Adopted Levels, Gammas

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	S. Kumar(a), J. Chen(b) and F. G. Kondev	NDS 137, 1 (2016)	31-May-2016

Q(β^-)=−6380 *9*; S(n)=8632 *10*; S(p)=5800 *12*; Q(α)=−722 *8* 2012Wa38

^{109}Sn Levels

Cross Reference (XREF) Flags

A	^{109}Sb ε decay	E	^{112}Sn(^{3}He,^{6}He)
B	^{106}Cd(α,nγ)	F	(HI,xnγ)
C	^{108}Cd(α,3nγ)	G	Coulomb excitation
D	^{94}Mo(^{19}F,p3nγ)		

E(level)[@]	J$^\pi$	T$_{1/2}$[&]	XREF	Comments
0	5/2$^+$	18.1 min *2*	ABCDEFG	%ε+%β^+=100 μ=−1.079 *6* Q=+0.31 *10* J$^\pi$: From hyperfine structure splitting measurement in 1987Eb01. The value is in conflict with J=7/2$^+$, measured using the atomic-beam magnetic resonance method in 1974Ho17, where no isotope selection between ^{109}Sn and ^{111}Sn was made. π from μ and shell model. T$_{1/2}$: Weighted average of 19 min *2* (using 625γ,648γ ce(t) in 1965Kh04), 18.1 min *3* (using 650γ(t) in 1956Pe56), 18.3 min 3 (1972Bu41, using weighted average of 330.5γ(t),649.8γ(t), 1098.1γ(t), 1321.5γ(t) and 1463.9γ(t)), 18.0 min *2* (1969Bu04). μ: From collinear fast-beam laser spectroscopy technique (1987Eb01) μ=1.086 *5* for J=7/2$^+$ (1987Ku09,1987Eb01). Q: From collinear fast-beam laser spectroscopy (1987Eb01). configuration: $\nu d_{5/2}$. δ<r^2>(116,109)=−0.506 *4* (1987Eb01).
13.97 *6*	(7/2$^+$)		ABCD FG	configuration: $\nu g_{7/2}$. E(level): the existence of this level is confirmed by 1999Da05 in (α,nγ) and 2002Re14 in ^{109}Sb ε decay, based on $\gamma\gamma$-coincidence measurements. J$^\pi$: 13.9γ to 5/2$^+$; systematics in neighboring nuclei; shell-model predictions.
544.88 *10*	(1/2$^+$)		AB	J$^\pi$: not populated directly in ^{109}Sb ε decay (J$^\pi$=(5/2$^+$)), non-observation of a γ ray to the 7/2$^+$ state at 14 keV and shell-model predictions; 544.8$\gamma(\theta)$ in (α,nγ) (1981JoZX,1999Da05) suggest D transition, and hence, J$^\pi$=3/2,5/2; α(K)exp in (α,nγ) (1976Ma09,1999Da05) is consistent with both M1 and E2. T$_{1/2}$: 6.9 ns 6 could be expected using B(E2)(W.u.)=0.054 5 in ^{111}Sn. configuration: $\nu s_{1/2}$ (2002Re14).
664.44 *12*	(3/2$^+$)		A G	J$^\pi$: 664.0γ to 5/2$^+$, 650.1γ to (7/2$^+$), direct feeding in ^{109}Sb ε decay (J$^\pi$=(5/2$^+$)); systematics in neighboring Sn nuclei and shell-model predictions (2002Re14). B(E2)=0.013 *+8−11* in Coulomb excitation (2012Di13).
678.51 *7*	(5/2)$^+$		AB G	J$^\pi$: 664.5γ M1 to (7/2$^+$), 678.6γ M1(+E2) to 5/2$^+$; excitation functions in (α,nγ) (1999Da05) suggests J<7/2; direct population in ^{109}Sb ε decay (J$^\pi$=(5/2$^+$)) and shell-model predications (2002Re14). B(E2)<0.012 (2012Di13, Coulomb Excitation).
925.56 *11*	(3/2)$^+$		AB G	J$^\pi$: 925.3γ M1(+E2) to 5/2$^+$, 910.9γ to (7/2$^+$), 381.3γ to (1/2$^+$); strong direct feeding in ^{109}Sb ε decay (J$^\pi$=(5/2$^+$)); shell-model predictions (2002Re14). B(E2)=0.029 *+14−15* in Coulomb excitation (2012Di13). configuration: $\nu d_{3/2}$ state.
991.38 *17*	(3/2)$^+$		AB G	J$^\pi$: 991γ M1(+E2) to 5/2$^+$, 446.3γ to (1/2$^+$); direct feeding in ^{109}Sb ε decay (J$^\pi$=(5/2$^+$)); B(E2)<0.028 in Coulomb excitation (2012Di13).

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Adopted Levels, Gammas (continued)

^{109}Sn Levels (continued)

E(level)[@]	J$^\pi$	T$_{1/2}$[&]	XREF	Comments
1061.82 *15*	(3/2)$^+$		AB	J$^\pi$: 1061.8γ M1(+E2) to 5/2$^+$, 516.5γ to (1/2$^+$) and 1047.7γ to (7/2$^+$); direct feeding in ^{109}Sb ε decay (J^π=(5/2$^+$)); shell-model predictions (2002Re14).
1078.14 *9*	(7/2)$^+$		AB G	J$^\pi$: 1078.0γ M1(+E2) to 5/2$^+$, 1064.0γ M1(+E2) to (7/2$^+$); direct feeding in ^{109}Sb ε decay (J^π=(5/2$^+$)); shell-model predictions (2002Re14); excitation functions in (α,nγ) suggests J=7/2 (1999Da05). B(E2)=0.060 *+20−22* (2012Di13, Coulomb Excitation).
1228.81 *18*	(3/2$^+$,5/2$^+$)		A	J$^\pi$: 1229.3γ to 5/2$^+$, 1214.4γ to (7/2$^+$); direct feeding in ^{109}Sb ε decay (J^π=(5/2$^+$)); shell-model predictions (2002Re14).
1239.77[†] *12*	9/2$^+$	≤0.2 ns	B FG	J$^\pi$: 1239.67γ E2 to 5/2$^+$, 1225.8γ to (7/2$^+$).
1257.79[†] *10*	(11/2$^+$)		BCD F	J$^\pi$: 1243.8γ E2 γ to (7/2$^+$); not populated in ^{109}Sb ε decay (J^π=(5/2$^+$)).
1269.79[#] *10*	(11/2$^-$)	2.0 ns *2*	BCDEF	XREF: E(1277). J$^\pi$: 1255.85γ M2 to (7/2$^+$); not populated in ^{109}Sb ε decay (J^π=(5/2$^+$)). T$_{1/2}$: from 1995Ka09 in (HI,xnγ) Other: 2.0 ns *3* (Centroid shift method in 1982An17). configuration: $\nu h_{11/2}$ state.
1343.75 *12*	(7/2)$^+$		AB	J$^\pi$: 1343.64γ M1 to 5/2$^+$; excitation functions in (α,nγ) suggests J=7/2 (1999Da05); direct feeding in ^{109}Sb ε decay (J^π=(5/2$^+$));
1495.91 *13*	(3/2$^+$)		AB	J$^\pi$: 951.1γ to (1/2$^+$), 1482.2γ to (7/2$^+$); strong direct feeding in ^{109}Sb ε decay (J^π=(5/2$^+$)); shell-model predictions (2002Re14).
1614.33 *16*	(3/2$^+$,5/2$^+$)		AB	J$^\pi$: 1601.4γ to (7/2$^+$), 687.3γ to (3/2)$^+$; J ≤ 5/2 from excitation function in (α,nγ) (1999Da05); direct feeding in ^{109}Sb ε decay (J^π=(5/2$^+$)); shell-model predictions (2002Re14).
1649.87 *14*	(3/2$^+$,5/2$^+$)		AB	J$^\pi$: 1636.3γ to (7/2$^+$), 1104.4γ to (1/2$^+$); direct feeding in ^{109}Sb ε decay (J^π=(5/2$^+$)); shell-model predictions (2002Re14).
1677.1 *5*	(11/2,13/2$^+$)		B	J$^\pi$: 437.3γ to 9/2$^+$; shell-model calculations in (α,nγ) (1999Da05).
1715.0 *3*	(7/2,9/2$^+$)		B	J$^\pi$: 1036.5γ to (5/2)$^+$; shell-model calculations in (α,nγ) (1999Da05).
1883.66 *22*	(11/2)$^+$		B	J$^\pi$: 805.52γ M1,E2 to (7/2)$^+$; J=11/2 from excitation function data in (α,nγ) (1999Da05).
1914.04 *16*	(3/2$^+$,5/2$^+$)		A	J$^\pi$: 835.0γ to (7/2)$^+$, 1369.6γ to (1/2$^+$); direct feeding in ^{109}Sb ε decay (J^π=(5/2$^+$)); shell-model predictions (2002Re14).
1930.18[†] *11*	13/2$^+$		B F	J$^\pi$: 690.3γ E2 to 9/2$^+$, 672.43γ M1 to 11/2$^+$. J=13/2 is also suggested from side-feeding excitation function of this state in (α,nγ) (1999Da05).
1992.1 *4*	(9/2)		B	J$^\pi$: based on side-feeding excitation function of this state in (α,nγ) (1999Da05).
2015.98 *17*	(3/2$^+$,5/2$^+$)		A	J$^\pi$: 1024.4γ to (3/2)$^+$, 2016.2γ to 5/2$^+$; direct feeding in ^{109}Sb ε decay (J^π=(5/2$^+$)); shell-model predictions (2002Re14).
2050.0 *4*	(11/2$^+$)		B	J$^\pi$: 971.9γ to (7/2$^+$); excitation function in (α,nγ) (1999Da05).
2071.29 *16*	(13/2)$^+$		B	J$^\pi$: 813.44γ M1,E2 to 11/2$^+$; J=13/2 based on side-feeding excitation function of this state in (α,nγ) (1999Da05).
2090.59[†] *15*	15/2$^+$		BCD F	J$^\pi$: 832.71γ E2 to 11/2$^+$, 160.45γ to 13/2$^+$.
2116.10[†] *20*	17/2$^+$	7 ns *1*	BC F	J$^\pi$: 185.8γ (E2) to 13/2$^+$, 25.5γ (M1) to 15/2$^+$.
2126.66 *15*	(3/2$^+$,5/2$^+$)		A	J$^\pi$: 2127.1γ to 5/2$^+$, 1581.8γ to (1/2$^+$); direct feeding in ^{109}Sb ε decay (J^π=(5/2$^+$)); shell-model predictions (2002Re14).
2218.33 *14*	(15/2)$^+$		B	J$^\pi$: 288.17γ M1,E2 to 13/2$^+$, 960.5γ M1,E2 to 11/2$^+$; J=15/2 based on excitation function data in (α,nγ) (1999Da05).
2244.39 *23*	(7/2$^+$)		B	J$^\pi$: 986.8γ to (11/2$^+$); excitation function data in (α,nγ) (1999Da05).
2350.98[#] *14*	15/2$^-$	≤0.2 ns	BCD F	J$^\pi$: 1081.2γ E2 to 11/2$^-$; band assignment in (HI,xnγ) (1996Ka43). T$_{1/2}$: from 1995Ka09 in (HI,xnγ).
2380.1 *4*	(13/2)		B	J$^\pi$: 1122.3γ to (11/2$^+$); excitation function data in (α,nγ) (1999Da05).
2397.5 *3*	(13/2$^+$)		B	J$^\pi$: 1157.72γ to 9/2$^+$; excitation function data in (α,nγ) (1999Da05).
2442.85 *17*	(13/2)		B	J$^\pi$: 1173.08γ to (11/2$^-$), 1185.03γ to (11/2$^+$); excitation function data in (α,nγ) (1999Da05).
2512.0 *3*	(9/2,11/2)		B	J$^\pi$: 1272.19γ to 9/2$^+$.

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Adopted Levels, Gammas (continued)

^{109}Sn Levels (continued)

E(level)[@]	Jπ	$T_{1/2}$[&]	XREF	Comments
2532.09 *23*			B	
2571.1 *3*	(7/2+,9/2)		B	Jπ: 1313.32γ to (11/2+); population in (α,nγ) (1999Da05).
2645.3 *3*			B	
2821.5 *5*	(9/2+)		B	Jπ: 1563.7γ to (11/2+); population in (α,nγ) (1999Da05).
2921.7 *6*			B	
3266.1[‡] *3*	(19/2+)		B F	Jπ: 1150.0γ to 17/2+; population in (α,nγ) (1999Da05).
3301.10[#] *17*	19/2−	≤0.2 ns	BCD F	Jπ: 950.17γ E2 to 15/2−, 1184.8γ to 17/2+. $T_{1/2}$: from 1995Ka09 in (HI,xnγ).
3316.06 *20*	19/2−	≤0.2 ns	BCD F	Jπ: 965.0γ E2 to 15/2−, 1199.8γ to 17/2+. $T_{1/2}$: from 1995Ka09 in (HI,xnγ).
3346.3[‡] *3*	21/2+	≤0.2 ns	BC F	Jπ: γ E2 to 17/2+. $T_{1/2}$: from 1995Ka09 in (HI,xnγ).
3474.41 *21*	21/2+	≤0.2 ns	BCD F	Jπ: 1352.8γ E2 to 17/2+, 208.4γ D to 19/2+. $T_{1/2}$: from 1995Ka09 in (HI,xnγ).
3527.4 *4*	(19/2−)		B F	Jπ: 1176.4γ to 15/2−.
3864.2[‡] *4*	(23/2+)		CD F	Jπ: 389.8γ (M1,E2) to 21/2+.
3926.5 *3*	(23/2+)		F	Jπ: 452.0γ (M1) to 21/2+.
4262.0[a] *4*	23/2−		D F	Jπ: 961γ (E2) to 19/2−; band assignment.
4451.2 *7*	23/2−		F	E(level): Placement as given in 1998KaZZ. Jπ: 1135γ E2 to 19/2−; band assignment.
4609.5[e] *4*	25/2+		D F	Jπ: 1135.1γ E2 to 21/2+; band assignment.
4984.7 *5*	(27/2+)		D F	Jπ: 1120.5γ E2 to (23/2+).
5130.4 *5*	(27/2+)		F	Jπ: 1203.9γ (E2) to (23/2+).
5172.0[c] *8*	(25/2+)		F	Jπ: 721γ (E1) to 23/2−; band assignment.
5285.7[a] *5*	27/2−		D F	Jπ: 1023.7γ (E2) to 23/2−; band assignment.
5450.5[e] *5*	(27/2+)		D F	Jπ: 841.0γ (M1) to 25/2+.
5849.8 *6*	(31/2+)		F	Jπ: 865.1γ (E2) to (27/2+).
5992.8[c] *9*	(29/2+)		F	Jπ: 821γ (E2) to (25/2+); band assignment.
6224.2[a] *6*	31/2−		D F	Jπ: 938.5γ (E2) to 27/2−; band assignment.
6337.1[e] *6*	(31/2+)		D F	Jπ: 886.6γ (E2) to (27/2+); band assignment.
6824.8[c] *14*	(33/2+)		F	Jπ: 832γ (E2) to (29/2+); band assignment.
7194.4[e] *7*	(35/2+)		D F	Jπ: 857.3γ (E2) to (31/2+); band assignment.
7233.2[a] *12*	35/2−		F	Jπ: 1009γ (E2) to 31/2−; band assignment.
7724.8[c] *17*	(37/2+)		F	Jπ: 900γ (E2) to (33/2+); band assignment.
8123.6[e] *7*	(39/2+)		D F	Jπ: 929.2γ (E2) to (35/2+); band assignment.
8263.2[a] *16*	39/2−		F	Jπ: 1030γ (E2) to 35/2−; band assignment.
8540.6[f] *15*	(37/2−,39/2+)		F	E(level),Jπ: proposed in (HI,xnγ) (1996Ka43).
8726.8[c] *20*	(41/2+)		F	Jπ: 1002γ (E2) to (37/2+); band assignment.
9144.6[e] *12*	(43/2+)		D F	Jπ: 1021γ (E2) to (39/2+); band assignment.
9330.6[f] *12*	(41/2−,43/2+)		F	Jπ: 1207γ to (39/2+); 790γ to (37/2−,39/2+).
9347.2[a] *19*	43/2−		F	Jπ: 1084γ (E2) to 39/2−; band assignment.
9865.9[c] *22*	(45/2+)		F	Jπ: 1139γ (E2) to (41/2+); band assignment.
10133.6[f] *13*	(45/2−,47/2+)		F	Jπ: 803γ (E2) to (41/2−,43/2+);band assignment.
10286.6[e] *15*	(47/2+)		F	Jπ: 1142γ (E2) to (43/2+); band assignment.
10509.2[a] *21*	47/2−		F	Jπ: 1162γ (E2) to 43/2−; band assignment.
11069.6[f] *16*	(49/2−,51/2+)		F	Jπ: 936γ (E2) to (45/2−,47/2+); band assignment.
11149.9[c] *24*	(49/2+)		F	Jπ: 1284γ (E2) to (45/2+); band assignment.
11583.7[e] *18*	(51/2+)		F	Jπ: 1297γ (E2) to (47/2+); band assignment.
11704.2[b] *23*	(51/2−)		F	Jπ: 1195γ (E2) to 47/2−; band assignment.
11799.2[a] *23*	(51/2−)		F	Jπ: 1290γ (E2) to 47/2−; band assignment.
12188.7[f] *19*	(53/2−,55/2+)		F	Jπ: 1119γ (E2) to (49/2−,51/2+); band assignment.

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Adopted Levels, Gammas (continued)

^{109}Sn Levels (continued)

E(level)[@]	J^π	XREF	Comments
12344[c] 3	(53/2$^+$)	F	J^π: 1194γ (E2) to (49/2$^+$); band assignment.
12596[d] 3	(53/2$^+$)	F	J^π: 1446γ (E2) to (49/2$^+$); band assignment.
12978.2[b] 23	(55/2$^-$)	F	J^π: 1274γ (E2) to (51/2$^-$); band assignment.
13092.7[e] 21	(55/2$^+$)	F	J^π: 1509γ (E2) to (51/2$^+$); band assignment.
13155.2[a] 25	(55/2$^-$)	F	J^π: 1356γ (E2) to (51/2$^-$); band assignment.
13488.7[f] 22	(57/2$^-$,59/2$^+$)	F	J^π: 1300γ (E2) to (53/2$^-$,55/2$^+$); band assignment.
13771[d] 3	(57/2$^+$)	F	J^π: 1175γ (E2) to (53/2$^+$); band assignment.
14427[b] 3	(59/2$^-$)	F	J^π: 1449γ (E2) to (55/2$^-$); band assignment.
14640[a] 3	(59/2$^-$)	F	J^π: 1485γ (E2) to (55/2$^-$); band assignment.
14833.7[e] 23	(59/2$^+$)	F	J^π: 1741γ (E2) to (55/2$^+$); band assignment.
14907[d] 3	(61/2$^+$)	F	J^π: 1136γ (E2) to (57/2$^+$); band assignment.
15012.7[f] 24	(61/2$^-$,63/2$^+$)	F	J^π: 1524γ (E2) to (57/2$^-$,59/2$^+$); band assignment.
16070[b] 3	(63/2$^-$)	F	J^π: 1643γ (E2) to (59/2$^-$); band assignment.
16226[d] 3	(65/2$^+$)	F	J^π: 1319γ (E2) to (61/2$^+$); band assignment.
16272[a] 3	(63/2$^-$)	F	J^π: 1632γ (E2) to (59/2$^-$); band assignment.
16757.7[e] 25	(63/2$^+$)	F	J^π: 1924γ (E2) to (59/2$^+$); band assignment.
16779[f] 3	(65/2$^-$,67/2$^+$)	F	J^π: 1766γ (E2) to (61/2$^-$,63/2$^+$); band assignment.
17720[d] 4	(69/2$^+$)	F	J^π: 1494γ (E2) to (65/2$^+$); band assignment.
17907[b] 3	(67/2$^-$)	F	J^π: 1837γ (E2) to (63/2$^-$); band assignment.
18731[f] 3	(69/2$^-$,71/2$^+$)	F	J^π: 1952γ (E2) to (65/2$^-$,67/2$^+$); band assignment.
18880[e] 3	(67/2$^+$)	F	J^π: 2122γ (E2) to (63/2$^+$); band assignment.
19397[d] 4	(73/2$^+$)	F	J^π: 1677γ (E2) to (69/2$^+$); band assignment.
19948[b] 3	(71/2$^-$)	F	J^π: 2041γ (E2) to (67/2$^-$); band assignment.
20910[f] 3	(73/2$^-$,75/2$^+$)	F	J^π: 2179γ (E2) to (69/2$^-$,71/2$^+$); band assignment.
21275[d] 4	(77/2$^+$)	F	J^π: 1878γ (E2) to (73/2$^+$); band assignment.
22217[b] 4	(75/2$^-$)	F	J^π: 2041γ (E2) to (71/2$^-$); band assignment.
23383[d] 4	(81/2$^+$)	F	J^π: 2108γ (E2) to (77/2$^+$); band assignment.
24743[b] 4	(79/2$^-$)	F	J^π: 2041γ (E2) to (75/2$^-$); band assignment.

† $\nu(d_{5/2})\otimes\nu(d_{5/2}g_{7/2})^{+2}$.
‡ $\nu(d_{5/2})\otimes\nu(d_{5/2}g_{7/2})^{+4}$ and/or $\nu(g_{7/2})\otimes\nu(d_{5/2}g_{7/2})^{+4}$.
# $\nu(h_{11/2})\otimes\nu(d_{5/2}g_{7/2})^{+2}$.
@ From a least-squares fit to Eγ.
& From 1995Ka09, unless otherwise stated.
[a] Band(A): Band 1.
[b] Band(B): Band 2.
[c] Band(C): Band 3a.
[d] Band(D): Band 3b.
[e] Band(E): Band 4.
[f] Band(F): Band 5.

Adopted Levels, Gammas (continued)

γ(^{109}Sn)

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.[@]	α[&]	Comments
13.97	(7/2$^+$)	13.97 *7*	100	0	5/2$^+$			E_γ: From level-energy differences by evaluators. Eγ=12.8 keV in ^{106}Cd(α,nγ) (seen only in γγ coinc).
544.88	(1/2$^+$)	544.86 *15*	100‡	0	5/2$^+$	[E2]	0.00580	α(K)=0.00559 *8*; α(L)=0.000680 *10*; α(M)=0.0001328 *19* α(N)=2.50×10^{-5} *4*; α(O)=2.20×10^{-6} *3* E_γ: From (α,nγ) (1999Da05). Mult.: A_2/A_0=−0.17 *2*, A_4/A_0=0.032 (1981JoZX), A_2/A_0=−0.37 *16* (1999Da05) supports D transition, while α(K)exp=0.0043 *14* (1999Da05) and α(K)exp=0.0048 *9* (1976Ma09) in (α,nγ) are consistent with M1,E2.
664.44	(3/2$^+$)	650.1‡ *3*	3.3‡ *3*	13.97	(7/2$^+$)			
		664.0‡ *3*	100‡	0	5/2$^+$			
678.51	(5/2)$^+$	664.5 *1*	100‡	13.97	(7/2$^+$)	M1	0.00400	α(K)=0.00348 *5*; α(L)=0.000421 *6*; α(M)=8.21×10^{-5} *12* α(N)=1.548×10^{-5} *22*; α(O)=1.363×10^{-6} *19* E_γ: weighted average of 664.5 *3*(1982Jo03), 664.6 *5* (1976Ox01), 664.2 *2* (2002Re14) in ^{109}Sb ε decay, 664.58 *10* (1999Da05), 664.5 *4* (1976Ma09) in (α,nγ). Mult.: A_2/A_0=−0.33 *2*, A_4/A_0=0.05 *2* (1981JoZX), A_2/A_0=−0.50 *12*; α(K)exp=0.0025 *8* (1999Da05), α(K)exp=0.0030 *6* (1976Ma09) in (α,nγ).
		678.6 *1*	84.2‡ *8*	0	5/2$^+$	M1(+E2)	0.00381	α(K)=0.00332 *5*; α(L)=0.000400 *6*; α(M)=7.81×10^{-5} *11* α(N)=1.473×10^{-5} *21*; α(O)=1.296×10^{-6} *19* E_γ: weighted average of 678.6 *3* (1982Jo03), 678.3 *3* (2002Re14) in ^{109}Sb ε decay, 678.7 *2* (1976Ma09), 678.73 *25* (1999Da05) in (α,nγ). I_γ: other: 27 *3* (^{106}Cd(α,nγ) in (1999Da05)) and 13 *7* in Coulomb excitation (2012Di13). Mult.: A_2/A_0=0.05 *3*, A_4/A_0=0.013 (1981JoZX) in (α,nγ).
925.56	(3/2)$^+$	246.6‡ *3*	2.8‡ *1*	678.51	(5/2)$^+$			
		260.8‡ *3*	6.4‡ *2*	664.44	(3/2$^+$)			
		381.3‡ *3*	0.6‡ *2*	544.88	(1/2$^+$)			
		910.9‡ *3*	2.9‡ *2*	13.97	(7/2$^+$)			
		925.3 *2*	100‡	0	5/2$^+$	M1(+E2)	0.00186	α(K)=0.001621 *23*; α(L)=0.000194 *3*; α(M)=3.78×10^{-5} *6* α(N)=7.13×10^{-6} *10*; α(O)=6.29×10^{-7} *9* E_γ: weighted average of 925.4 *3* (1982Jo03), 925.4 *3* (1976Ox01), 925.0 *3* (2002Re14) in ^{109}Sb ε decay, 925.6 *5* (1999Da05) in (α,nγ). Mult.: A_2/A_0=−0.03 *1*, A_4/A_0=0.01 *1* (1981JoZX), α(K)exp=0.0016 *6* (1999Da05) in (α,nγ).
991.38	(3/2)$^+$	446.3‡ *3*	22‡ *6*	544.88	(1/2$^+$)			

$^{109}_{50}Sn_{59}$-5

Adopted Levels, Gammas (continued)

γ(^{109}Sn) (continued)

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.[@]	α[&]	Comments
991.38	(3/2)$^+$	991.2[‡] *3*	100[‡]	0	5/2$^+$	M1(+E2)	1.59×10^{-3}	α(K)=0.001388 *20*; α(L)=0.0001657 *24*; α(M)=3.23×10^{-5} *5* α(N)=6.09×10^{-6} *9*; α(O)=5.38×10^{-7} *8* Mult.: A_2/A_0=−0.20 *2*, A_4/A_0=0.02 *1* (1981JoZX), α(K)exp=0.0010 *4* (1999Da05) in (α,nγ).
1061.82	(3/2)$^+$	397.5[‡] *3*	4.4[‡] *10*	664.44	(3/2$^+$)			
		516.5[‡] *3*	5.9[‡] *15*	544.88	(1/2$^+$)			
		1047.7[‡] *3*	7.07[‡] *15*	13.97	(7/2$^+$)			
		1061.8[‡] *3*	100[‡]	0	5/2$^+$	M1(+E2)	1.37×10^{-3}	α(K)=0.001190 *17*; α(L)=0.0001418 *20*; α(M)=2.77×10^{-5} *4* α(N)=5.22×10^{-6} *8*; α(O)=4.61×10^{-7} *7* E_γ: other: 1067.7 *3* (1999Da05) in (α,nγ). Mult.: A_2/A_0=−0.36 *3*, A_4/A_0=0.10 *3* (1981JoZX), A_2/A_0=−0.22 *20*, α(K)exp=0.0011 *4* (1999Da05) in (α,nγ).
1078.14	(7/2)$^+$	1064.0[#] *3*	22.5[#] *15*	13.97	(7/2$^+$)	M1(+E2)	1.36×10^{-3}	α(K)=0.001185 *17*; α(L)=0.0001412 *20*; α(M)=2.75×10^{-5} *4* α(N)=5.19×10^{-6} *8*; α(O)=4.59×10^{-7} *7* Mult.: α(K)exp=0.0009 *3* (1999Da05) in (α,nγ).
		1078.0 *1*	100[#]	0	5/2$^+$	M1(+E2)	1.32×10^{-3}	α(K)=0.001151 *17*; α(L)=0.0001371 *20*; α(M)=2.67×10^{-5} *4* α(N)=5.04×10^{-6} *7*; α(O)=4.45×10^{-7} *7* E_γ: weighted average of 1078.7 *10* (1976Ma09), 1078.05 *10* (1999Da05) in (α,nγ), 1078.0 *3* (1982Jo03) in ^{109}Sb ε decay, Mult.: A_2/A_0=−0.82 *5*, A_4/A_0=0.22 *5* (1981JoZX), α(K)exp=0.0010 *3* (1999Da05) in (α,nγ).
1228.81	(3/2$^+$,5/2$^+$)	550.2[‡] *3*	7.8[‡] *13*	678.51	(5/2)$^+$			
		1214.4[‡] *3*	14.3[‡] *13*	13.97	(7/2$^+$)			
		1229.3[‡] *3*	100.0[‡] *13*	0	5/2$^+$			
1239.77	9/2$^+$	1225.8[#] *3*	9.5[#] *10*	13.97	(7/2$^+$)	[M1]		
		1239.67[#] *15*	100[#] *4*	0	5/2$^+$	E2	8.25×10^{-4}	α(K)=0.000707 *10*; α(L)=8.53×10^{-5} *12*; α(M)=1.664×10^{-5} *24* α(N)=3.13×10^{-6} *5*; α(O)=2.70×10^{-7} *4*; α(IPF)=1.249×10^{-5} *18* Mult.: A_2/A_0=0.24 *3*, A_4/A_0=−0.19 *3* (1981JoZX), α(K)exp=0.0009 *3* (1999Da05) in (α,nγ).
1257.79	(11/2$^+$)	1243.8 *1*	100	13.97	(7/2$^+$)	E2	8.20×10^{-4}	α(K)=0.000702 *10*; α(L)=8.47×10^{-5} *12*; α(M)=1.652×10^{-5} *24* α(N)=3.11×10^{-6} *5*; α(O)=2.68×10^{-7} *4*; α(IPF)=1.314×10^{-5} *19* E_γ: weighted average of 1243.80 *15*(1976Ma09), 1243.83 *10* (1999Da05) , 1243.4 *3* (1995Ka09) in (HI,xnγ), 1243.8 *5* (1979Ha12) in (α,3nγ). Mult.: A_2/A_0=0.25 *3*, A_4/A_0=−0.18 *3* (1981JoZX) α(K)exp=0.0007 *2* (1999Da05),α(K)exp=0.0006 *2* (1976Ma09) in (α,nγ).

$^{109}_{50}Sn_{59}$-6

Adopted Levels, Gammas (continued)

γ(^{109}Sn) (continued)

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.[@]	α[&]	Comments
1269.79	(11/2$^-$)	1255.85 *9*	100	13.97	(7/2$^+$)	M2	0.00215	α(K)=0.00186 *3*; α(L)=0.000228 *4*; α(M)=4.47×10^{-5} *7* α(N)=8.42×10^{-6} *12*; α(O)=7.42×10^{-7} *11*; α(IPF)=3.25×10^{-6} *5* B(M2)(W.u.)=0.217 *22* E_γ: weighted average of 1255.8 *2* (1976Ma09), 1255.93 *13* (1999Da05) in (α,nγ), 1255.8 *3* (1979Ha12) in (α,3nγ), 1256.0 *3* (1996Ch37) in ^{94}Mo(^{19}F,p3nγ), 1255.5 *3* (1995Ka09) in (HI,xnγ). Mult.: A_2/A_0=0.15 *3*, A_4/A_0=−0.20 *3* (1981JoZX) in (α,nγ) A_2/A_0=0.158 *11*, A_4/A_0=0.006 *27* (1979Ha12) in (α,3nγ), α(K)exp=0.0019 *6* (1999Da05), α(K)exp=0.0016 *3* (1976Ma09) in (α,nγ).
1343.75	(7/2)$^+$	665.8[‡] *3*	22[‡] *4*	678.51	(5/2)$^+$			
		1343.64 *13*	100[‡] *4*	0	5/2$^+$	M1	8.44×10^{-4}	α(K)=0.000711 *10*; α(L)=8.42×10^{-5} *12*; α(M)=1.641×10^{-5} *23* α(N)=3.10×10^{-6} *5*; α(O)=2.74×10^{-7} *4*; α(IPF)=2.96×10^{-5} *5* E_γ: weighted average of 1343.5 *3* (1982Jo03), 1343.7 *2* (1976Ma09), 1343.55 *25* (1999Da05) in (α,nγ), 1343.7 *3* (2002Re14) in ^{109}Sb ec decay. Mult.: A_2/A_0=−0.23 *3*, A_4/A_0=−0.02 *3* (1981JoZX) α(K)exp=0.0007 *2* (1999Da05), α(K)exp=0.00060 *13*(1976Ma09) in (α,nγ).
1495.91	(3/2$^+$)	433.6[‡] *3*	1.8[‡] *4*	1061.82	(3/2)$^+$			
		831.4[‡] *3*	7.4[‡] *21*	664.44	(3/2$^+$)			
		951.1[‡] *3*	8.5[‡] *7*	544.88	(1/2$^+$)			
		1482.2[‡] *3*	6.0[‡] *3*	13.97	(7/2$^+$)			
		1496.0 *2*	100.0[‡] *7*	0	5/2$^+$			E_γ: weighted average of 1495.8 *3* (1982Jo03), 1496.2 *3* (2002Re14) 1495.8 *5* (1999Da05).
1614.33	(3/2$^+$,5/2$^+$)	687.3[‡] *3*	11[‡] *3*	925.56	(3/2)$^+$			E_γ: poor fit, level-energy difference=688.78.
		936.0 *2*	84[‡] *5*	678.51	(5/2)$^+$			E_γ: weighted average of 936.2 *3* (2002Re14) in ^{109}Sb ε decay, 935.8 *3* (1999Da05) in (α,nγ).
		1601.4[‡] *3*	100[‡] *5*	13.97	(7/2$^+$)			E_γ: poor fit, level-energy difference=1600.35.
1649.87	(3/2$^+$,5/2$^+$)	571.3[‡] *3*	26[‡] *3*	1078.14	(7/2)$^+$			
		985.5[‡] *3*	36[‡] *7*	664.44	(3/2$^+$)			
		1104.4[‡] *3*	87[‡] *7*	544.88	(1/2$^+$)			
		1636.3[‡] *3*	52[‡] *7*	13.97	(7/2$^+$)			
		1650.4[‡] *3*	100[‡] *7*	0	5/2$^+$			
1677.1	(11/2,13/2$^+$)	437.3[#] *4*	100[#]	1239.77	9/2$^+$			
1715.0	(7/2,9/2$^+$)	1036.5[#] *3*	100[#]	678.51	(5/2)$^+$			
1883.66	(11/2)$^+$	805.52[#] *20*	100[#]	1078.14	(7/2)$^+$	(E2)	0.00212	α(K)=0.00183 *3*; α(L)=0.000230 *4*; α(M)=4.51×10^{-5} *7* α(N)=8.44×10^{-6} *12*; α(O)=7.07×10^{-7} *10*

$^{109}_{50}Sn_{59}$-7

Adopted Levels, Gammas (continued)

γ(^{109}Sn) (continued)

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.[@]	α[&]	Comments
								Mult.: α(K)exp=0.0018 *6* (1999Da05), α(K)exp=0.0022 *4* (1976Ma09).
1914.04	(3/2$^+$,5/2$^+$)	685[‡]	≤53[‡]	1228.81	(3/2$^+$,5/2$^+$)			
		835.0[‡] *3*	32[‡] *11*	1078.14	(7/2)$^+$			
		1249.4[‡] *3*	95[‡] *26*	664.44	(3/2$^+$)			
		1369.6[‡] *3*	42[‡] *5*	544.88	(1/2$^+$)			
		1914.7[‡] *3*	100[‡] *5*	0	5/2$^+$			
1930.18	13/2$^+$	660.43[#] *10*	46[#] *6*	1269.79	(11/2$^-$)			
		672.43 *13*	79[#] *6*	1257.79	(11/2$^+$)	M1	0.00389	α(K)=0.00339 *5*; α(L)=0.000409 *6*; α(M)=7.98×10^{-5} *12* α(N)=1.505×10^{-5} *21*; α(O)=1.325×10^{-6} *19* E$_\gamma$: weighted average of 673.0 *4* (1976Ma09), 672.45 *10* (1999Da05) in (α,nγ), 672.0 *3* (1995Ka09) in (HI,xnγ). Mult.: α(K)exp=0.0040 *16* (1999Da05), mul=D based on DCO ratios in (HI,xnγ) (1996Ka43).
		690.3 *2*	100[#] *6*	1239.77	9/2$^+$	E2	0.00310	α(K)=0.00267 *4*; α(L)=0.000343 *5*; α(M)=6.72×10^{-5} *10* α(N)=1.256×10^{-5} *18*; α(O)=1.036×10^{-6} *15* E$_\gamma$: weighted average of 690.42 *20* (1999Da05) in (α,nγ), 690.1 *3* (1995Ka09) in (HI,xnγ). Mult.: α(K)exp=0.0040 *14* (1999Da05), mul=Q based on DCO ratios in (HI,xnγ) (1996Ka43).
1992.1	(9/2)	734.2[#] *4*	100[#] *10*	1257.79	(11/2$^+$)			
		752.6[#] *5*	21[#] *7*	1239.77	9/2$^+$			
2015.98	(3/2$^+$,5/2$^+$)	1024.4[‡] *3*	10.9[‡] *22*	991.38	(3/2)$^+$			
		1090.8[‡] *3*	10.9[‡] *22*	925.56	(3/2)$^+$			
		1351.1[‡] *3*	15.3[‡] *22*	664.44	(3/2$^+$)			
		2016.2[‡] *3*	100[‡] *4*	0	5/2$^+$			
2050.0	(11/2$^+$)	971.9[#] *3*	100[#]	1078.14	(7/2)$^+$			
2071.29	(13/2)$^+$	813.44[#] *15*	100[#]	1257.79	(11/2$^+$)	M1,E2	0.00250	α(K)=0.00218 *3*; α(L)=0.000261 *4*; α(M)=5.10×10^{-5} *8* α(N)=9.61×10^{-6} *14*; α(O)=8.47×10^{-7} *12* Mult.: α(K)exp=0.0026 *8* (1999Da05) in (α,nγ).
2090.59	15/2$^+$	160.45[#] *15*	10.1[#] *10*	1930.18	13/2$^+$			
		832.71[#] *20*	100[#] *7*	1257.79	(11/2$^+$)	E2	0.00196	α(K)=0.001695 *24*; α(L)=0.000212 *3*; α(M)=4.15×10^{-5} *6* α(N)=7.78×10^{-6} *11*; α(O)=6.53×10^{-7} *10* Mult.: A$_2$/A$_0$=0.296 *14*, A$_4$/A$_0$=−0.14 *3* (1979Ha12) in (α,3nγ), α(K)exp=0.0018 *6* (1999Da05), α(K)exp=0.0017 *3* (1976Ma09) in (α,nγ).
2116.10	17/2$^+$	25.5[#] *5*	78[#] *28*	2090.59	15/2$^+$	(M1)	4.2 *3*	α(L)=3.36 *21*; α(M)=0.66 *5* α(N)=0.124 *8*; α(O)=0.0106 *7*

$^{109}_{50}Sn_{59}$-8

Adopted Levels, Gammas (continued)

γ(^{109}Sn) (continued)

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.[@]	α[&]	Comments
								B(M1)(W.u.)=0.028 *14* Mult.: based on DCO ratios in (HI,xnγ) (1996Ka43).
2116.10	17/2$^+$	185.8[#] *3*	100[#] *11*	1930.18	13/2$^+$	(E2)	0.180	α(K)=0.1457 *22*; α(L)=0.0274 *5*; α(M)=0.00549 *9* α(N)=0.000993 *16*; α(O)=5.95×10^{-5} *9* B(E2)(W.u.)=2.3 *8* Mult.: mul=Q based on DCO ratios in (HI,xnγ) (1996Ka43); M2 is ruled out by $T_{1/2}$.
2126.66	(3/2$^+$,5/2$^+$)	1135.1[‡] *3*	7[‡] *3*	991.38	(3/2)$^+$			
		1200.8[‡] *3*	5.0[‡] *17*	925.56	(3/2)$^+$			
		1462.2[‡] *3*	100[‡] *33*	664.44	(3/2$^+$)			
		1581.8[‡] *3*	6.7[‡] *17*	544.88	(1/2$^+$)			
		2127.1[‡] *3*	15.0[‡] *17*	0	5/2$^+$			
2218.33	(15/2)$^+$	146.95[#] *20*	31[#] *4*	2071.29	(13/2)$^+$			
		288.17[#] *10*	100[#] *11*	1930.18	13/2$^+$	M1,E2	0.0317	α(K)=0.0275 *4*; α(L)=0.00341 *5*; α(M)=0.000667 *10* α(N)=0.0001256 *18*; α(O)=1.097×10^{-5} *16* Mult.: α(K)exp=0.037 *12* (1999Da05) in (α,nγ).
		960.5[#] *4*	58[#] *5*	1257.79	(11/2$^+$)	E2	1.71×10^{-3}	α(K)=0.001490 *21*; α(L)=0.0001780 *25*; α(M)=3.47×10^{-5} *5* α(N)=6.55×10^{-6} *10*; α(O)=5.78×10^{-7} *9* Mult.: α(K)exp=0.0013 *5* (1999Da05) in (α,nγ).
2244.39	(7/2$^+$)	986.8[#] *3*	69[#] *19*	1257.79	(11/2$^+$)			
		1004.4[#] *3*	100[#] *19*	1239.77	9/2$^+$			
2350.98	15/2$^-$	1081.2 *1*	100[#]	1269.79	(11/2$^-$)	E2	1.08×10^{-3}	α(K)=0.000942 *14*; α(L)=0.0001150 *16*; α(M)=2.24×10^{-5} *4* α(N)=4.22×10^{-6} *6*; α(O)=3.61×10^{-7} *5* B(E2)(W.u.)>0.062 E_γ: weighted average of 1081.4 *15* (1976Ma09), 1081.04 120 (1999Da05) in (α,nγ), 1081.2 *5* (1979Ha12) in (α,3nγ), 1081.2 *3* (1996Ch37) in ^{94}Mo(^{19}F,p3nγ), 1080.7 *3* (1995Ka09) in (HI,xnγ). Mult.: A_2/A_0=0.22 *3*, A_4/A_0=−0.07 *7* (1979Ha12) in (α,3nγ), α(K)exp=0.0009 *3* (1999Da05) in (α,nγ).
2380.1	(13/2)	1122.3[#] *3*	100[#]	1257.79	(11/2$^+$)			
2397.5	(13/2$^+$)	1157.72[#] *25*	100[#]	1239.77	9/2$^+$			
2442.85	(13/2)	1173.08[#] *20*	77[#] *12*	1269.79	(11/2$^-$)			
		1185.03[#] *20*	100[#] *12*	1257.79	(11/2$^+$)			
2512.0	(9/2,11/2)	1272.19[#] *25*	100[#]	1239.77	9/2$^+$			
2532.09		1274.29[#] *20*	100[#]	1257.79	(11/2$^+$)			
2571.1	(7/2$^+$,9/2)	1313.32[#] *25*	100[#]	1257.79	(11/2$^+$)			
2645.3		554.67[#] *25*	100[#]	2090.59	15/2$^+$			

$^{109}_{50}Sn_{59}$-9

Adopted Levels, Gammas (continued)

γ(^{109}Sn) (continued)

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.[@]	α[&]	Comments
2821.5	(9/2$^+$)	1563.7[#] *5*	100[#]	1257.79	(11/2$^+$)			
2921.7		831.1[#] *5*	100[#]	2090.59	15/2$^+$			
3266.1	(19/2$^+$)	1150.0[#] *3*	100[#]	2116.10	17/2$^+$			
3301.10	19/2$^-$	950.17 *12*	100	2350.98	15/2$^-$	E2	1.44×10^{-3}	α(K)=0.001252 *18*; α(L)=0.0001545 *22*; α(M)=3.02×10^{-5} *5* α(N)=5.67×10^{-6} *8*; α(O)=4.81×10^{-7} *7* B(E2)(W.u.)>0.12 E_γ: weighted average of 950.25 *15* (1999Da05) in (α,nγ), 950.8 *5* (1979Ha12) in (α,3nγ), 950.1 *3* (1996Ch37) in ^{94}Mo(^{19}F,p3nγ), 949.7 *3* (1995Ka09) in (HI,xnγ). Mult.: A_2/A_0=0.26 *5*, A_4/A_0=−0.24 *12*, ΔJ=0 possible (1979Ha12) in (α,3nγ), R(DCO)=1.03 *18* (1996Ch37) in ^{94}Mo(^{19}F,p3nγ).
		1184.8[†] *3*		2116.10	17/2$^+$	(E1)	4.26×10^{-4}	α(K)=0.000349 *5*; α(L)=4.08×10^{-5} *6*; α(M)=7.92×10^{-6} *11* α(N)=1.492×10^{-6} *21*; α(O)=1.298×10^{-7} *19*; α(IPF)=2.71×10^{-5} *4* Mult.: based on DCO ratios in (HI,xnγ).
3316.06	19/2$^-$	965.0 *2*		2350.98	15/2$^-$	E2	1.39×10^{-3}	α(K)=0.001209 *17*; α(L)=0.0001490 *21*; α(M)=2.91×10^{-5} *4* α(N)=5.46×10^{-6} *8*; α(O)=4.64×10^{-7} *7* E_γ: weighted average of 965.2 *3* (1999Da05) in (α,nγ), 962.2 *3* (1996Ch37) in ^{94}Mo(^{19}F,p3nγ), 964.8 *3* (1995Ka09) in (HI,xnγ). Mult.: A_2/A_0=0.25 *7*, A_4/A_0=0.05 *10* (1979Ha12) in (α,3nγ), R(DCO)=0.99 *12* (1996Ch37) in ^{94}Mo(^{19}F,p3nγ).
		1199.8[†] *3*		2116.10	17/2$^+$	(E1)	4.25×10^{-4}	α(K)=0.000341 *5*; α(L)=3.98×10^{-5} *6*; α(M)=7.74×10^{-6} *11* α(N)=1.458×10^{-6} *21*; α(O)=1.269×10^{-7} *18*; α(IPF)=3.43×10^{-5} *5* Mult.: based on DCO ratios in (HI,xnγ).
3346.3	21/2$^+$	1230.2 *2*	100	2116.10	17/2$^+$	E2	8.36×10^{-4}	α(K)=0.000718 *10*; α(L)=8.67×10^{-5} *13*; α(M)=1.691×10^{-5} *24* α(N)=3.18×10^{-6} *5*; α(O)=2.74×10^{-7} *4*; α(IPF)=1.105×10^{-5} *16* B(E2)(W.u.)>0.032 E_γ: weighted average of 1230.4 *3* (1999Da05)in (α,nγ), 1230.3 *3* (1996Ch37) in ^{94}Mo(^{19}F,p3nγ), 1229.9 *3* (1995Ka09) in (HI,xnγ), 1230.3 *5* (1979Ha12) in (α,3nγ). Mult.: A_2/A_0=0.22 *3*, A_4/A_0=−0.014 *15* (1979Ha12) in (α,3nγ).
3474.41	21/2$^+$	158.2[†] *2*	38.9[†] *14*	3316.06	19/2$^-$	(E1)	0.0496	α(K)=0.0430 *7*; α(L)=0.00532 *8*; α(M)=0.001035 *15* α(N)=0.000192 *3*; α(O)=1.519×10^{-5} *22* E_γ: weighted average of 157.8 *3* (1996Ch37) in ^{94}Mo(^{19}F,p3nγ), 158.4 *3* (1995Ka09) in (HI,xnγ), 158.4 *3* (1999Da05) in (α,nγ). Mult.: based on DCO ratios in (HI,xnγ) (1996Ka43). Mult.: based on DCO ratios in (HI,xnγ) (1996Ka43); R(DCO)=0.73 *5* (1996Ch37) in ^{94}Mo(^{19}F,p3nγ).
		173.4[††] *3*	100 *6*	3301.10	19/2$^-$	(E1)	0.0383	α(K)=0.0333 *5*; α(L)=0.00410 *6*; α(M)=0.000797 *12* α(N)=0.0001483 *22*; α(O)=1.182×10^{-5} *18*

$^{109}_{50}Sn_{59}$-10

Adopted Levels, Gammas (continued)

γ(^{109}Sn) (continued)

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.[@]	α[&]	Comments
								Mult.: based on DCO ratios in (HI,xnγ) (1996Ka43); A_2/A_0=0.06 *15*, A_4/A_0=−0.020 *20* (1979Ha12) in (α,3nγ).
3474.41	21/2$^+$	208.4† *3*		3266.1	(19/2$^+$)	(M1)	0.0744	α(K)=0.0644 *10*; α(L)=0.00807 *12*; α(M)=0.001581 *23* α(N)=0.000297 *5*; α(O)=2.59×10^{-5} *4* Mult.: based on DCO ratios in (HI,xnγ) (1996Ka43).
		1358.4† *3*		2116.10	17/2$^+$	E2	7.10×10^{-4}	α(K)=0.000587 *9*; α(L)=7.04×10^{-5} *10*; α(M)=1.372×10^{-5} *20* α(N)=2.58×10^{-6} *4*; α(O)=2.24×10^{-7} *4*; α(IPF)=3.67×10^{-5} *6* Mult.: based on DCO ratios in (HI,xnγ) (1996Ka43).
3527.4	(19/2$^-$)	1176.4 *3*	100	2350.98	15/2$^-$			E_γ: weighted average of 1176.3 *3* (1995Ka09) in (HI,xnγ),1176.8 *5* (1999Da05) in (α,nγ).
3864.2	(23/2$^+$)	389.8† *3*	100†	3474.41	21/2$^+$	(M1+E2)	0.01468	α(K)=0.01274 *18*; α(L)=0.001565 *23*; α(M)=0.000306 *5* α(N)=5.76×10^{-5} *9*; α(O)=5.05×10^{-6} *8* E_γ: others:389.9 *3* (1996Ch37) in ^{94}Mo(^{19}F,p3nγ),390.0 (1979Ha12) in (α,3nγ). Mult.: MUL=E2 from (HI,xnγ) (1996Ka43) based on DCO ratios; in ^{94}Mo(^{19}F,p3nγ) (1996Ch37) MUL=(M1), based on R(DCO)=1.06 *20*.
3926.5	(23/2$^+$)	452.0† *3*		3474.41	21/2$^+$	(M1)	0.01015	α(K)=0.00882 *13*; α(L)=0.001078 *16*; α(M)=0.000211 *3* α(N)=3.97×10^{-5} *6*; α(O)=3.48×10^{-6} *5*
		580.3† *3*		3346.3	21/2$^+$	(M1)	0.00553	α(K)=0.00481 *7*; α(L)=0.000583 *9*; α(M)=0.0001139 *16* α(N)=2.15×10^{-5} *3*; α(O)=1.89×10^{-6} *3*
4262.0	23/2$^-$	945.9† *3*		3316.06	19/2$^-$			
		961† *1*		3301.10	19/2$^-$	(E2)	1.41×10^{-3}	α(K)=0.001220 *18*; α(L)=0.0001505 *22*; α(M)=2.94×10^{-5} *5* α(N)=5.52×10^{-6} *8*; α(O)=4.69×10^{-7} *7* Mult.: R(DCO)=1.4 *3* in ^{94}Mo(^{19}F,p3nγ) (1996Ch37).
4451.2	23/2$^-$	1135† *1*	100†	3316.06	19/2$^-$	(E2)	9.79×10^{-4}	α(K)=0.000850 *12*; α(L)=0.0001032 *15*; α(M)=2.02×10^{-5} *3* α(N)=3.79×10^{-6} *6*; α(O)=3.25×10^{-7} *5*; α(IPF)=1.51×10^{-6} *5*
4609.5	25/2$^+$	1135.1† *3*	100†	3474.41	21/2$^+$	E2	9.79×10^{-4}	α(K)=0.000850 *12*; α(L)=0.0001032 *15*; α(M)=2.01×10^{-5} *3* α(N)=3.78×10^{-6} *6*; α(O)=3.25×10^{-7} *5*; α(IPF)=1.51×10^{-6} *3* Mult.: R(DCO)=1.05 *2* in ^{94}Mo(^{19}F,p3nγ) (1996Ch37).
4984.7	(27/2$^+$)	1120.5† *3*	100†	3864.2	(23/2$^+$)	(E2)	1.01×10^{-3}	α(K)=0.000873 *13*; α(L)=0.0001062 *15*; α(M)=2.07×10^{-5} *3* α(N)=3.89×10^{-6} *6*; α(O)=3.34×10^{-7} *5*; α(IPF)=9.65×10^{-7} *17*
5130.4	(27/2$^+$)	1203.9† *3*	100†	3926.5	(23/2$^+$)	(E2)	8.70×10^{-4}	α(K)=0.000751 *11*; α(L)=9.08×10^{-5} *13*; α(M)=1.772×10^{-5} *25* α(N)=3.33×10^{-6} *5*; α(O)=2.87×10^{-7} *4*; α(IPF)=7.41×10^{-6} *11*
5172.0	(25/2$^+$)	721† *1*		4451.2	23/2$^-$	(E1)	1.05×10^{-3}	α(K)=0.000919 *14*; α(L)=0.0001087 *16*; α(M)=2.12×10^{-5} *3* α(N)=3.98×10^{-6} *6*; α(O)=3.41×10^{-7} *5*
		910† *1*		4262.0	23/2$^-$			
5285.7	27/2$^-$	834† *1*		4451.2	23/2$^-$			

$^{109}_{50}Sn_{59}$-11

Adopted Levels, Gammas (continued)

γ(^{109}Sn) (continued)

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.[@]	α[&]	Comments
5285.7	27/2$^-$	1023.7[†] *3*		4262.0	23/2$^-$	(E2)	1.22×10^{-3}	α(K)=0.001061 *15*; α(L)=0.0001301 *19*; α(M)=2.54×10^{-5} *4* α(N)=4.77×10^{-6} *7*; α(O)=4.07×10^{-7} *6*
5450.5	(27/2$^+$)	841.0[†] *3*	100[†]	4609.5	25/2$^+$	(M1)	0.00231	α(K)=0.00202 *3*; α(L)=0.000242 *4*; α(M)=4.71×10^{-5} *7* α(N)=8.89×10^{-6} *13*; α(O)=7.84×10^{-7} *11* Mult.: based on DCO ratios in (HI,xnγ) (1996Ka43), mul=M1+E2 from R(DCO)=0.47 *6* in ^{94}Mo(^{19}F,p3nγ) (1996Ch37).
5849.8	(31/2$^+$)	865.1[†] *3*	100[†]	4984.7	(27/2$^+$)	(E2)	0.00179	α(K)=0.001550 *22*; α(L)=0.000193 *3*; α(M)=3.78×10^{-5} *6* α(N)=7.08×10^{-6} *10*; α(O)=5.97×10^{-7} *9*
5992.8	(29/2$^+$)	707[†] *1*		5285.7	27/2$^-$	(E1)	1.10×10^{-3}	α(K)=0.000958 *14*; α(L)=0.0001134 *17*; α(M)=2.21×10^{-5} *4* α(N)=4.15×10^{-6} *6*; α(O)=3.56×10^{-7} *5*
		821[†] *1*		5172.0	(25/2$^+$)	(E2)	0.00202	α(K)=0.00175 *3*; α(L)=0.000220 *4*; α(M)=4.30×10^{-5} *7* α(N)=8.05×10^{-6} *12*; α(O)=6.76×10^{-7} *10*
6224.2	31/2$^-$	938.5[†] *3*	100[†]	5285.7	27/2$^-$	(E2)	1.48×10^{-3}	α(K)=0.001287 *18*; α(L)=0.0001591 *23*; α(M)=3.11×10^{-5} *5* α(N)=5.83×10^{-6} *9*; α(O)=4.95×10^{-7} *7* Mult.: R(DCO)=1.03 *8* in ^{94}Mo(^{19}F,p3nγ) (1996Ch37).
6337.1	(31/2$^+$)	886.6[†] *3*	100[†]	5450.5	(27/2$^+$)	(E2)	1.69×10^{-3}	α(K)=0.001465 *21*; α(L)=0.000182 *3*; α(M)=3.56×10^{-5} *5* α(N)=6.68×10^{-6} *10*; α(O)=5.64×10^{-7} *8* Mult.: R(DCO)=0.98 *15* in ^{94}Mo(^{19}F,p3nγ) (1996Ch37).
6824.8	(33/2$^+$)	832[†] *1*	100[†]	5992.8	(29/2$^+$)	(E2)	0.00196	α(K)=0.001698 *25*; α(L)=0.000213 *3*; α(M)=4.16×10^{-5} *6* α(N)=7.79×10^{-6} *12*; α(O)=6.55×10^{-7} *10*
7194.4	(35/2$^+$)	857.3[†] *3*	100[†]	6337.1	(31/2$^+$)	(E2)	0.00183	α(K)=0.001583 *23*; α(L)=0.000198 *3*; α(M)=3.87×10^{-5} *6* α(N)=7.24×10^{-6} *11*; α(O)=6.10×10^{-7} *9* Mult.: R(DCO)=1.01 *12* in ^{94}Mo(^{19}F,p3nγ) (1996Ch37).
7233.2	35/2$^-$	1009[†] *1*	100[†]	6224.2	31/2$^-$	(E2)	1.26×10^{-3}	α(K)=0.001095 *16*; α(L)=0.0001344 *19*; α(M)=2.63×10^{-5} *4* α(N)=4.93×10^{-6} *7*; α(O)=4.20×10^{-7} *6*
7724.8	(37/2$^+$)	900[†] *1*	100[†]	6824.8	(33/2$^+$)	(E2)	1.63×10^{-3}	α(K)=0.001415 *21*; α(L)=0.000176 *3*; α(M)=3.44×10^{-5} *5* α(N)=6.44×10^{-6} *10*; α(O)=5.45×10^{-7} *8*
8123.6	(39/2$^+$)	929.2[†] *3*	100[†]	7194.4	(35/2$^+$)	(E2)	1.52×10^{-3}	α(K)=0.001316 *19*; α(L)=0.0001629 *23*; α(M)=3.18×10^{-5} *5* α(N)=5.97×10^{-6} *9*; α(O)=5.06×10^{-7} *7* Mult.: R(DCO)=1.07 *22* in ^{94}Mo(^{19}F,p3nγ) (1996Ch37).
8263.2	39/2$^-$	1030[†] *1*	100[†]	7233.2	35/2$^-$	(E2)	1.21×10^{-3}	α(K)=0.001047 *15*; α(L)=0.0001283 *19*; α(M)=2.51×10^{-5} *4* α(N)=4.70×10^{-6} *7*; α(O)=4.01×10^{-7} *6*
8726.8	(41/2$^+$)	1002[†] *1*	100[†]	7724.8	(37/2$^+$)	(E2)	1.28×10^{-3}	α(K)=0.001112 *16*; α(L)=0.0001366 *20*; α(M)=2.67×10^{-5} *4* α(N)=5.01×10^{-6} *8*; α(O)=4.27×10^{-7} *6* Mult.: based on DCO ratios in (HI,xnγ) (1996Ka43).
9144.6	(43/2$^+$)	1021[†] *1*	100[†]	8123.6	(39/2$^+$)	(E2)	1.23×10^{-3}	α(K)=0.001067 *16*; α(L)=0.0001309 *19*; α(M)=2.56×10^{-5} *4* α(N)=4.80×10^{-6} *7*; α(O)=4.09×10^{-7} *6*

$^{109}_{50}Sn_{59}$-12

Adopted Levels, Gammas (continued)

γ(^{109}Sn) (continued)

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.[@]	α[&]	Comments
9330.6	(41/2$^-$,43/2$^+$)	790[†] *1*		8540.6	(37/2$^-$,39/2$^+$)			
		1207[†] *1*		8123.6	(39/2$^+$)			
9347.2	43/2$^-$	1084[†] *1*	100[†]	8263.2	39/2$^-$	(E2)	1.08×10^{-3}	α(K)=0.000937 *14*; α(L)=0.0001143 *17*; α(M)=2.23×10^{-5} *4* α(N)=4.19×10^{-6} *6*; α(O)=3.59×10^{-7} *5*
9865.9	(45/2$^+$)	1139[†] *1*	100[†]	8726.8	(41/2$^+$)	(E2)	9.72×10^{-4}	α(K)=0.000843 *12*; α(L)=0.0001024 *15*; α(M)=2.00×10^{-5} *3* α(N)=3.76×10^{-6} *6*; α(O)=3.23×10^{-7} *5*; α(IPF)=1.70×10^{-6} *6*
10133.6	(45/2$^-$,47/2$^+$)	803[†] *1*		9330.6	(41/2$^-$,43/2$^+$)	(E2)	0.00213	α(K)=0.00185 *3*; α(L)=0.000232 *4*; α(M)=4.55×10^{-5} *7* α(N)=8.51×10^{-6} *13*; α(O)=7.13×10^{-7} *11*
		989[†] *1*		9144.6	(43/2$^+$)			
10286.6	(47/2$^+$)	1142[†] *1*	100[†]	9144.6	(43/2$^+$)	(E2)	9.66×10^{-4}	α(K)=0.000839 *12*; α(L)=0.0001019 *15*; α(M)=1.99×10^{-5} *3* α(N)=3.73×10^{-6} *6*; α(O)=3.21×10^{-7} *5*; α(IPF)=1.85×10^{-6} *6*
10509.2	47/2$^-$	1162[†] *1*	100[†]	9347.2	43/2$^-$	(E2)	9.33×10^{-4} *14*	α(K)=0.000809 *12*; α(L)=9.81×10^{-5} *14*; α(M)=1.91×10^{-5} *3* α(N)=3.60×10^{-6} *5*; α(O)=3.09×10^{-7} *5*; α(IPF)=3.12×10^{-6} *9*
11069.6	(49/2$^-$,51/2$^+$)	936[†] *1*	100[†]	10133.6	(45/2$^-$,47/2$^+$)	(E2)	1.49×10^{-3}	α(K)=0.001295 *19*; α(L)=0.0001601 *23*; α(M)=3.13×10^{-5} *5* α(N)=5.87×10^{-6} *9*; α(O)=4.98×10^{-7} *7*
11149.9	(49/2$^+$)	1284[†] *1*	100[†]	9865.9	(45/2$^+$)	(E2)	7.75×10^{-4}	α(K)=0.000658 *10*; α(L)=7.92×10^{-5} *12*; α(M)=1.544×10^{-5} *22* α(N)=2.90×10^{-6} *4*; α(O)=2.51×10^{-7} *4*; α(IPF)=2.00×10^{-5} *4*
11583.7	(51/2$^+$)	1297[†] *1*	100[†]	10286.6	(47/2$^+$)	(E2)	7.62×10^{-4}	α(K)=0.000644 *9*; α(L)=7.75×10^{-5} *11*; α(M)=1.511×10^{-5} *22* α(N)=2.84×10^{-6} *4*; α(O)=2.46×10^{-7} *4*; α(IPF)=2.25×10^{-5} *4*
11704.2	(51/2$^-$)	1195[†] *1*	100[†]	10509.2	47/2$^-$	(E2)	8.83×10^{-4}	α(K)=0.000763 *11*; α(L)=9.23×10^{-5} *13*; α(M)=1.80×10^{-5} *3* α(N)=3.38×10^{-6} *5*; α(O)=2.91×10^{-7} *5*; α(IPF)=6.32×10^{-6} *15*
11799.2	(51/2$^-$)	1290[†] *1*	100[†]	10509.2	47/2$^-$	(E2)	7.69×10^{-4}	α(K)=0.000651 *10*; α(L)=7.84×10^{-5} *11*; α(M)=1.529×10^{-5} *22* α(N)=2.87×10^{-6} *4*; α(O)=2.48×10^{-7} *4*; α(IPF)=2.11×10^{-5} *4*
12188.7	(53/2$^-$,55/2$^+$)	1119[†] *1*	100[†]	11069.6	(49/2$^-$,51/2$^+$)	(E2)	1.01×10^{-3}	α(K)=0.000876 *13*; α(L)=0.0001065 *15*; α(M)=2.08×10^{-5} *3* α(N)=3.91×10^{-6} *6*; α(O)=3.35×10^{-7} *5*; α(IPF)=9.2×10^{-7} *4*
12344	(53/2$^+$)	1194[†] *1*	100[†]	11149.9	(49/2$^+$)	(E2)	8.84×10^{-4}	α(K)=0.000764 *11*; α(L)=9.24×10^{-5} *13*; α(M)=1.80×10^{-5} *3* α(N)=3.39×10^{-6} *5*; α(O)=2.92×10^{-7} *5*; α(IPF)=6.20×10^{-6} *15*
12596	(53/2$^+$)	1446[†] *1*	100[†]	11149.9	(49/2$^+$)	(E2)	6.57×10^{-4}	α(K)=0.000518 *8*; α(L)=6.19×10^{-5} *9*; α(M)=1.206×10^{-5} *17* α(N)=2.27×10^{-6} *4*; α(O)=1.97×10^{-7} *3*; α(IPF)=6.27×10^{-5} *10*
12978.2	(55/2$^-$)	1179[†] *1*		11799.2	(51/2$^-$)	(E2)	9.06×10^{-4}	α(K)=0.000784 *11*; α(L)=9.50×10^{-5} *14*; α(M)=1.85×10^{-5} *3* α(N)=3.48×10^{-6} *5*; α(O)=3.00×10^{-7} *5*; α(IPF)=4.59×10^{-6} *12* Mult.: based on DCO ratios in (HI,xnγ) (1996Ka43).
		1274[†] *1*		11704.2	(51/2$^-$)	(E2)	7.86×10^{-4}	α(K)=0.000668 *10*; α(L)=8.05×10^{-5} *12*; α(M)=1.570×10^{-5} *23* α(N)=2.95×10^{-6} *5*; α(O)=2.55×10^{-7} *4*; α(IPF)=1.82×10^{-5} *4*
13092.7	(55/2$^+$)	1509[†] *1*	100[†]	11583.7	(51/2$^+$)	(E2)	6.31×10^{-4}	α(K)=0.000477 *7*; α(L)=5.68×10^{-5} *8*; α(M)=1.107×10^{-5} *16* α(N)=2.08×10^{-6} *3*; α(O)=1.81×10^{-7} *3*; α(IPF)=8.42×10^{-5} *13*
13155.2	(55/2$^-$)	1356[†] *1*	100[†]	11799.2	(51/2$^-$)	(E2)	7.12×10^{-4}	α(K)=0.000589 *9*; α(L)=7.06×10^{-5} *10*; α(M)=1.377×10^{-5} *20* α(N)=2.59×10^{-6} *4*; α(O)=2.24×10^{-7} *4*; α(IPF)=3.61×10^{-5} *6*

$^{109}_{50}Sn_{59}$-13

Adopted Levels, Gammas (continued)

γ(^{109}Sn) (continued)

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.[@]	α[&]	Comments
13488.7	(57/2$^-$,59/2$^+$)	1300[†] *1*	100[†]	12188.7	(53/2$^-$,55/2$^+$)	(E2)	7.59×10^{-4}	α(K)=0.000641 *9*; α(L)=7.71×10^{-5} *11*; α(M)=1.504×10^{-5} *22* α(N)=2.83×10^{-6} *4*; α(O)=2.45×10^{-7} *4*; α(IPF)=2.31×10^{-5} *4*
13771	(57/2$^+$)	1175[†] *1*		12596	(53/2$^+$)	(E2)	9.12×10^{-4}	α(K)=0.000790 *12*; α(L)=9.57×10^{-5} *14*; α(M)=1.87×10^{-5} *3* α(N)=3.51×10^{-6} *5*; α(O)=3.02×10^{-7} *5*; α(IPF)=4.21×10^{-6} *11*
		1427[†] *1*		12344	(53/2$^+$)	(E2)	6.67×10^{-4}	α(K)=0.000532 *8*; α(L)=6.36×10^{-5} *9*; α(M)=1.239×10^{-5} *18* α(N)=2.33×10^{-6} *4*; α(O)=2.02×10^{-7} *3*; α(IPF)=5.66×10^{-5} *9*
14427	(59/2$^-$)	1449[†] *1*	100[†]	12978.2	(55/2$^-$)	(E2)	6.56×10^{-4}	α(K)=0.000516 *8*; α(L)=6.16×10^{-5} *9*; α(M)=1.201×10^{-5} *17* α(N)=2.26×10^{-6} *4*; α(O)=1.96×10^{-7} *3*; α(IPF)=6.37×10^{-5} *10*
14640	(59/2$^-$)	1485[†] *1*	100[†]	13155.2	(55/2$^-$)	(E2)	6.40×10^{-4}	α(K)=0.000492 *7*; α(L)=5.87×10^{-5} *9*; α(M)=1.143×10^{-5} *16* α(N)=2.15×10^{-6} *3*; α(O)=1.87×10^{-7} *3*; α(IPF)=7.58×10^{-5} *12*
14833.7	(59/2$^+$)	1741[†] *1*	100[†]	13092.7	(55/2$^+$)	(E2)	5.94×10^{-4}	α(K)=0.000362 *5*; α(L)=4.29×10^{-5} *6*; α(M)=8.35×10^{-6} *12* α(N)=1.572×10^{-6} *22*; α(O)=1.373×10^{-7} *20*; α(IPF)=0.000179 *3*
14907	(61/2$^+$)	1136[†] *1*	100[†]	13771	(57/2$^+$)	(E2)	9.77×10^{-4}	α(K)=0.000848 *12*; α(L)=0.0001030 *15*; α(M)=2.01×10^{-5} *3* α(N)=3.78×10^{-6} *6*; α(O)=3.24×10^{-7} *5*; α(IPF)=1.55×10^{-6} *5*
15012.7	(61/2$^-$,63/2$^+$)	1524[†] *1*	100[†]	13488.7	(57/2$^-$,59/2$^+$)	(E2)	6.26×10^{-4}	α(K)=0.000467 *7*; α(L)=5.57×10^{-5} *8*; α(M)=1.085×10^{-5} *16* α(N)=2.04×10^{-6} *3*; α(O)=1.777×10^{-7} *25*; α(IPF)=8.97×10^{-5} *13*
16070	(63/2$^-$)	1643[†] *1*	100[†]	14427	(59/2$^-$)	(E2)	6.00×10^{-4}	α(K)=0.000404 *6*; α(L)=4.80×10^{-5} *7*; α(M)=9.34×10^{-6} *14* α(N)=1.759×10^{-6} *25*; α(O)=1.535×10^{-7} *22*; α(IPF)=0.0001366 *20*
16226	(65/2$^+$)	1319[†] *1*	100[†]	14907	(61/2$^+$)	(E2)	7.42×10^{-4}	α(K)=0.000623 *9*; α(L)=7.48×10^{-5} *11*; α(M)=1.459×10^{-5} *21* α(N)=2.74×10^{-6} *4*; α(O)=2.37×10^{-7} *4*; α(IPF)=2.71×10^{-5} *5*
16272	(63/2$^-$)	1632[†] *1*	100[†]	14640	(59/2$^-$)	(E2)	6.02×10^{-4}	α(K)=0.000410 *6*; α(L)=4.86×10^{-5} *7*; α(M)=9.47×10^{-6} *14* α(N)=1.78×10^{-6} *3*; α(O)=1.555×10^{-7} *22*; α(IPF)=0.0001321 *19*
16757.7	(63/2$^+$)	1924[†] *1*	100[†]	14833.7	(59/2$^+$)	(E2)	6.08×10^{-4}	α(K)=0.000301 *5*; α(L)=3.54×10^{-5} *5*; α(M)=6.89×10^{-6} *10* α(N)=1.298×10^{-6} *19*; α(O)=1.138×10^{-7} *16*; α(IPF)=0.000263 *4*
16779	(65/2$^-$,67/2$^+$)	1766[†] *1*	100[†]	15012.7	(61/2$^-$,63/2$^+$)	(E2)	5.95×10^{-4}	α(K)=0.000353 *5*; α(L)=4.17×10^{-5} *6*; α(M)=8.12×10^{-6} *12* α(N)=1.529×10^{-6} *22*; α(O)=1.337×10^{-7} *19*; α(IPF)=0.000191 *3*
17720	(69/2$^+$)	1494[†] *1*	100[†]	16226	(65/2$^+$)	(E2)	6.36×10^{-4}	α(K)=0.000486 *7*; α(L)=5.79×10^{-5} *9*; α(M)=1.129×10^{-5} *16* α(N)=2.12×10^{-6} *3*; α(O)=1.85×10^{-7} *3*; α(IPF)=7.89×10^{-5} *12*
17907	(67/2$^-$)	1837[†] *1*	100[†]	16070	(63/2$^-$)	(E2)	5.98×10^{-4}	α(K)=0.000327 *5*; α(L)=3.87×10^{-5} *6*; α(M)=7.53×10^{-6} *11* α(N)=1.418×10^{-6} *20*; α(O)=1.241×10^{-7} *18*; α(IPF)=0.000223 *4*
18731	(69/2$^-$,71/2$^+$)	1952[†] *1*	100[†]	16779	(65/2$^-$,67/2$^+$)	(E2)	6.12×10^{-4}	α(K)=0.000293 *5*; α(L)=3.45×10^{-5} *5*; α(M)=6.71×10^{-6} *10* α(N)=1.264×10^{-6} *18*; α(O)=1.108×10^{-7} *16*; α(IPF)=0.000277 *4*
18880	(67/2$^+$)	2122[†] *1*	100[†]	16757.7	(63/2$^+$)	(E2)	6.46×10^{-4}	α(K)=0.000251 *4*; α(L)=2.95×10^{-5} *5*; α(M)=5.74×10^{-6} *8* α(N)=1.082×10^{-6} *16*; α(O)=9.50×10^{-8} *14*; α(IPF)=0.000359 *5*
19397	(73/2$^+$)	1677[†] *1*	100[†]	17720	(69/2$^+$)	(E2)	5.97×10^{-4}	α(K)=0.000389 *6*; α(L)=4.61×10^{-5} *7*; α(M)=8.98×10^{-6} *13* α(N)=1.690×10^{-6} *24*; α(O)=1.475×10^{-7} *21*; α(IPF)=0.0001510 *22*
19948	(71/2$^-$)	2041[†] *1*	100[†]	17907	(67/2$^-$)	(E2)	6.29×10^{-4}	α(K)=0.000270 *4*; α(L)=3.17×10^{-5} *5*; α(M)=6.17×10^{-6} *9* α(N)=1.162×10^{-6} *17*; α(O)=1.020×10^{-7} *15*; α(IPF)=0.000320 *5*

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Adopted Levels, Gammas (continued)

$\gamma(^{109}Sn)$ (continued)

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.[@]	α[&]	Comments
20910	(73/2$^-$,75/2$^+$)	2179[†] *1*	100[†]	18731	(69/2$^-$,71/2$^+$)	(E2)	6.60×10^{-4}	α(K)=0.000240 *4*; α(L)=2.81×10^{-5} *4*; α(M)=5.47×10^{-6} *8* α(N)=1.030×10^{-6} *15*; α(O)=9.05×10^{-8} *13*; α(IPF)=0.000386 *6*
21275	(77/2$^+$)	1878[†] *1*	100[†]	19397	(73/2$^+$)	(E2)	6.02×10^{-4}	α(K)=0.000314 *5*; α(L)=3.71×10^{-5} *6*; α(M)=7.22×10^{-6} *11* α(N)=1.359×10^{-6} *19*; α(O)=1.190×10^{-7} *17*; α(IPF)=0.000242 *4*
22217	(75/2$^-$)	2269[†] *1*	100[†]	19948	(71/2$^-$)	(E2)	6.84×10^{-4}	α(K)=0.000223 *4*; α(L)=2.61×10^{-5} *4*; α(M)=5.08×10^{-6} *8* α(N)=9.57×10^{-7} *14*; α(O)=8.41×10^{-8} *12*; α(IPF)=0.000429 *6*
23383	(81/2$^+$)	2108[†] *1*	100[†]	21275	(77/2$^+$)	(E2)	6.43×10^{-4}	α(K)=0.000254 *4*; α(L)=2.99×10^{-5} *5*; α(M)=5.81×10^{-6} *9* α(N)=1.095×10^{-6} *16*; α(O)=9.61×10^{-8} *14*; α(IPF)=0.000352 *5*
24743	(79/2$^-$)	2526[†] *1*	100[†]	22217	(75/2$^-$)	(E2)	7.64×10^{-4}	α(K)=0.000184 *3*; α(L)=2.15×10^{-5} *3*; α(M)=4.18×10^{-6} *6* α(N)=7.89×10^{-7} *11*; α(O)=6.95×10^{-8} *10*; α(IPF)=0.000553 *8*

[†] From (HI,xnγ).
[‡] From ^{109}Sb ε decay.
[#] From ^{106}Cd(α,nγ).
[@] From 1996Ka43 in (HI,xnγ) based on DCO ratios (values not given by the authors), unless otherwise stated.
[&] Additional information 1.

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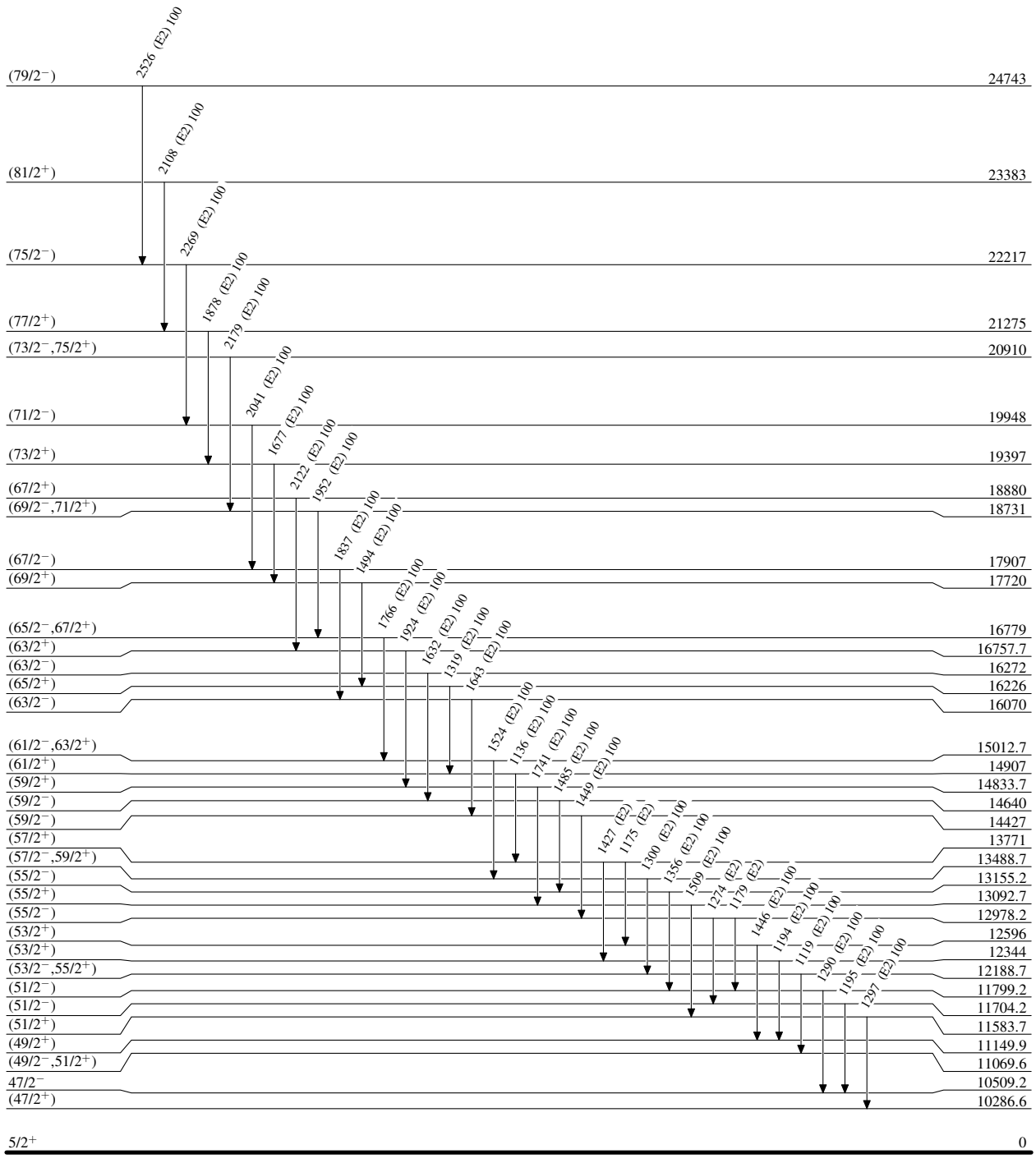
Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level



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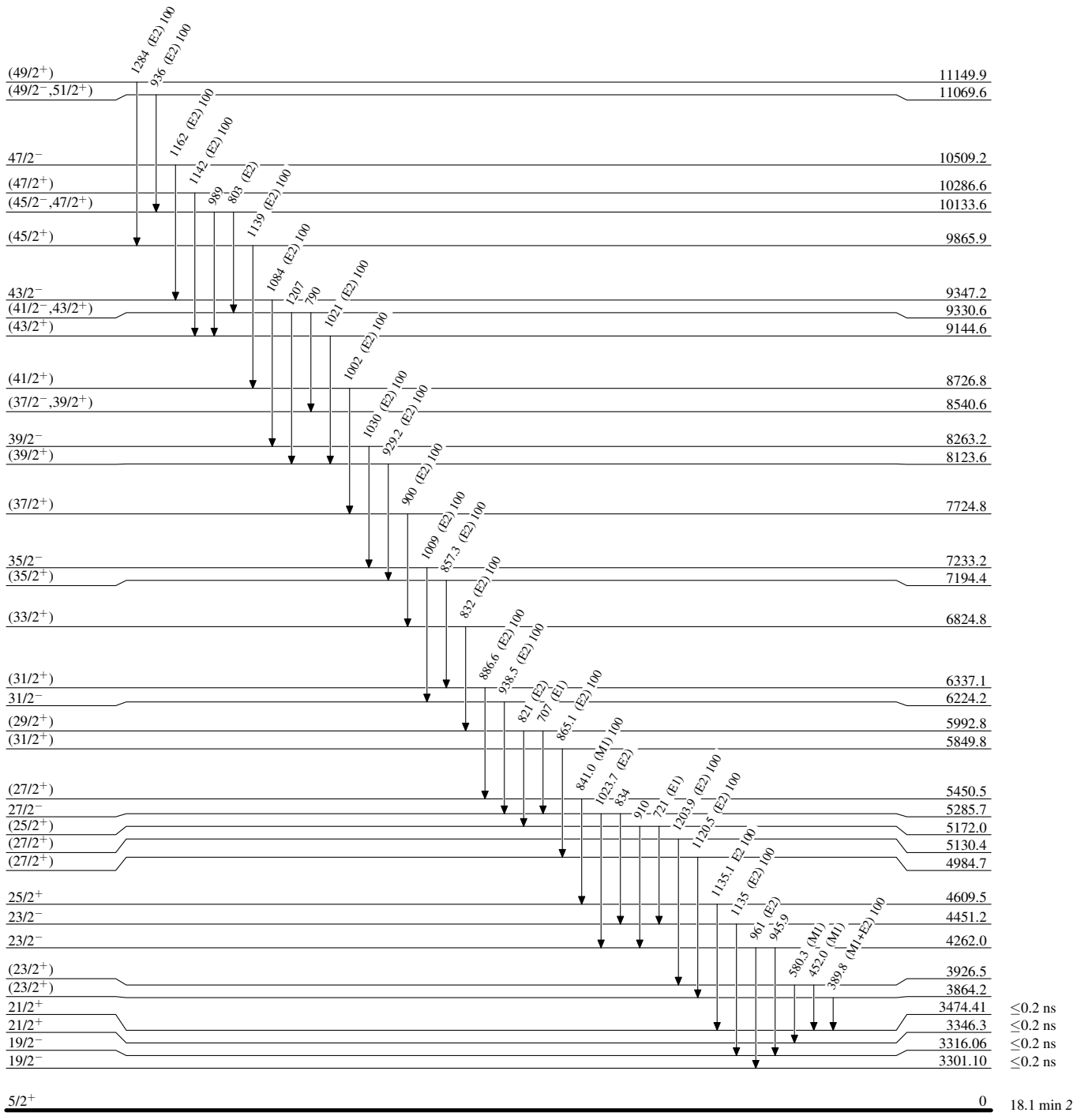
Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

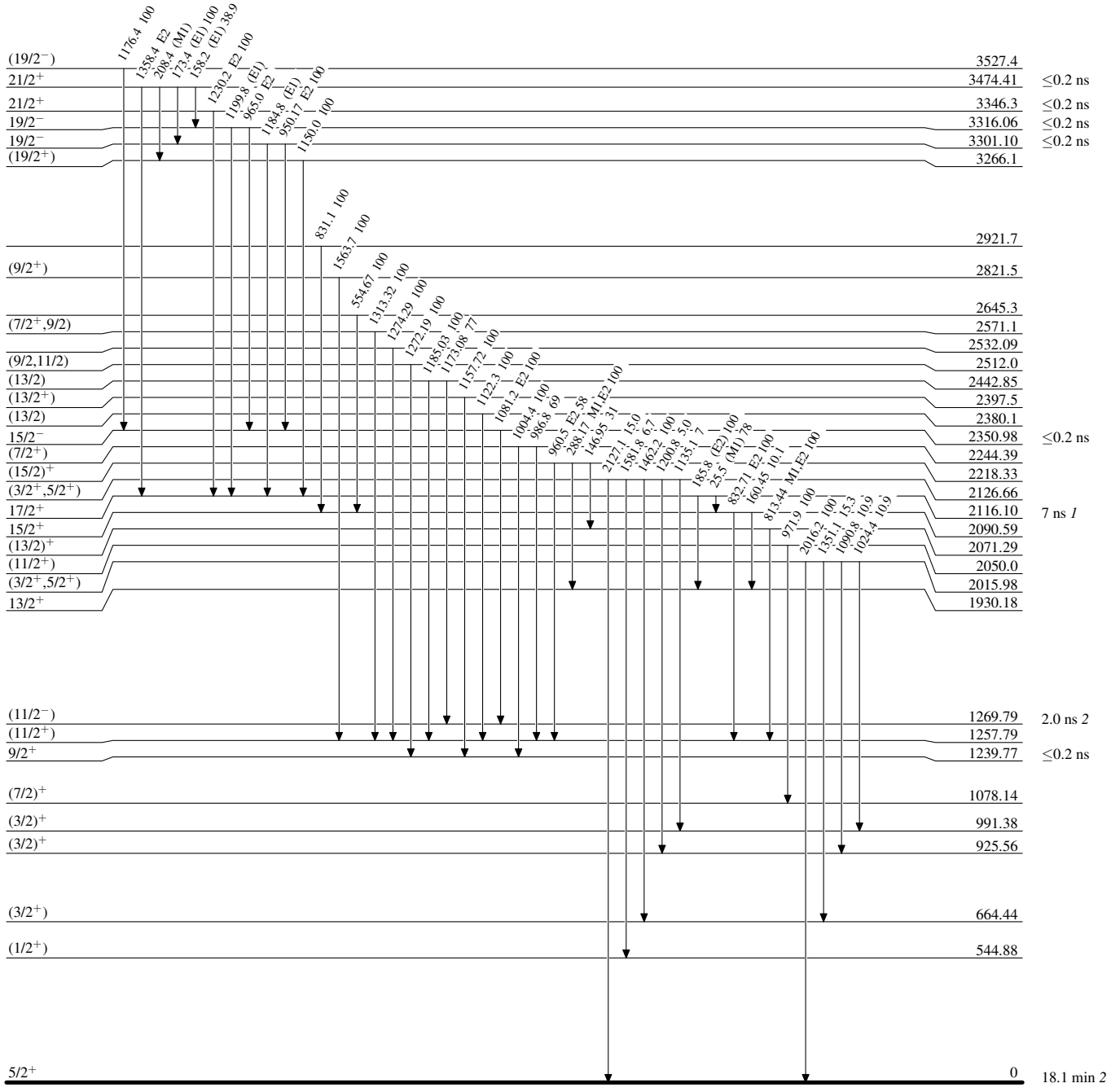


$^{109}_{50}Sn_{59}$

Adopted Levels, Gammas

Level Scheme (continued)

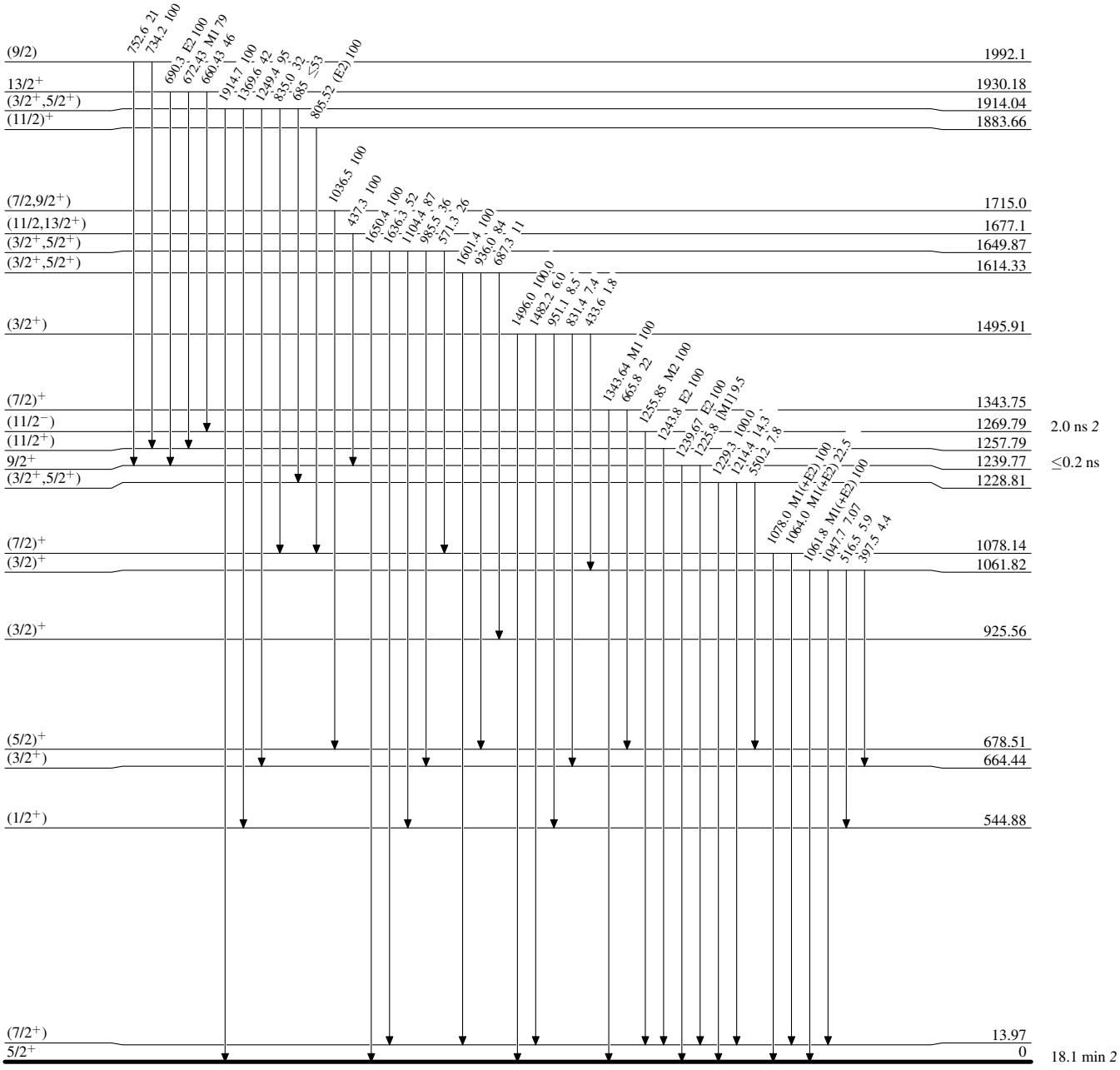
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



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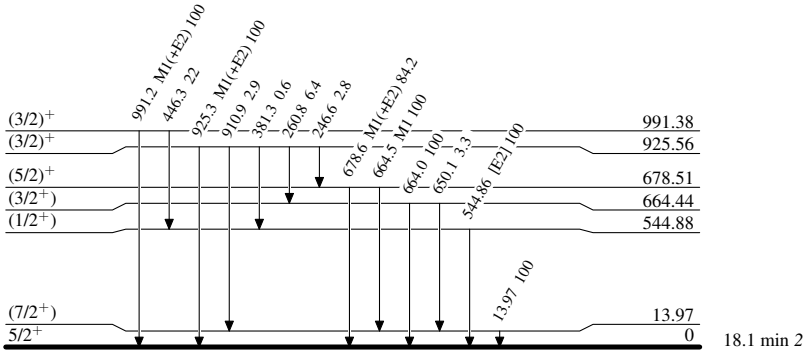
Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



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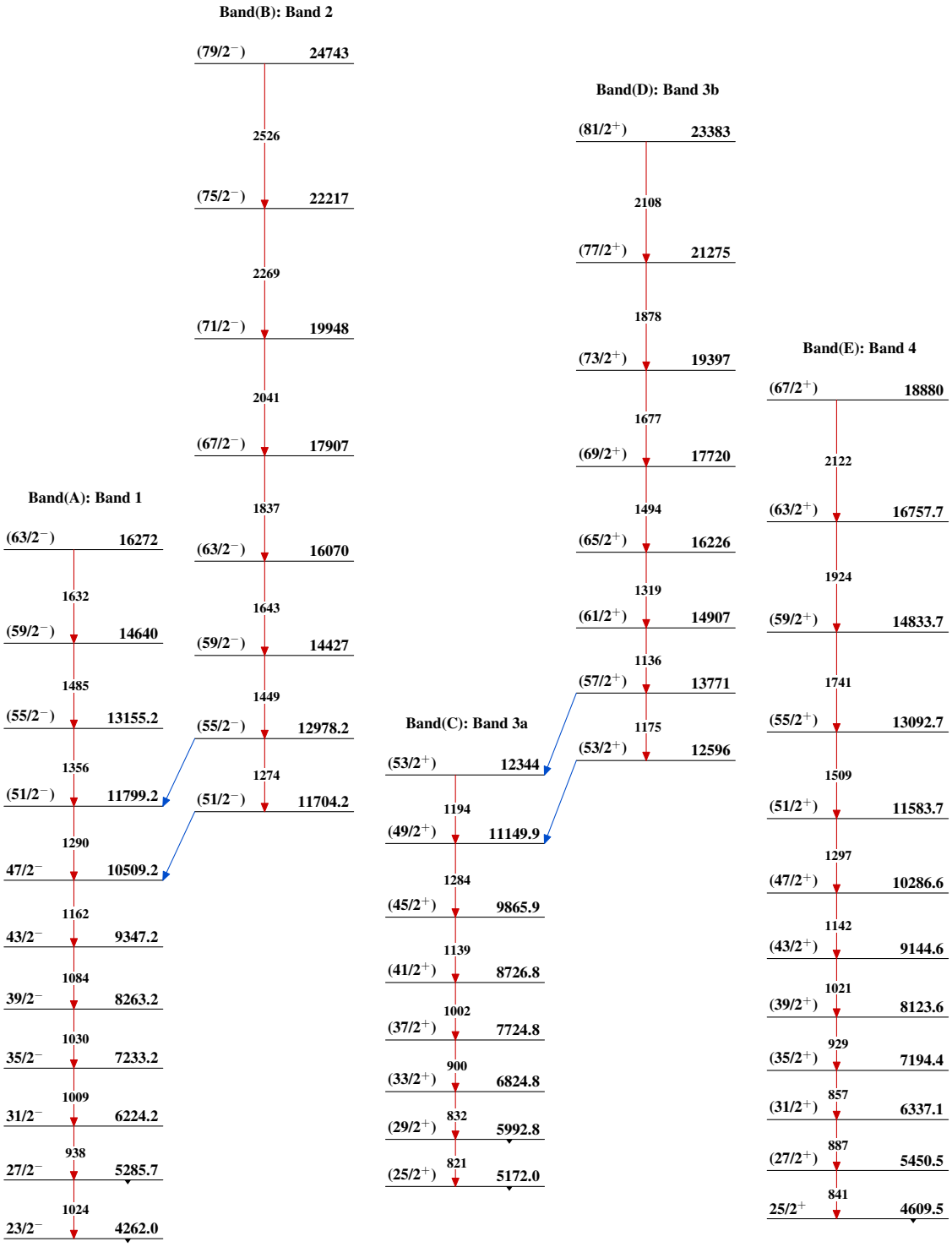
Adopted Levels, Gammas



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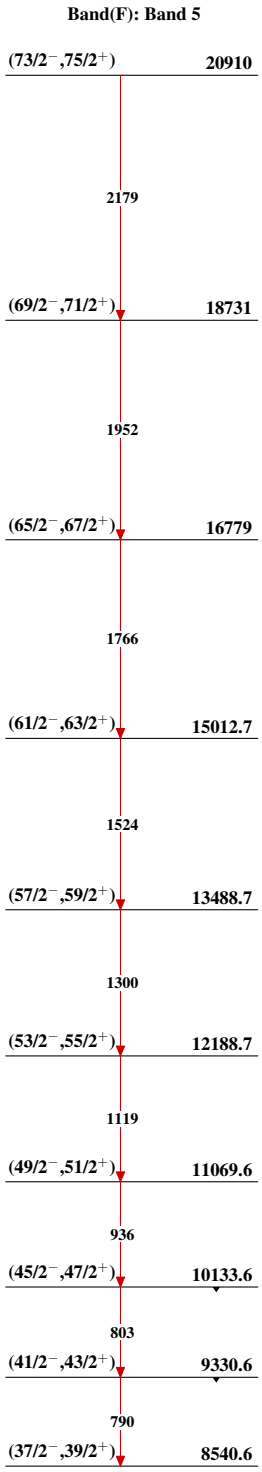
Adopted Levels, Gammas (continued)



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