

Adopted Levels, Gammas

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	D. De Frenne and A. Negret		NDS 109,943 (2008)	1-May-2007

$Q(\beta^-) = -10880.9$; $S(n) = 12087.7$; $S(p) = 5002.12$; $Q(\alpha) = -119.6$ [2012Wa38](#)

Note: Current evaluation has used the following Q record $-111\text{E}+2$ $\text{SY}1.223\text{E}4$ $9.523\text{E}3$ $5-170.60$ [2003Au03](#).

 ^{106}Sn LevelsCross Reference (XREF) Flags

A ^{110}Te α decay
B (HI,xn γ)
C $^{106}\text{Cd}(^3\text{He},3n)$

E(level) [†]	J $\pi^{\ddagger}$	T _{1/2}	XREF	Comments
0.0 [@]	0 ⁺	115 s 5	AB	$\% \epsilon + \% \beta^+ = 100$ T _{1/2} : from 1988Ba10 . Others: 126 s 6 (1978Va20), 114 s 18 (1975Bu26).
1207.7 [@] 5	2 ⁺		B	
2019.6 [@] 5	4 ⁺		B	
2325.0 [@] 18	6 ⁺	2.6 ns 4	B	g factor = -0.149 (1994Ma47), measured relative to 6 ⁺ state of ^{108}Sn . T _{1/2} : Weighted average of 2.3 ns 5 from (particle) $\gamma(t)$ (1994Ma47) and $\gamma\gamma(t)$ (1988IsZW) and 2.8 ns 5 from $^{106}\text{Cd}(^3\text{He},3n)$ (1989An14).
3480.4 [@] 6	8 ⁺		B	
3777.3 6			B	
4135.0 [@] 23	10 ⁺	25 ps 4	B	T _{1/2} : From recoil-distance method (1994Ma47).
4393.9 6	9 ⁻		B	
4459.0 7			B	
4587.3 6	10 ⁺		B	
4853.3 6			B	
5294.2 [@] 6	12 ⁺		B	
5542.1 7	11 ⁺		B	
5543.4 6	11 ⁻		B	
5860.3 21	(12 ⁺)		B	
5900.9 7	(11)		B	
5959.8 7			B	
6255.8 6	13 ⁻		B	
6655.8 7	13		B	
6711.4 7	14 ⁻	≤ 15 ps	B	T _{1/2} : From recoil-distance method (1994Ma47).
6745.6 7	(13 ⁻)		B	
6745.7 7			B	
6752.5 7			B	
6773.3 7			B	
7007.0 7	13		B	
7141.8 3	15 ⁻		B	
7385.3 7	15 ⁻		B	
7596.8 3	(16 ⁺)		B	
7598.5 [#] 7	(14 ⁻)		B	
7681.3 7			B	
7686.1 7			B	
7745.0 15			B	
7804.6 7	16 ⁻		B	
7865.3? 10			B	E(level): Observed only by 1989Az02 . Level energy recalculated by evaluators using decaying gamma to level energy taken from 1997Ju01 .

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Adopted Levels, Gammas (continued) ^{106}Sn Levels (continued)

E(level) [†]	J ^π [‡]	XREF	Comments
8012.0 [#] 7	(15 ⁻)	B	
8045.8 7	(15 ⁻)	B	
8140.5 5		B	
8141.0 7		B	
8215.7 7	17 ⁻	B	
8215.7+x 3		B	
8559.0 [#] 7	(16 ⁻)	B	
8617.7+x 10		B	
8653.5 3	(18)	B	
8686.5 3	(18 ⁺)	B	
9096.7+x 15		B	
9100.5 3	(19 ⁺)	B	
9102.3 [#] 7	(17 ⁻)	B	
9552.2 [#] 7	(18 ⁻)	B	J ^π : J ^π =(20 ⁺) suggested by 1995Wa16.
9987.2 7	18	B	
10040.4 [#] 8	(19 ⁻)	B	J ^π : J ^π =(21 ⁺) suggested by 1994Wa16.
10370.7 3		B	
10632.4 [#] 1		B	
10806.7 8	20	B	J ^π : J ^π =(19) suggested by 1994Wa16.
11265.42 [#] 4		B	J ^π : J ^π =(23 ⁺) suggested by 1994Wa16.
11318.7 4	(20)	B	
11318.7+y	(22 ⁺)	B	
12312.7+y 10	(24 ⁺)	B	
13440.7+y 15	(26 ⁺)	B	
14714.7+y 18	(28 ⁺)	B	
16181.7+y 20	(30 ⁺)	B	
17898.7+y 23	(32 ⁺)	B	
19931.7+y 25	(34 ⁺)	B	
z		B	Additional information 1.
941.0+z 10		B	
2050.0+z 15		B	
3291.0+z 18		B	
4693.0+z 20		B	
6265.0+z 23		B	

[†] Calculated with a least-squares fit using γ -ray energies observed.[‡] Based on $\gamma(\theta)$, γ linear pol and observed band structure.[#] Band(A): $\Delta J=1$ band.[@] Band(B): yrast band. $\gamma(^{106}\text{Sn})$

E _i (level)	J _i ^π	E _γ	I _γ [†]	E _f	J _f ^π	Mult. [‡]	Comments
1207.7	2 ⁺	1207.7 5		0.0	0 ⁺	E2	
2019.6	4 ⁺	811.9 2	100	1207.7	2 ⁺	E2	
2325.0	6 ⁺	304.7 2	100	2019.6	4 ⁺	E2	B(E2)(W.u.)=3.1 7
3480.4	8 ⁺	1156.1 2	100	2325.0	6 ⁺	E2	
3777.3		296.9 2	100	3480.4	8 ⁺		
4135.0	10 ⁺	652.8 2	100	3480.4	8 ⁺	E2	B(E2)(W.u.)=6.4 11
4393.9	9 ⁻	913.5 2	100	3480.4	8 ⁺		
4459.0		325.7 2	100	4135.0	10 ⁺		

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Adopted Levels, Gammas (continued)

$\gamma(^{106}\text{Sn})$ (continued)								
$E_i(\text{level})$	J_i^π	E_γ	$I_\gamma^\dagger$	E_f	J_f^π	Mult. [‡]	δ	Comments
4587.3	10 ⁺	1106.9 2	100	3480.4	8 ⁺			
4853.3		1372.9 2	100	3480.4	8 ⁺			
5294.2	12 ⁺	706.9 2	5.6 6	4587.3	10 ⁺			
		1160.9 2	100 2	4135.0	10 ⁺	E2		
5542.1	11 ⁺	954.8 2	100	4587.3	10 ⁺			
5543.4	11 ⁻	1149.6 2	65 4	4393.9	9 ⁻	(E2)		
		1410.1 2	100 8	4135.0	10 ⁺			
5860.3	(12 ⁺)	1727 2	100	4135.0	10 ⁺			
5900.9	(11)	1767.6 2	100	4135.0	10 ⁺			
5959.8		1826.5 2	100	4135.0	10 ⁺			
6255.8	13 ⁻	712.4 2	6.3 7	5543.4	11 ⁻	(E2)		
		961.5 2	100.0 24	5294.2	12 ⁺	E1		
6655.8	13	1361.6 2	100	5294.2	12 ⁺			
6711.4	14 ⁻	455.4 2	100	6255.8	13 ⁻	M1+E2	-0.20 6	B(M1)(W.u.)>0.015; B(E2)(W.u.)>2.6 Mult.: E1 given by 1989Az02 . POL $\approx$ 0 at 90° to the beam direction (1994Ma47).
6745.6	(13 ⁻)	1202.2 2	100	5543.4	11 ⁻			
6745.7		1451.5 2	100	5294.2	12 ⁺			
6752.5		496.7 2	100	6255.8	13 ⁻			
6773.3		517.5 2	100	6255.8	13 ⁻			
7007.0	13	1712.8 2	100	5294.2	12 ⁺			
7141.8	15 ⁻	886	100	6255.8	13 ⁻			
7385.3	15 ⁻	1129.5 2	100	6255.8	13 ⁻	Q		
7596.8	(16 ⁺)	455	100	7141.8	15 ⁻			
7598.5	(14 ⁻)	887.0 2	100	6711.4	14 ⁻	Q		
7681.3		1425.5 2	100	6255.8	13 ⁻			
7686.1		940.5 2	100	6745.7				
7745.0		1089.2 2	100	6655.8	13			
7804.6	16 ⁻	1093.2 2	100	6711.4	14 ⁻	Q		
7865.3?		478 1	100	7385.3	15 ⁻	Q		
8012.0	(15 ⁻)	413.4 2	100 2	7598.5	(14 ⁻)	D [#]		
		1300.6 @ 2	16 3	6711.4	14 ⁻			
		1756.5 2	31.1 19	6255.8	13 ⁻			
8045.8	(15 ⁻)	447.4 2	100 5	7598.5	(14 ⁻)	D [#]		
		1334.2 2	34.9 16	6711.4	14 ⁻			
8140.5		542	100	7596.8	(16 ⁺)			
8141.0		1429.6 2	100	6711.4	14 ⁻			
8215.7	17 ⁻	830.4 2	100	7385.3	15 ⁻	D [#]		Mult.: D excluded if J^π initial and final levels are correct.
8559.0	(16 ⁻)	513.2 2	86 6	8045.8	(15 ⁻)			
		547.0 2	100 4	8012.0	(15 ⁻)			
8617.7+x		402	100	8215.7+x				
8653.5	(18)	513		8140.5				
		1055		7598.5	(14 ⁻)			
8686.5	(18 ⁺)	546		8140.5				
		1088		7598.5	(14 ⁻)			
9096.7+x		479	100	8617.7+x				
9100.5	(19 ⁺)	414		8686.5	(18 ⁺)			
		447		8653.5	(18)			
9102.3	(17 ⁻)	543.3 2	100	8559.0	(16 ⁻)	D [#]		
9552.2	(18 ⁻)	449.9 2	100 4	9102.3	(17 ⁻)	D [#]		
		993 @ 2	28 5	8559.0	(16 ⁻)			

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Adopted Levels, Gammas (continued)

$\gamma(^{106}\text{Sn})$ (continued)							
$E_i(\text{level})$	J_i^π	E_γ	$I_\gamma^\dagger$	E_f	J_f^π	Mult. [‡]	Comments
9987.2	18	1771.5 2	100	8215.7	17 ⁻	Q [#]	
10040.4	(19 ⁻)	488.2 2	100	9552.2	(18 ⁻)		
10370.7		2155	100	8215.7	17 ⁻		
10632.4		592 2	100	10040.4	(19 ⁻)		
10806.7	20	819.5 2	100	9987.2	18		Mult.: dipole or M1+E2.
11265.42		633 <i>I</i>	100	10632.4			
11318.7	(20)	512	100	10806.7	20		Mult.: dipole or M1+E2.
12312.7+y	(24 ⁺)	994	100	11318.7+y	(22 ⁺)		
13440.7+y	(26 ⁺)	1128	100	12312.7+y	(24 ⁺)		
14714.7+y	(28 ⁺)	1274	100	13440.7+y	(26 ⁺)		
16181.7+y	(30 ⁺)	1470	100	14714.7+y	(28 ⁺)		
17898.7+y	(32 ⁺)	1717	100	16181.7+y	(30 ⁺)		
19931.7+y	(34 ⁺)	2033	100	17898.7+y	(32 ⁺)		
941.0+z		941	100	z			
2050.0+z		1109	100	941.0+z			
3291.0+z		1241	100	2050.0+z			
4693.0+z		1402	100	3291.0+z			
6265.0+z		1572	100	4693.0+z			

[†] From heavy ion reactions.

[‡] From $\gamma\gamma(\theta)(\text{DCO})(1994\text{Ma}47)$ and $\gamma(\theta)$ ([1997Ju01](#), [1994Ma47](#)) $\gamma(\theta)$ and γ linear pol ([1989Az02](#)).

[#] Based only on ratio line intensities in spectra at 0° and 150° ([1989Az02](#)).

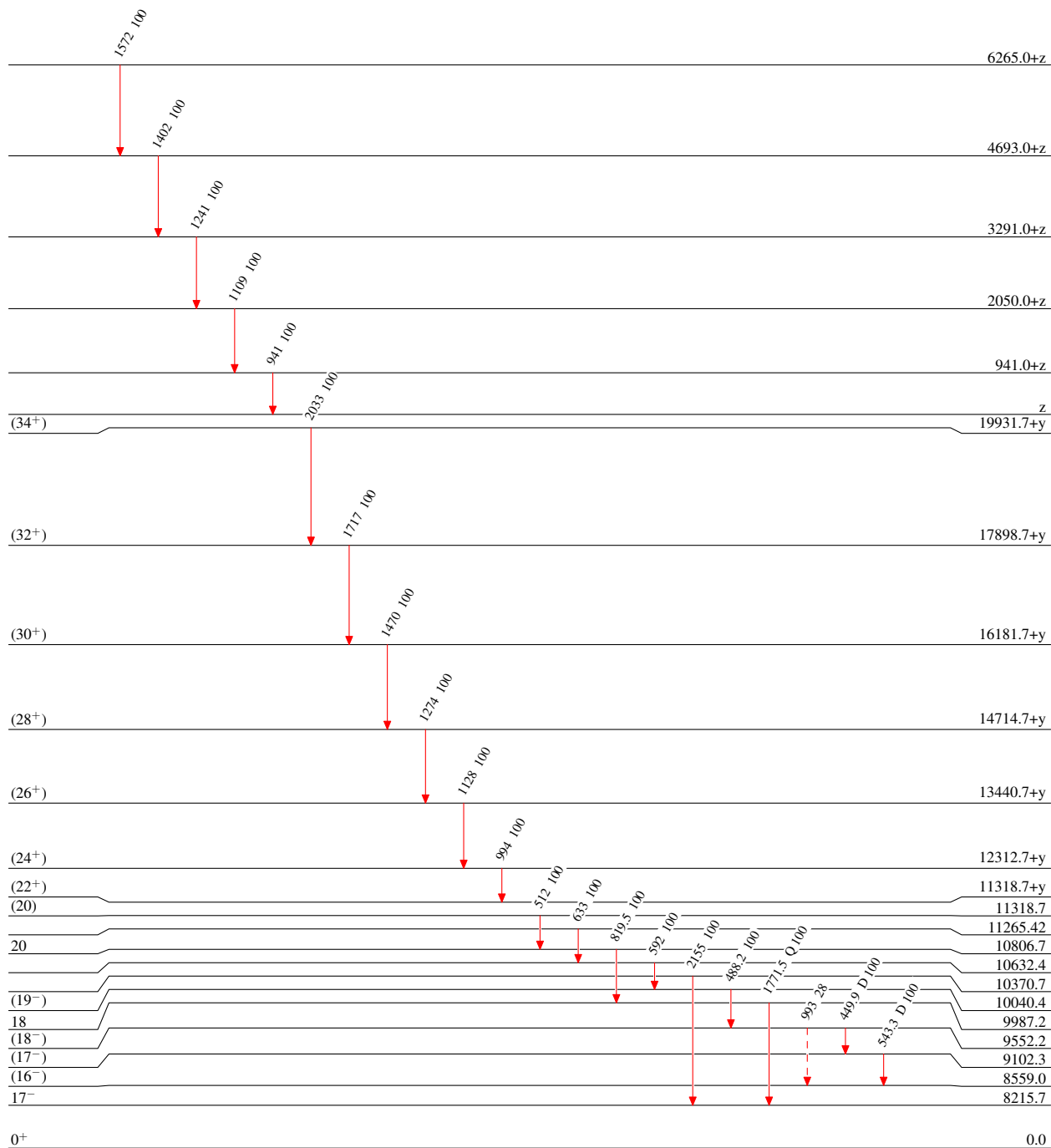
[@] Placement of transition in the level scheme is uncertain.

Adopted Levels, Gammas**Level Scheme**

Intensities: Type not specified

Legend

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



115 s 5

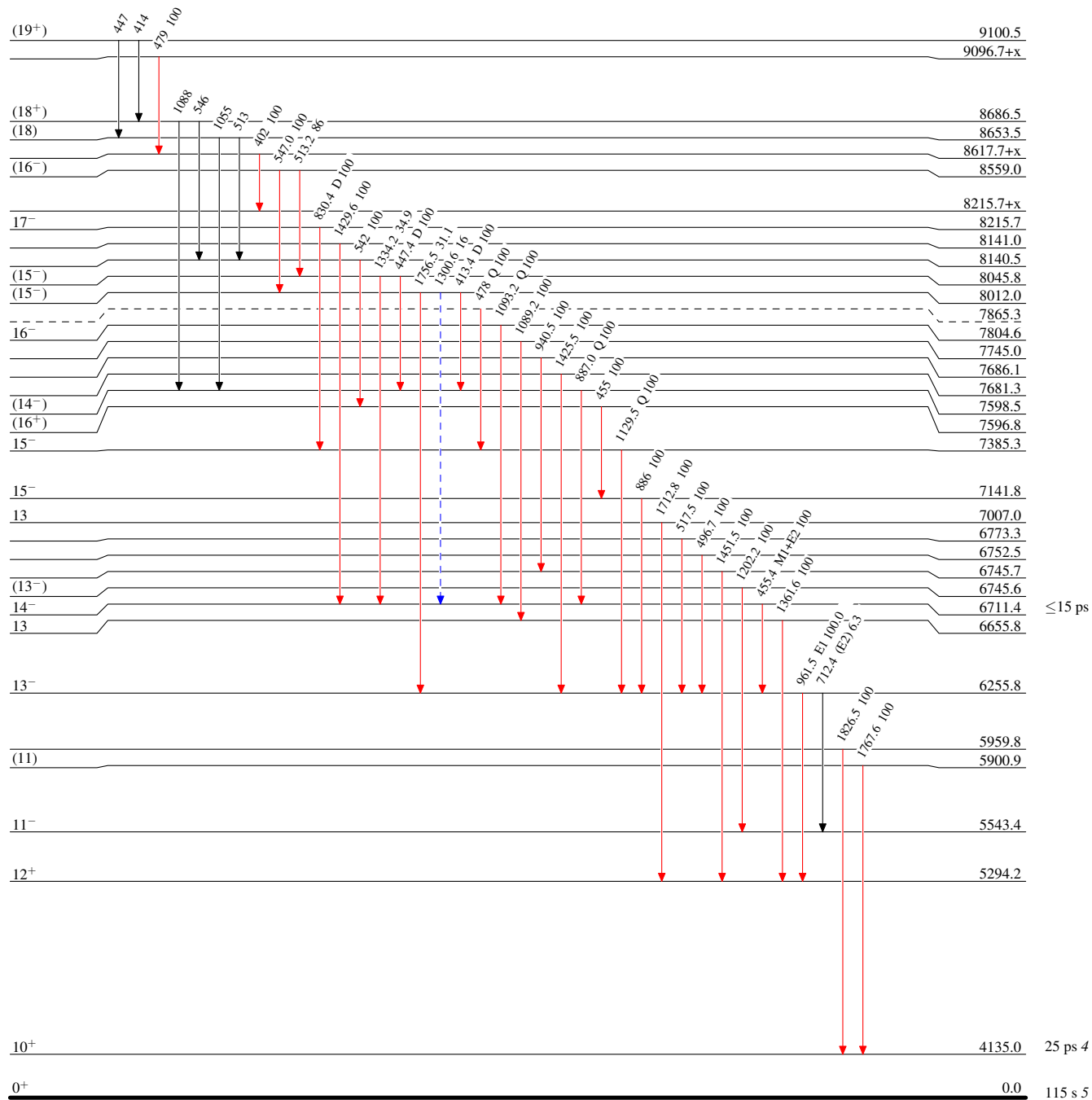
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Type not specified

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

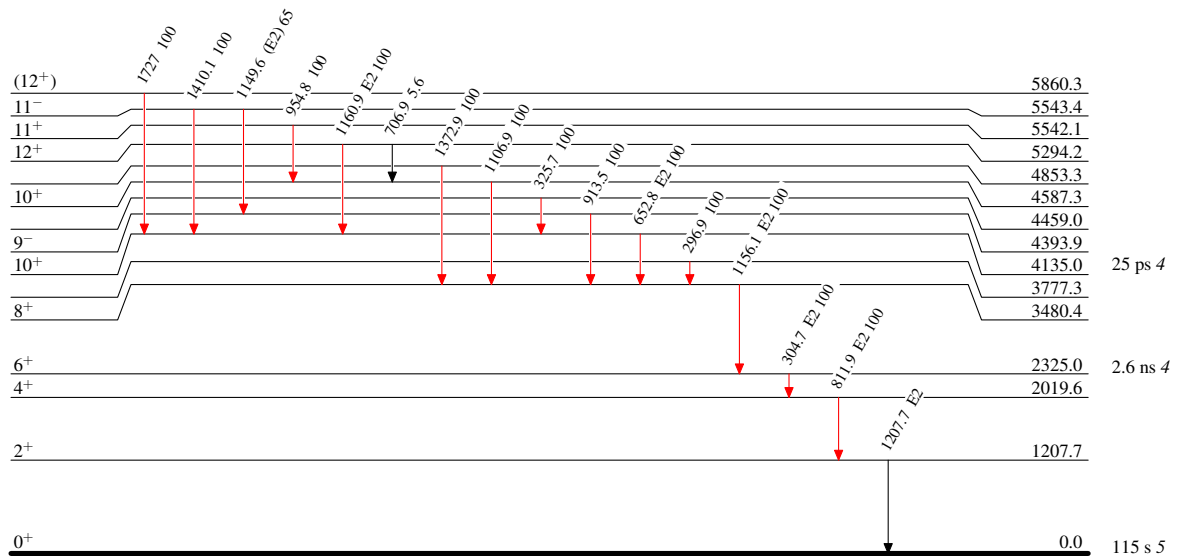


Adopted Levels, Gammas**Level Scheme (continued)**

Intensities: Type not specified

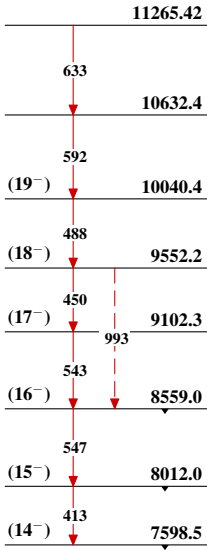
Legend

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

 $^{106}_{50}\text{Sn}_{56}$

Adopted Levels, Gammas

Band(A): $\Delta J=1$ band



Band(B): Yrast band

