

(HI,xn γ) [1997Ju01](#),[1997JeZZ](#),[1996Wa12](#)

Type	History			Literature Cutoff Date
	Author	Citation		
Full Evaluation	Jean Blachot	ENSDF		1-Jul-2008

[1997Ju01](#): $^{54}\text{Fe}(^{58}\text{Ni},4p\gamma)$ E=270 MeV. Measured $E\gamma$, $I\gamma$, $\gamma\gamma$, DSA Enriched ^{54}Fe target, Ge, BGO suppression shields. Nordball detector particle selection.

[1997JeZZ](#): $^{54}\text{Fe}(^{58}\text{Ni},4p\gamma)$ E=243 MeV. Measured $E\gamma$, $I\gamma$, $\gamma\gamma$, DSA Enriched ^{54}Fe target, Ge, BGO suppression shields, Same group as [1993Wa13](#) and [1996Wa12](#) with better statistic. Gammasphere detector with 95 HPGe detectors but no particle selection.

[1996Wa12](#): $^{54}\text{Fe}(^{58}\text{Ni},4p\gamma)$ E=243 MeV. Measured $E\gamma$, $I\gamma$, $\gamma\gamma$, DSA Enriched ^{54}Fe target, Ge, BGO suppression shields, Same group as [1993Wa13](#) with better statistic. Gammasphere detector + Chalk River detector.

[1993Wa13](#): $^{54}\text{Fe}(^{58}\text{Ni},4p\gamma)$ E=243 MeV. Measured $E\gamma$, $I\gamma$, $\gamma\gamma$, DSA, Enriched ^{54}Fe target, Ge, BGO suppression shields. Chalk River detector.

[1989Az02](#): $^{54}\text{Fe}(^{58}\text{Ni},4p\gamma)$ E= 268 MeV. Measured $E\gamma$, $I\gamma$, $\gamma\gamma$. Enriched ^{54}Fe target ($700\mu\text{g}/\text{cm}^2$) French multidetector system "Chateau de Cristal" consisting of 38 BaF2 and 12 hyper-pure Ge detectors used with anti-Compton shields. Sixty million events were recorded on tape and analyzed. The maximum yield of ^{108}Sn was found in the window of lowest total energy. X-ray coincidences are used to distinguish ^{109}Sb and ^{107}In . $\gamma\gamma(\theta)$ and linear polarization were also measured.

[1981An06](#): $^{92}\text{Mo}(^{19}\text{F},p2n\gamma)$ E=65– 89 MeV. Measured $E\gamma$, $I\gamma$, $\gamma\gamma$, $\gamma(\theta)$, $\sigma(E)$, δ .

[1980Au08](#): $^{58}\text{Ni}(^{54}\text{Fe},4p\gamma)$ E= 290 MeV. Measured $E\gamma$, $I\gamma$, $\gamma\gamma$, $\sigma(E)$.

[1979ChYZ](#): $^{58}\text{Ni}(^{54}\text{Fe},4p\gamma)$ E= 290 MeV, 230 MeV. Measured $E\gamma$, $I\gamma$, $\gamma\gamma$.

[1969InZZ](#): $^{100}\text{Ru}(^{12}\text{C},4n\gamma)$ E=70– 95 MeV. They found the 2^+ , 4^+ , and 6^+ levels.

The level scheme is mainly that of [1997Ju01](#) with some modifications and new bands proposed by [1997JeZZ](#). Negative parity band above the 19^- level at 10053 and the positive parity band above the 20^+ level at 9908 are from [1996Wa12](#), also the unlinked band is from [1996Wa12](#) with $E\gamma$ from [1997JeZZ](#). [1989Az02](#) agree until the 22^+ in g.s. band and for levels below 6500 keV. [1980Au08](#) report a preliminary level scheme with an inversion in the order of the 616 and 1141 transitions.

 ^{108}Sn Levels

E(level)	$J\pi^\dagger$	$T_{1/2}$	Comments
0.0 ‡	0^+		
1206.09 ‡ 10	2^+		
2111.18 ‡ 15	4^+		
2364.52 ‡ 17	6^+	7.3 ns 4	$T_{1/2}$: from pulsed-beam (1983Ha37). Other: 7.6 ns 6 from centroid shift (1982AnZY).
2624.83 22	5^+		
2817.37 23	6^+		
3560.53 ‡ 19	8^+	71 ps 10	$T_{1/2}$: from recoil distance (1983Ha37).
3586.81 d 20	7^-		
3714.0 4			
3870.39 21	7^+		
3930.0 3	7		
4000.8 3	8^+		
4145.91 d 20	8^-		
4159.64 20	8^+		
4176.44 c 22	9^-		
4256.14 ‡ 20	10^+		
4399.13 24	9^+		
4500.49 21	10^+		
5062.2 3	9		
5140.89 21	10^-		
5317.14 c 21	11^-		
5416.21 ‡ 21	12^+		
5699.5 4			
5754.07 a 21	10^+		

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(HI,xn γ) [1997Ju01](#),[1997JeZZ](#),[1996Wa12](#) (continued) ^{108}Sn Levels (continued)

E(level)	J $^{\pi}$ [†]
5756.6 8	
5765.68 24	10 ⁺
5959.37 ^d 21	12 ⁻
5970.5 4	(10 ⁺)
6070.40 23	12 ⁻
6099.29 [@] 22	13 ⁻
6163.4 3	
6316.07 ^c 21	13 ⁻
6374.70 25	13 ⁻
6493.92 ^a 23	12 ⁺
6530.26 ^d 21	14 ⁻
6666.10 [#] 23	12 ⁻
6886.01 [#] 21	13 ⁻
7028.8 4	
7036.0 ^b 4	(13 ⁻)
7183.70 [#] 22	14 ⁻
7195.13 25	15 ⁻
7201.0 ^a 3	14 ⁺
7299.7 4	(15 ⁻)
7480.5 [@] 3	
7607.40 [#] 24	15 ⁻
7646.5 5	
7790.0 ^b 4	16 ⁻
7790.2 3	15 ⁻
7992.2 ^a 3	16 ⁺
8038.0 ^c 4	15 ⁻
8079.1 4	
8103.0 ^c 7	(16 ⁻)
8117.33 [#] 25	16 ⁻
8330.7 4	17 ⁻
8351.2 ^c 5	17 ⁻
8380.2 5	(15 ⁻)
8635.5 [#] 3	17 ⁻
8695.7 ^c 4	18 ⁻
8701.4 ^b 3	17 ⁻
8893.1 ^a 4	18 ⁺
8934.0 11	
9105.6 ^c 5	19 ⁻
9170.6 [#] 3	18 ⁻
9233.0 5	17 ⁻
9579.2 ^c 5	20 ⁻
9720.8 4	19 ⁻
9774.0 [@] 4	19 ⁻
9907.6 ^a 5	20 ⁺
10053.3 5	19 ⁻
10062.4 ^c 7	21 ⁻
10356.0 5	20 ⁻
10571.6 ^c 9	22 ⁻
10954.5 [@] 5	21 ⁻
11004.6 ^b 5	21 ⁻

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(HI,xn γ) [1997Ju01,1997JeZZ,1996Wa12](#) (continued) ^{108}Sn Levels (continued)

E(level)	J $\pi^{\dagger}$	Comments
11026.7 ^a 7	22 ⁺	
11902.7 [@] 5	23 ⁻	
12251.9 ^a 8	24 ⁺	
12944.6 [@] 6	25 ⁻	
13607.9 ^a 9	26 ⁺	
14123.6 [@] 12	27 ⁻	
15121.8 ^a 10	28 ⁺	
15479.9 [@] 13	29 ⁻	
16826.9 ^a 11	30 ⁺	
17022.8 [@] 13	31 ⁻	
18722.1 ^a 11	(32 ⁺)	
18764.3 [@] 14	33 ⁻	
18801.1 12	(32 ⁺)	
20340.8 ^a 12	(34 ⁺)	
20746.3 [@] 15	(35 ⁻)	
22063.5 ^a 12	(36 ⁺)	
22987.1 [@] 16	(37 ⁻)	
23935.6 ^a 13	(38 ⁺)	
25559 [@]	(39 ⁻)	
x		
9908+x ^{&}	(20 ⁻)	Additional information 1.
10837.10+x ^{&} 20	(22 ⁻)	
11866.0+x ^{&} 6	(24 ⁻)	
13062.0+x ^{&} 12	(26 ⁻)	
14448.0+x ^{&} 12	(28 ⁻)	
16024.6+x ^{&} 13	(30 ⁻)	
17802.0+x ^{&} 14	(32 ⁻)	
19803.3+x ^{&} 16	(34 ⁻)	
22088.4+x 18	(36 ⁻)	

[†] From γ multipolarity.[‡] Band(A): g.s. band.# Band(B): $\pi=-$ band 1.[@] Band(C): $\pi=-$ band 2.[&] Band(D): $\pi=-$ band 3.^a Band(E): $\pi=+$ band.^b Band(F): $\pi=-$ band 4.^c Band(G): $\pi=-$ band 5.^d Band(H): $\pi=-$ band 6.

(HI,xn γ) 1997Ju01,1997JeZZ,1996Wa12 (continued)

$\gamma(^{108}\text{Sn})$								
$E_\gamma^\dagger$	$I_\gamma^\ddagger$	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult.&	$\delta^\oplus$	Comments
x		9908+x	(20 ⁻)	9907.6	20 ⁺			
140.3 5	<0.5	6099.29	13 ⁻	5959.37	12 ⁻			
192.4 3	1.1 2	2817.37	6 ⁺	2624.83	5 ⁺	Q		
214.1 1	2.8 2	6530.26	14 ⁻	6316.07	13 ⁻			I_γ : 2.8 3 (1997JeZZ).
216 1	<0.5	4145.91	8 ⁻	3930.0	7			
220.0 1	1.4 1	6886.01	13 ⁻	6666.10	12 ⁻			I_γ : 1.5 2 (1997JeZZ).
248.2 5	0.2 1	8351.2	17 ⁻	8103.0	(16 ⁻)			
253.3 [#] 1	116 2	2364.52	6 ⁺	2111.18	4 ⁺	E2		B(E2)(W.u.)=2.43 14 I_γ : 116 5 (1997JeZZ).
255.3 3	2.4 3	4256.14	10 ⁺	4000.8	8 ⁺			
260.1 3	1.2 1	2624.83	5 ⁺	2364.52	6 ⁺			
275.5 1	3.6 2	4145.91	8 ⁻	3870.39	7 ⁺			I_γ : 3.6 2 (1997JeZZ).
289 1	0.7 2	8079.1		7790.0	16 ⁻			
297.7 1	5.2 2	7183.70	14 ⁻	6886.01	13 ⁻			I_γ : 4.9 4 (1997JeZZ).
313.0 5		8351.2	17 ⁻	8038.0	15 ⁻			
344.6 4	0.9 2	8695.7	18 ⁻	8351.2	17 ⁻			I_γ : 0.8 5 (1997JeZZ).
356.6 2	0.9 2	6316.07	13 ⁻	5959.37	12 ⁻			I_γ : 1.0 2 (1997JeZZ).
365.1 5		8695.7	18 ⁻	8330.7	17 ⁻			I_γ : 1.50 15 (1997JeZZ).
408 1		9579.2	20 ⁻	9170.6	18 ⁻			I_γ : 0.7 4 (1997JeZZ).
410.0 3	4.1 3	9105.6	19 ⁻	8695.7	18 ⁻			I_γ : 3.5 5 (1997JeZZ).
423.7 1	9.4 3	7607.40	15 ⁻	7183.70	14 ⁻	D+Q	+0.01 8	I_γ : 10.9 3 (1997JeZZ).
431.0 1	7.4 3	6530.26	14 ⁻	6099.29	13 ⁻	D+Q	-0.21 9	I_γ : 7.4 4 (1997JeZZ).
								Mult.: D=E1 in 1993Wa13 and D=M1 in 1997Ju01.
452.9 2	8.3 3	2817.37	6 ⁺	2364.52	6 ⁺	D+Q	+0.31 24	
470 1		9105.6	19 ⁻	8635.5	17 ⁻			I_γ : 1.3 3 (1997JeZZ).
473.6 3	3.0 3	9579.2	20 ⁻	9105.6	19 ⁻			I_γ : 2.0 3 (1997JeZZ).
483.4 5	2.4 3	10062.4	21 ⁻	9579.2	20 ⁻			I_γ : 2.2 2 (1997JeZZ).
509.4 8		10571.6	22 ⁻	10062.4	21 ⁻			I_γ : 1.8 2 (1997JeZZ).
509.9 1	13.1 4	8117.33	16 ⁻	7607.40	15 ⁻			I_γ : Value of 1997Ju01 is too large for placement from 8117 level. I_γ possibly includes component from 10571 reported by 1997JeZZ. I_γ =9.7 3 (1997JeZZ).
514.1 3	3.0 4	2624.83	5 ⁺	2111.18	4 ⁺			
518.2 2	5.1 2	8635.5	17 ⁻	8117.33	16 ⁻			I_γ : 5.5 4 (1997JeZZ).
523.3 3	1.5 2	6493.92	12 ⁺	5970.5	(10 ⁺)			
535.1 1	1.0 5	9170.6	18 ⁻	8635.5	17 ⁻			I_γ : 1.00 25 (1997JeZZ).
550.2 2		9720.8	19 ⁻	9170.6	18 ⁻			I_γ : 1.2 3 (1997JeZZ).
559.1 1	4.4 2	4145.91	8 ⁻	3586.81	7 ⁻	D(+Q)	-0.01 2	I_γ : 6.8 5 (1997JeZZ).
569.8 1	3.3 4	6886.01	13 ⁻	6316.07	13 ⁻			I_γ : 3.3 3 (1997JeZZ).
570.9 1	2.2 5	6530.26	14 ⁻	5959.37	12 ⁻			I_γ : 2.2 3 (1997JeZZ).
579 1		8695.7	18 ⁻	8117.33	16 ⁻			I_γ : 0.70 25 (1997JeZZ).
585.4 1	10.6 3	4145.91	8 ⁻	3560.53	8 ⁺			I_γ : 10.5 8 (1997JeZZ).
592 ^a		8695.7	18 ⁻	8103.0	(16 ⁻)			
595.0 3	1.7 2	7790.2	15 ⁻	7195.13	15 ⁻			
615.9 2	36.5 7	4176.44	9 ⁻	3560.53	8 ⁺	D(+Q)	-0.05 5	I_γ : 36.5 15 (1997JeZZ).
635.5 4		10356.0	20 ⁻	9720.8	19 ⁻			I_γ : 0.50 25 (1997JeZZ).
642.2 3	1.5 2	5959.37	12 ⁻	5317.14	11 ⁻			
653.4 1	4.3 3	7183.70	14 ⁻	6530.26	14 ⁻			I_γ : 4.3 7 (1997JeZZ).
683.1 1	21.3 4	6099.29	13 ⁻	5416.21	12 ⁺	D+Q	-0.05 2	I_γ : 21.0 8 (1997JeZZ).
692.1 3	1.3 2	5754.07	10 ⁺	5062.2	9			I_γ : 1.7 2 (1997JeZZ).
695.6 1	34.5 4	4256.14	10 ⁺	3560.53	8 ⁺			I_γ : 32.5 15 (1997JeZZ).
703.2 3	2.1 2	5765.68	10 ⁺	5062.2	9			
707.1 2	26.2 3	7201.0	14 ⁺	6493.92	12 ⁺	E2		
721 1	1.0 3	7036.0	(13 ⁻)	6316.07	13 ⁻			

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(HI,xn γ) 1997Ju01,1997JeZZ,1996Wa12 (continued) $\gamma(^{108}\text{Sn})$ (continued)

E_γ †	I_γ ‡	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. &	Comments
721.2 3		7607.40	15 ⁻	6886.01	13 ⁻		I_γ : 1.20 25 (1997JeZZ).
728.1 2	10.9 3	6493.92	12 ⁺	5765.68	10 ⁺	E2	
739.9 2	10.7 3	6493.92	12 ⁺	5754.07	10 ⁺		
753 1		9105.6	19 ⁻	8351.2	17 ⁻		
754.3 3	1.7 2	7790.2	15 ⁻	7036.0	(13 ⁻)		
775.1 5		9105.6	19 ⁻	8330.7	17 ⁻		I_γ : 0.315 25 (1997JeZZ).
782.4 3	6.0 3	6099.29	13 ⁻	5317.14	11 ⁻		
788 1		6886.01	13 ⁻	6099.29	13 ⁻		I_γ : 0.95 20 (1997JeZZ).
791.2 1	25.0 5	7992.2	16 ⁺	7201.0	14 ⁺	E2	
812.4 3	3.3 3	4399.13	9 ⁺	3586.81	7 ⁻		
815.6 2		6886.01	13 ⁻	6070.40	12 ⁻		I_γ : 1.50 15 (1997JeZZ).
818.5 1	11.4 8	5959.37	12 ⁻	5140.89	10 ⁻		I_γ : 11.4 5 (1997JeZZ).
820.0 3	4.6 8	7195.13	15 ⁻	6374.70	13 ⁻		
820.3 3		10053.3	19 ⁻	9233.0	17 ⁻		
838.7 3	2.2 2	4399.13	9 ⁺	3560.53	8 ⁺		
852.8 2		9233.0	17 ⁻	8380.2	(15 ⁻)		I_γ : 5.5 5 (1997JeZZ).
867.8 5		7183.70	14 ⁻	6316.07	13 ⁻		I_γ : 0.55 15 (1997JeZZ).
879.4 3	2.5 3	7195.13	15 ⁻	6316.07	13 ⁻		
884.0 3	4.4 4	8079.1		7195.13	15 ⁻		
885 1		9579.2	20 ⁻	8695.7	18 ⁻		
896.8 4		3714.0		2817.37	6 ⁺		
898.0 2		11902.7	23 ⁻	11004.6	21 ⁻		I_γ : 1.6 2 (1997JeZZ).
900.6 3		6316.07	13 ⁻	5416.21	12 ⁺		
900.9 2	15 3	8893.1	18 ⁺	7992.2	16 ⁺	E2	
901.2 2		10954.5	21 ⁻	10053.3	19 ⁻		
905.1 # 1	124 2	2111.18	4 ⁺	1206.09	2 ⁺	E2	I_γ : 124 5 (1997JeZZ).
911.3 2	5.8 3	8701.4	17 ⁻	7790.0	16 ⁻		
915.9 2	2.8 2	5416.21	12 ⁺	4500.49	10 ⁺		
925.0 3	2.1 2	7299.7	(15 ⁻)	6374.70	13 ⁻		
929.1 2		10837.10+x	(22 ⁻)	9908+x	(20 ⁻)		I_γ : 1.7 3 (1997JeZZ).
929.5 1	3.5 3	6070.40	12 ⁻	5140.89	10 ⁻		I_γ : 3.5 3 (1997JeZZ).
933.8 3		8117.33	16 ⁻	7183.70	14 ⁻		I_γ : 1.5 3 (1997JeZZ).
940.0 1	11.1 4	4500.49	10 ⁺	3560.53	8 ⁺	E2	
948.4 3	5.5 10	11902.7	23 ⁻	10954.5	21 ⁻		
956 1		10062.4	21 ⁻	9105.6	19 ⁻		
958.2 3	1.5 2	6374.70	13 ⁻	5416.21	12 ⁺		
962.1 3	1.0 3	3586.81	7 ⁻	2624.83	5 ⁺		
992 1		10571.6	22 ⁻	9579.2	20 ⁻		
995.0 1	17.5 5	5140.89	10 ⁻	4145.91	8 ⁻	E2	I_γ : 17.5 7 (1997JeZZ).
998.7 1	13.0 4	6316.07	13 ⁻	5317.14	11 ⁻	E2	I_γ : 13.0 6 (1997JeZZ).
1014.5 3	6 2	9907.6	20 ⁺	8893.1	18 ⁺	E2	
1022.5 2	2.6 2	6163.4		5140.89	10 ⁻		
1028.3 5		8635.5	17 ⁻	7607.40	15 ⁻		I_γ : 1.1 3 (1997JeZZ).
1028.9 5		11866.0+x	(24 ⁻)	10837.10+x	(22 ⁻)		
1041.9 4		12944.6	25 ⁻	11902.7	23 ⁻		
1044 ^a		10954.5	21 ⁻	9907.6	20 ⁺		
1053.1 5		9170.6	18 ⁻	8117.33	16 ⁻		I_γ : 1.5 2 (1997JeZZ).
1055.3 5		8701.4	17 ⁻	7646.5			
1057.6 2	10.7 5	6374.70	13 ⁻	5317.14	11 ⁻	E2	
^x 1059.3	1.6 6						E_γ : placed by 1997Ju01 from an 8541 level. The transition and placement are not confirmed by 1997JeZZ.
1061.3 3		5317.14	11 ⁻	4256.14	10 ⁺		I_γ : 0.5 1 (1997JeZZ).
1069.4 3	4.4 4	7028.8		5959.37	12 ⁻		
1072.6 3	4.9 8	9774.0	19 ⁻	8701.4	17 ⁻		

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(HI,xn γ) 1997Ju01,1997JeZZ,1996Wa12 (continued) $\gamma(^{108}\text{Sn})$ (continued)

E_γ †	I_γ ‡	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult.&	δ @	Comments
1084.8 8		9720.8	19 ⁻	8635.5	17 ⁻			I_γ : 0.60 3 (1997JeZZ).
1084.9 3	2.1 2	7183.70	14 ⁻	6099.29	13 ⁻			I_γ : 2.1 4 (1997JeZZ).
1095.8 2	11.1 5	7195.13	15 ⁻	6099.29	13 ⁻	E2		I_γ : 11.1 5 (1997JeZZ).
1106.1 3	1.5 3	7480.5		6374.70	13 ⁻			
1119.1 4		11026.7	22 ⁺	9907.6	20 ⁺	E2		
1130 1	<0.5	6886.01	13 ⁻	5756.6				
1132.3 3	1.7 2	5062.2	9	3930.0	7			
1135.6 3	1.8 2	8330.7	17 ⁻	7195.13	15 ⁻			I_γ : 1.6 3 (1997JeZZ).
1140.7 1	30.5 6	5317.14	11 ⁻	4176.44	9 ⁻	E2		I_γ : 35.5 12 (1997JeZZ).
1144 1	2.5 5	8934.0		7790.0	16 ⁻			
1160.0 1	25.7 5	5416.21	12 ⁺	4256.14	10 ⁺	E2		I_γ : 25.5 15 (1997JeZZ).
1176.9 2	3.5 3	6493.92	12 ⁺	5317.14	11 ⁻			
1179 1		14123.6	27 ⁻	12944.6	25 ⁻			
1180.7 3	3.0 5	10954.5	21 ⁻	9774.0	19 ⁻			
1183.4 3	5.6 3	4000.8	8 ⁺	2817.37	6 ⁺			
1183.8 10		10356.0	20 ⁻	9170.6	18 ⁻			I_γ : 0.60 25 (1997JeZZ).
1196 1		13062.0+x	(26 ⁻)	11866.0+x	(24 ⁻)			
1196.0 1	100 2	3560.53	8 ⁺	2364.52	6 ⁺	E2		B(E2)(W.u.)=0.107 15
1206.1# 1	100	1206.09	2 ⁺	0.0	0 ⁺	E2		
1222.3 2	9.9 3	3586.81	7 ⁻	2364.52	6 ⁺	D(+Q)	+0.01 7	I_γ : 10.0 10 (1997JeZZ).
1225.2 4		12251.9	24 ⁺	11026.7	22 ⁺	E2		
1230.4 3	1.9 3	11004.6	21 ⁻	9774.0	19 ⁻			
1240.8 5		9233.0	17 ⁻	7992.2	16 ⁺			I_γ : 0.4 2 (1997JeZZ).
1245.8 3	2.1 3	3870.39	7 ⁺	2624.83	5 ⁺			
1253.5 2	2.6 3	5754.07	10 ⁺	4500.49	10 ⁺			I_γ : 2.5 3 (1997JeZZ).
1259.7 3	5.6 2	7790.0	16 ⁻	6530.26	14 ⁻			
1265.2 3	2.6 2	5765.68	10 ⁺	4500.49	10 ⁺			
1349.3 2	1.1 3	6666.10	12 ⁻	5317.14	11 ⁻			I_γ : 1.1 3 (1997JeZZ).
1355.0 2	3.4 3	5754.07	10 ⁺	4399.13	9 ⁺			I_γ : 3.0 4 (1997JeZZ).
1356.0 4		13607.9	26 ⁺	12251.9	24 ⁺	E2		
1356.3 4		15479.9	29 ⁻	14123.6	27 ⁻			
1366 1	0.3 2	5765.68	10 ⁺	4399.13	9 ⁺			
1381.0 3	3.1 3	7480.5		6099.29	13 ⁻			
1386.0 4		14448.0+x	(28 ⁻)	13062.0+x	(26 ⁻)			
1469.7 1	2.1 2	6886.01	13 ⁻	5416.21	12 ⁺	D		I_γ : 2.10 12 (1997JeZZ).
1474.1 3	1.4 2	7790.2	15 ⁻	6316.07	13 ⁻			
1497.8 2	1.9 2	5754.07	10 ⁺	4256.14	10 ⁺			I_γ : 1.8 2 (1997JeZZ).
1501 1	<1	5756.6		4256.14	10 ⁺			
1502 1	1.5 3	5062.2	9	3560.53	8 ⁺			
1505.7 2	1.9 4	3870.39	7 ⁺	2364.52	6 ⁺			I_γ : 2.0 3 (1997JeZZ).
1506.1 3	3.0 4	8701.4	17 ⁻	7195.13	15 ⁻			
1509.7 3	5.3 3	5765.68	10 ⁺	4256.14	10 ⁺			
1513.8 4		15121.8	28 ⁺	13607.9	26 ⁺	E2		
1523.1 3	2.5 2	5699.5		4176.44	9 ⁻			I_γ : 2.50 3 (1997JeZZ).
1539.5 5		20340.8	(34 ⁺)	18801.1	(32 ⁺)			I_γ : 0.8 2 (1997JeZZ).
1542.8 4		17022.8	31 ⁻	15479.9	29 ⁻			
1547.5 5	0.9 2	7646.5		6099.29	13 ⁻			
1565.5 3	2.8 3	3930.0	7	2364.52	6 ⁺			
1569.2 2	0.4 2	6886.01	13 ⁻	5317.14	11 ⁻	Q		I_γ : 0.40 10 (1997JeZZ).
1576.6 5	4.0 10	16024.6+x	(30 ⁻)	14448.0+x	(28 ⁻)			
1594.5 2	1.1 2	5754.07	10 ⁺	4159.64	8 ⁺			I_γ : 0.9 2 (1997JeZZ).
1605.3 5	0.2 1	5765.68	10 ⁺	4159.64	8 ⁺			
1618.8 5		20340.8	(34 ⁺)	18722.1	(32 ⁺)			I_γ : 1.0 3 (1997JeZZ).
1636.5 5	0.6 2	4000.8	8 ⁺	2364.52	6 ⁺			
1705.1 4		16826.9	30 ⁺	15121.8	28 ⁺	E2		

Continued on next page (footnotes at end of table)

(HI,xn γ) 1997Ju01,1997JeZZ,1996Wa12 (continued) $\gamma(^{108}\text{Sn})$ (continued)

E_γ [†]	I_γ [‡]	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. ^{&}	Comments
1714.1 5	0.9 2	5970.5	(10 ⁺)	4256.14	10 ⁺		
1721.5 5		8038.0	15 ⁻	6316.07	13 ⁻		I_γ : 0.80 10 (1997JeZZ).
1722.7 4		22063.5	(36 ⁺)	20340.8	(34 ⁺)		I_γ : 1.7 4 (1997JeZZ).
1741.5 4		18764.3	33 ⁻	17022.8	31 ⁻		
1753.6 4	0.4 2	5754.07	10 ⁺	4000.8	8 ⁺		I_γ : 0.5 2 (1997JeZZ).
1777.3 5		17802.0+x	(32 ⁻)	16024.6+x	(30 ⁻)		
1795.1 1	1.2 2	4159.64	8 ⁺	2364.52	6 ⁺		
1872.1 5		23935.6	(38 ⁺)	22063.5	(36 ⁺)		I_γ : 0.7 3 (1997JeZZ).
1895.4 5		18722.1	(32 ⁺)	16826.9	30 ⁺	E2	
1938.8 5		8038.0	15 ⁻	6099.29	13 ⁻		I_γ : 0.60 7 (1997JeZZ).
1974.0 6		18801.1	(32 ⁺)	16826.9	30 ⁺		I_γ : 0.9 3 (1997JeZZ).
							I_γ : 1.6 5 (1997JeZZ).
1982.0 6		20746.3	(35 ⁻)	18764.3	33 ⁻		
2001.3 6		19803.3+x	(34 ⁻)	17802.0+x	(32 ⁻)		
2040.1 6		5754.07	10 ⁺	3714.0			I_γ : 0.2 1 (1997JeZZ).
2192.4 5	0.3 2	5754.07	10 ⁺	3560.53	8 ⁺		I_γ : 0.10 5 (1997JeZZ).
2240.8 6		22987.1	(37 ⁻)	20746.3	(35 ⁻)		I_γ : 0.6 2 (1997JeZZ).
2285.1 8		22088.4+x	(36 ⁻)	19803.3+x	(34 ⁻)		
2569 ^a 2		25559	(39 ⁻)	22987.1	(37 ⁻)		

[†] Weighted average of values of 1981An06, 1993Wa16, 1996Wa12, 1997Ju01, and 1997JeZZ, except where noted otherwise.

[‡] From 1997Ju01. I_γ values from 1997JeZZ are given in comments.

[#] Weighted average of in-beam data and value from ε decay.

[@] From 1981An06.

[&] From $\gamma\gamma$ (θ), linear polarization and DCO.

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

^x γ ray not placed in level scheme.

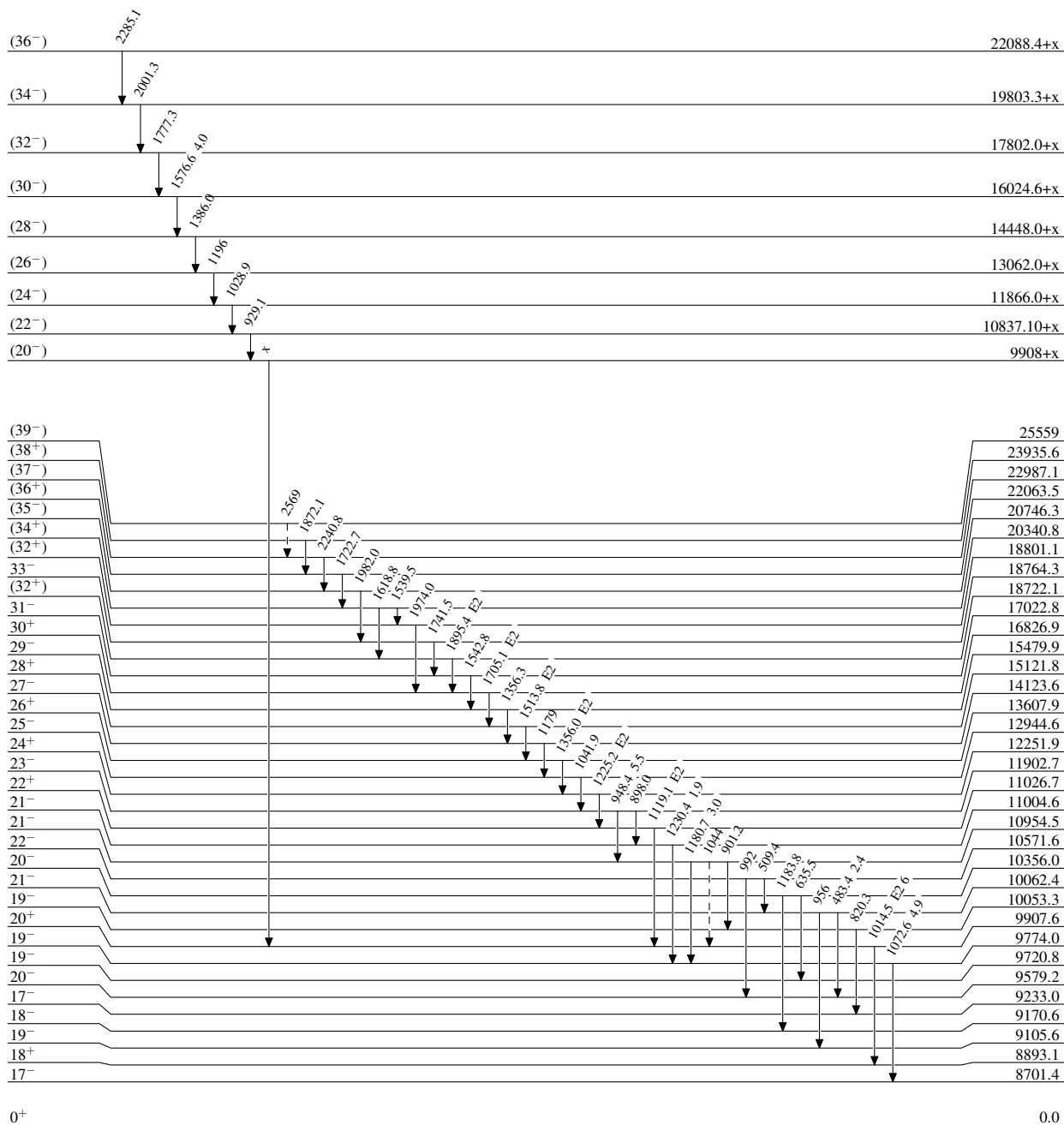
(HI,xn γ) 1997Ju01,1997JeZZ,1996Wa12

Legend

Level Scheme

Intensities: Type not specified

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



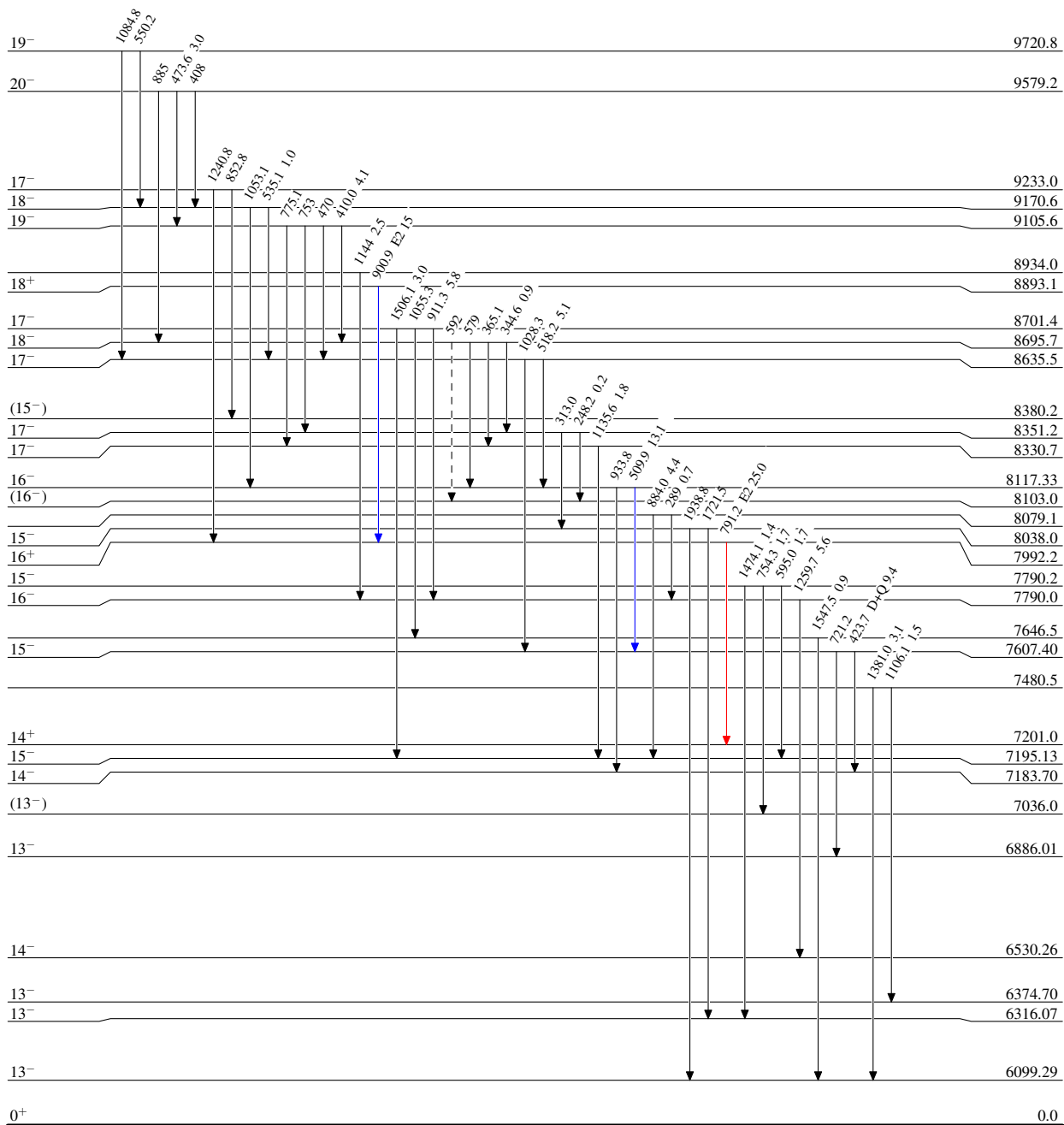
(HI,xn γ) 1997Ju01,1997JeZZ,1996Wa12

Legend

Level Scheme (continued)

Intensities: Type not specified

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

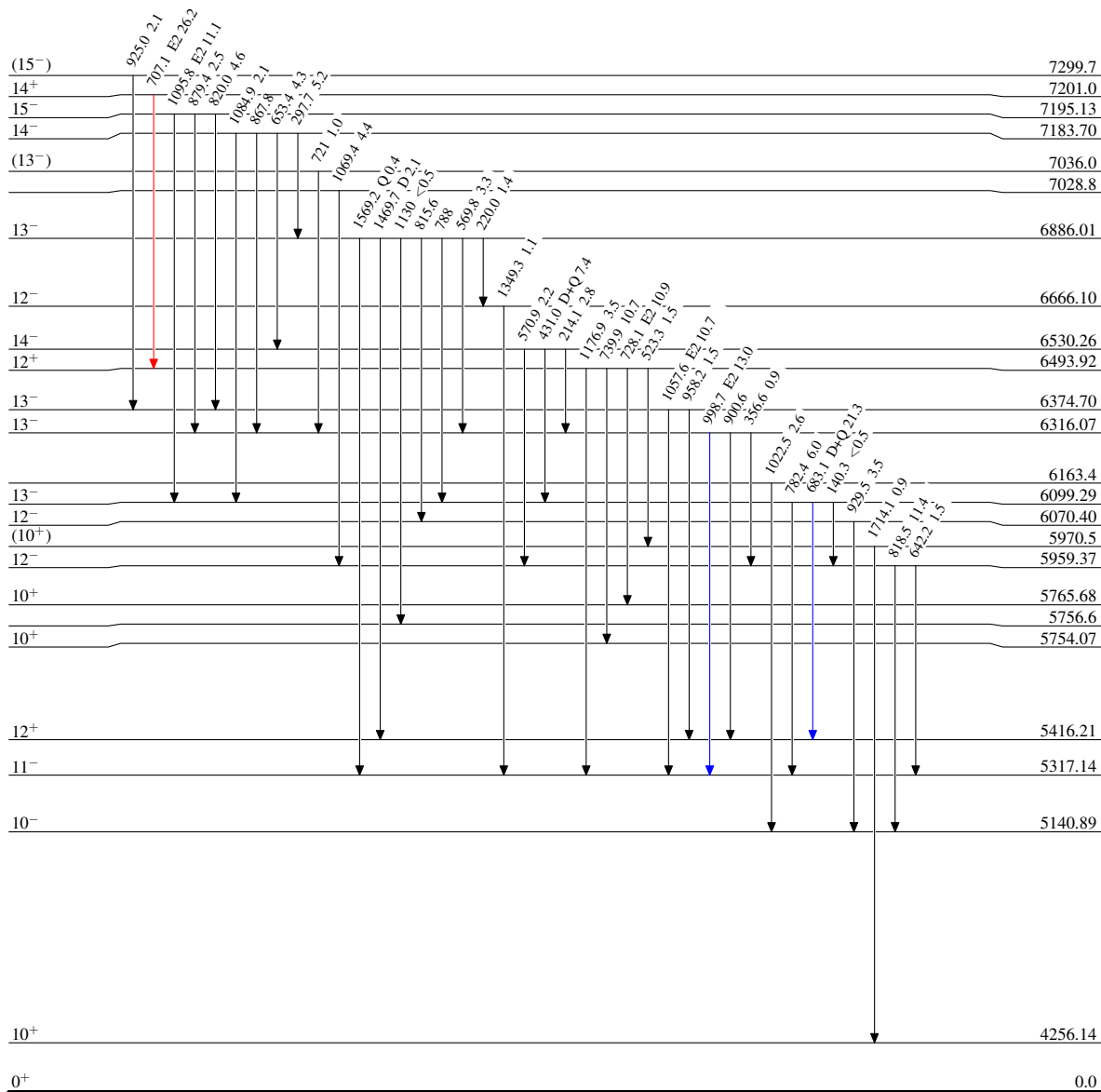


(HI,xn γ) 1997Ju01,1997JeZZ,1996Wa12**Level Scheme (continued)**

Intensities: Type not specified

Legend

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



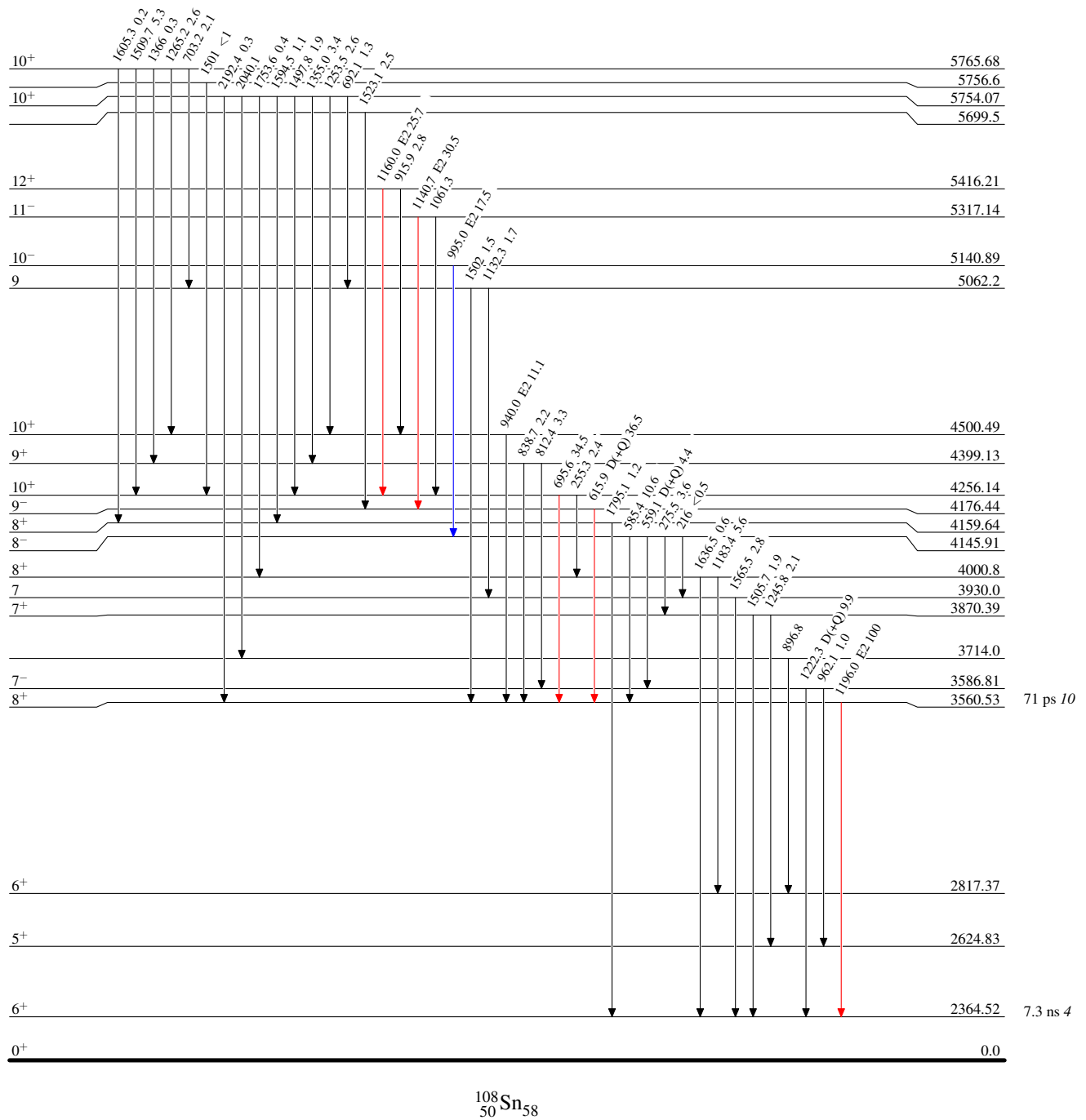
(HL,xn γ) 1997Ju01,1997JeZZ,1996Wa12

Level Scheme (continued)

Intensities: Type not specified

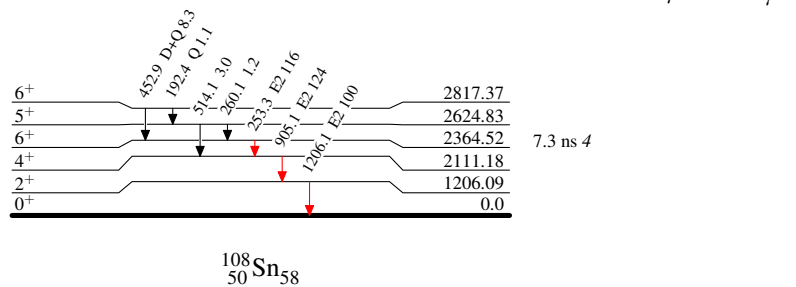
Legend

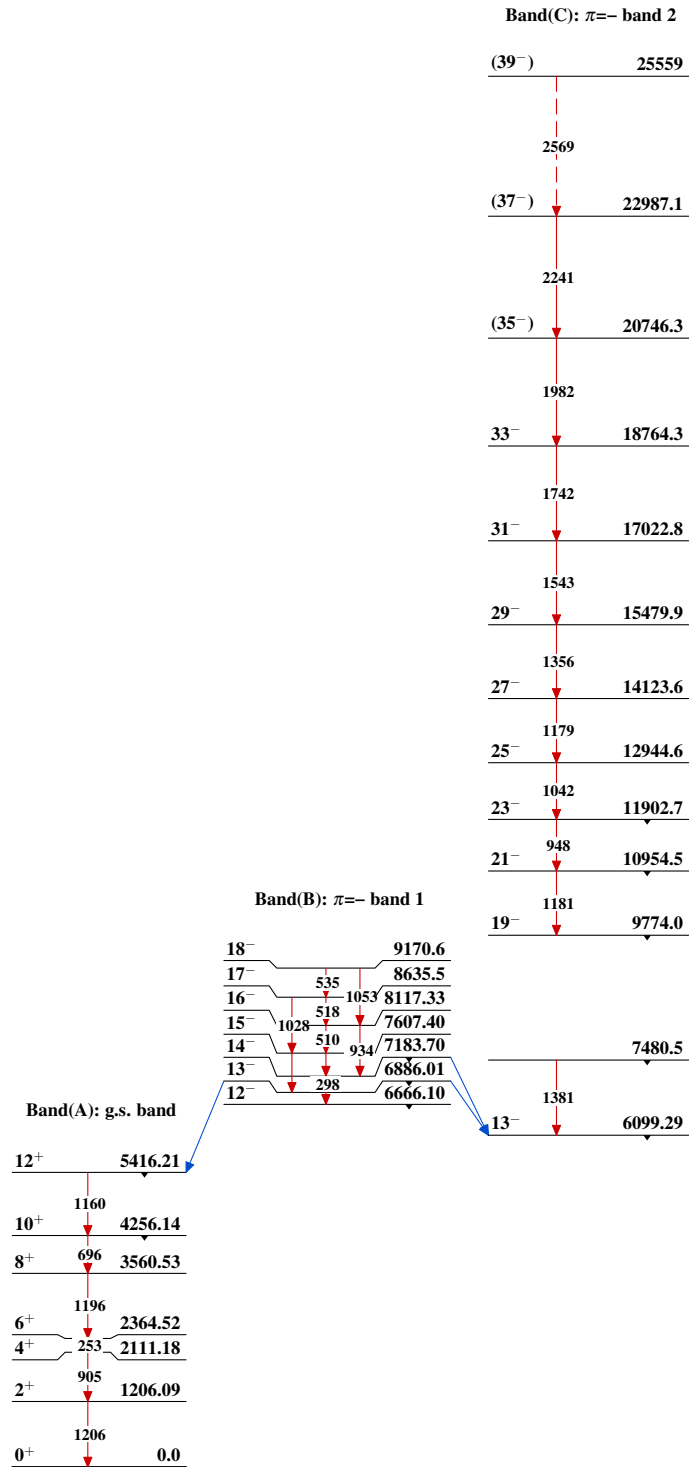
- $\rightarrow$ $I_\gamma < 2\% \times I_\gamma^{\max}$
 $\rightarrow$ $I_\gamma < 10\% \times I_\gamma^{\max}$
 $\rightarrow$ $I_\gamma > 10\% \times I_\gamma^{\max}$



Legend

Intensities: Type not specified



(HI,xn γ) 1997Ju01,1997JeZZ,1996Wa12

(HI,xn γ) 1997Ju01,1997JeZZ,1996Wa12 (continued)Band(D): $\pi=-$ band 3

(34 ⁻)	19803.3+x
	2001
(32 ⁻)	17802.0+x
	1777
(30 ⁻)	16024.6+x
	1577
(28 ⁻)	14448.0+x
	1386
(26 ⁻)	13062.0+x
	1196
(24 ⁻)	11866.0+x
	1029
(22 ⁻)	10837.10+x
	929
(20 ⁻)	9908+x

Band(E): $\pi=+$ band

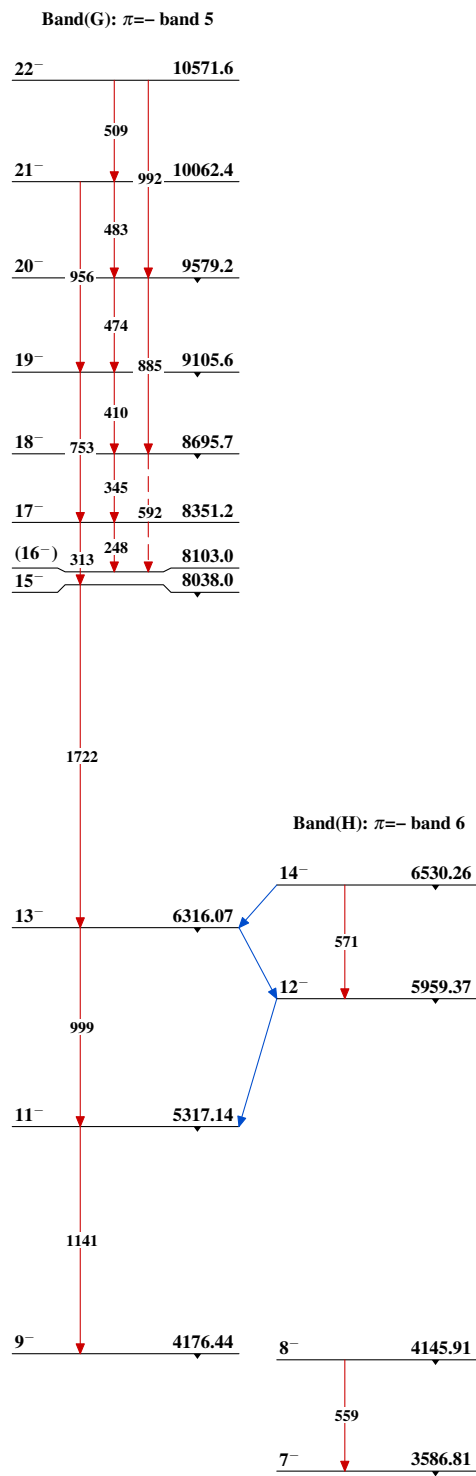
(38 ⁺)	23935.6
	1872
(36 ⁺)	22063.5
	1723
(34 ⁺)	20340.8
	1619
(32 ⁺)	18722.1
	1895
30 ⁺	16826.9
	1705
28 ⁺	15121.8
	1514
26 ⁺	13607.9
	1356
24 ⁺	12251.9
	1225
22 ⁺	11026.7
	1119
20 ⁺	9907.6
	1014
18 ⁺	8893.1
	901
16 ⁺	7992.2
	791
14 ⁺	7201.0
	707
12 ⁺	6493.92
	740
10 ⁺	5754.07

Band(F): $\pi=-$ band 4

21 ⁻	11004.6
17 ⁻	8701.4
	911
16 ⁻	7790.0
(13 ⁻)	7036.0

 $^{108}_{50}\text{Sn}_{58}$

(HI,xn γ) 1997Ju01,1997JeZZ,1996Wa12 (continued)

 $^{108}_{50}\text{Sn}_{58}$