Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	K. Kitao	NDS 75,99 (1995)	1-Feb-1993

Q(β^-)=−3657 *3*; S(n)=9326.42 *13*; S(p)=9999 *5*; Q(α)=−4063.0 *7* 2012Wa38
Note: Current evaluation has used the following Q record −3656.6 309326.3 *149999* 5 −4056 3 1993Au05.

^{118}Sn Levels

Cross Reference (XREF) Flags

A	^{118}In β^- decay (4.45 min)	H	^{116}Sn(t,p)	O	^{122}Te(d,^{6}Li)
B	^{118}In β^- decay (5.0 s)	I	^{117}Sn(n,γ) E=res	P	^{116}Cd(^{3}He,n)
C	^{118}In β^- decay (8.5 s)	J	^{117}Sn(d,p),(t,d)	Q	^{118}Sn(e,e′)
D	^{118}Sb ε decay (3.6 min)	K	^{118}Sn(n,n′γ)	R	^{118}Sn(γ,γ′)
E	^{118}Sb ε decay (5.00 h)	L	^{118}Sn(p,p′),(p,p′γ)	S	^{118}Sn(n,n′)
F	Coulomb excitation	M	^{118}Sn(α,α′),(d,d′),(^{3}He,^{3}He′)	T	^{120}Sn(p,t)
G	^{116}Cd(α,2nγ),(^{7}Li,p4nγ)	N	^{119}Sn(p,d),(d,t)		

E(level)‡	J$^\pi$	T$_{1/2}$[a]	XREF	Comments
0.0	0$^+$	stable	ABCDEFGHIJKLMNOPQRST	
1229.666 *16*	2$^+$	0.485 ps *19*	ABCDEFGHIJKLMNO QRST	μ=+0.04 *20*; Q=−0.05 *14* μ: transient field integral PAC (1989Ra17). Q: Coul. ex. reorientation (1989Ra17). Deformation parameter=0.108 *7*. T$_{1/2}$: from Coul. ex. other: 0.46 ps *3* in (γ,γ′). J$^\pi$: L=2 in (t,p) and (α,α′),(d,d′),(^{3}He,^{3}He′).
1758.31† *3*	0$^+$	21 ps *3*	B D F HIJKLMNOP T	XREF: O(1780). J$^\pi$: E0 to 0$^+$. T$_{1/2}$: from Coul. ex. other: >0.5 ps in (n,n′γ).
2042.882† *19*	2$^+$	2.9 ps *4*	AB D FG I KLM O T	XREF: M(1990). J$^\pi$: L=2 in (p,t) and (d,^{6}Li). T$_{1/2}$: from Coul. ex. other: >1.1 ps in (n,n′γ).
2056.91 *4*	0$^+$	<200 ps	B D F HIJKL NO R	J$^\pi$: E0 to 0$^+$. T$_{1/2}$: from centroid shift measurement in ^{117}Sn(d,p) (1981Ba05). Other: >0.7 ps in (n,n′γ).
2120 *15*	(2$^+$)		NO	E(level): from (p,d),(d,t). J$^\pi$: L=(2) in (d,^{6}Li).
2280.342 *21*	4$^+$	0.76 ps *13*	A C EFGH JKL NO Q T	J$^\pi$: L=4 in (p,p′),(p,p′γ). T$_{1/2}$: from Coul. ex. others: <0.7 ns in ^{118}Sb ε decay (5.00 h), >1.5 ps in (n,n′γ).
2321.23 *4*	5$^-$	21.7 ns *2*	C E Gh Kl O	μ=−0.300 *25*; Q=0.16 *2* XREF: h(2324)l(2318). J$^\pi$: J=5 from $\gamma\gamma(\theta)$ in ^{118}Sb ε decay (3.6 min), E1 γ to 4$^+$. T$_{1/2}$: from ^{118}Sb ε decay (5.00 h). Other: 22 ns *5* in ^{118}In β^- decay (8.5 s). μ: differential PAC (1989Ra17). Other: −0.342 *35* from integral PAC (1989Ra17). Q: differential PAC, value relative to Q=0.50 for ^{116}In (10$^+$ 3548 level) and recalculated (1989Ra17).
2324.846 *22*	3$^-$	0.19 ps *+4−3*	A F h KlM O Q T	B(E3)↑=0.118 *10* XREF: h(2324)l(2318). B(E3) from Coul. ex.

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Adopted Levels, Gammas (continued)

^{118}Sn Levels (continued)

E(level)‡	Jπ	$T_{1/2}$[a]	XREF	Comments
				Jπ: L=3 in (d,^{6}Li) and (α,α'),(d,d'),(^{3}He,^{3}He'). $T_{1/2}$: other: 2.1 ps *2* from B(E3) in Coul. ex.
2328.02 *3*	2+&	>0.2 ps	AB D IJKL NO RS	
2403.22 *3*	2+	0.18 ps *+8−4*	AB D F I KL O	Jπ: L=2 in (d,^{6}Li) and (p,p'),(p,p'γ).
2408 *3*	4+		H J O	Jπ: L=4 in (t,p).
2488.871† *19*	4+	>0.55 ps	A FGh KLmNO Q t	XREF: h(2489)m(2490)N(2470)t(2490). Jπ: L=4 in (d,^{6}Li) and (p,p'),(p,p'γ).
2496.88 *5*	0+		D F hIJKLmNO t	XREF: h(2489)m(2490)t(2490). Jπ: E0 to 0+. E(level): possible unresolved doublet in (d,p),(t,d).
2530			N	
2574.91 *4*	7−	230 ns *10*	C E GH KL O	μ=−0.689 *4*; Q=0.32 μ: differential perturbed angular distribution, value does not include the Knight-shift correction (1989Ra17). Q: differential perturbed angular distribution, value relative to Q=0.41 for 3108 level (1989Ra17). Jπ: L=7 in (t,p) and (p,p'),(p,p'γ). $T_{1/2}$: from in ^{118}Sb ε decay (5.00 h). Other: 245 ns *40* in (α,2nγ),(^{7}Li,p4nγ).
2577 *3*	2+		J O	Jπ: L=2 in (d,^{6}Li).
2677.35 *3*	2+	>0.28 ps	A D IJKL O T	Jπ: L=2 in (p,p'),(p,p'γ).
2725 *3*	1+,2+,3+		h J nO q t	XREF: h(2733)n(2740)q(2736)t(2730). Jπ: L=2 in (d,p),(t,d).
2733.789 *20*	4+	0.5 ps *+6−2*	A GhI KLM O q t	XREF: h(2733)q(2736)t(2730). Jπ: L=4 in (p,p'),(p,p'γ).
2738.01 *4*	1+&	0.19 ps *+16−6*	h JK n q t	XREF: h(2733)n(2740)q(2736)t(2730).
2773.94 *4*	4−&		JKL	
2817 *3*	(4−,5−,6−)		J	Jπ: L=(5) in (d,p),(t,d).
2817.17 *4*	(3−)&		K	
2878.70 *5*	4,5,6+		A Gh K t	XREF: h(2877)t(2900). Jπ: D+Q γ to 5−, strong γ to 4+.
2889# *10*	(8+)		h L t	XREF: h(2877)t(2900). Jπ: L=(8) in (p,p'),(p,p'γ).
2903.87 *4*	2+	0.077 ps *+20−13*	HiJKL o t	XREF: i(2911)o(2918)t(2900). Jπ: L=2 in (p,p'),(p,p'γ).
2929.72 *7*	0+,1+		D h JK o q t	XREF: h(2927)o(2918)q(2920)t(2900). Jπ: L=0 in (d,p),(t,d).
2934# *10*	(2+)		h L No q t	XREF: h(2927)o(2918)q(2920)t(2900). Jπ: L=(2) in (p,p'),(p,p'γ).
2963.437 *20*	4+&		A H JK q t	XREF: q(2970)t(2960).
2972 *3*	4+		J LM q t	XREF: M(2960)q(2970)t(2960). Jπ: L=4 in (p,p'),(p,p'γ).
2991? *3*			J	
2999.45† *7*	6+		A G K	Jπ: stretched γ to 4+.
3015.21? *6*	1,2,3		K	Jπ: d γ to 2+.
3020 *3*	0+		J P	Jπ: L=0 in (^{3}He,n).
3048.35? *5*	4&		h K mn q	XREF: h(3055)m(3060)n(3040)q(3050).
3052.16 *7*	7+,8+		Gh mn q	XREF: h(3055)m(3060)n(3040)q(3050). Jπ: E1 γ to 7−; no γ to 4+.
3057.22 *6*	2+	0.11 ps *+5−3*	h JKLm q	XREF: h(3055)m(3060)q(3050). Jπ: L=2 in (p,p'),(p,p'γ).

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Adopted Levels, Gammas (continued)

^{118}Sn Levels (continued)

E(level)‡	Jπ	$T_{1/2}$[a]	XREF	Comments
3089.21 *4*	+&		K	
3108.06 *22*	9+,10+	2.52 μs *6*	G L	g=−0.2432 *7*; Q=0.41 g-factor: differential perturbed angular distribution, value does not include the Knight-shift correction (1973IsZQ). Q: differential perturbed angular distribution, value derived from experimental B(E2) (1989Ra17). Jπ: E2 γ to 7+,8+; no γ to 6+. $T_{1/2}$: from (α,2nγ),(^{7}Li,p4nγ).
3137.48 *15*	0+		B D H JKL	Jπ: L=0 in (t,p), log *ft*=5.45 from 1+, no γ to 0+.
3159.35 *15*	4+		A	Jπ: γ to 2+, log $f^{1u}t$ from 5+ not allows 3−.
3190@ *20*			M	
3227.67 *7*	2+,3+&		K	
3228.37 *8*	2+&	0.15 ps *+14−10*	K	
3231# *10*	(8+)		L	Jπ: L=(8) in (p,p′),(p,p′γ).
3237 *3*			J Lm	XREF: m(3250).
3252.03 *7*	(3+)	0.08 ps *+6−3*	K n	XREF: n(3250). Jπ: L=(4) in (p,d),(d,t); D+Q γ to 2+.
3262.53 *6*	3+&		JK n	XREF: n(3250).
3270.67 *11*	1&	0.005 ps *3*	K	
3274 *3*			J lm	XREF: l(3277)m(3290).
3286 *3*			J lm	XREF: l(3277)m(3290).
3308.54 *15*	2+&		Klm	XREF: l(3310)m(3290).
3317 *3*	0−,1−,2−		J l	XREF: l(3310). Jπ: L=1 in (d,p),(t,d).
3344 *3*	(3−)		J L	Jπ: L=(3) in (p,p′),(p,p′γ).
3355.86 *13*	2+&		h K	XREF: h(3369).
3363 *3*	0+,1+		h J	XREF: h(3369). Jπ: L=0 in (d,p),(t,d).
3374.60 *4*	4+		A h	XREF: h(3369). Jπ: log *ft*=5.78 *3* from 5+, strong γ to 2+.
3386.30 *8*	3+&		JKl	XREF: l(3383). Supports 3+.
3389 *3*			J l	XREF: l(3383).
3409 *3*			J	
3427.11 *10*	3+		JKL N	Jπ: L=4 in (p,d),(d,t); D+Q γ to 2+.
3441?			J	
3460.49 *5*	4+		A KL	Jπ: log *ft*=5.87 *5* from 5+, strong γ to 2+.
3462.63 *11*	(2−,3−)		JK	Jπ: L=(3) in (d,p),(t,d); γ to 2+.
3475 *3*			J	
3540.57 *9*	1+,2+,3+	0.11 ps *+23−5*	JK mNo	XREF: m(3530)N(3520)o(3549). Jπ: L=2 in (p,d),(d,t).
3541# *10*	(6+,7−)		Lm o	XREF: m(3530)o(3549). Jπ: L=(6,7) in (p,p′),(p,p′γ).
3558.9 *10*	7−,8−,9−		E L o	XREF: o(3549). Jπ: log *ft*=5.55 from 8−.
3576 *3*	2−,3−,4−		h J	XREF: h(3581). Jπ: L=3 in (d,p).
3592.54 *5*	4+		A h	XREF: h(3581). Jπ: log *ft*=5.79 4from 5+, strong γ to 2+.
3597 *3*	2+		J L	Jπ: L=2 in (p,p′),(p,p′γ) and (d,p),(t,d).
3635 *3*			J m	XREF: m(3650).
3643 *3*			J m	XREF: m(3650).
3673.67 *15*	4+		JKL N	Jπ: L=4 in (p,p′).

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Adopted Levels, Gammas (continued)

^{118}Sn Levels (continued)

E(level)‡	Jπ	$T_{1/2}$[a]	XREF	Comments
3692.0† *4*	8^+		G	Jπ: stretched E2 γ to 6^+.
3696.78 *17*	$1^+,2^+$	0.11 ps *+38−6*	K N	Jπ: L=2 in (p,d),(d,t); γ to 0^+.
3704.84 *8*	4^+		A m	XREF: m(3720). Jπ: log *ft*=5.89 *3* from 5^+, strong γ to 2^+.
3705# *10*	(6^+)		Lm	XREF: m(3720). Jπ: L=(6) in (p,p′),(p,p′γ).
3709.87 *15*	$1^+,2^+$		KlmN	XREF: l(3720)m(3720). Jπ: E2 γ to 0^+.
3721 *3*	$0^-,1^-,2^-$		J lm O	XREF: l(3720)m(3720). Jπ: L=1 in (d,p).
3750 *3*	$(0^-$ to $3^+)$		J L N	Jπ: L=(2) in (p,d),(d,t); L=(1,2) in (d,p),(t,d).
3753.85 *6*	4,5,6		A	Jπ: log *ft*=5.77 from 5^+.
3762.13 *14*	1,2,3		K	Jπ: D+Q γ to 2^+.
3773# *10*	4^+		L	Jπ: L=4 in (p,p′),(p,p′γ).
3784 *3*	$(0^+,1^+)$		J L N	Jπ: L=(0) in (d,p),(t,d).
3816.64 *9*	$1^+,2^+,3^+$		A JK	Jπ: L=2 in (d,p),(t,p).
3838.88 *14*	4		A lm	XREF: l(3847)m(3840). Jπ: log *ft*=6.14 from 5^+, γ to 2^+.
3857.0 *4*	$1,2^+$		JKlm	XREF: l(3847)m(3840). Jπ: strong γ to 0^+.
3889 *3*	$(0^-,1^-,2^-)$		J L n	XREF: n(3890). Jπ: L=(1) in (d,p),(t,d).
3898.90 *20*			KL n	XREF: n(3890).
3916 *3*	$1^+,2^+,3^+$		J	Jπ: L=2 in (d,p),(t,d).
3944.4 *4*	$1^+,2^+$		JKL N	Jπ: L=2 in (d,p),(t,d); E2 γ to 0^+.
3977# *10*			L	
3995 *3*	$0^-,1^-,2^-$		J L N	Jπ: L=1 in (d,p),(t,d).
4044.6 *3*	$(1^+,2^+,3^+)$		JKLMN	Jπ: L=(2) in (p,d),(d,t), but L=(1,2) in (d,p),(t,d).
4109.0 *3*	$0^-,1^-,2^-$		JKL	Jπ: L=1 in (d,p),(t,d).
4126.7 *4*	$1^+,2^+$		JK N	Jπ: L=2 in (d,p),(t,d); γ to 0^+.
4203 *3*	$1^+,2^+,3^+$		J M	Jπ: L=2 in (d,p),(t,d).
4233 *3*	$(2^-,3^-,4^-)$		J	Jπ: L=(3) in (d,p),(t,d).
4252 *3*			J	
4288 *3*			J	
4313 *3*			J	
4326 *3*			J	
4352 *3*			J	
4365 *3*			J	
4391 *3*			J	
4408 *3*			J	
4422 *3*	$(0^+,1^+)$		J P	XREF: P(4450). Jπ: L=(0) in (d,p),(t,d).
4448 *3*	$(1^+,2^+,3^+)$		J	Jπ: L=(2) in (d,p),(t,d).
4472 *3*	$(0^-,1^-,2^-)$		J	Jπ: L=(1) in (d,p),(t,d).
4484 *3*			J	
4495.4† *5*	(10^+)		G	Jπ: stretched (E2) to 8^+.
4507 *3*			J	
4523 *3*			J	
4540 *3*	$(0^-$ to $3^+)$		J M	Jπ: L=(1,2) in (d,p),(t,d).
4573 *3*	$(0^-,1^-,2^-)$		J	Jπ: L=(1) in (d,p),(t,d).
4604 *7*			R	
4617 *3*			J	
4637 *3*	$1^+,2^+,3^+$		J	Jπ: L=2 in (d,p),(t,d).
4696 *3*			J	
4706 *3*			J	

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Adopted Levels, Gammas (continued)

^{118}Sn Levels (continued)

E(level)‡	Jπ	$T_{1/2}$[a]	XREF	Comments
4798 *3*	3^-		J M	Jπ: L=3 in (α,α′),(d,d′),(^{3}He,^{3}He′); but L=(0,3) in (d,p),(t,d).
4832 *3*	$0^+,1^+$		J	Jπ: L=0 in (d,p),(t,d).
4862 *3*	$0^+,1^+$		J	Jπ: L=0 in (d,p),(t,d).
4879 *3*	$0^+,1^+$		J	Jπ: L=0 in (d,p),(t,d).
4940 *3*	$(2^-,3^-,4^-)$		J	Jπ: L=(3) in (d,p),(t,d).
5006 *3*			J	
5014 *3*	$2^-,3^-,4^-$		J	Jπ: L=3 in (d,p),(t,d).
5025 *3*			J	
5043 *3*			J	
5068 *3*	$(2^-,3^-,4^-)$		J	Jπ: L=(3) in (d,p),(t,d).
5098 *3*			J M	
5116 *3*	$(0^-$ to $3^+)$		J	Jπ: L=(1,2) in (d,p),(t,d).
5142 *3*			J	
5150 *3*			J	
5163 *3*			J	
5181 *3*			J	
5193 *3*			J	
5208 *3*			J	
5379.4?† *12*	(12^+)		G	Jπ: stretched γ to (10^+).
5400@ *80*	3^-		M	Jπ: L=3 in (α,α′),(d,d′),(^{3}He,^{3}He′).
6325 *7*	1	5.7 fs *24*	R	E(level): from (γ,γ′). Jπ: from γ(θ) in (γ,γ′). $T_{1/2}$: from (γ,γ′).
6.9×10^3@ *4*	3^-		M	Jπ: L=3 in (α,α′),(d,d′),(^{3}He,^{3}He′).
6988 *5*	1^-	2.9 fs *6*	R	E(level): from (γ,γ′). Jπ: from γ(θ) and γ(pol) in (γ,γ′). $T_{1/2}$: from (γ,γ′).
7010 *5*	1		R	E(level): from (γ,γ′). Jπ: from γ(θ) in (γ,γ′).
12.35×10^3 *20*			Q	E(level): from (e,e′).
15.55×10^3 *20*			Q	E(level): from (e,e′).
24.3×10^3@ *15*	(3^-)		M	Jπ: L=3 in (α,α′),(d,d′),(^{3}He,^{3}He′).

† Band(A): quasi-rotational band.
‡ From a least-squares fit to adopted E(γ′s) for levels connecting with γ-transitions. Others from ^{117}Sn(d,p),(t,d), except as noted.
# From (p,p′),(p,p′γ).
@ From (α,α′),(d,d′),(^{3}He,^{3}He′).
& From γ(θ) and γ(pol) in (n,n′γ).
[a] From (n,n′γ) unless otherwise noted.

Adopted Levels, Gammas (continued)

$\gamma(^{118}Sn)$

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[c]	δ[c]	α[d]	Comments
1229.666	2^+	1229.68[‡] *2*	100	0.0	0^+	E2			B(E2)(W.u.)=12.1 *5* Mult.: from γ(pol) in ^{118}In β^- decay (8.5 s).
1758.31	0^+	528.73[@] *3*	100	1229.666	2^+	E2		0.00638	B(E2)(W.u.)=19 *3* E_γ: other: 528.83 *2* in (n,n′γ). Mult.: from α(K)exp in ^{118}Sb ε decay (3.6 min).
		1758.05[@] *5*		0.0	0^+	E0			Mult.: from $\gamma\gamma(\theta)$ in ^{118}Sb ε decay (3.6 min).
2042.882	2^+	284.66 *12*	2.5 *2*	1758.31	0^+	[E2]		0.0422	α(K)=0.0354; α(L)=0.00554; α(M)=0.00109; α(N+..)=0.00024 B(E2)(W.u.)=39 *7*
		813.22[‡] *2*	100.0 *24*	1229.666	2^+	E2+M1	−2.34 *16*		B(M1)(W.u.)=0.00112 *21*; B(E2)(W.u.)=6.9 *10*
		2042.90[‡] *5*	92.2 *25*	0.0	0^+	E2			B(E2)(W.u.)=0.075 *11* I_γ: others: 50 *33* in ^{118}Sb ε decay (3.6 min), 54 *15* in ^{118}In β^- decay (5.0 s), 85 *12* in (α,2nγ),(^{7}Li,p4nγ).
2056.91	0^+	298.58[@] *4*		1758.31	0^+	E0			Mult.: from $\gamma\gamma(\theta)$ in ^{118}Sb ε decay (3.6 min).
		827.30[@] *6*	100	1229.666	2^+	E2			B(E2)(W.u.)>0.21 E_γ: other: 820 in (γ,γ').
		2056.5[@] *5*		0.0	0^+	E0			Mult.: from $\gamma\gamma(\theta)$ in ^{118}Sb ε decay (3.6 min).
2280.342	4^+	237.6[#] *5*	0.05[#] *2*	2042.882	2^+	[E2]		0.0774	α(K)=0.0641; α(L)=0.0107; α(M)=0.00212; α(N+..)=0.00046 B(E2)(W.u.)=14 *7*
		1050.65[#] *3*	100[#] *3*	1229.666	2^+	E2			B(E2)(W.u.)=17 *3*
2321.23	5^-	40.8[&] *1*	100 *7*	2280.342	4^+	E1		2.21	α(K)=1.88; α(L)=0.266; α(M)=0.0514 B(E1)(W.u.)=5.7×10^{-5} *7* Mult.: from α in (α,2nγ),(^{7}Li,p4nγ).
		1091.51[&] *8*	12 *1*	1229.666	2^+	E3			B(E3)(W.u.)=1.32 *15* E_γ: other: 1091.84 *7* in (n,n′γ). Mult.: from α(K)exp in ^{118}Sb ε decay (5.00 h).
2324.846	3^-	1095.19 *2*	100 *4*	1229.666	2^+	E1(+M2)	+0.026 *6*		B(E1)(W.u.)=(0.00111 *25*); B(M2)(W.u.)=(2.9 *11*)
		2324.7 *2*	1.1 *1*	0.0	0^+	E3			B(E3)(W.u.)=2.3×10^2 *6* Mult.: from α(K)exp in ^{118}Sb ε decay (5.00 h).
2328.02	2^+	285.22[#] *11*	5.1[#] *6*	2042.882	2^+				
		1098.2[#] *5*	100[#] *19*	1229.666	2^+	E2(+M1)			B(M1)(W.u.)<0.033; B(E2)(W.u.)<20 Mult.: 1/δ=+0.018 *10* in (n,n′γ).
		2327.82[#] *8*	23.4[#] *8*	0.0	0^+	E2			I_γ: others: 13 *3* in ^{118}Sb ε decay (3.6 min), 18.4 *7* in (n,n′γ).
2403.22	2^+	360.4 *2*	1.8 *2*	2042.882	2^+				
		1173.59[‡] *5*	100 *3*	1229.666	2^+	M1+E2	+1.07 *9*		B(M1)(W.u.)=(0.035 *16*); B(E2)(W.u.)=(22 *10*)
2488.871	4^+	208.52[‡] *2*	52 *7*	2280.342	4^+	M1+E2	−0.17 *4*	0.0762 *7*	α(K)=0.0659 *5*; α(L)=0.0084 *1*; α(M)=0.00163 *3*; α(N+..)=0.00037 *1* B(M1)(W.u.)<1.0; B(E2)(W.u.)<7.2×10^2

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Adopted Levels, Gammas (continued)

γ(^{118}Sn) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[c]	δ[c]	α[d]	Comments
2488.871	4+	445.99[‡] *1*	100 *3*	2042.882	2+	E2		0.0103	α(K)=0.0088; α(L)=0.00121; α(M)=0.00024 B(E2)(W.u.)<7.6×10^2
		1259.19[‡] *2*	67 *3*	1229.666	2+	E2			B(E2)(W.u.)<2.8
2496.88	0+	1267.23[@] *5*	100	1229.666	2+	E2			E_γ: other: 1267.57 *3* in (n,n′γ). Mult.: from α(K)exp ^{1}n ^{118}Sb ε decay (3.6 min).
		2496.56[@] *20*		0.0	0+	E0			Mult.: from γγ(θ) in ^{118}Sb ε decay (3.6 min).
2574.91	7−	253.678[&] *10*	100	2321.23	5−	E2		0.0620	α(K)=0.0516; α(L)=0.0084; α(M)=0.00166; α(N+..)=0.00036 B(E2)(W.u.)=0.064 *3*
2677.35	2+	1447.66 *3*	86 *4*	1229.666	2+	M1+E2	+2.46 *+17−13*		B(M1)(W.u.)<0.0019; B(E2)(W.u.)<3.7 I_γ: others: 120 *16* (^{118}In β− decay (4.45 min)), 180 *90* (^{118}Sb ε decay (3.6 min)).
		2677.35 *4*	100 *4*	0.0	0+	E2			B(E2)(W.u.)<0.23
2733.789	4+	1504.13[‡] *2*	100	1229.666	2+	E2			B(E2)(W.u.)=4 *6*
2738.01	1+	1508.33 *3*	100 *5*	1229.666	2+	M1+E2	−0.8 *+9−5*		B(M1)(W.u.)=0.015 *17*; B(E2)(W.u.)=3 *5*
		2738.10 *10*	34.3 *15*	0.0	0+	M1			B(M1)(W.u.)=0.0014 *13*
2773.94	4−	449.07 *3*	42.4 *12*	2324.846	3−	M1+E2	+0.010 *16*	0.0104	α(K)=0.0090; α(L)=0.00110; α(M)=0.00021
		452.72 *2*	100 *3*	2321.23	5−	M1+E2	+0.092 *9*	0.0101	α(K)=0.0088; α(L)=0.00108; α(M)=0.00021
2817.17	(3−)	492.32 *3*	100 *3*	2324.846	3−	D+Q			
		1587.1 *4*	2.7 *5*	1229.666	2+	D			
2878.70	4,5,6+	557.23 *7*	43 *2*	2321.23	5−	D+Q			
		598.47 *5*	100 *3*	2280.342	4+				
2903.87	2+	1674.10 *6*	37 *2*	1229.666	2+	E2(+M1)			B(M1)(W.u.)=(0.0082 *22*); B(E2)(W.u.)=(2.2 *6*) δ: 17 *+33−9* or −0.40 *10*.
		2903.90 *5*	100 *4*	0.0	0+	E2			B(E2)(W.u.)=0.76 *20*
2929.72	0+,1+	1700.04 *6*	100	1229.666	2+				
2963.437	4+	229.65[#] *1*	1.38[#] *4*	2733.789	4+				
		474.57[#] *2*	5.30[#] *18*	2488.871	4+				
		560.21[#] *2*	1.75[#] *7*	2403.22	2+				
		635.40[#] *2*	3.13[#] *11*	2328.02	2+				
		638.61[#] *2*	2.42[#] *7*	2324.846	3−				
		683.06[#] *2*	100[#] *3*	2280.342	4+	M1+E2	+0.09 *5*		
		920.57[#] *4*	0.89[#] *4*	2042.882	2+				
2999.45	6+	510.5[a] *1*	100 *17*	2488.871	4+				I_γ: from (α,2nγ),(^{7}Li,p4nγ).
		719.15 *8*	60 *3*	2280.342	4+	E2			E_γ: weighted av from (n,n′γ) and ^{118}In β− decay (4.45 min). I_γ: from (α,2nγ),(^{7}Li,p4nγ).
3015.21?	1,2,3	972.32 *5*	100	2042.882	2+	D			

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Adopted Levels, Gammas (continued)

γ(^{118}Sn) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[c]	δ[c]	α[d]	Comments
3048.35?	4	768.00 *4*	100	2280.342	4^+	D+Q			
3052.16	$7^+,8^+$	477.25[a] *6*	100	2574.91	7^-	E1			Mult.: from α(K)exp in (α,2nγ),(^{7}Li,p4nγ).
3057.22	2^+	1827.36 *12*	22.7 *12*	1229.666	2^+	M1+E2			B(M1)(W.u.)=0.0030 *14*; B(E2)(W.u.)=0.7 *4* δ: −0.7 *+3−2* or −5 *+6−2*.
		3057.22 *6*	100 *4*	0.0	0^+	E2			B(E2)(W.u.)=0.46 *21*
3089.21	$^+$	808.87 *3*	100	2280.342	4^+	M1+E2	+1.37 *14*		
3108.06	$9^+,10^+$	55.9[a] *2*	100	3052.16	$7^+,8^+$	E2		12.9	α(K)=6.81; α(L)=4.89; α(M)=1.00; α(N+..)=0.203 B(E2)(W.u.)=0.86 *4* Mult.: from α in (α,2nγ),(^{7}Li,p4nγ).
3137.48	0^+	1907.80 *15*	100	1229.666	2^+				E_γ: other: 1907.2 *2* in ^{118}Sb ε decay (3.6 min).
3159.35	4^+	756.4[#] *4*	52[#] *21*	2403.22	2^+				
		1116.42[#] *16*	100[#] *13*	2042.882	2^+				
3227.67	$2^+,3^+$	1997.99 *6*	100	1229.666	2^+	E2			
3228.37	2^+	3228.32 *8*	100	0.0	0^+	E2			B(E2)(W.u.)=0.3 *3*
3252.03	(3^+)	2022.35 *6*	100	1229.666	2^+	D+Q			δ: 1/δ=+0.14 *4*.
3262.53	3^+	1219.64 *5*	100	2042.882	2^+	M1+E2	+0.14 *4*		
3270.67	1	3270.62 *11*	100	0.0	0^+	D			
3308.54	2^+	2078.82 *16*	100 *5*	1229.666	2^+	M1+E2			δ: −0.21 *9* or +4 *2*.
		3308.6 *3*	27 *3*	0.0	0^+	E2			
3355.86	2^+	2126.19 *13*	100 *6*	1229.666	2^+	M1+E2			δ: −0.34 *9* or 1/δ=0.008 *9*.
		3355.6 *4*	25 *3*	0.0	0^+	E2			
3374.60	4^+	411.44[#] *18*	4.6[#] *9*	2963.437	4^+				
		885.66[#] *8*	32.8[#] *25*	2488.871	4^+				
		971.44[#] *4*	44[#] *8*	2403.22	2^+				
		1094.3[#] *5*	100[#] *3*	2280.342	4^+				
		2144.64[#] *9*	15.0[#] *6*	1229.666	2^+				
3386.30	3^+	1058.27 *7*	100	2328.02	2^+	M1+E2			δ: 1/δ=−0.09 *2*.
3427.11	3^+	1384.24 *15*	100 *5*	2042.882	2^+	M1+E2			
		2197.41 *12*	98 *5*	1229.666	2^+	M1+E2			
3460.49	4^+	971.44[#] *4*	96[#] *21*	2488.871	4^+				
		1132.49[#] *11*	30[#] *3*	2328.02	2^+				
		1180.18[#] *7*	49[#] *3*	2280.342	4^+	E2			I_γ: 85 *6* in (n,n′γ).
		1418.03[#] *29*	8[#] *2*	2042.882	2^+				
		2230.76[#] *7*	100[#] *3*	1229.666	2^+	E2			
3462.63	$(2^-,3^-)$	1419.74 *10*	100	2042.882	2^+				
3540.57	$1^+,2^+,3^+$	2310.88 *8*	100	1229.666	2^+	M1+E2			
3558.9	$7^-,8^-,9^-$	984.0[&] *10*	100	2574.91	7^-	(M1,E2)			Mult.: from α(K)exp in ^{118}In β^- decay (4.45 min).

Adopted Levels, Gammas (continued)

γ(^{118}Sn) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[c]	Comments
3592.54	4+	858.84[#] *19*	42[#] *7*	2733.789	4+		
		1312.22[#] *6*	67[#] *3*	2280.342	4+		
		1549.63[#] *6*	100[#] *4*	2042.882	2+		
		2362.78[#] *12*	24[#] *1*	1229.666	2+		
3673.67	4+	1393.40 *20*	50 *7*	2280.342	4+		
		2443.90 *20*	100 *8*	1229.666	2+		
3692.0	8+	692.5[a] *4*	100	2999.45	6+	E2	Mult.: from α(K)exp in (α,2nγ),(^{7}Li,p4nγ).
3696.78	1+,2+	2466.9 *3*	32 *5*	1229.666	2+	M1+E2	
		3696.8 *2*	100 *7*	0.0	0+		
3704.84	4+	1301.62[#] *16*	37[#] *4*	2403.22	2+		
		1377.09[#] *20*	25[#] *3*	2328.02	2+		
		1424.7[#] *4*	14[#] *3*	2280.342	4+		
		1661.93[#] *21*	27[#] *4*	2042.882	2+		
		2475.06[#] *10*	100[#] *5*	1229.666	2+		
3709.87	1+,2+	1381.79 *16*	100 *7*	2328.02	2+	M1+E2	
		3710.1 *4*	63 *6*	0.0	0+	E2	
3753.85	4,5,6	1264.96[#] *8*	78[#] *5*	2488.871	4+		
		1473.50[#] *7*	100[#] *5*	2280.342	4+		
3762.13	1,2,3	2532.43 *14*	100	1229.666	2+	D+Q	
3816.64	1+,2+,3+	2586.94[‡] *8*	100	1229.666	2+	M1+E2	
3838.88	4	2609.18[#] *14*	100[#]	1229.666	2+		
3857.0	1,2+	2627.3 *5*	84 *10*	1229.666	2+		
		3857.0 *7*	100 *10*	0.0	0+		
3898.90		2669.20 *20*	100	1229.666	2+		
3944.4	1+,2+	2714.7 *5*	100 *11*	1229.666	2+		
		3944.4 *7*	67 *11*	0.0	0+	E2	
4044.6	(1+,2+,3+)	2814.9 *3*	100	1229.666	2+		
4109.0	0−,1−,2−	2879.3 *3*	100	1229.666	2+		
4126.7	1+,2+	2897.1 *4*	100 *7*	1229.666	2+		
		4126.3 *9*	36 *7*	0.0	0+		
4495.4	(10+)	803.4[a] *3*	100	3692.0	8+	(E2)	Mult.: from α(K)exp and γ(θ) in (α,2nγ),(^{7}Li,p4nγ).
4604		4604[b] *7*	100[b]	0.0	0+		
5379.4?	(12+)	884[a] *1*	100	4495.4	(10+)		
6325	1	6325[b] *7*	100[b]	0.0	0+	D	Mult.: from (γ,γ′).
6988	1−	4672[b] *5*	3.4[b] *7*	2328.02	2+		
		4940[b] *5*	2.3[b] *7*	2042.882	2+		

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Adopted Levels, Gammas (continued)

$\gamma(^{118}Sn)$ (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult.[c]	Comments
6988	1^-	5762[b] *3*	20.1[b] *19*	1229.666	2^+		
		6988[b] *5*	100[b]	0.0	0^+	E1	B(E1)(W.u.)=2.3×10^{-6} *5* Mult.: from (γ,γ').
7010	1	5780[b] *10*	25[b] *4*	1229.666	2^+	D,Q	Mult.: from (γ,γ').
		7010[b] *10*	100[b] *5*	0.0	0^+	D	Mult.: from (γ,γ').

† From (n,n′γ), except where otherwise noted.
‡ Weighted av of E(γ′s) from β^- decay (4.45 min) and (n,n′γ). Relative photon branching is also the weighted av.
# From β^- decay (4.45 min).
@ From ε decay (3.6 min).
& From ε decay (5.00 h). Relative photon branching is also from the decay.
[a] From (α,2nγ),(^{7}Li,p4nγ).
[b] From (γ,γ').
[c] From $\gamma(\theta)$ and γ(pol) in (n,n′γ), except where otherwise noted.
[d] Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

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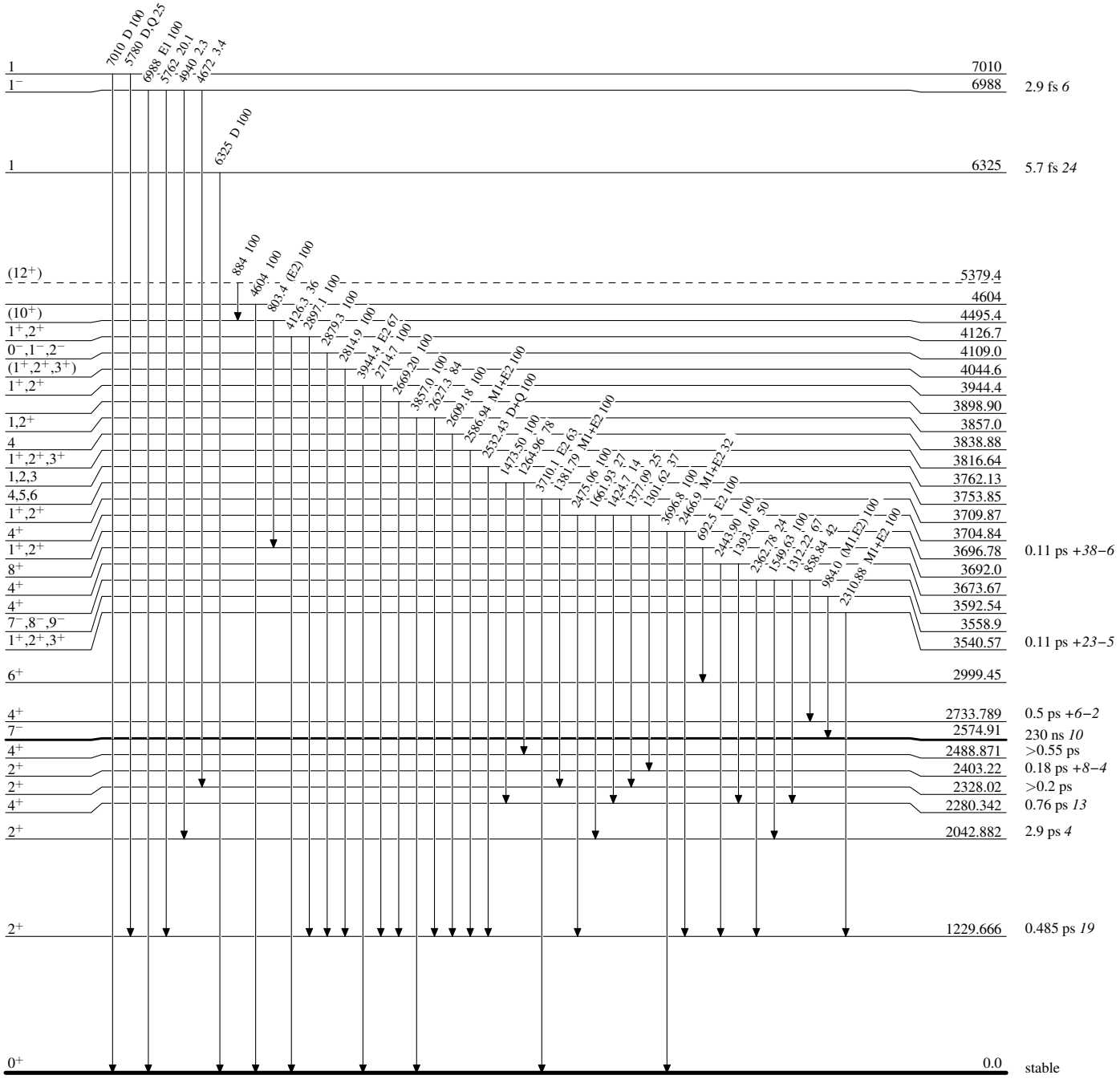
Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level



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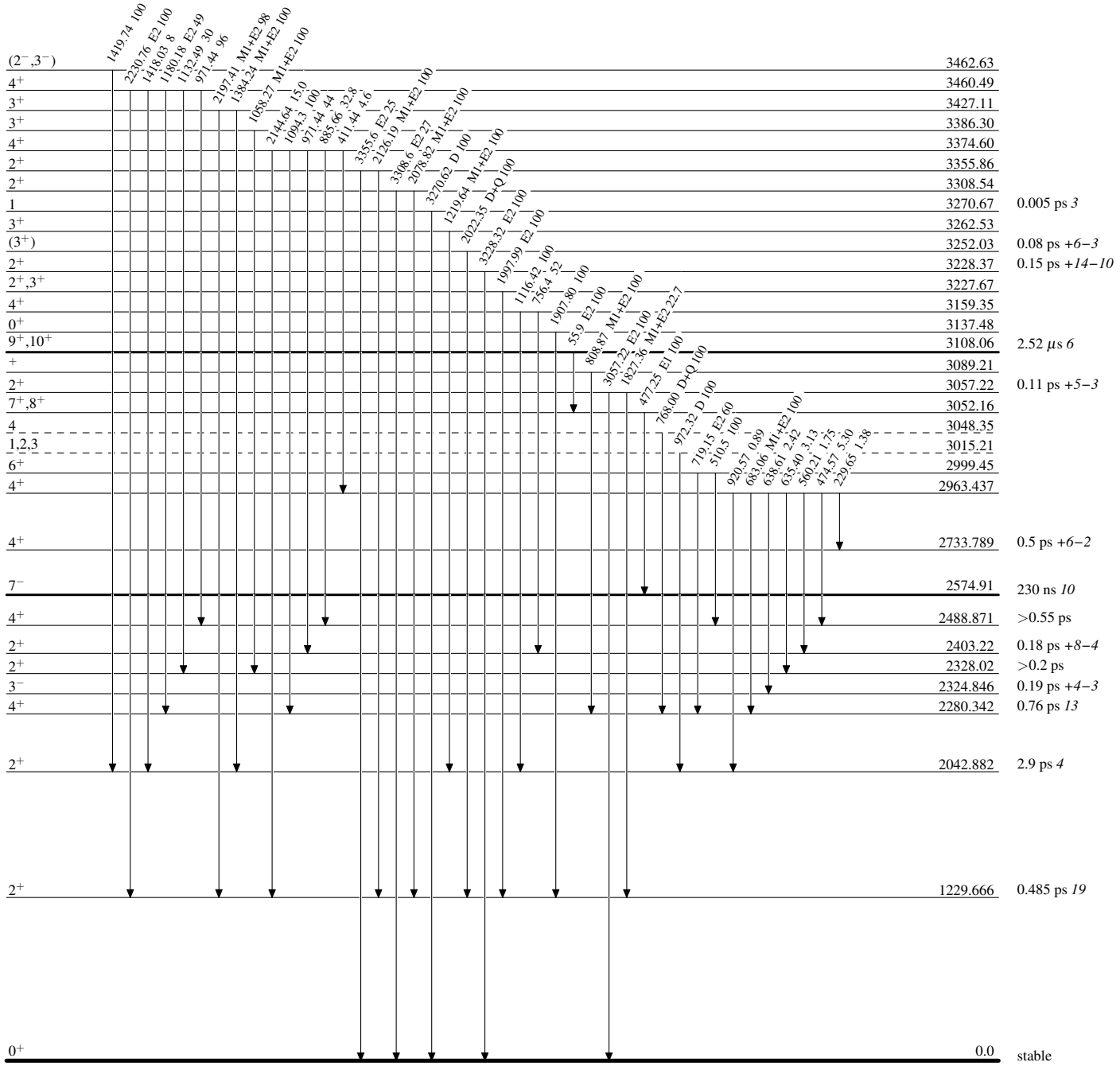
Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



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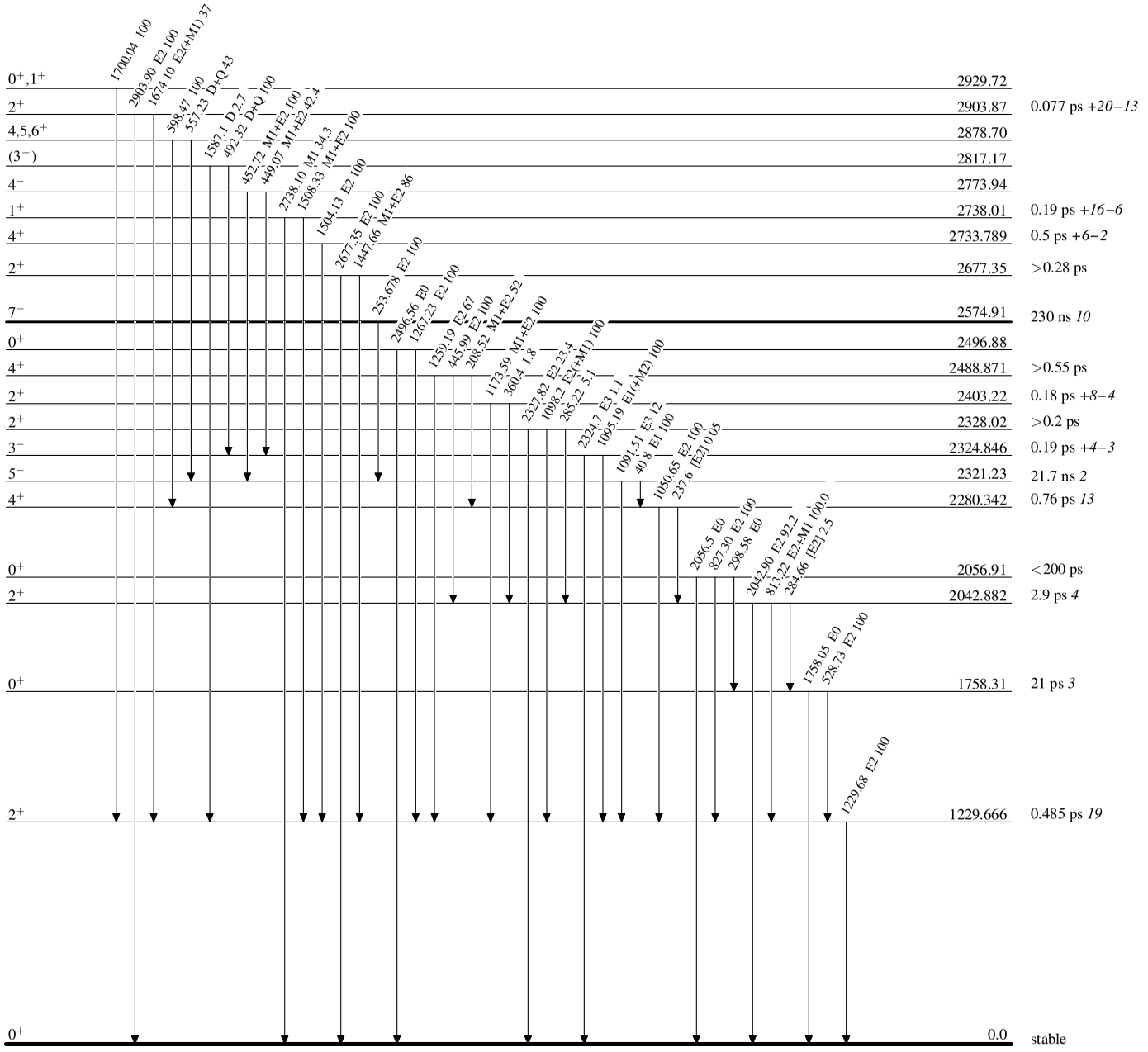
Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



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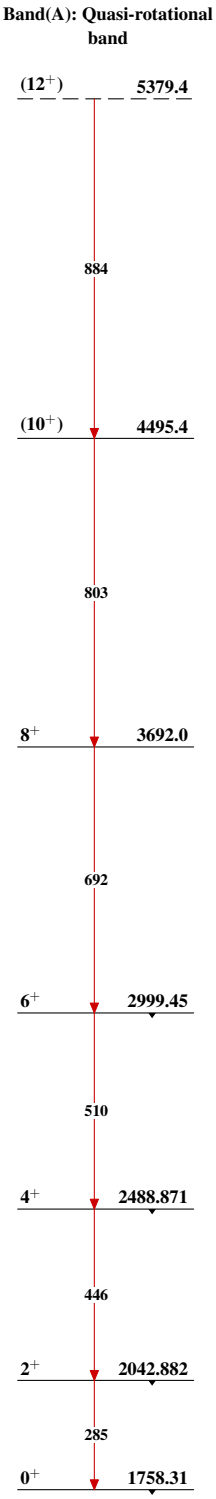
Adopted Levels, Gammas



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