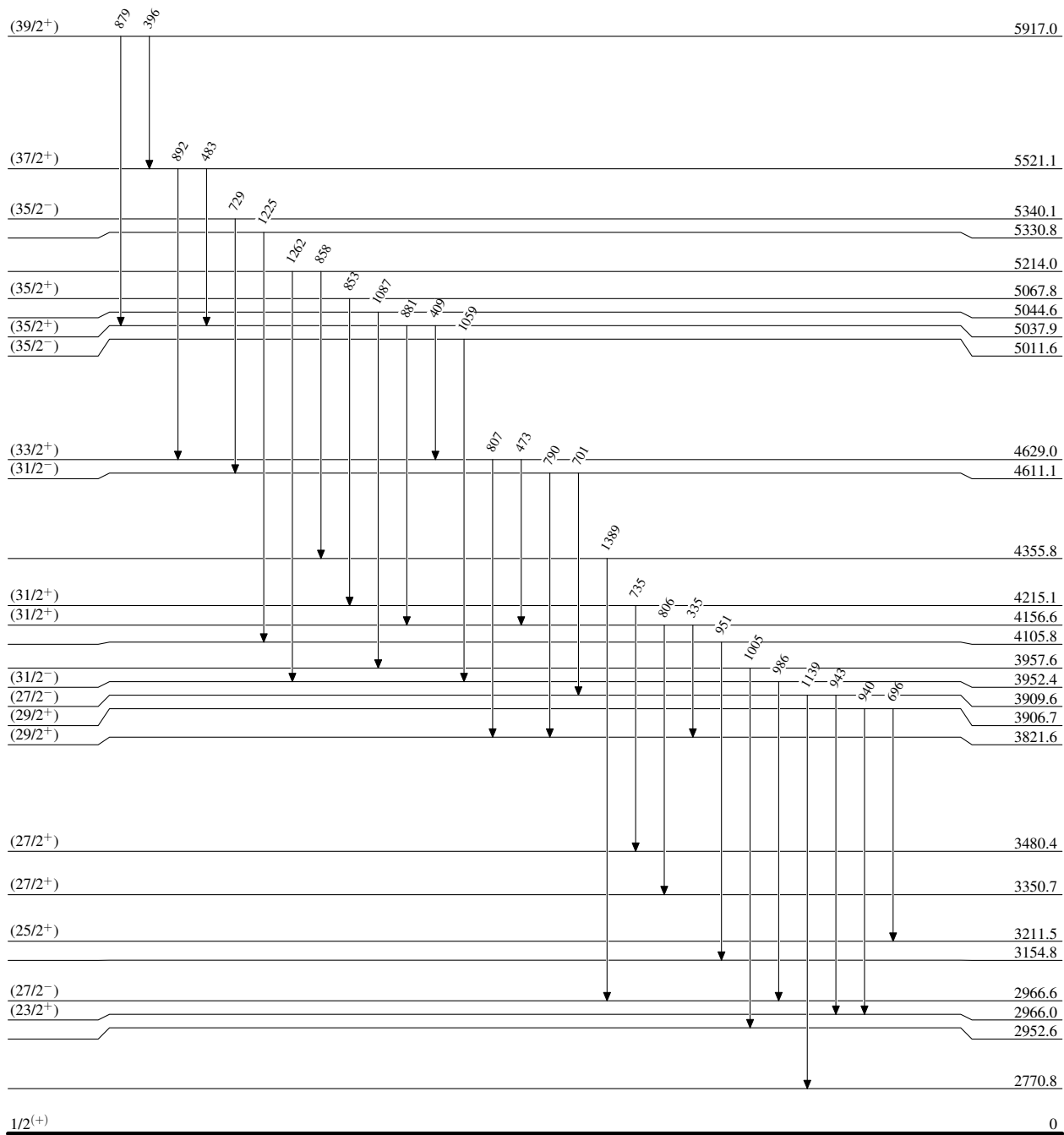
## Legend

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



$^{110}\text{Pd}(^{18}\text{O},5\text{n}\gamma)$  1998Sc23,2002Ra34

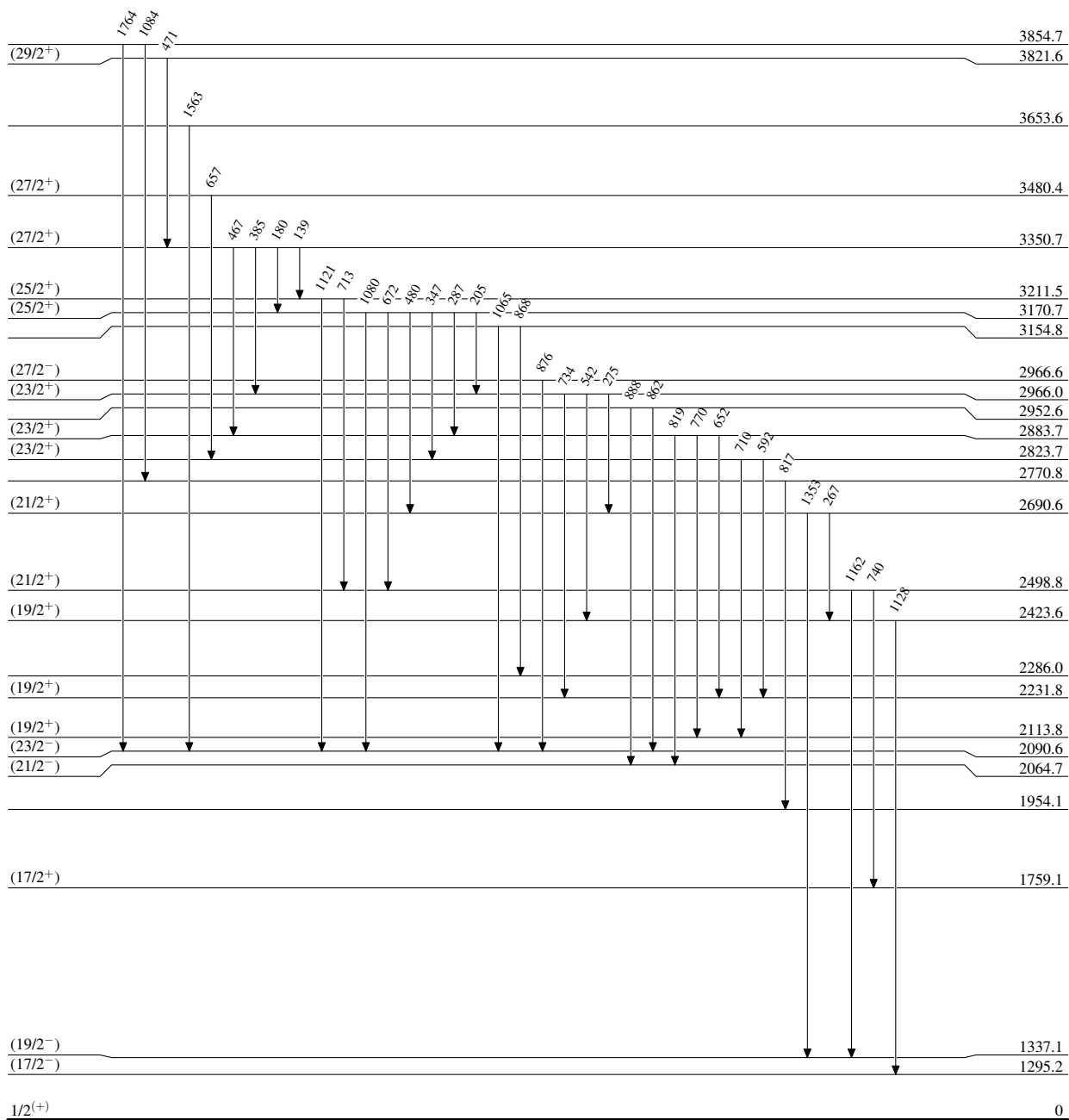
## Level Scheme (continued)

Intensities: Relative  $I_\gamma$  $^{123}_{54}\text{Xe}_{69}$



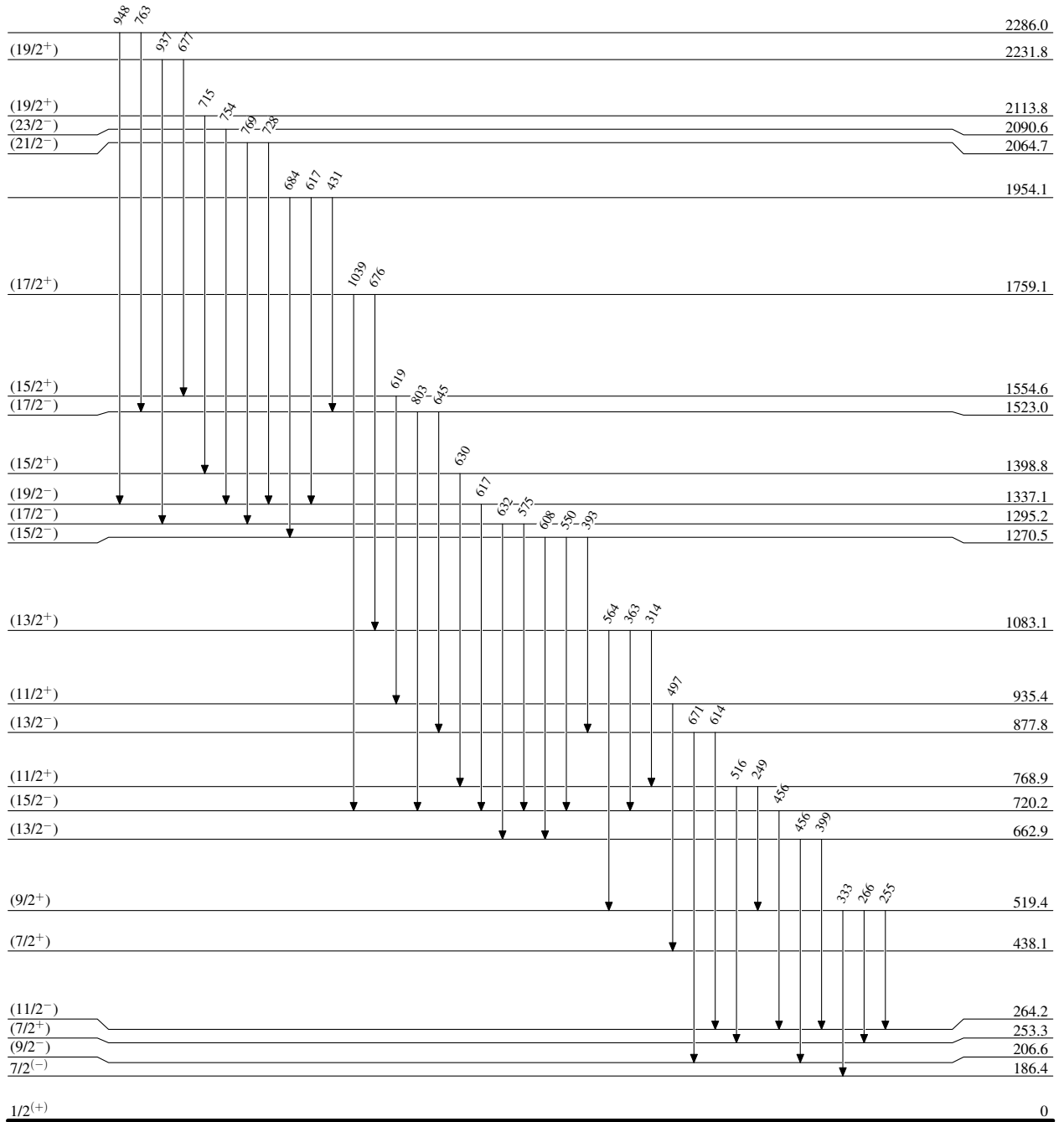
$^{110}\text{Pd}(^{18}\text{O},5n\gamma)$  1998Sc23,2002Ra34

## Level Scheme (continued)

Intensities: Relative  $I_\gamma$ 

$^{110}\text{Pd}(^{18}\text{O},5n\gamma)$  1998Sc23,2002Ra34

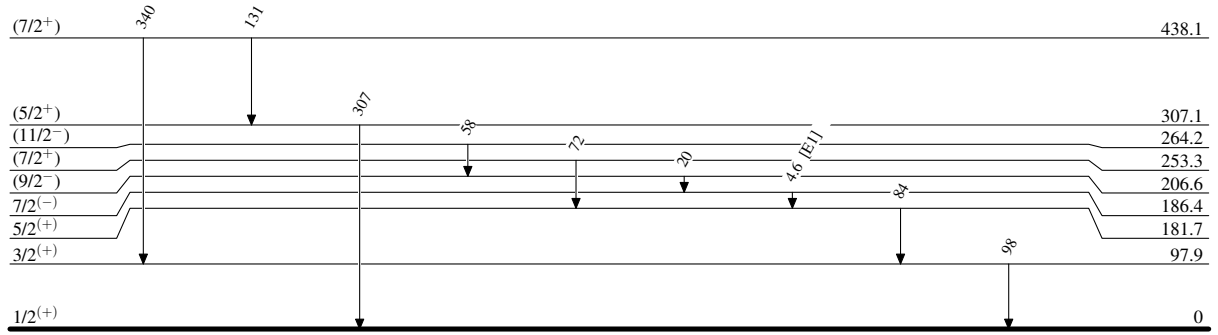
## Level Scheme (continued)

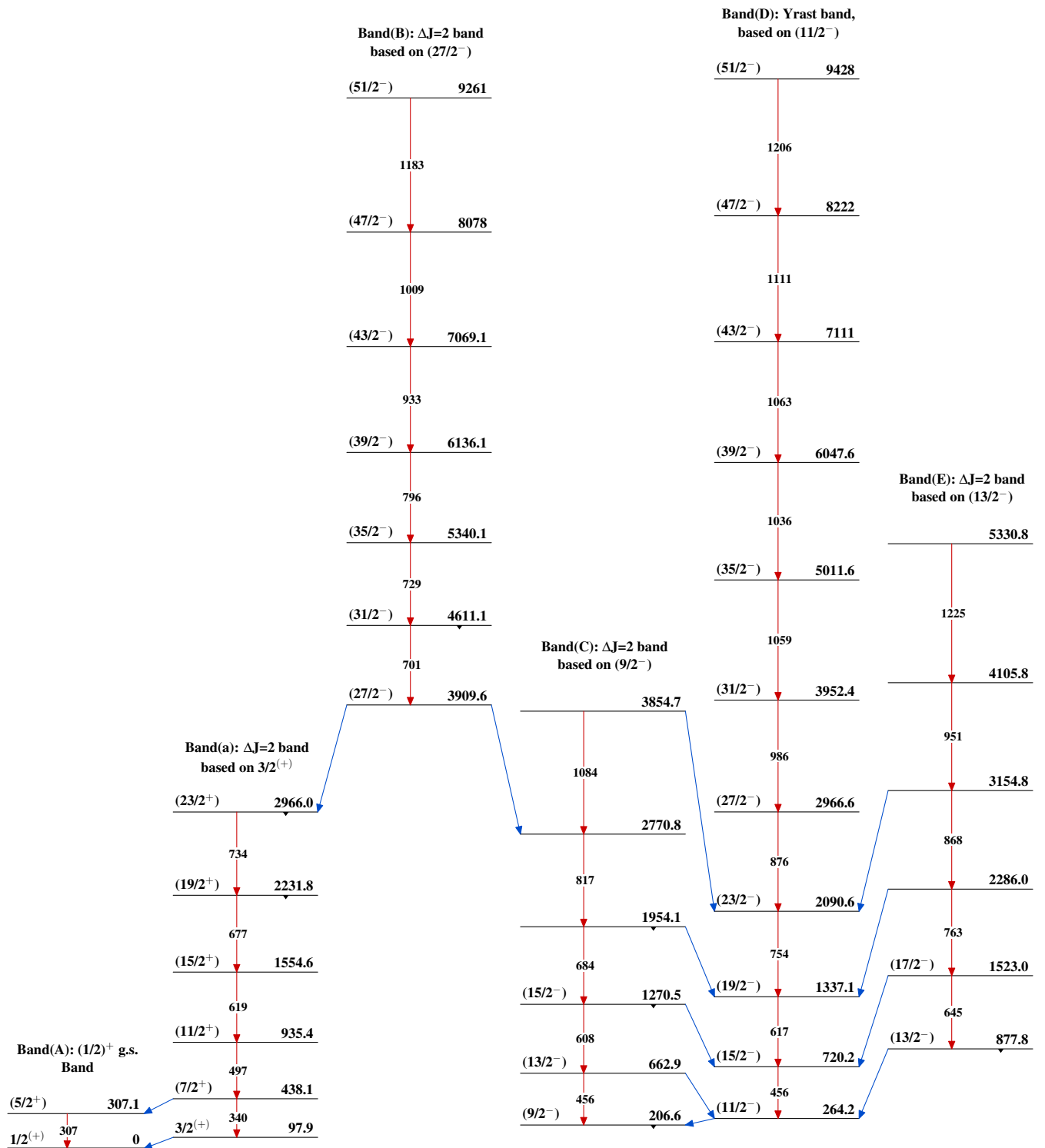
Intensities: Relative  $I_\gamma$  $^{123}_{54}\text{Xe}_{69}$

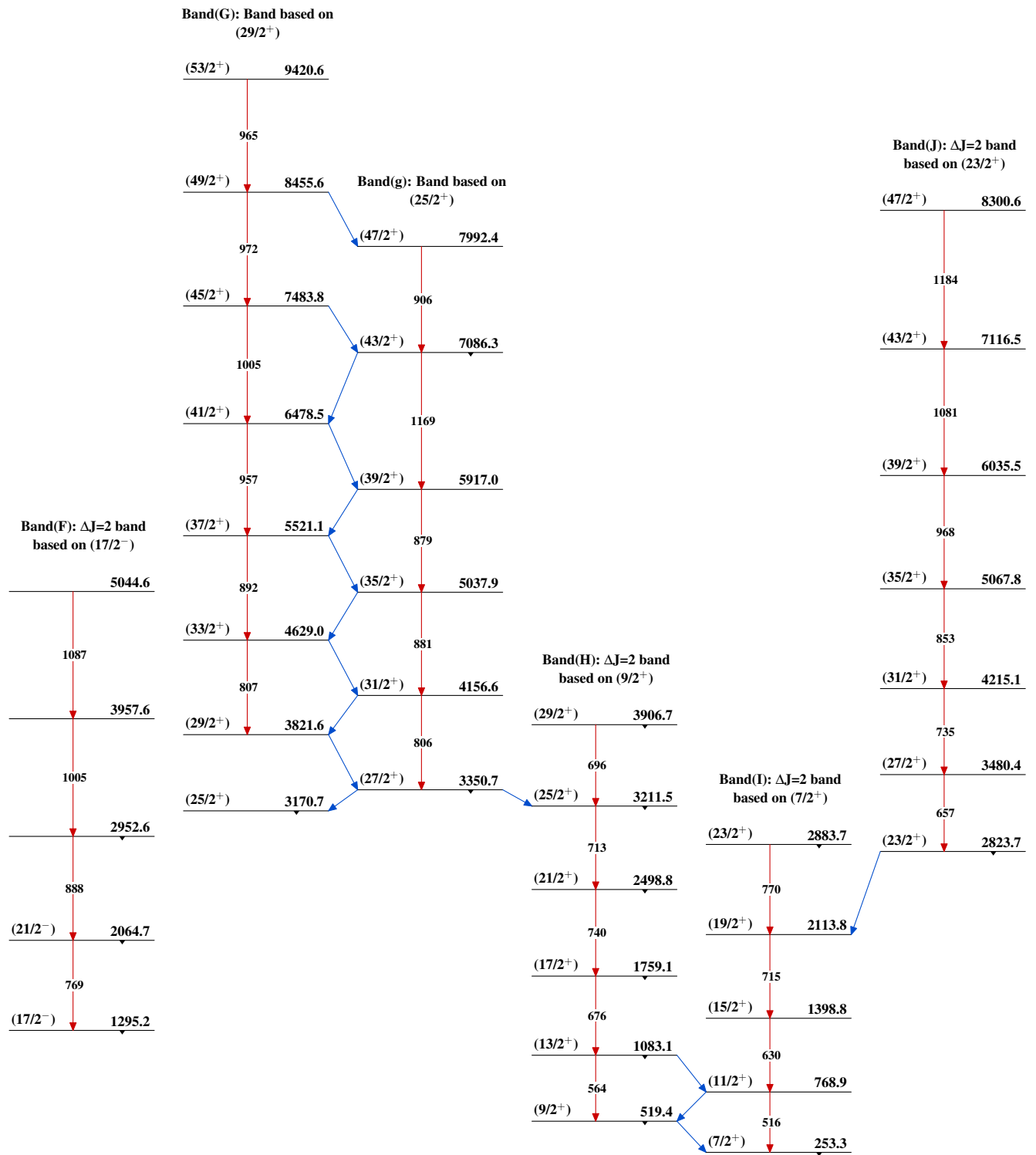
$^{110}\text{Pd}(^{18}\text{O},5n\gamma)$  1998Sc23,2002Ra34

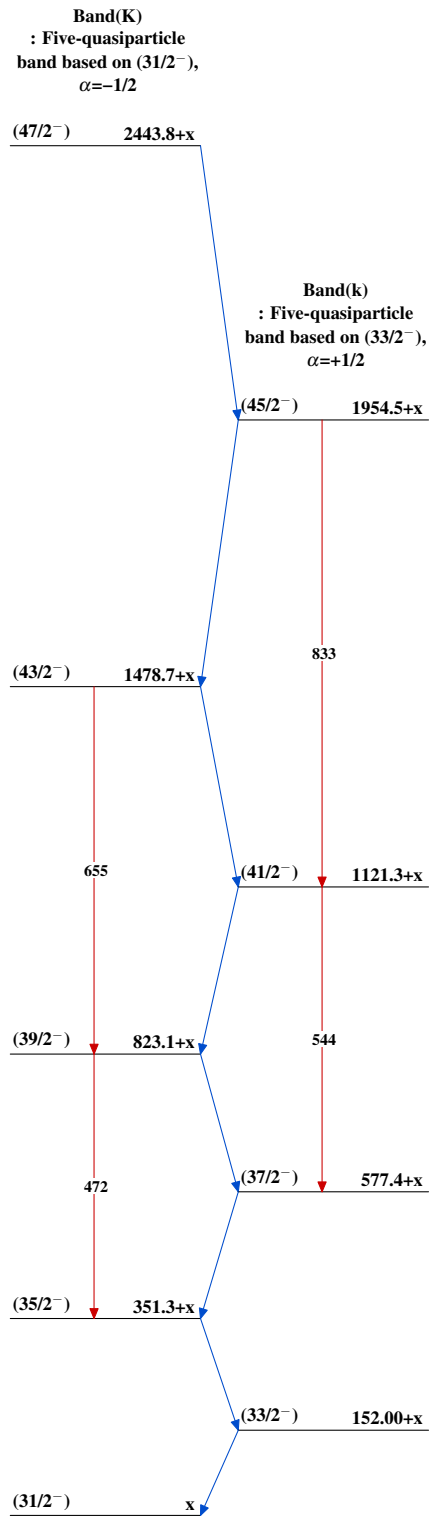
Legend

## Level Scheme (continued)

Intensities: Relative  $I_\gamma$ -----►  $\gamma$  Decay (Uncertain) $^{123}_{54}\text{Xe}_{69}$

$^{110}\text{Pd}(^{18}\text{O},5n\gamma)$  1998Sc23,2002Ra34 $^{123}_{54}\text{Xe}_{69}$

$^{110}\text{Pd}(^{18}\text{O},5n\gamma)$  1998Sc23,2002Ra34 (continued)

$^{110}\text{Pd}(^{18}\text{O},5\text{n}\gamma)$  1998Sc23,2002Ra34 (continued) $^{123}_{54}\text{Xe}_{69}$