

(HI,xn γ) [2004Fr06](#),[2001Zh22](#),[2001Pe21](#)

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	T. Tamura	NDS 108,455 (2007)	30-Sep-2006

The level scheme is that proposed by [2001Pe21](#) and [2001Zh22](#) on the basis of $\gamma\gamma$ -coincidence, DCO ratios, excitation functions and transition intensity balance.

[2004Fr06](#): $^{112}\text{Sn}(^{12}\text{C},2n\gamma)$, $E(^{12}\text{C})=50$ MeV; $\gamma\gamma(\theta)$ coincidence spectrometry with 8 HPGe counters (4 of 8 HPGe were Compton suppressed with BGO balls), deduced detailed $E\gamma$, $I\gamma$ relevant to g.s. band (band 1) (up to (18^+)), band 2 (up to (12^-)), band 3 (up to (15^-)), and linking interband transitions. Additionally assigned gamma band (up to (11^+)).

[2001Pe21](#): $^{92}\text{Mo}(^{40}\text{Ca},2\alpha2p\gamma)$, $E(^{40}\text{Ca})=190$ MeV; 40 Compton suppressed Ge counters with BGO balls, γ - γ - γ coincidence spectrometry, DCO analysis; proposed band structures: g.s. band (band 1) (up to (28^+)), band 2 (up to (24^-)), band 3 (up to (25^-)), band 4 (up to (24^-)), band 5 (up to (23^-)), band 6 (up to x+6012 keV). No detailed information on $E\gamma$ ($\Delta E=1$ keV) nor $I\gamma$ are presented.

[2001Zh22](#): $^{107}\text{Ag}(^{19}\text{F},4n\gamma)$, $E(^{19}\text{F})=86$ MeV; 10 Compton suppressed Ge counters with BGO balls, $\gamma\gamma$ -coincidence spectrometry, DCO analysis. Deduced detailed $E\gamma$ and $I\gamma$ for g.s. band (band 1) (up to (20^+)), and band 3 (up to (19^-)).

[1974Co36](#): $^{108}\text{Cd}(^{16}\text{O},2n\gamma)$ $E(^{16}\text{O})=52.5$ - 66 MeV; semi γ , $\gamma\gamma$ -coincidence, excitation functions, $\gamma(\theta)$; $\gamma(t)$ using pulsed beam; proposed the g.s. band (band 1) (up to (12^+)).

^{122}Ba Levels

E(level)	J π^\dagger	Comments
0.0 [#]	0 ⁺	
195.9 [#] 3	2 ⁺	Additional information 1.
568.3 [#] 5	(4 ⁺)	Additional information 2.
618.2 ^d 3	(2 ⁺)	
1081.28 [#] 16	(6 ⁺)	
1167.70 ^d 23	(3 ⁺)	
1205.1 ^d 4	(4 ⁺)	
1604.19 ^d 20	(5 ⁺)	
1701.52 [#] 21	(8 ⁺)	
1882.70 ^{&} 17	(5 ⁻)	
2141.40 ^d 24	(7 ⁺)	
2204.6 ^{&} 3	(7 ⁻)	
2297.98 [@] 19	(6 ⁻)	
2395.4 [#] 3	(10 ⁺)	
2640.1 ^{&} 3	(9 ⁻)	
2663.53 [@] 22	(8 ⁻)	
2693.5 ^a 8	(6 ⁻)	
2705.0 7	(6 ⁻)	
2713.4 7	(7 ⁻)	
2766.3 ^d 3	(9 ⁺)	
2804.6 ^b 8	(7 ⁻)	
2955.5 ^a 10	(8 ⁻)	
3117.5 [@] 11	(10 ⁻)	
3121.2 [#] 4	(12 ⁺)	
3154.6 ^b 10	(9 ⁻)	
3180.8 ^{&} 3	(11 ⁻)	
3392.3 ^a 11	(10 ⁻)	
3452.1 ^d 4	(11 ⁺)	

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(HI,xn γ) 2004Fr06,2001Zh22,2001Pe21 (continued) ^{122}Ba Levels (continued)

E(level)	J π^{\dagger}	Comments
3669.1 ^b 12	(11 ⁻)	
3700.5 [@] 15	(12 ⁻)	
3827.2 ^{&} 5	(13 ⁻)	
3835.6 [#] 4	(14 ⁺)	
3981.2 ^a 13	(12 ⁻)	
4325.2 ^b 14	(13 ⁻)	
4396.5 [@] 18	(14 ⁻)	
4571.6 [#] 5	(16 ⁺)	
4572.0 ^{&} 7	(15 ⁻)	
4697.1 ^a 15	(14 ⁻)	
5096.4 ^b 15	(15 ⁻)	
5180.5 [@] 21	(16 ⁻)	
5379.4 [#] 7	(18 ⁺)	
5396.8 ^{&} 8	(17 ⁻)	
5516.6 ^a 16	(16 ⁻)	
5962.7 ^b 17	(17 ⁻)	
6034.5 [@] 23	(18 ⁻)	
6269.2 [#] 7	(20 ⁺)	
6284.6 ^{&} 9	(19 ⁻)	
6424.1 ^a 17	(18 ⁻)	
6909.7 ^b 19	(19 ⁻)	
6963.5 [@] 25	(20 ⁻)	
7236.6 ^{&} 14	(21 ⁻)	
7252.2 [#] 12	(22 ⁺)	
7408.1 ^a 20	(20 ⁻)	
7929.7 ^b 22	(21 ⁻)	
7984 [@] 3	(22 ⁻)	
8258.6 ^{&} 17	(23 ⁻)	
8328.2 [#] 16	(24 ⁺)	
8467.1 ^a 23	(22 ⁻)	
9032.7 ^b 24	(23 ⁻)	
9084 [@] 3	(24 ⁻)	
9361.6 ^{&} 20	(25 ⁻)	
9496.2 [#] 19	(26 ⁺)	
9612.1 ^a 25	(24 ⁻)	
10749.2 [#] 21	(28 ⁺)	
0+x ^{‡c} 1	J	Additional information 3.
x+267.0 ^c 8	J+1	
x+547.0 ^c 8	J+2	
x+835.0 ^c 10	J+3	
x+1118.9 ^c 11	J+4	
x+1405.2 ^c 12	J+5	
x+1706.4 ^c 13	J+6	
x+2026.6 ^c 13	J+7	
x+2369.9 ^c 14	J+8	

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(HI,xn γ) [2004Fr06](#),[2001Zh22](#),[2001Pe21](#) (continued)

¹²²Ba Levels (continued)

E(level)	J π^\dagger	E(level)	J π^\dagger	E(level)	J π^\dagger	E(level)	J π^\dagger
x+2736.8 ^c 15	J+9	x+3546.8 ^c 16	J+11	x+4457.8 ^c 17	J+13	x+5463.9 ^c 20	J+15
x+3129.8 ^c 15	J+10	x+3991.8 ^c 17	J+12	x+4949.8 ^c 18	J+14	x+6010.9 ^c 21	J+16

\dagger Spin and parity values from band structures proposed by [2004Fr06](#), [2001Zh22](#) and [2001Pe21](#) on the basis of DCO and analogy with the ^{120,124}Ba band structures ([2001Pe21](#) and [2001Zh22](#)), γ band (band 7) from comparison with calculation of rotor model and IBM prediction for interband and intraband transitions.

\ddagger >1082, since the level seems to feed 1082, (6⁺) level.

Band(A): Band 1; g.s. band, Crossing at \approx 360 keV due to alignment of a pair of h_{11/2} protons.

@ Band(B): Band 2, configuration= $\pi(1/2[550])\pi(3/2[422] + 1/2[420])$, $\alpha=0$.

& Band(C): Band 3, configuration= $\pi(1/2[550])\pi(3/2[422] + 1/2[420])$, $\alpha=1$.

^a Band(D): Band 4, configuration= $\pi 9/2[404]\pi 1/2[550]$, $\alpha=0$.

^b Band(E): Band 5, configuration= $\pi 9/2[404]\pi 1/2[550]$, $\alpha=1$.

^c Band(F): Band 6, configuration= $\nu 7/2[523]\nu(5/2[402]$ and/or $5/2[413])$.

^d Band(G): Band 7, γ band.

$\gamma(^{122}\text{Ba})$

E γ^\dagger	I $\gamma^\@$	E _i (level)	J π_i	E _f	J π_f	Mult.&	$\delta\&$	Comments
91 I		2804.6	(7 ⁻)	2713.4	(7 ⁻)			
93 I		2297.98	(6 ⁻)	2204.6	(7 ⁻)			
100 I		2804.6	(7 ⁻)	2705.0	(6 ⁻)			
111 I		2804.6	(7 ⁻)	2693.5	(6 ⁻)			
151 I		2955.5	(8 ⁻)	2804.6	(7 ⁻)			
195.9 2	100	195.9	2 ⁺	0.0	0 ⁺	(E2)		E γ =195.9, I γ =100 in ¹⁰⁷ Ag(¹⁹ F,4n γ), E γ =197, I γ =100 in ¹⁰⁸ Cd(¹⁶ O,2n γ). Mult.: I(0 $^\circ$)/I(90 $^\circ$) \approx 1.2 (1974Co36); RUL.
199 I		3154.6	(9 ⁻)	2955.5	(8 ⁻)			
238 I		3392.3	(10 ⁻)	3154.6	(9 ⁻)			
262 I		2955.5	(8 ⁻)	2693.5	(6 ⁻)			E γ =262 was shown in decay scheme only in ¹¹² Sn(¹² C,2n γ).
267 I		x+267.0	J+1	0+x	J			
277 I		3669.1	(11 ⁻)	3392.3	(10 ⁻)			
280 I		x+547.0	J+2	x+267.0	J+1			
284 I		x+1118.9	J+4	x+835.0	J+3			
286 I		x+1405.2	J+5	x+1118.9	J+4			
288 I		x+835.0	J+3	x+547.0	J+2			
301 I		x+1706.4	J+6	x+1405.2	J+5			
312 I		3981.2	(12 ⁻)	3669.1	(11 ⁻)			
320 I		x+2026.6	J+7	x+1706.4	J+6			
322 ^a I		2204.6	(7 ⁻)	1882.70	(5 ⁻)			
343 I		x+2369.9	J+8	x+2026.6	J+7			
344 I		4325.2	(13 ⁻)	3981.2	(12 ⁻)			
350 I		3154.6	(9 ⁻)	2804.6	(7 ⁻)			
365.5 2	\approx 2.8	2663.53	(8 ⁻)	2297.98	(6 ⁻)	Q(+0)	-0.03 12	
367 I		x+2736.8	J+9	x+2369.9	J+8			
372 I		4697.1	(14 ⁻)	4325.2	(13 ⁻)			
372.7 2	\approx 78.1	568.3	(4 ⁺)	195.9	2 ⁺	Q(+0)	+0.02 6	E γ =372.4, I γ =81 in ¹⁰⁷ Ag(¹⁹ F,4n γ), E γ =373, I γ \approx 75 in ¹⁰⁸ Cd(¹⁶ O,2n γ).
393 I		x+3129.8	J+10	x+2736.8	J+9			
399 I		5096.4	(15 ⁻)	4697.1	(14 ⁻)			
(399.4)	<0.2	1604.19	(5 ⁺)	1205.1?	(4 ⁺)			I γ (399.4)/I γ (1035.9)<4/100.0 19 in ¹¹² Sn(¹² C,2n γ).

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(HI,xnγ) **2004Fr06,2001Zh22,2001Pe21** (continued)

γ(¹²²Ba) (continued)

<u>E_γ[†]</u>	<u>I_γ[@]</u>	<u>E_i(level)</u>	<u>J_i^π</u>	<u>E_f</u>	<u>J_f^π</u>	<u>Mult.&</u>	<u>δ&</u>	<u>Comments</u>
406 <i>I</i>		2705.0	(6 ⁻)	2297.98	(6 ⁻)			
415 <i>I</i>		2713.4	(7 ⁻)	2297.98	(6 ⁻)			
415.2 2	≈4.1	2297.98	(6 ⁻)	1882.70	(5 ⁻)	D+Q	-0.9 +4-8	
417 <i>I</i>		x+3546.8	J+11	x+3129.8	J+10			
420 <i>I</i>		5516.6	(16 ⁻)	5096.4	(15 ⁻)			
422.3 3	≈9.5	618.2?	(2 ⁺)	195.9	2 ⁺			
435.6 2	≈2.7	2640.1	(9 ⁻)	2204.6	(7 ⁻)	Q(+O)	-0.01 14	I _γ (435.6)/I _γ (938.5)=40.2 7/100.0 7 in ¹¹² Sn(¹² C,2n _γ); E _γ =435.1, I _γ =4.5 in ¹⁰⁷ Ag(¹⁹ F,4n _γ).
436.6 3	≈2.2	1604.19	(5 ⁺)	1167.70	(3 ⁺)			I _γ (436.6)/I _γ (1035.9)=50.7 27/100.0 19 in ¹¹² Sn(¹² C,2n _γ).
437 <i>I</i>		3392.3	(10 ⁻)	2955.5	(8 ⁻)			
(439.9)	<1.6	2141.40	(7 ⁺)	1701.52	(8 ⁺)			I _γ (439.9)/I _γ (537.3)<38.8/100.0 20 in ¹¹² Sn(¹² C,2n _γ).
445 <i>I</i>		x+3991.8	J+12	x+3546.8	J+11			
446 <i>I</i>		5962.7	(17 ⁻)	5516.6	(16 ⁻)			
454 <i>I</i>		3117.5	(10 ⁻)	2663.53	(8 ⁻)			E _γ =455 was shown in decay scheme only in ¹¹² Sn(¹² C,2n _γ).
458.8 3	≈2.1	2663.53	(8 ⁻)	2204.6	(7 ⁻)			I _γ (458.8)/I _γ (365.5)=70.7 11/100.0 11 in ¹¹² Sn(¹² C,2n _γ).
461 <i>I</i>		6424.1	(18 ⁻)	5962.7	(17 ⁻)			
466 <i>I</i>		x+4457.8	J+13	x+3991.8	J+12			
492 <i>I</i>		x+4949.8	J+14	x+4457.8	J+13			
504 ^a <i>I</i>		2204.6	(7 ⁻)	1701.52	(8 ⁺)			
513.0 2	≈74.8	1081.28	(6 ⁺)	568.3	(4 ⁺)	(Q)		E _γ =512.9, I _γ =61 in ¹⁰⁷ Ag(¹⁹ F,4n _γ), E _γ =513 in ¹⁰⁸ Cd(¹⁶ O,2n _γ). Mult.: I(0°)/I(90°)≈1.2 (1974Co36).
514 <i>I</i>		3669.1	(11 ⁻)	3154.6	(9 ⁻)			
522.8 4	≈1.2	1604.19	(5 ⁺)	1081.28	(6 ⁺)			I _γ (522.8)/I _γ (1035.9)=24.4 11/100.0 19 in ¹¹² Sn(¹² C,2n _γ).
537.3 3	≈4.2	2141.40	(7 ⁺)	1604.19	(5 ⁺)			
540.7 3	≈6.0	3180.8	(11 ⁻)	2640.1	(9 ⁻)			E _γ =540.3, I _γ =8.5 in ¹⁰⁷ Ag(¹⁹ F,4n _γ); E _γ =541 <i>I</i> (2001Pe21).
547 <i>I</i>		x+547.0	J+2	0+x J				
(549.6)	<0.2	1167.70	(3 ⁺)	618.2? (2 ⁺)				I _γ (549.6)/I _γ (917.9)<6.7 in ¹¹² Sn(¹² C,2n _γ).
568 <i>I</i>		x+835.0	J+3	x+267.0	J+1			
570 <i>I</i>		x+1405.2	J+5	x+835.0	J+3			
572 <i>I</i>		x+1118.9	J+4	x+547.0	J+2			
583 <i>I</i>		3700.5	(12 ⁻)	3117.5	(10 ⁻)			E _γ =582 was shown in decay scheme only in ¹¹² Sn(¹² C,2n _γ).
587.0 2	≈6.4	1205.1?	(4 ⁺)	618.2? (2 ⁺)				
588 <i>I</i>		x+1706.4	J+6	x+1118.9	J+4			
589 <i>I</i>		3981.2	(12 ⁻)	3392.3	(10 ⁻)			
(599.4)	<0.4	1167.70	(3 ⁺)	568.3	(4 ⁺)			I _γ (599.4)/I _γ (917.9)<14 in ¹¹² Sn(¹² C,2n _γ).
620.2 2	≈45	1701.52	(8 ⁺)	1081.28	(6 ⁺)	Q(+O)	-0.02 5	E _γ =619.8, I _γ =52 in ¹⁰⁷ Ag(¹⁹ F,4n _γ), E _γ =621, I _γ ≈60 in ¹⁰⁸ Cd(¹⁶ O,2n _γ).
621 <i>I</i>		x+2026.6	J+7	x+1405.2	J+5			
624.9 2	≈2.9	2766.3	(9 ⁺)	2141.40	(7 ⁺)	Q(+O)	0.0 3	
646.4 4	6.3 6	3827.2	(13 ⁻)	3180.8	(11 ⁻)			E _γ =647 was shown in decay scheme only in ¹¹² Sn(¹² C,2n _γ).
656 <i>I</i>		4325.2	(13 ⁻)	3669.1	(11 ⁻)			
664 <i>I</i>		x+2369.9	J+8	x+1706.4	J+6			
685.8 3	≈1.7	3452.1	(11 ⁺)	2766.3	(9 ⁺)			

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(HI,xny) 2004Fr06,2001Zh22,2001Pe21 (continued) $\gamma(^{122}\text{Ba})$ (continued)

E_γ^\dagger	I_γ^\oplus	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. &	$\delta\&$	Comments
693.9 2	≈ 24.9	2395.4	(10 ⁺)	1701.52	(8 ⁺)	Q(+O)	-0.01 6	$E_\gamma=693.5$, $I_\gamma=34$ in $^{107}\text{Ag}(^{19}\text{F},4n\gamma)$, $E_\gamma=694$ in $^{108}\text{Cd}(^{16}\text{O},2n\gamma)$.
696 1		4396.5	(14 ⁻)	3700.5	(12 ⁻)			
710 1		x+2736.8	J+9	x+2026.6	J+7			
714.4 2	≈ 5.6	3835.6	(14 ⁺)	3121.2	(12 ⁺)	Q(+O)	-0.09 12	$E_\gamma=714.1$, $I_\gamma=18$ in $^{107}\text{Ag}(^{19}\text{F},4n\gamma)$.
716 1		4697.1	(14 ⁻)	3981.2	(12 ⁻)			
725.8 2	≈ 11.6	3121.2	(12 ⁺)	2395.4	(10 ⁺)	Q(+O)	-0.08 8	$E_\gamma=725.4$, $I_\gamma=22$ in $^{107}\text{Ag}(^{19}\text{F},4n\gamma)$, $E_\gamma=726$, $I_\gamma\approx 40$ in $^{108}\text{Cd}(^{16}\text{O},2n\gamma)$.
735.9 3	≈ 1.7	4571.6	(16 ⁺)	3835.6	(14 ⁺)	Q(+O)	-0.15 26	$E_\gamma=735.4$, $I_\gamma=12$ in $^{107}\text{Ag}(^{19}\text{F},4n\gamma)$; $E_\gamma=745$ was shown in decay scheme only in $^{112}\text{Sn}(^{12}\text{C},2n\gamma)$, but E_γ differs 10 keV from other reactions.
744.8 [‡] 4	5.4 [#] 5	4572.0	(15 ⁻)	3827.2	(13 ⁻)	(Q)		
760 1		x+3129.8	J+10	x+2369.9	J+8			
771 1		5096.4	(15 ⁻)	4325.2	(13 ⁻)			
784 1		5180.5	(16 ⁻)	4396.5	(14 ⁻)			
785.3 2	≈ 2.0	3180.8	(11 ⁻)	2395.4	(10 ⁺)	D		$I_\gamma(785.3)/I_\gamma(540.7)=28.5$ 9/100.0 12 in $^{112}\text{Sn}(^{12}\text{C},2n\gamma)$; $E_\gamma=784.9$, $I_\gamma=2.6$ in $^{107}\text{Ag}(^{19}\text{F},4n\gamma)$. Mult.: from DCO (2001Zh22).
801.6 ^a 4	≈ 1.1	1882.70	(5 ⁻)	1081.28	(6 ⁺)			$I_\gamma(801.6)/I_\gamma(1314.3)=25.5$ 12/100.0 in $^{112}\text{Sn}(^{12}\text{C},2n\gamma)$.
807.8 [‡] 4	7.4 [#] 10	5379.4	(18 ⁺)	4571.6	(16 ⁺)			$E_\gamma=808$ was shown in decay scheme only in $^{112}\text{Sn}(^{12}\text{C},2n\gamma)$.
810 1		x+3546.8	J+11	x+2736.8	J+9			
820 1		5516.6	(16 ⁻)	4697.1	(14 ⁻)			
824.8 [‡] 4	2.8 [#] 3	5396.8	(17 ⁻)	4572.0	(15 ⁻)			
854 1		6034.5	(18 ⁻)	5180.5	(16 ⁻)			
862 1		x+3991.8	J+12	x+3129.8	J+10			
866 1		5962.7	(17 ⁻)	5096.4	(15 ⁻)			
887.8 [‡] 4	1.2 [#] 1	6284.6	(19 ⁻)	5396.8	(17 ⁻)			
889.8 [‡] 4	2.3 [#] 2	6269.2	(20 ⁺)	5379.4	(18 ⁺)			
908 1		6424.1	(18 ⁻)	5516.6	(16 ⁻)			
911 1		x+4457.8	J+13	x+3546.8	J+11			
929 1		6963.5	(20 ⁻)	6034.5	(18 ⁻)			
938.5 2	≈ 6.8	2640.1	(9 ⁻)	1701.52	(8 ⁺)	D+Q	-0.12 5	$E_\gamma=938.1$, $I_\gamma=7.2$ in $^{107}\text{Ag}(^{19}\text{F},4n\gamma)$.
947 1		6909.7	(19 ⁻)	5962.7	(17 ⁻)			
952 1		7236.6	(21 ⁻)	6284.6	(19 ⁻)			
958 1		x+4949.8	J+14	x+3991.8	J+12			
962.1 2	≈ 0.7	2663.53	(8 ⁻)	1701.52	(8 ⁺)	D(+Q)	+0.0 13	$I_\gamma(962.1)/I_\gamma(365.5)=24.8$ 11/100.0 11 in $^{112}\text{Sn}(^{12}\text{C},2n\gamma)$. $I_\gamma(\text{level}) \approx 100$.
971.9 3	≈ 2.5	1167.70	(3 ⁺)	195.9	2 ⁺			
983 1		7252.2	(22 ⁺)	6269.2	(20 ⁺)			
984 1		7408.1	(20 ⁻)	6424.1	(18 ⁻)			
992 ^a 1		2693.5	(6 ⁻)	1701.52	(8 ⁺)			
1006 1		x+5463.9	J+15	x+4457.8	J+13			
1012 1		2713.4	(7 ⁻)	1701.52	(8 ⁺)			
1020 1		7929.7	(21 ⁻)	6909.7	(19 ⁻)			
1020 1		7984	(22 ⁻)	6963.5	(20 ⁻)			
1022 1		8258.6	(23 ⁻)	7236.6	(21 ⁻)			
1035.9 3	≈ 4.4	1604.19	(5 ⁺)	568.3	(4 ⁺)	D+Q		$\delta: +3.7 +22-10$ or $+0.30$ 12.
1059 1		8467.1	(22 ⁻)	7408.1	(20 ⁻)			

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(HI,xn γ) 2004Fr06,2001Zh22,2001Pe21 (continued) $\gamma(^{122}\text{Ba})$ (continued)

E_γ †	I_γ @	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. &	δ &	Comments
1060.1 3	≈ 3.3	2141.40	(7 ⁺)	1081.28	(6 ⁺)	D+Q	+0.6 +4-3	$I_\gamma(1060.1)/I_\gamma(537.3)=78.8$ 20/100.0 20 in $^{112}\text{Sn}(^{12}\text{C},2n\gamma)$.
1061 1		x+6010.9	J+16	x+4949.8	J+14			
1064.6 4	≈ 1.2	2766.3	(9 ⁺)	1701.52	(8 ⁺)			$I_\gamma(1064.6)=42$ 4/ $I_\gamma(624.9)=100$ 4 in $^{112}\text{Sn}(^{12}\text{C},2n\gamma)$.
1076 1		8328.2	(24 ⁺)	7252.2	(22 ⁺)			
1100 1		9084	(24 ⁻)	7984	(22 ⁻)			
1103 1		9032.7	(23 ⁻)	7929.7	(21 ⁻)			
1103 1		9361.6	(25 ⁻)	8258.6	(23 ⁻)			
1123.6 6	≈ 6.1	2204.6	(7 ⁻)	1081.28	(6 ⁺)	D+Q	-0.11 5	$E_\gamma=1122.8$, $I_\gamma=5.8$ in $^{107}\text{Ag}(^{19}\text{F},4n\gamma)$.
1145 1		9612.1	(24 ⁻)	8467.1	(22 ⁻)			
1168 1		9496.2	(26 ⁺)	8328.2	(24 ⁺)			
1216.7 2	≈ 1.3	2297.98	(6 ⁻)	1081.28	(6 ⁺)			$I_\gamma(1216.7)/I_\gamma(415.2)=35.0$ 12/100.0 in $^{112}\text{Sn}(^{12}\text{C},2n\gamma)$; $E_\gamma=1122.8$, $I_\gamma=5.8$ in $^{107}\text{Ag}(^{19}\text{F},4n\gamma)$.
1253 1		10749.2	(28 ⁺)	9496.2	(26 ⁺)			
1314.3 2	≈ 4.2	1882.70	(5 ⁻)	568.3	(4 ⁺)	D(+Q)	-0.10 10	$I_\gamma(\text{level})=100.0$; $E_\gamma=131.8$, $I_\gamma=52$ in $^{107}\text{Ag}(^{19}\text{F},4n\gamma)$.
1612 1		2693.5	(6 ⁻)	1081.28	(6 ⁺)			$E_\gamma=1611$ was shown in decay scheme only in $^{112}\text{Sn}(^{12}\text{C},2n\gamma)$.
1625 1		2705.0	(6 ⁻)	1081.28	(6 ⁺)			

† Primarily from 2004Fr06, secondary from 2001Zh22 ($\Delta E=0.4$ keV), and thirdly from 2001Pe21 ($\Delta E=1$ keV).

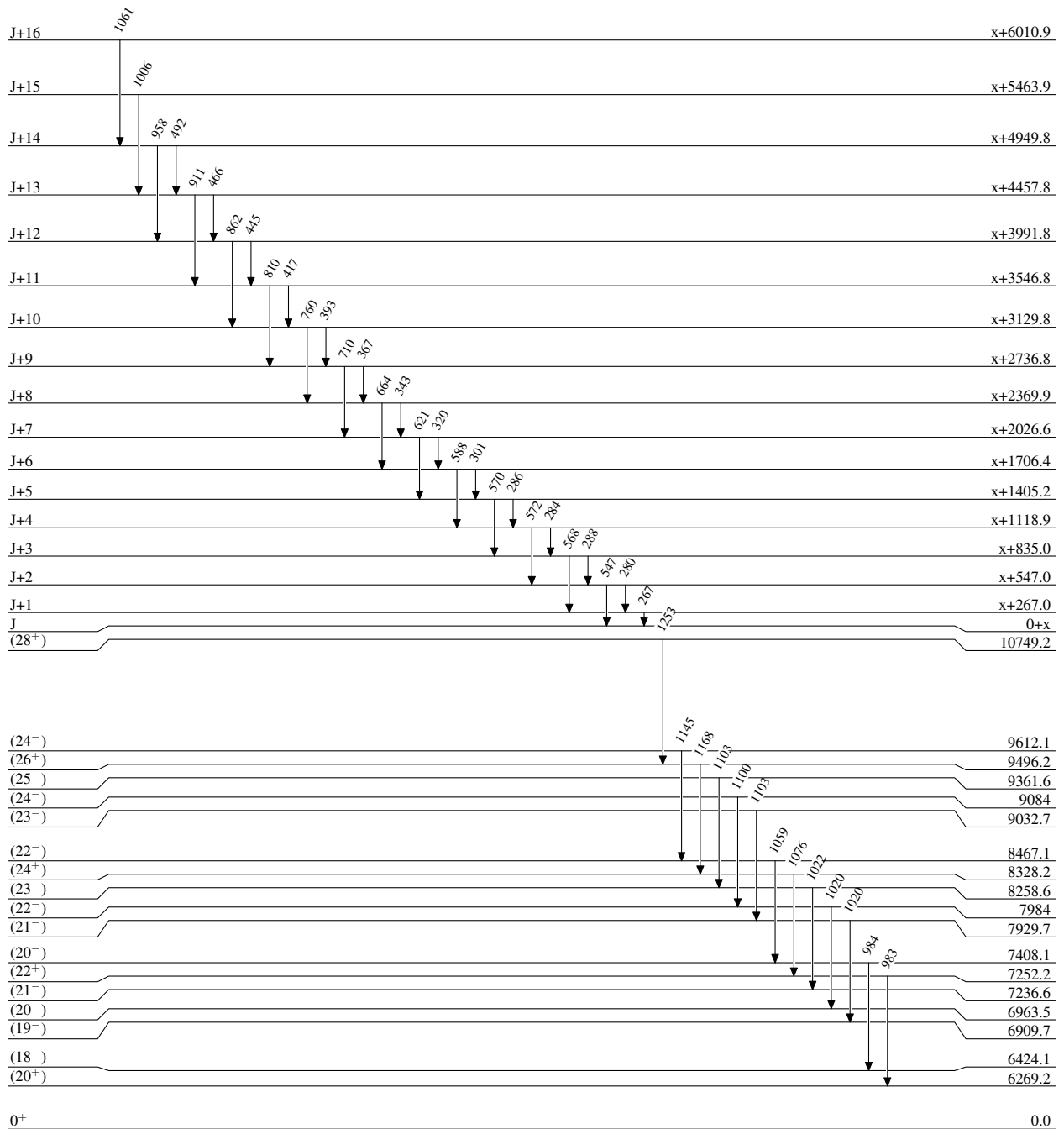
‡ From 2001Zh22; uncertainty of 0.4 keV was assumed (evaluator).

From 2001Zh22; uncertainty of 10% was assumed (evaluator).

@ Relative to $I(196\gamma)=100$ at $E(^{12}\text{C})=50$ MeV in $^{112}\text{Sn}(^{12}\text{C},2n\gamma)$ (2004Fr06). γ ratios for the strongest $I_\gamma=100$ in $^{112}\text{Sn}(^{12}\text{C},2n\gamma)$ (2004Fr06) are included in gamma comments in case branching is not 1.0 with additional other E_γ and I_γ information.

& From DCO in 2004Fr06, additional information in 2001Zh22 and 2001Pe21 (no detailed description for each transition).

^a Placement of transition in the level scheme is uncertain.

(HI,xn γ) 2004Fr06,2001Zh22,2001Pe21Level SchemeIntensities: Relative I_{γ}  $^{122}_{56}\text{Ba}_{66}$

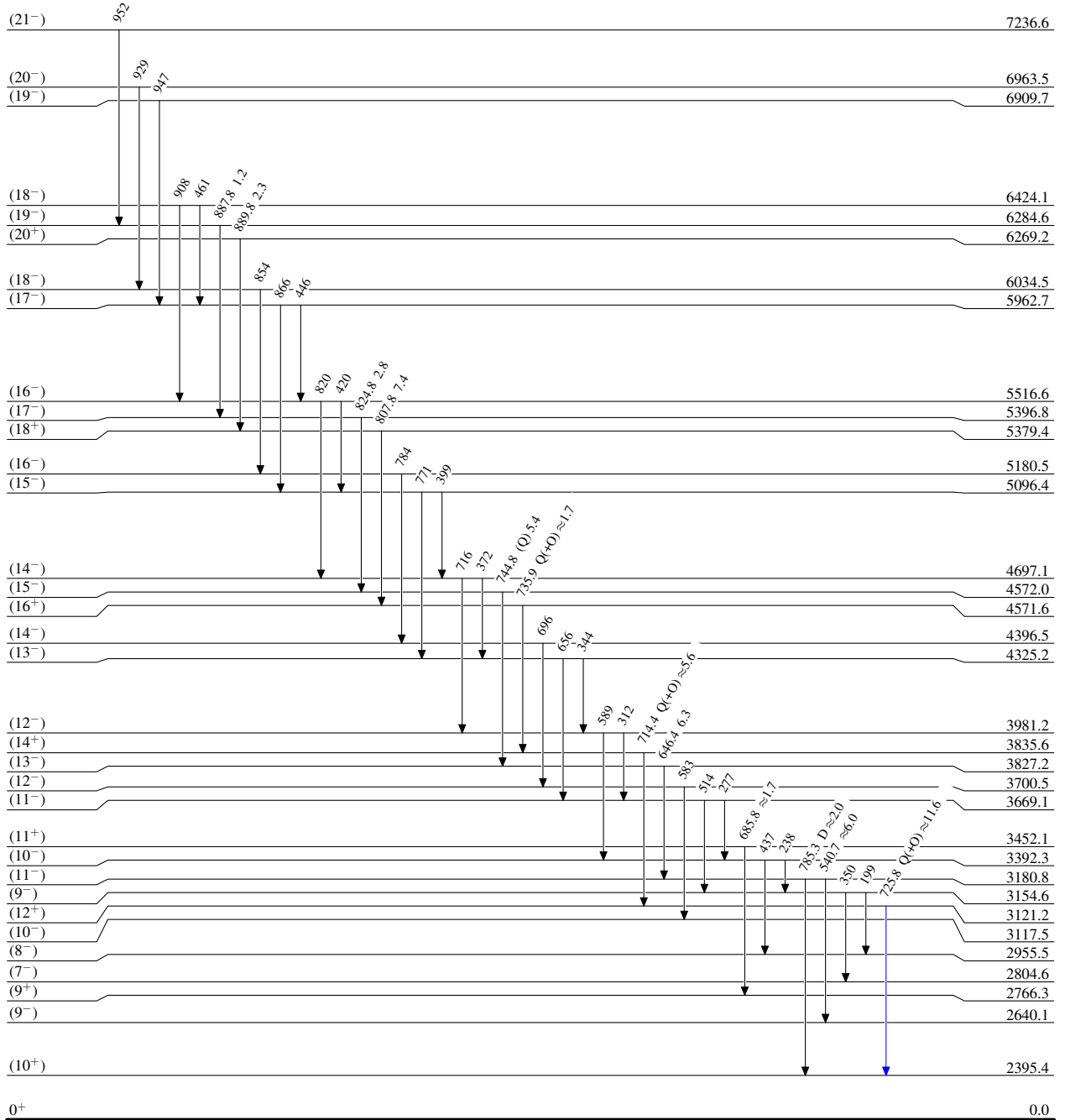
(HI,xn γ) 2004Fr06,2001Zh22,2001Pe21

Level Scheme (continued)

Intensities: Relative I_γ

Legend

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



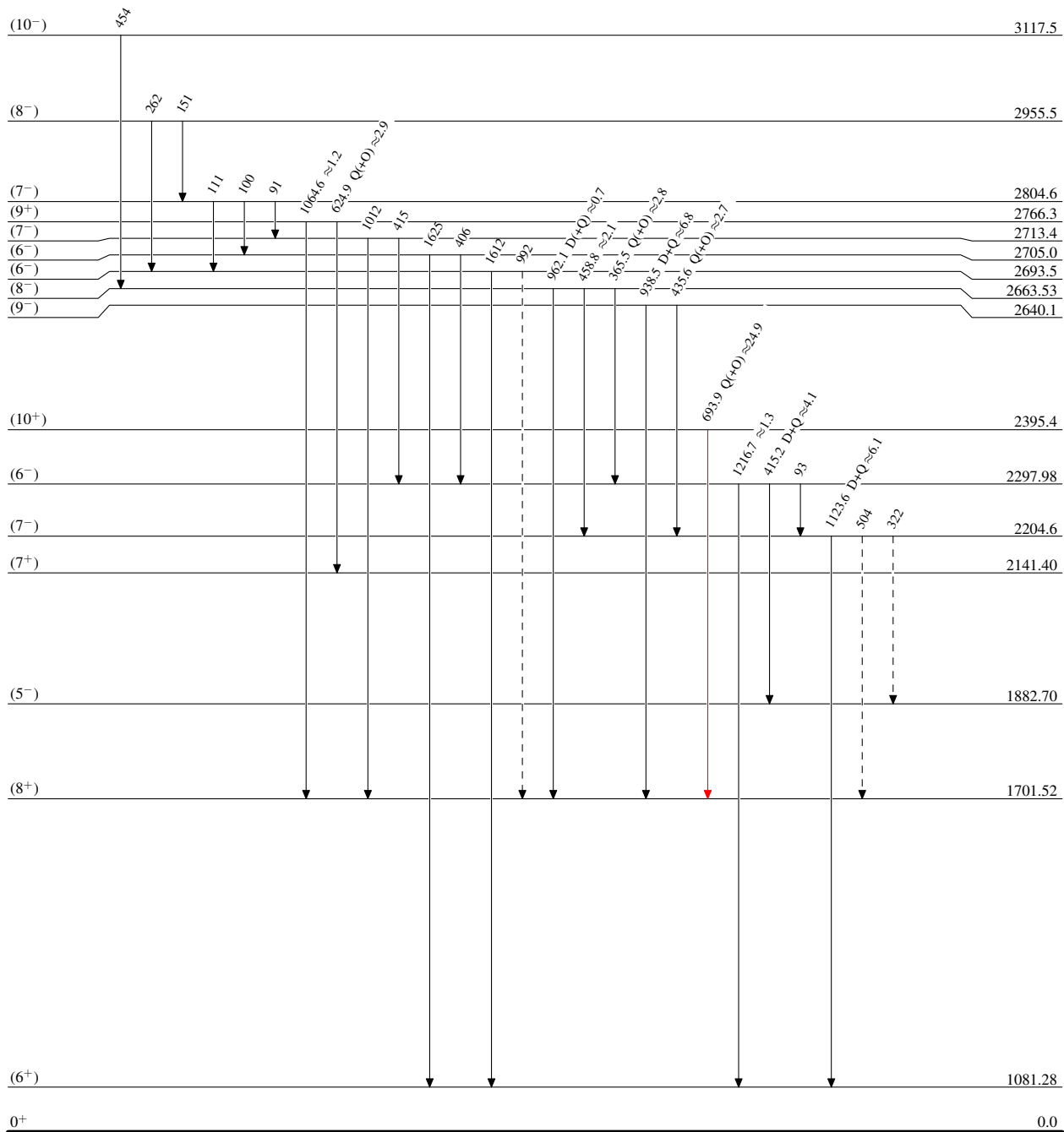
(HI,xn γ) 2004Fr06,2001Zh22,2001Pe21

Legend

Level Scheme (continued)

Intensities: Relative I_γ

- \longrightarrow $I_\gamma < 2\% \times I_\gamma^{\max}$
 \longrightarrow $I_\gamma < 10\% \times I_\gamma^{\max}$
 \longrightarrow $I_\gamma > 10\% \times I_\gamma^{\max}$
 \dashrightarrow γ Decay (Uncertain)

 $^{122}_{56}\text{Ba}_{66}$

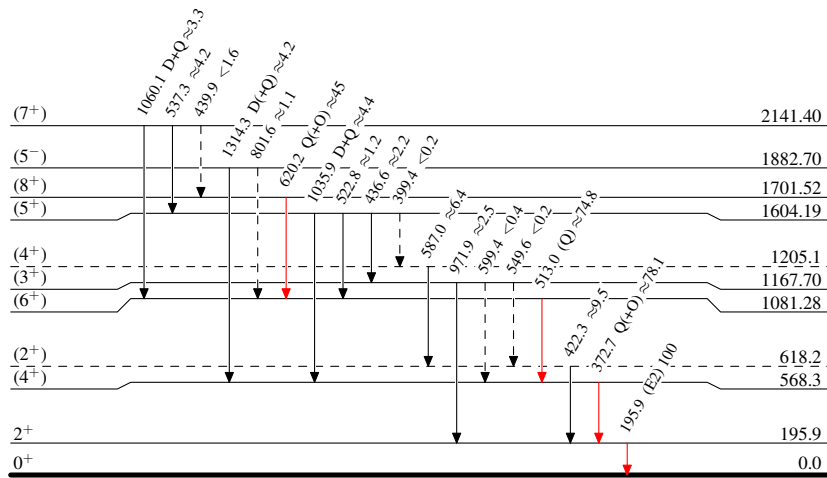
(HI,xn γ) 2004Fr06,2001Zh22,2001Pe21

Legend

Level Scheme (continued)

Intensities: Relative I_γ

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



$^{122}_{56}\text{Ba}_{66}$

(HI,xn γ) 2004Fr06,2001Zh22,2001Pe21Band(F): Band 6, configuration= $\nu 7/2[523]\nu(5/2[402]$ and/or $5/2[413]$)Band(A): Band 1; g.s. band, Crossing at ≈ 360 keV due to alignment of a pair of $h_{11/2}$ protons

(28 ⁺)	10749.2
	1253
(26 ⁺)	9496.2
	1168
(24 ⁺)	8328.2
	1076
(22 ⁺)	7252.2
	983
(20 ⁺)	6269.2
	890
(18 ⁺)	5379.4
	808
(16 ⁺)	4571.6
	736
(14 ⁺)	3835.6
	714
(12 ⁺)	3121.2
	726
(10 ⁺)	2395.4
	694
(8 ⁺)	1701.52
	620
(6 ⁺)	1081.28
	513
(4 ⁺)	568.3
	373
2 ⁺	195.9
0 ⁺	196 0.0

Band(B): Band 2, configuration= $\pi(1/2[550])\pi(3/2[422] + 1/2[420])$, $\alpha=0$

(24 ⁻)	9084
	1100
(22 ⁻)	7984
	1020
(20 ⁻)	6963.5
	929
(18 ⁻)	6034.5
	854
(16 ⁻)	5180.5
	784
(14 ⁻)	4396.5
	696
(12 ⁻)	3700.5
	583
(10 ⁻)	3117.5
	454
(8 ⁻)	2663.53
	366
(6 ⁻)	2297.98

Band(C): Band 3, configuration= $\pi(1/2[550])\pi(3/2[422] + 1/2[420])$, $\alpha=1$

(25 ⁻)	9361.6
	1103
(23 ⁻)	8258.6
	1022
(21 ⁻)	7236.6
	952
(19 ⁻)	6284.6
	888
(17 ⁻)	5396.8
	825
(15 ⁻)	4572.0
	745
(13 ⁻)	3827.2
	646
(11 ⁻)	3180.8
	541
(9 ⁻)	2640.1
	436
(7 ⁻)	2204.6
	322
(5 ⁻)	1882.70

Band(D): Band 4, configuration= $\pi 9/2[404]\pi 1/2[550]$, $\alpha=0$

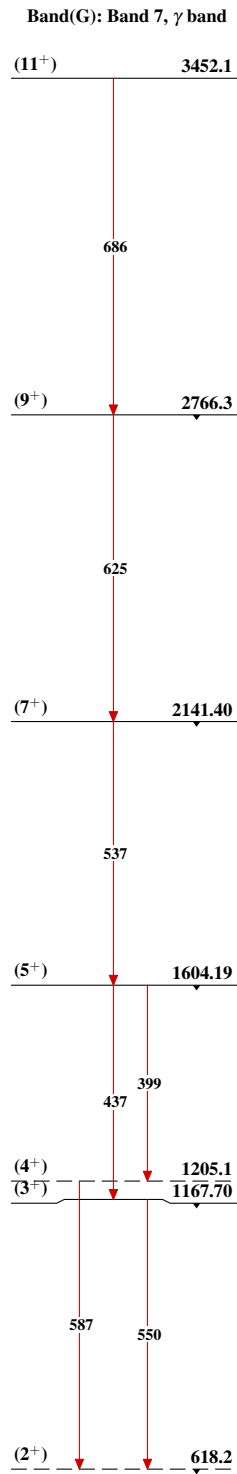
(24 ⁻)	9612.1
	1145
(22 ⁻)	8467.1
	1059
(20 ⁻)	7408.1
	984
(18 ⁻)	6424.1
	908
(16 ⁻)	5516.6
	820
(14 ⁻)	4697.1
	716
(12 ⁻)	3981.2
	589
(10 ⁻)	3392.3
	437
(8 ⁻)	2955.5
	262
(6 ⁻)	2693.5

Band(E): Band 5, configuration= $\pi 9/2[404]\pi 1/2[550]$, $\alpha=1$

(23 ⁻)	9032.7
	1103
(21 ⁻)	7929.7
	1020
(19 ⁻)	6909.7
	947
(17 ⁻)	5962.7
	866
(15 ⁻)	5096.4
	771
(13 ⁻)	4325.2
	656
(11 ⁻)	3669.1
	514
(9 ⁻)	3154.6
	350
(7 ⁻)	2804.6

J+16	x+6010.9
J+15	1061 x+5463.9
J+14	1006 x+4949.8
J+13	492 958 x+4457.8
J+12	466 x+3991.8
J+11	445 862 x+3546.8
J+10	417 x+3129.8
J+9	393 760 x+2736.8
J+8	367 x+2369.9
J+7	343 664 x+2026.6
J+6	320 x+1706.4
J+5	301 588 x+1405.2
J+4	286 x+1118.9
J+3	284 x+835.0
J+2	288 572 x+547.0
J+1	280 547 x+267.0
J	267 0+x

(HI,xn γ) 2004Fr06,2001Zh22,2001Pe21 (continued)

 $^{122}_{56}\text{Ba}_{66}$