Adopted Levels, Gammas

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Jean Blachot	ENSDF	1-Mar-2009

Q(β^-)=−1758 *9*; S(n)=6943.1 *5*; S(p)=9437.0 *6*; Q(α)=−3779.4 *7* 2012Wa38
Note: Current evaluation has used the following Q record.
Q(β^-)=−1755 *9*; S(n)=6943.2 *5*; S(p)=9440 *4*; Q(α)=−3778.0 *19* 2009AuZZ
Theory references: 1970Ot03, 1970Pe24, 1971Dr03, 1971Le03, 1972Ku25, 1973Do08, 1974Be34, 1974Be56, 1974De10, 1974So04, 1974Va04, 1975Ra15, 1976Ca16, 1976Da05, 1978Sm01, 1978Vo16, 1979Ta27, 1984Do03, 1985Ha17, 1985Vd01, 1985Sa24, 1988He13, 1989He02, 1989Ba77.

^{117}Sn Levels

Cross Reference (XREF) Flags

A	^{117}In β^- decay (43.2 min)	I	^{116}Sn(d,pγ)	Q	^{117}Sn(α,α')
B	^{117}In β^- decay (116.2 min)	J	^{116}Sn(α,^{3}He)	R	Coulomb excitation
C	^{117}Sn IT decay	K	^{117}Sn(γ,γ')	S	^{118}Sn(p,d)
D	^{117}Sb ε decay	L	^{117}Sn(γ,xn)	T	^{118}Sn(d,t)
E	^{114}Cd(α,nγ)	M	^{117}Sn(e,e'p)	U	^{118}Sn(^{3}He,α)
F	^{116}Cd(α,3nγ)	N	^{117}Sn(p,p') E=18 MeV	V	^{119}Sn(p,t)
G	^{116}Sn(n,γ) E=resonance	O	^{117}Sn(p,p'γ)	W	^{116}Sn(n,γ) E=res: primary γ's
H	^{116}Sn(d,p)	P	^{117}Sn(d,d')		

E(level)[‡]	J$^\pi$	T$_{1/2}$	XREF	Comments
0.0	1/2$^+$	stable	ABCDEFGHIJK MN PQRSTUVW	μ=−1.00104 *7* (2001StZZ) μ: NMR. J$^\pi$: NMR (1976Fu06), L(n)=0.
158.562 *12*	3/2$^+$	0.279 ns *9*	ABCDEFGHIJK N RSTUVW	μ=+0.66 *5* (2001StZZ) T$_{1/2}$: from 1972Jo13. Other: 0.31 ns *3* (1963Sc12). μ: integral perturbed angular correlations. J$^\pi$: L(d,p)=2, 158γ is M1+E2.
314.58[#] *4*	11/2$^-$	14.00 d *5*	A C EFGHIJ N STUV	%IT=100 Q=−0.42 *5* (2005St24); μ=−1.39 μ,Q: LASER induced resonance fluorescence from an atomic beam (1986An24). T$_{1/2}$: From 2002Un02. Others: 13.98 d *7* (2003Po21), 13.60 d *4* (1977Ka16), 14.0 d *5* (1951Co34), 14.0 d *3* (1950Mi52). J$^\pi$: L(d,p)=5 *156*γ to 3/2$^+$ is M4.
360 *10*			N	
678.5			W	
711.54 *10*	7/2$^+$	980 ps *30*	A DEFGHIJ N STUV	T$_{1/2}$: from 1987Fu07. Other: 1.0 ns *1* (1970Ba62) ^{117}In β^- decay. J$^\pi$: L(d,p)=4, 553γ not M3.
1004.53 *14*	3/2$^+$	1.32 ps *6*	B DE G I n R VW	T$_{1/2}$: from B(E2)= 0.073 *3* and branching. Other: 1.1 ps *3* from DSA. J$^\pi$: $\gamma(\theta)$ in Coulomb excitation.
1019.92 *6*	5/2$^+$	0.46 ps *4*	B E GHIJ n RSTU	XREF: J(1030)S(1040). T$_{1/2}$: from B(E2)= 0.062 *3* and branching. Other: 0.49 ps *10* from DSA. J$^\pi$: L=2 in (α,^{3}He), $\gamma(\theta)$ in Coulomb excitation.
1179.7 *5*	5/2$^+$	<0.4 ps	DE GHI N R TUVW	J$^\pi$: L(d,p)=2, vector analyzing power in ^{118}Sn(d,t). T$_{1/2}$: from B(E2)= 0.0068 *6* and branching.
1304.3 *5*	(7/2$^-$)		E GHI N	J$^\pi$: L(d,p)=(3), 989γ to 11/2$^-$ is (E2).

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Adopted Levels, Gammas (continued)

^{117}Sn Levels (continued)

E(level)‡	Jπ	$T_{1/2}$	XREF	Comments
1340	+		P	
1446.2 *3*	5/2+	0.42 ps *3*	DE G I K N R VW	$T_{1/2}$: 0.35 ps *10* from DSA, 0.43 ps *3* from B(E2)=0.0360 *20* and branching. Jπ: γγ(θ) in Coulomb excitation.
1468.6 *3*	3/2+,5/2+		E I S	Jπ: L(d,p)=2.
1496.8 *10*	(5/2+,3/2+)		DE GHI N R T	B(E2)↑<0.0004 Jπ: L(d,p)=(2) in ^{116}Sn(d,p).
1510.1 *3*		0.0025 eV *3*	K	
1530	3/2+,5/2+		S	Jπ: L(p,d)=2.
1578.25 *24*	(3/2+)		DE G I R W	B(E2)↑<0.0010 Jπ: L(d,p)=(2), primary feeding in ^{116}Sn(n,γ).
≈1588	(11/2−)		J STU	Jπ: L=(5) in (α,^{3}He), 11/2− selected from syst.
1589 *10*	(3/2+,5/2+)		H N	Jπ: L=(2) in (d,p).
1593.1# *3*	(15/2−)		F H STU	Jπ: stretched E2 to 11/2−.
1625.4 *3*	(13/2−)		F	Jπ: M1,E2 γ to 11/2−, E2 γ from 17/2−.
1628 *5*	(7/2+,9/2+)		ST	Jπ: L(d,p)=(4) reported in ^{118}Sn(p,d).
1668.2 *15*	(5/2+,3/2+)		GH ST W	Jπ: L=(2) in ^{116}Sn(d,p).
1710	3/2+,5/2+		S	Jπ: L(p,d)=2.
1770	3/2+,5/2+		S	Jπ: L(p,d)=2.
1810 *10*			N	
1874.5 *4*	(11/2+)		F	Jπ: E2 γ to 7/2+.
1910 *10*			N	
1948 *10*			H	Jπ: L=(1+3) in ^{116}Sn(d,p).
2007 *10*	(1/2−,3/2−)		H n P S U	XREF: n(2030). Jπ: L=1 in (d,p).
2046 *10*	(5/2−,7/2−)		H n	XREF: n(2060). Jπ: L=(3) in ^{116}Sn(d,p).
2048.2 *3*	1/2,(3/2)	0.0068 eV *5*	K	Jπ: from γ(θ).
2050 *10*	7/2+,9/2+		P S	Jπ: L=4 in ^{118}Sn(p,d).
2076 *10*	(1/2−,3/2−)		H	Jπ: L=(1) in ^{116}Sn(d,p).
2079 *10*	1/2+		S	Jπ: L=0 in ^{118}Sn(p,d).
2128.6 *4*		0.00124 eV *25*	K	
2146 *10*	3/2+,5/2+		H S	Jπ: L(d,p)=2.
2160 *20*	5/2−,7/2−		N	Jπ: L=3 in ^{117}Sn(p,p′).
2203 *10*			H	
2220	+		P	
2256 *10*			H	
2280 *20*	5/2−,7/2−		N P	XREF: N(2270). Jπ: L=3 in ^{117}Sn(p,p′).
2280.4 *6*		0.00061 eV *22*	K	
2300 *15*	3/2+,5/2+		H PQ S U	XREF: S(2290). Jπ: L(d,p)=2; may be same as 2331.2 level from ^{116}Sn(n,γ).
2304.6 *5*		0.00101 eV *25*	K	
2331.2 *15*			G N W	XREF: N(2320).
2350 *10*	9/2−,11/2−		H S	Jπ: L(d,p)=5.
2367.3 *2*	3/2	0.0115 eV *8*	K	Jπ: from γ(θ).
2381.0 *4*	(17/2−)		F	Jπ: (E2) γ to (13/2−), γ to (15/2−).
2390 *15*	(1/2−,3/2−)		H	Jπ: L(d,p)=(1).
2400 *10*	1/2+		N S	Jπ: L(p,d)=0.
2400.7 *4*	(17/2−)		F	Jπ: (E2) γ to (13/2−), M1 γ to (15/2−).
2406.4 *4*	(19/2+)	1.75 μs *7*	F	Jπ: (E3) γ to (13/2−), M2 γ to (15/2−). $T_{1/2}$: from 1979Ha12.
2415.9 *3*		0.0028 eV *4*	K	
2461 *10*	(5/2−,7/2−)		H N	Jπ: L=(3) in ^{116}Sn(d,p), L=3 in ^{117}Sn(p,p′).
≈2500	7/2+,9/2+		S	Jπ: L=4 reported in ^{118}Sn(p,d).

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Adopted Levels, Gammas (continued)

^{117}Sn Levels (continued)

E(level)[‡]	Jπ	$T_{1/2}$	XREF	Comments
2515.8 *5*		0.0012 eV *3*	K	
2545 *10*	(5/2⁻,7/2⁻)		H N	XREF: N(2530). Jπ: L=(3) reported in ^{116}Sn(d,p).
2590.2 *5*		0.0018 eV *4*	K N	
2655.5 *11*	(1/2,3/2)		G W	Jπ: primary feeding in ^{116}Sn(n,γ).
2656 *10*	(5/2⁻,7/2⁻)		H	Jπ: L=(3) in (d,p).
2660 *10*	3/2⁺,5/2⁺		S	Jπ: L=2 in ^{118}Sn(p,d).
2690 *10*	1/2⁻,3/2⁻		H N P S	XREF: H(2707)N(2680)P(2670). Jπ: L=1 in ^{118}Sn(p,d).
2709.1 *5*		0.0028 eV *4*	K	
2718.2 *4*		0.0033 eV *8*	K	
2750 *15*			NO	E(level): L=4 reported in ^{117}Sn(α,α′).
2770 *10*	(3/2⁺,5/2⁺)		H	Jπ: L=(2) in ^{116}Sn(d,p); L=2 in ^{118}Sn(p,d).
2775.2 *4*		0.0020 eV *4*	K	
2807.6[#] *5*	(19/2⁻)		F	Jπ: stretched E2 to (15/2⁻).
2827 *10*	3/2⁺,5/2⁺		H N S	XREF: N(2810)S(2830). Jπ: L=2 in ^{118}Sn(p,d).
2864.1 *11*		0.0012 eV *4*	K	
2879.8 *9*		0.0013 eV *4*	K	
2908.5 *4*	(1/2⁻,3/2⁻)	0.0047 eV *6*	H K	Jπ: L=(1) reported in ^{116}Sn(d,p).
2940 *10*			S	
2961.9 *4*		0.0061 eV *6*	K	
2976.1 *5*			F N	
2986.7 *3*	1/2,(3/2)	0.0169 eV *20*	K	Jπ: from γ(θ).
2990.6 *5*			F	
2995.7 *3*	3/2	0.0128 eV *10*	K	Jπ: from γ(θ).
2998.1 *5*			F	
3024 *10*			H	
3040 *10*			S	
3100.8 *7*		0.0019 eV *4*	K	
3108.2 *7*		0.0021 eV *4*	K	
3113 *10*	(3/2⁺,5/2⁺)		H N S	XREF: N(3090). Jπ: L(d,p)=(2).
3134.3 *6*		0.0025 eV *4*	K	
3140 *15*			H N	
3144.9 *5*		0.0029 eV *5*	K	
3152.8 *5*			F	
3169.1 *4*	3/2	0.0088 eV *8*	K	Jπ: from γ(θ).
3172 *10*			H	
3224.6 *11*	1/2,(3/2)	0.0155 eV *15*	G K W	Jπ: from γ(θ).
3228.2 *7*	3/2	0.0347 eV *25*	K	Jπ: from γ(θ).
3235 *10*	(5/2⁻,7/2⁻)		H J N P	XREF: J(3200). Jπ: L=(3) in ^{116}Sn(d,p), L=3 in ^{116}Sn(α,^{3}He).
3286.0 *4*	1/2,(3/2)	0.0101 eV *10*	K	Jπ: from γ(θ).
3325 *10*	(1/2⁻,3/2⁻)		H	Jπ: L(n)=(1) reported in ^{116}Sn(d,p).
3349.9 *3*	1/2,(3/2)	0.0095 eV *9*	K	Jπ: from γ(θ).
3360.1 *8*		0.0016 eV *6*	F K	
3385.4 *4*		0.0042 eV *6*	K	
3408.5 *9*		0.0016 eV *6*	K	
3414 *10*			H	
3425.8 *9*		0.0018 eV *8*	K	
3468.8 *6*	(1/2⁻,3/2⁻)	0.0015 eV *5*	H K	Jπ: L=(1) reported in ^{116}Sn(d,p).
3489.6 *3*	3/2	0.0173 eV *15*	K	Jπ: from γ(θ).
3506.0 *5*			F	
3520.4 *7*		0.0017 eV *6*	K	
3560.5 *6*		0.0018 eV *5*	K	

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Adopted Levels, Gammas (continued)

^{117}Sn Levels (continued)

E(level)‡	Jπ	$T_{1/2}$	XREF	Comments
3580 *10*			H	
3602.4# *6*	(23/2⁻)		F	Jπ: stretched E2 to (19/2⁻).
3637 *10*	(1/2⁻,3/2⁻)		H	Jπ: L=(1) reported in ^{116}Sn(d,p).
3716 *10*	7/2⁺,9/2⁺		H U	XREF: U(3700). Jπ: L=4 in (^{3}He,α).
3719.8 *7*		0.0114 eV *16*	K	
3749.4 *4*		0.0076 eV *12*	K	
3773.3 *13*		0.0034 eV *14*	K	
3785 *10*	(5/2⁻,7/2⁻)		H	Jπ: L=(3) reported in ^{116}Sn(d,p).
3788.3 *7*		0.0059 eV *13*	K	
3824.0# *6*	(27/2⁻)		F	Jπ: stretched E2 to (23/2⁻).
3871.3 *4*	1/2,(3/2)	0.0197 eV *26*	K	Jπ: from γ(θ).
3883.2 *4*		0.0141 eV *21*	H K	
3893.0 *6*			F	
3900.2 *6*		0.0043 eV *12*	K	
3920.1 *7*		0.0058 eV *16*	K	
3930.4 *5*		0.0045 eV *12*	K	
3949.8 *16*		0.013 eV *6*	H K	
3980.9 *5*		0.014 eV *3*	H K	
3994.0 *6*		0.0072 eV *19*	K	
4013.6 *6*		0.011 eV *3*	H K	
4027.8 *4*		0.028 eV *5*	K	
4043.6 *7*		0.017 eV *5*	K	
4110 *15*			H	
4160 *15*			H	
4210 *15*			H	
4290 *15*			H	
4360 *15*			H	
≈4970	(1/2⁻,3/2⁻)		H	Jπ: L=(1) reported in ^{116}Sn(d,p).
≈5050			H	
5300 *60*	7/2⁺,9/2⁺		STU	Jπ: L(n)=4.
6400 *60*	7/2⁺,9/2⁺		U	Jπ: L(n)=4.
(6942.9)	1/2⁺		W	
7010			K	Γ_γ=0.7 keV *4*
14.18×10^3†	(9/2⁺)		S	Jπ: L(n)=4, probable IAS corresponding to ^{117}In g.s.
14.55×10^3†	(1/2⁻)		S	Jπ: L(n)=1, probable IAS corresponding to ^{117}In 315 level.
14.81×10^3†	(3/2⁻)		S	Jπ: L(n)=1, probable IAS corresponding to ^{117}In 589 level.
15.66×10^3 *4*			L	Γ=5.3 keV *1*
18.0×10^3			M	
19.0×10^3			M	

† Proposed IAS.
‡ From adopted Eγ (when possible) using least-squares fit.
# Band(A): 11/2⁻ band.

Adopted Levels, Gammas (continued)

γ(^{117}Sn)

E_i(level)	J_i^π	E_γ [†]	I_γ [‡]	E_f	J_f^π	Mult.	δ	α [#]	Comments
158.562	3/2$^+$	158.562 *12*	100	0.0	1/2$^+$	M1+E2	0.0133 *8*	0.1558	α(K)=0.1347 *19*; α(L)=0.01702 *24*; α(M)=0.00334 *5*; α(N)=0.000628 *9*; α(O)=5.45×10^{-5} *8* α(N+..)=0.000682 *10* B(E2)(W.u.)=0.091 *12*; B(M1)(W.u.)=0.0171 *6* δ: from B(E2) and $T_{1/2}$. δ=+ 0.11 *3* from γγ(θ) in ^{117}In decay not used.
314.58	11/2$^-$	156.02 *3*	100	158.562	3/2$^+$	M4		46.9	α(K)=31.1 *5*; α(L)=12.55 *18*; α(M)=2.74 *4*; α(N)=0.500 *7*; α(O)=0.0258 *4*; α(N+..)=0.525 *8* B(M4)(W.u.)=5.1 *3* α: α(exp) from ^{117}Sn it decay. Theoretical values were reduced by 3% to be consistent with α(exp).
		314.3 *3*	0.020 *5*	0.0	1/2$^+$	[E5]		1.75	α(K)=0.956 *14*; α(L)=0.633 *10*; α(M)=0.1357 *21*; α(N)=0.0239 *4*; α(O)=0.001031 *16* α(N+..)=0.0249 *4* B(E5)(W.u.)=0.045 *12*
711.54	7/2$^+$	396.6 *4*	0.174 *8*	314.58	11/2$^-$	M2		0.0521	α(K)=0.0445 *7*; α(L)=0.00611 *9*; α(M)=0.001210 *18*; α(N)=0.000227 *4*; α(O)=1.94×10^{-5} *3* α(N+..)=0.000247 *4* B(M2)(W.u.)=0.233 *13* I_γ: Iγ from 1987Fu07.
		553.00 *10*	100	158.562	3/2$^+$	(E2)		0.00557 *8*	α(K)=0.00478 *7*; α(L)=0.000635 *9*; α(M)=0.0001248 *18*; α(N)=2.32×10^{-5} *4*; α(O)=1.86×10^{-6} *3* α(N+..)=2.51×10^{-5} *4* B(E2)(W.u.)=0.326 *10*
1004.53	3/2$^+$	846.0 *3*	20.2 *4*	158.562	3/2$^+$	M1+E2	+0.13 *2*	0.00228 *4*	α(K)=0.00198 *3*; α(L)=0.000238 *4*; α(M)=4.64×10^{-5} *7*; α(N)=8.75×10^{-6} *13*; α(O)=7.71×10^{-7} *11* α(N+..)=9.52×10^{-6} *14* B(E2)(W.u.)=0.081 *25*; B(M1)(W.u.)=0.00455 *23*
		1004.51 *15*	100.0 *4*	0.0	1/2$^+$	E2+M1	−24 *+6−10*	0.001274 *18*	α=0.001274 *18*; α(K)=0.001106 *16*; α(L)=0.0001359 *19*; α(M)=2.65×10^{-5} *4* α(N)=4.98×10^{-6} *7*; α(O)=4.25×10^{-7} *6*; α(N+..)=5.41×10^{-6} B(E2)(W.u.)=10.2 *5*; B(M1)(W.u.)=2.4×10^{-5} *12*
1019.92	5/2$^+$	861.35 *5*	100 *2*	158.562	3/2$^+$	M1+E2	−0.154 *12*	0.00218 *3*	α(K)=0.00190 *3*; α(L)=0.000228 *4*; α(M)=4.45×10^{-5} *7*; α(N)=8.38×10^{-6} *12*; α(O)=7.39×10^{-7} *11* α(N+..)=9.12×10^{-6} *13* B(E2)(W.u.)=1.4 *3*; B(M1)(W.u.)=0.059 *6*
		1020.6 *5*	24.6 *12*	0.0	1/2$^+$	[E2]		0.001230 *18*	α=0.001230 *18*; α(K)=0.001068 *15*; α(L)=0.0001310 *19*; α(M)=2.56×10^{-5} *4* α(N)=4.80×10^{-6} *7*; α(O)=4.10×10^{-7} *6*; α(N+..)=5.21×10^{-6} B(E2)(W.u.)=6.5 *7*
1179.7	5/2$^+$	1021.0 *5*	100	158.562	3/2$^+$	M1+E2	+0.58 *14*	0.00142 *3*	α(K)=0.00124 *3*; α(L)=0.000149 *3*; α(M)=2.90×10^{-5} *6*; α(N)=5.47×10^{-6} *12*; α(O)=4.80×10^{-7} *11*

$^{117}_{50}Sn_{67}$-5

Adopted Levels, Gammas (continued)

γ(^{117}Sn) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.	δ	α[#]	Comments
									α(N+..)=5.95×10^{-6} *13* B(E2)(W.u.)>5.9; B(M1)(W.u.)>0.033
1179.7	5/2$^+$	1180	2 *2*	0.0	1/2$^+$				
1304.3	(7/2$^-$)	989.7 *5*	100	314.58	11/2$^-$	(E2)		0.001317 *19*	α=0.001317 *19*; α(K)=0.001143 *16*; α(L)=0.0001405 *20*; α(M)=2.75×10^{-5} *4* α(N)=5.15×10^{-6} *8*; α(O)=4.39×10^{-7} *7*; α(N+..)=5.59×10^{-6}
1446.2	5/2$^+$	1287.6 *3*	72 *3*	158.562	3/2$^+$	M1+E2	−0.19 *3*	0.000907 *13*	α=0.000907 *13*; α(K)=0.000775 *11*; α(L)=9.19×10^{-5} *13*; α(M)=1.79×10^{-5} *3*; α(N)=3.38×10^{-6} *5* α(O)=2.99×10^{-7} *5*; α(N+..)=2.22×10^{-5} *4* B(E2)(W.u.)=0.16 *6*; B(M1)(W.u.)=0.0099 *9*
		1446.4 *5*	100 *3*	0.0	1/2$^+$				B(E2)(W.u.)=3.53 *20*
1468.6	3/2$^+$,5/2$^+$	1309.8 *6*	100 *20*	158.562	3/2$^+$	(M1)		0.000883 *13*	α=0.000883 *13*; α(K)=0.000751 *11*; α(L)=8.90×10^{-5} *13*; α(M)=1.735×10^{-5} *25* α(N)=3.27×10^{-6} *5*; α(O)=2.89×10^{-7} *4*; α(N+..)=2.60×10^{-5}
		1468.6 *3*	70 *18*	0.0	1/2$^+$				
1496.8	(5/2$^+$,3/2$^+$)	1338.6 *10*	100	158.562	3/2$^+$				
1510.1		1510.1 *3*		0.0	1/2$^+$				
1578.25	(3/2$^+$)	1420.1 *4*	59 *14*	158.562	3/2$^+$				
		1578.0 *3*	100	0.0	1/2$^+$				
1593.1	(15/2$^-$)	1279.0 *5*	100	314.58	11/2$^-$	E2		0.000780 *11*	α=0.000780 *11*; α(K)=0.000663 *10*; α(L)=7.98×10^{-5} *12*; α(M)=1.557×10^{-5} *22* α(N)=2.93×10^{-6} *5*; α(O)=2.53×10^{-7} *4*; α(N+..)=2.23×10^{-5}
1625.4	(13/2$^-$)	1310.6 *3*	100	314.58	11/2$^-$	M1,E2		0.00082 *7*	α(K)=0.00069 *6*; α(L)=8.2×10^{-5} *7*; α(M)=1.61×10^{-5} *13*; α(N)=3.02×10^{-6} *25*; α(O)=2.65×10^{-7} *25* α(N+..)=2.72×10^{-5} *12*
1668.2	(5/2$^+$,3/2$^+$)	1509.6 *15*	100	158.562	3/2$^+$				
1874.5	(11/2$^+$)	1163.0 *3*	100	711.54	7/2$^+$	E2		0.000931 *13*	α=0.000931 *13*; α(K)=0.000807 *12*; α(L)=9.79×10^{-5} *14*; α(M)=1.91×10^{-5} *3*; α(N)=3.59×10^{-6} *5* α(O)=3.09×10^{-7} *5*; α(N+..)=7.09×10^{-6} *11*
2048.2	1/2,(3/2)	2048.2 *3*		0.0	1/2$^+$				
2128.6		2128.6 *4*		0.0	1/2$^+$				
2280.4		2280.4 *6*		0.0	1/2$^+$				
2304.6		2304.6 *5*		0.0	1/2$^+$				
2331.2		2172.6 *15*	100	158.562	3/2$^+$				
2367.3	3/2	2367.3 *2*		0.0	1/2$^+$				
2381.0	(17/2$^-$)	755.6 *3*	100 *20*	1625.4	(13/2$^-$)	(E2)		0.00247 *4*	α(K)=0.00214 *3*; α(L)=0.000271 *4*; α(M)=5.31×10^{-5} *8*; α(N)=9.93×10^{-6} *14*; α(O)=8.26×10^{-7} *12* α(N+..)=1.075×10^{-5} *15*
		788.0 *3*	50 *20*	1593.1	(15/2$^-$)				
2400.7	(17/2$^-$)	775.3 *3*	100 *13*	1625.4	(13/2$^-$)	(E2)		0.00232 *4*	α(K)=0.00201 *3*; α(L)=0.000254 *4*; α(M)=4.97×10^{-5} *7*; α(N)=9.30×10^{-6} *13*; α(O)=7.76×10^{-7} *11* α(N+..)=1.007×10^{-5} *15*
		807.7 *3*	49 *8*	1593.1	(15/2$^-$)	(M1)		0.00254 *4*	α(K)exp=2.8×10^{-3} *8*

$^{117}_{50}Sn_{67}$-6

Adopted Levels, Gammas (continued)

$\gamma(^{117}Sn)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[‡]	E_f	J^π_f	Mult.	δ	α[#]	Comments
									α(K)=0.00221 *4*; α(L)=0.000265 *4*; α(M)=5.18×10^{-5} *8*; α(N)=9.77×10^{-6} *14*; α(O)=8.61×10^{-7} *12* α(N+..)=1.063×10^{-5} *15*

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Adopted Levels, Gammas (continued)

γ(^{117}Sn) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.	α[#]	Comments
2406.4	(19/2$^+$)	781.0 *3*	11 *6*	1625.4	(13/2$^-$)	(E3)	0.00525 *8*	α(K)=0.00446 *7*; α(L)=0.000636 *9*; α(M)=0.0001259 *18*; α(N)=2.34×10^{-5} *4*; α(O)=1.86×10^{-6} *3* α(N+..)=2.52×10^{-5} *4* B(E3)(W.u.)=0.5 *3*
		813.4 *3*	100 *17*	1593.1	(15/2$^-$)	(M2)	0.00658 *10*	α(K)exp=4.3×10^{-3} *12* α(K)=0.00569 *8*; α(L)=0.000719 *10*; α(M)=0.0001413 *20*; α(N)=2.66×10^{-5} *4*; α(O)=2.32×10^{-6} *4* α(N+..)=2.89×10^{-5} *4* B(M2)(W.u.)=0.0019 *5*
2415.9		2415.9 *3*		0.0	1/2$^+$			
2515.8		2356.7 *8*	128 *44*	158.562	3/2$^+$			
		2515.8 *5*	100.0	0.0	1/2$^+$			
2590.2		2590.2 *5*		0.0	1/2$^+$			
2655.5	(1/2,3/2)	1160.1 *20*	31	1496.8	(5/2$^+$,3/2$^+$)			
		1650.2 *15*	41	1004.53	3/2$^+$			
		2497 *2*	100	158.562	3/2$^+$			
2709.1		2709.1 *5*		0.0	1/2$^+$			
2718.2		2718.2 *4*		0.0	1/2$^+$			
2775.2		2775.2 *4*		0.0	1/2$^+$			
2807.6	(19/2$^-$)	1214.5 *3*	100	1593.1	(15/2$^-$)	E2	0.000856 *12*	α=0.000856 *12*; α(K)=0.000737 *11*; α(L)=8.91×10^{-5} *13*; α(M)=1.739×10^{-5} *25* α(N)=3.27×10^{-6} *5*; α(O)=2.82×10^{-7} *4*; α(N+..)=1.235×10^{-5}
2864.1		2864.1 *11*		0.0	1/2$^+$			
2879.8		2879.8 *9*		0.0	1/2$^+$			
2908.5	(1/2$^-$,3/2$^-$)	2908.5 *4*		0.0	1/2$^+$			
2961.9		2803.4 *5*	51 *8*	158.562	3/2$^+$			
		2961.9 *4*	100	0.0	1/2$^+$			
2976.1		1383.0 *3*	100	1593.1	(15/2$^-$)			
2986.7	1/2,(3/2)	2986.7 *3*		0.0	1/2$^+$			
2990.6		584.2 *3*	100	2406.4	(19/2$^+$)			
2995.7	3/2	2995.7 *3*		0.0	1/2$^+$			
2998.1		591.7 *3*	100	2406.4	(19/2$^+$)			
3100.8		3100.8 *7*		0.0	1/2$^+$			
3108.2		3108.2 *7*		0.0	1/2$^+$			
3134.3		3134.3 *6*		0.0	1/2$^+$			
3144.9		3144.9 *5*		0.0	1/2$^+$			
3152.8		746.3 *3*	100	2406.4	(19/2$^+$)			
3169.1	3/2	3169.1 *4*		0.0	1/2$^+$			
3224.6	1/2,(3/2)	2046.4 *20*	100	1179.7	5/2$^+$			

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Adopted Levels, Gammas (continued)

γ(^{117}Sn) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.	α[#]	Comments
3224.6	1/2,(3/2)	3065.7 *5*	31 *4*	158.562	3/2$^+$			
		3224.6 *11*	100	0.0	1/2$^+$			
3228.2	3/2	3228.2 *7*		0.0	1/2$^+$			
3286.0	1/2,(3/2)	3127.8 *4*	55 *5*	158.562	3/2$^+$			
		3286.0 *4*	100	0.0	1/2$^+$			
3349.9	1/2,(3/2)	3349.9 *3*		0.0	1/2$^+$			
3360.1		3360.1 *8*		0.0	1/2$^+$			
3385.4		3385.4 *4*		0.0	1/2$^+$			
3408.5		3408.5 *9*		0.0	1/2$^+$			
3425.8		3425.8 *9*		0.0	1/2$^+$			
3468.8	(1/2$^-$,3/2$^-$)	3468.8 *6*		0.0	1/2$^+$			
3489.6	3/2	3489.6 *3*		0.0	1/2$^+$			
3506.0		353.1 *3*		3152.8				
3520.4		3520.4 *7*		0.0	1/2$^+$			
3560.5		3560.5 *6*		0.0	1/2$^+$			
3602.4	(23/2$^-$)	794.8 *3*	100	2807.6	(19/2$^-$)	(E2)	0.00219 *3*	α(K)=0.00189 *3*; α(L)=0.000238 *4*; α(M)=4.66×10^{-5} *7*; α(N)=8.73×10^{-6} *13*; α(O)=7.31×10^{-7} *11* α(N+..)=9.46×10^{-6} *14*
3719.8		3719.8 *7*		0.0	1/2$^+$			
3749.4		3749.4 *4*		0.0	1/2$^+$			
3773.3		3773.3 *13*		0.0	1/2$^+$			
3788.3		3788.3 *7*		0.0	1/2$^+$			
3824.0	(27/2$^-$)	221.6 *3*	100	3602.4	(23/2$^-$)	(E2)	0.0978	α(K)=0.0806 *12*; α(L)=0.01390 *21*; α(M)=0.00277 *5*; α(N)=0.000505 *8*; α(O)=3.24×10^{-5} *5* α(N+..)=0.000537 *8*
3871.3	1/2,(3/2)	3871.3 *4*		0.0	1/2$^+$			
3883.2		3883.2 *4*		0.0	1/2$^+$			
3893.0		387.0 *3*	100	3506.0				
3900.2		3900.2 *6*		0.0	1/2$^+$			
3920.1		3761.4 *8*	96 *38*	158.562	3/2$^+$			
		3920.1 *7*	100	0.0	1/2$^+$			
3930.4		3930.4 *5*		0.0	1/2$^+$			
3949.8		3949.8 *16*		0.0	1/2$^+$			
3980.9		3980.9 *5*		0.0	1/2$^+$			
3994.0		3994.0 *6*		0.0	1/2$^+$			
4013.6		4013.6 *6*		0.0	1/2$^+$			
4027.8		4027.8 *4*		0.0	1/2$^+$			
4043.6		4043.6 *7*		0.0	1/2$^+$			

[†] From weighted average of all available data.
[‡] Photon branching ratios from each level.

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Adopted Levels, Gammas (continued)

$\gamma(^{117}Sn)$ (continued)

[#] 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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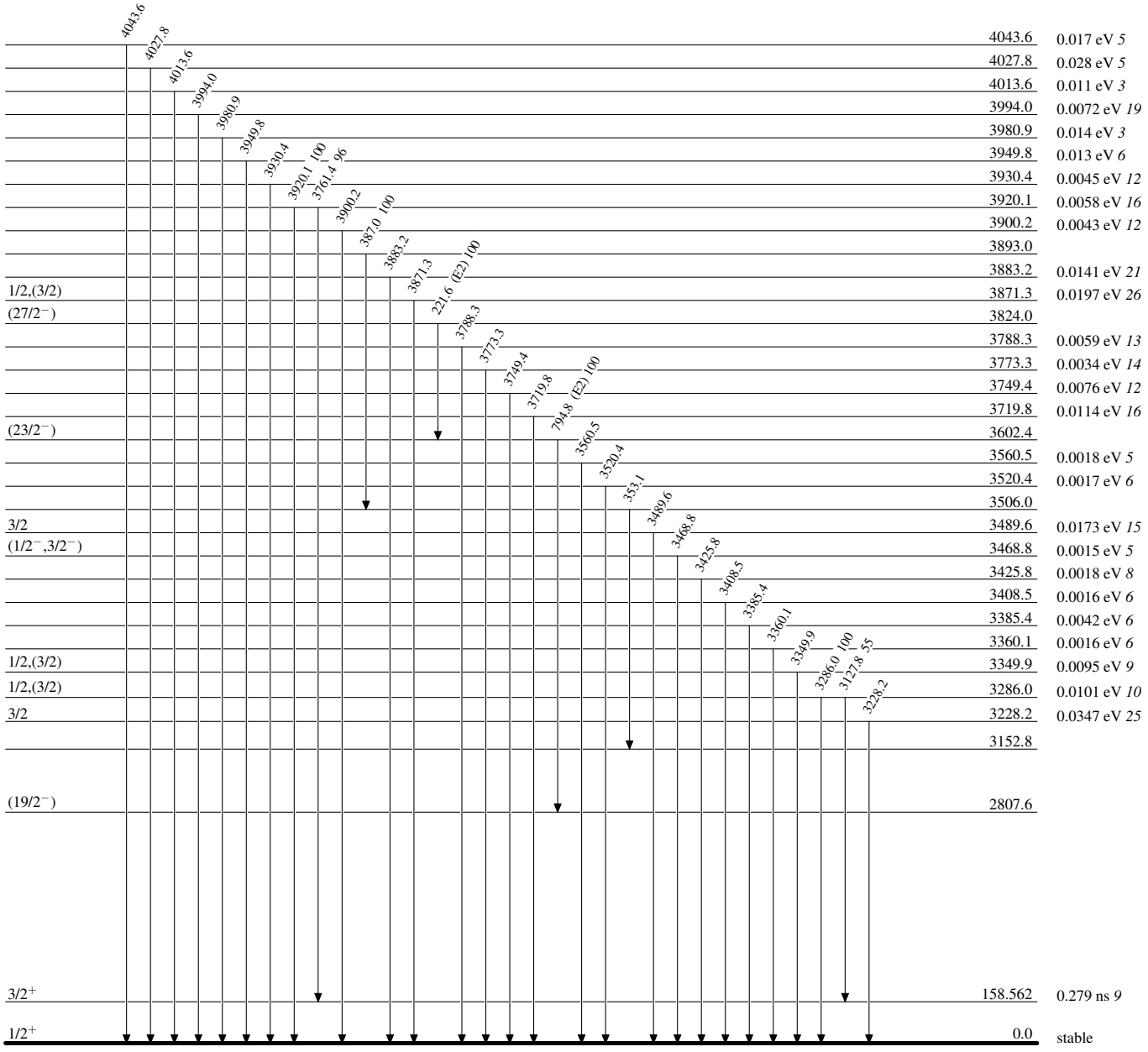
Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level



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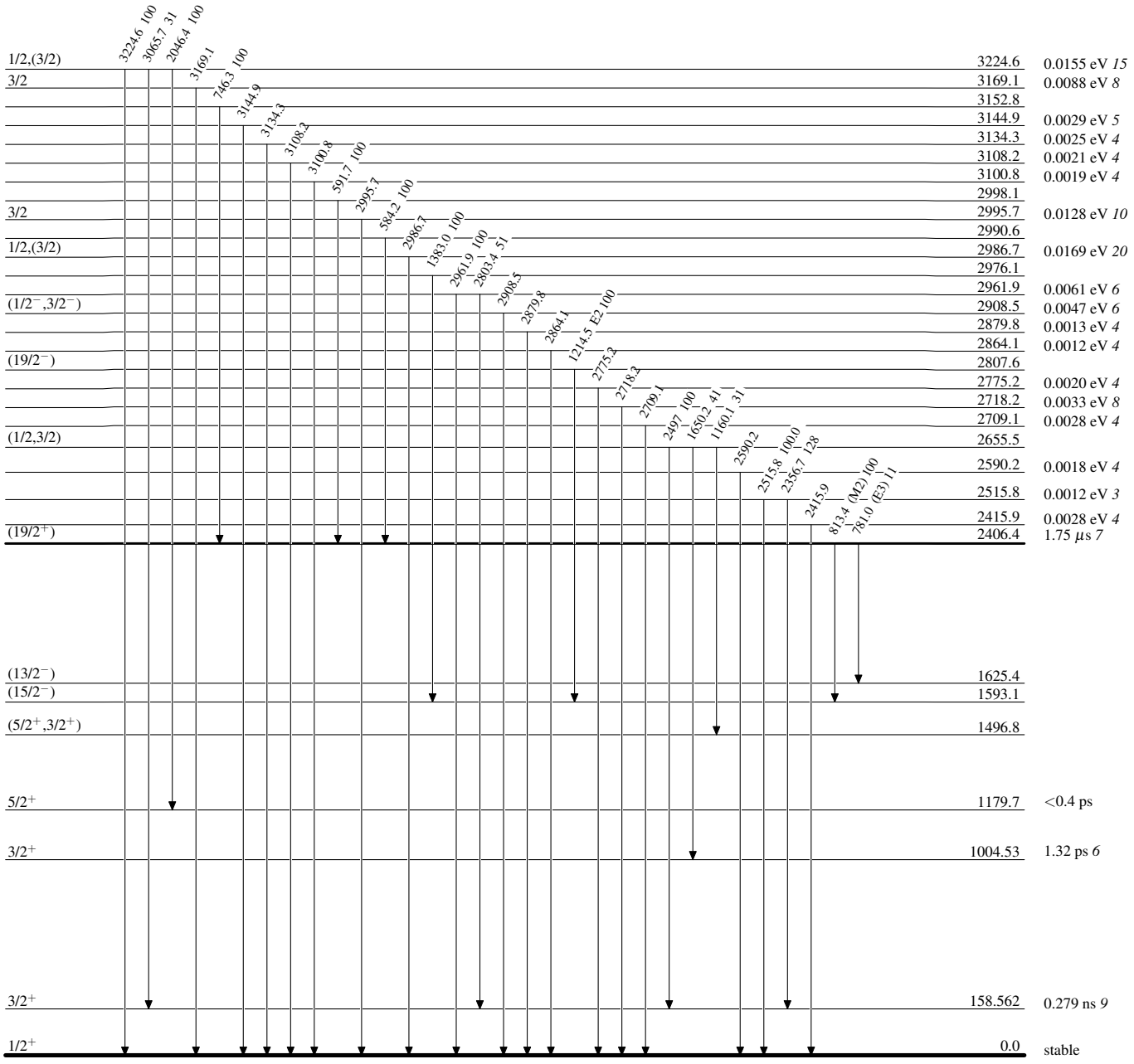
Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



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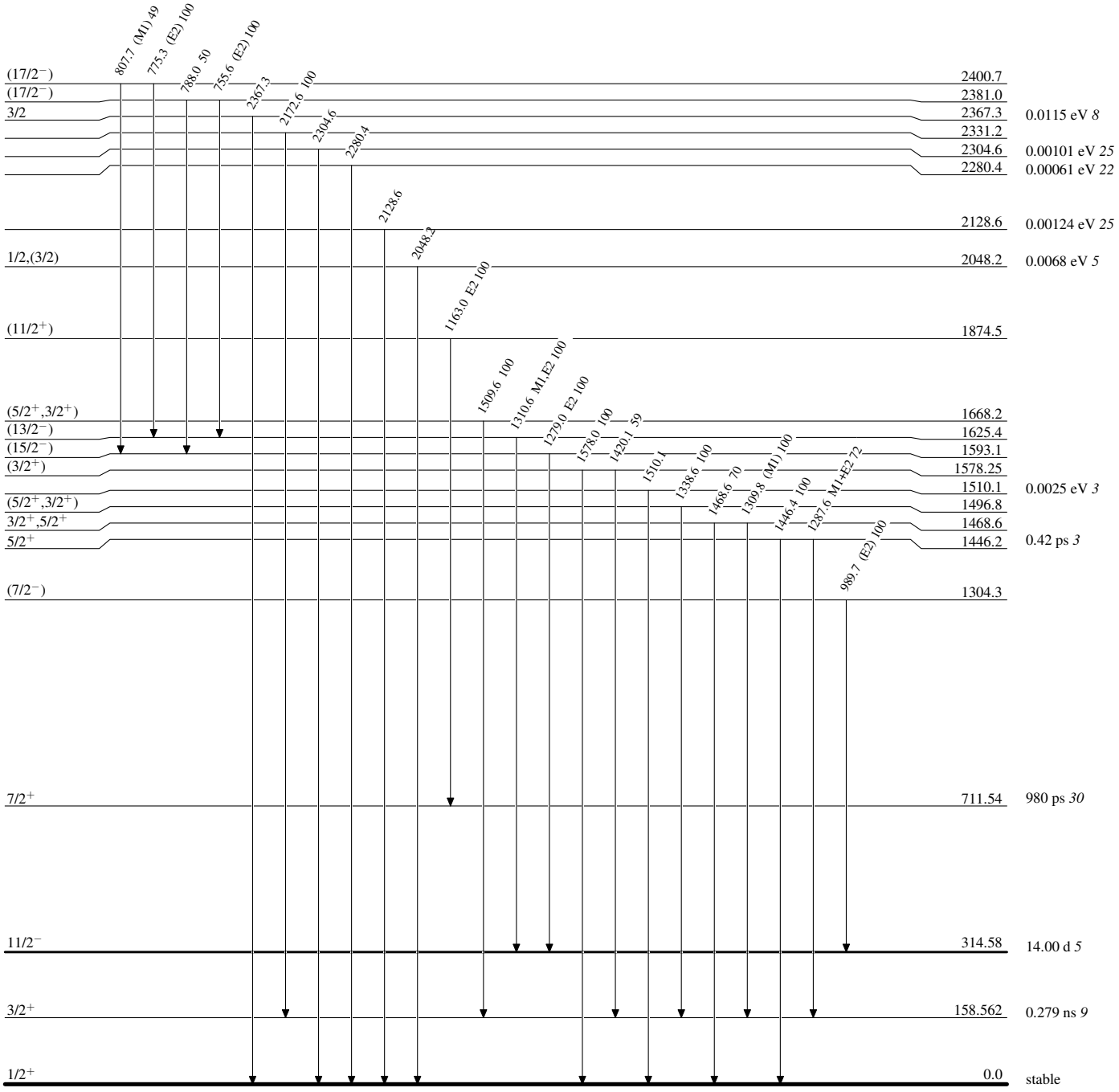
Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

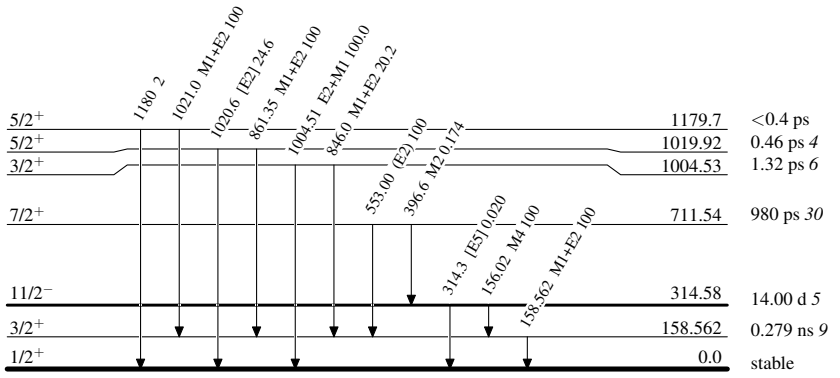


$^{117}_{50}Sn_{67}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



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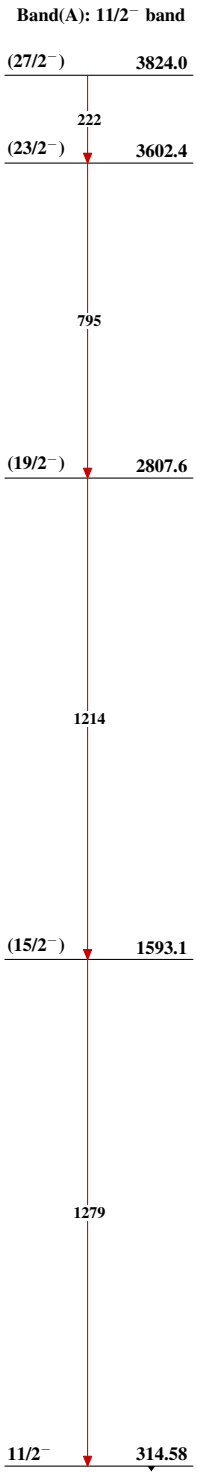
Adopted Levels, Gammas



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