

Adopted Levels, Gammas

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	D. M. Symochko, E. Browne, J. K. Tuli		NDS 110,2945 (2009)	1-Dec-2008

$Q(\beta^-) = -2293.0$ 20; $S(n) = 9549$ 9; $S(p) = 5110$ 8; $Q(\alpha) = -2363$ 8 [2012Wa38](#)

Note: Current evaluation has used the following Q record -2293 2 9549 8 5110 8 -2366 9 [2009AuZZ,2003Au03](#).

[Additional information 1](#).

Other reactions:

$^{118}\text{Sn}(\alpha, t)$: [2004Sc16](#).

$^{118}\text{Sn}(^{16}\text{O}, ^{15}\text{N})$: [1995Sa64](#).

 ^{119}Sb Levels**Cross Reference (XREF) Flags**

A	^{119}Te ε decay (16.05 h)	F	$^{118}\text{Sn}(^7\text{Li}, ^6\text{He})$	K	$^{119}\text{Sn}(d, 2n\gamma)$
B	^{119}Te ε decay (4.70 d)	G	$^{119}\text{Sn}(p, n)$	L	$^{121}\text{Sb}(p, t)$
C	(HI, xn γ)	H	$^{119}\text{Sn}(p, n\gamma)$	M	$^{176}\text{Yb}(^{31}\text{P}, X\gamma)$
D	$^{116}\text{Sn}(\alpha, p)$	I	$^{118}\text{Sn}(p, p), (p, p'), (p, n)$ IAS		
E	$^{118}\text{Sn}(^3\text{He}, d)$	J	$^{119}\text{Sn}(^3\text{He}, t)$		

E(level) [†]	J π [#]	T _{1/2} ^b	XREF	Comments
0	5/2 ⁺	38.19 h 22	A B C D E F G H I J K L M	% ε =100 $\mu = +3.45$ I; $Q = -0.37$ 6 μ, Q : atomic-beam magnetic resonance. Q includes Sternheimer correction (2005St24). T _{1/2} : weighted av of 38.0 h I (1957OI05), 39 h I (1947Co04), and 38.5 h 3 (1967Ha27 , $\beta(t)$). All data are from ^{119}Sb ε decay. J^π : J=5/2 from atomic beam (1976Fu06), L($^3\text{He}, d$)=2. T _{1/2} : from $\gamma\gamma(t)$ in ^{119}Te ε decay (4.7 d). J^π : L($^3\text{He}, d$)=4, M1+E2 γ to 5/2 ⁺ . XREF: f(660). E(level): doublet at 660 keV in ($^7\text{Li}, ^6\text{He}$). T _{1/2} : from >350 fs from DSA in (p, n γ) and <10 ps from $\gamma X(t)$ in 16.0-h ^{119}Te ε decay. J^π : L($^3\text{He}, d$)=0, L($^7\text{Li}, ^6\text{He}$)=0+2 for a doublet at 660 keV. XREF: f(660). J^π : L($^3\text{He}, d$)=2, L($^7\text{Li}, ^6\text{He}$)=0+2 for a doublet at 660 keV. J^π : M1+E2 γ to 7/2 ⁺ , $\gamma(\theta)$ in (HI, xn γ).
270.52 4	7/2 ⁺	35 ps 10	A B C D E F G H I J K L M	J^π : L($^3\text{He}, d$)=4, M1+E2 γ to 5/2 ⁺ . XREF: f(660). E(level): doublet at 660 keV in ($^7\text{Li}, ^6\text{He}$). T _{1/2} : from >350 fs from DSA in (p, n γ) and <10 ps from $\gamma X(t)$ in 16.0-h ^{119}Te ε decay. J^π : L($^3\text{He}, d$)=0, L($^7\text{Li}, ^6\text{He}$)=0+2 for a doublet at 660 keV. XREF: f(660). J^π : L($^3\text{He}, d$)=2, L($^7\text{Li}, ^6\text{He}$)=0+2 for a doublet at 660 keV. J^π : M1+E2 γ to 7/2 ⁺ , $\gamma(\theta)$ in (HI, xn γ).
644.03 4	1/2 ⁺	5.2 ps 48	A B C D E F G H I J K L M	XREF: f(660). E(level): doublet at 660 keV in ($^7\text{Li}, ^6\text{He}$). T _{1/2} : from >350 fs from DSA in (p, n γ) and <10 ps from $\gamma X(t)$ in 16.0-h ^{119}Te ε decay. J^π : L($^3\text{He}, d$)=0, L($^7\text{Li}, ^6\text{He}$)=0+2 for a doublet at 660 keV. XREF: f(660). J^π : L($^3\text{He}, d$)=2, L($^7\text{Li}, ^6\text{He}$)=0+2 for a doublet at 660 keV. J^π : M1+E2 γ to 7/2 ⁺ , $\gamma(\theta)$ in (HI, xn γ).
699.88 5	3/2 ⁺ , 5/2 ⁺	>300 fs	A B C D E F G H I J K L M	XREF: f(660). E(level): doublet at 660 keV in ($^7\text{Li}, ^6\text{He}$). T _{1/2} : from >350 fs from DSA in (p, n γ) and <10 ps from $\gamma X(t)$ in 16.0-h ^{119}Te ε decay. J^π : L($^3\text{He}, d$)=0, L($^7\text{Li}, ^6\text{He}$)=0+2 for a doublet at 660 keV. XREF: f(660). J^π : L($^3\text{He}, d$)=2, L($^7\text{Li}, ^6\text{He}$)=0+2 for a doublet at 660 keV. J^π : M1+E2 γ to 7/2 ⁺ , $\gamma(\theta)$ in (HI, xn γ).
970.90 ^c 5	9/2 ⁺	>300 fs	B C D E F G H I J K L M	J^π : M1+E2 γ to 7/2 ⁺ , E2 γ to 5/2 ⁺ . XREF: g(1240). T _{1/2} : from >350 fs from DSA in (p, n γ) and <10 ps from $\gamma\gamma(t)$ in 4.7-d ^{119}Te ε decay. J^π : M1+E2 γ to 7/2 ⁺ , E2 γ to 5/2 ⁺ . XREF: g(1240). E(level): doublet in (p, n). Probably includes 1212.7 level. J^π : M1(+E2) γ to 7/2 ⁺ , $\gamma\gamma(\theta)$ excludes J=5/2 and 7/2.
1048.42 5	7/2 ⁺	>300 fs	B C D E F G H I J K L M	XREF: g(1240). T _{1/2} : from >350 fs from DSA in (p, n γ) and <10 ps from $\gamma\gamma(t)$ in 4.7-d ^{119}Te ε decay. J^π : M1+E2 γ to 7/2 ⁺ , E2 γ to 5/2 ⁺ . XREF: g(1240). E(level): doublet in (p, n). Probably includes 1212.7 level. J^π : M1(+E2) γ to 7/2 ⁺ , $\gamma\gamma(\theta)$ excludes J=5/2 and 7/2.
1212.74 4	9/2 ⁺	5.2 ps 48	B C D E F G H I J K L M	XREF: g(1240). T _{1/2} : from >350 fs from DSA in (p, n γ) and <10 ps from $\gamma\gamma(t)$ in 4.7-d ^{119}Te ε decay. J^π : M1+E2 γ to 7/2 ⁺ , E2 γ to 5/2 ⁺ . XREF: g(1240). E(level): doublet in (p, n). Probably includes 1212.7 level. J^π : M1(+E2) γ to 7/2 ⁺ , $\gamma\gamma(\theta)$ excludes J=5/2 and 7/2.
1249.74 5	9/2 ⁺		B C D E F G H I J K L M	XREF: g(1240). T _{1/2} : from >350 fs from DSA in (p, n γ) and <10 ps from $\gamma\gamma(t)$ in 4.7-d ^{119}Te ε decay. J^π : M1+E2 γ to 7/2 ⁺ , E2 γ to 5/2 ⁺ . XREF: g(1240). E(level): doublet in (p, n). Probably includes 1212.7 level. J^π : M1(+E2) γ to 7/2 ⁺ , $\gamma\gamma(\theta)$ excludes J=5/2 and 7/2.
1327.25 11	(1/2 ⁻) [@]	>76 fs	A B C D E F G H I J K L M	XREF: G(1337). J^π : (p, n) determines $J^\pi = 1/2^-$, but this is inconsistent with existence of γ to 5/2 ⁺ . J^π : L($^3\text{He}, d$)=2, log $ft = 7.7$ from 1/2 ⁺ . J^π : M1+E2 γ to 9/2 ⁺ , an expected band structure. XREF: F(1350).
1338.61 9	3/2 ⁺	0.07 ps +6-3	A B C D E F G H I J K L M	J^π : L($^3\text{He}, d$)=2, log $ft = 7.7$ from 1/2 ⁺ . J^π : M1+E2 γ to 9/2 ⁺ , an expected band structure. XREF: F(1350).
1340.75 ^c 17	11/2 ⁺		B C D E F G H I J K L M	J^π : M1+E2 γ to 9/2 ⁺ , an expected band structure. XREF: F(1350).
1366.34 4	11/2 ⁻	112 ps 15	B C D E F G H I J K L M	XREF: F(1350).

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Adopted Levels, Gammas (continued)

^{119}Sb Levels (continued)				
E(level) [†]	J ^π #	T _{1/2} ^b	XREF	Comments
				T _{1/2} : from $\gamma\text{X}(\text{t})$ in 4.7-d ^{119}Te ε decay. J ^π : L($^3\text{He},\text{d}$)=5, J=9/2 is excluded by $\gamma\gamma(\theta)$ in (HI,xn γ). J ^π : stretched E2 γ to 7/2 ⁺ , M1+E2 γ from 13/2 ⁺ .
1407.35 8	11/2 ⁺		BC	
1413.21 7	3/2 ⁻ @	0.12 ps +10-5	A E GH L	
1450 [‡] 8			D	
1469 3	3/2 ⁺ ,5/2 ⁺		E L	J ^π : L($^3\text{He},\text{d}$)=2.
1482 10	1/2 ⁻ @		G	
1487.61 6	(3/2 ⁺)	>215 fs	A H	J ^π : γ 's to 1/2 ⁺ and 7/2 ⁺ ; log ft=7.3 from 1/2 ⁺ ; $\sigma(\theta)$ in (p,n).
1547 10			G	J ^π : 5/2 ⁻ or $\geq 7/2$ from $\sigma(\theta)$ and yield ratios for on/off resonance in (p,n).
1646.5 10	1/2 ⁺ @	>450 fs	E GH L	E(level): from (p,n γ).
1660 [‡] 8	(7/2 ⁺)		D	J ^π : $\sigma(\theta)$ in (α ,p) suggest J ^π =7/2 ⁺ and Ne 1/2 ⁺ .
1665 10	(3/2 ⁺ ,5/2 ⁺)		E G	XREF: G(1680).
				J ^π : L($^3\text{He},\text{d}$)=2.
1675.72 ^c 16	13/2 ⁺		C K M	J ^π : M1+E2 γ to 11/2 ⁺ , member of $\Delta J=1$ band built on 970 level.
1730 30			J	
1749.64 6	3/2 ⁺ @	23 fs +11-7	A DE GH L	
1821.14 8	1/2 ⁺	55 fs 22	A DE GH L	J ^π : L($^3\text{He},\text{d}$)=0.
1848.2 10		>130 fs	H	
1875.32 20	(1/2 ⁺ ,3/2)	0.08 ps +21-4	A GH	XREF: G(1880).
				E(level): doublet in (p,n).
				J ^π : γ to 5/2 ⁺ , log ft=7.8 from 1/2 ⁺ ; log f ^{1u} t=7.6 rules out 5/2 ⁻ .
1970 10	7/2 ⁺ ,9/2 ⁺		DE G	XREF: D(1972).
				J ^π : L($^3\text{He},\text{d}$)=4.
				E(level): from (p,n).
1982.0 10		0.11 ps +28-7	H	
2037.61 ^c 19	15/2 ⁺		C K M	
2043 3			L	
2067 10			E L	
2094.38 15			C L	
2100 3			L	
2114 10	1/2 ⁺ ,3/2 ⁺ ,5/2 ⁺		DE	XREF: D(2121).
				J ^π : L($^3\text{He},\text{d}$)=0+2.
2129.82 10	9/2 ⁻		B	J ^π : E1 γ to 7/2 ⁺ , log ft=7.0 from 11/2 ⁻ .
2130 10			G	J ^π : doublet with J=1/2 and ($\geq 1/2$) in (p,n).
2138.38 ^d 13	13/2 ⁺		C	J ^π : stretched E2 γ 's cascades to 5/2 ⁺ .
2159 3			L	
2187 10			E L	
2202.35 13	13/2 ⁺		C	J ^π : stretched E2 γ to 9/2 ⁺ , γ to 11/2 ⁺ .
2223 [‡] 8			DE G	
2226.06 6	11/2 ⁻		B L	XREF: L(2231).
				J ^π : M1(+E2) γ to 11/2 ⁻ , E1 γ to 9/2 ⁺ ; $\gamma\gamma(\theta)$ excludes 9/2.
2258 3			L	
2269.1 10	1/2 ⁺ ,3/2 ⁺ ,5/2 ⁺	<14 fs	E H	J ^π : L($^3\text{He},\text{d}$)=0+2.
				E(level): from (p,n γ).
2278.93 6	13/2 ⁻		BC L	J ^π : M1+E2 γ to 11/2 ⁻ ; $\gamma\gamma(\theta)$ excludes 9/2, 11/2.
2283.7 4	9/2 ⁻		B	J ^π : E1 γ to 7/2 ⁺ , log ft=7.4 from 11/2 ⁻ .
2298 8			D L	

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Adopted Levels, Gammas (continued)

^{119}Sb Levels (continued)					
E(level) [†]	J ^π #	T _{1/2} ^b	XREF		Comments
2314.02 24	(15/2) ⁻		C	K M	J ^π : stretched E2 γ to 11/2 ⁻ , (M1+E2) γ from 17/2 ⁻ .
2320 30				J	
2327 3				L	
2355 3			e	L	XREF: e(2355).
2360.20 9	9/2 ⁻		B e		XREF: e(2355).
2379.60 20	(9/2,13/2)		B E	L	J ^π : E1 γ to 7/2 ⁺ , log ft=5.9 from 11/2 ⁻ . J ^π : γ's to 11/2 ⁻ and 11/2 ⁺ ; log ft=6.5 from 11/2 ⁻ ; γγ(θ) excludes 11/2.
2384 8			D		
2415.53 20	1/2 ⁺	0.12 ps +28-6	E H	L	J ^π : L=0 in (³ He,d). E(level): from (p,nγ).
2419.34 ^c 20	17/2 ⁺		C	K M	J ^π : M1+E2 γ to 15/2 ⁺ , γ to 13/2 ⁺ .
2455 10			E		
2475.44 13	15/2 ⁻		C		J ^π : E2 γ to 11/2 ⁻ .
2505.24 ^e 21	15/2 ⁻		C		J ^π : stretched E2 γ to 11/2 ⁻ .
2508 [‡] 8			DE		
2539 10			E		
2553.6 3	(19/2 ⁻)	130 ns 3	C	K M	μ=+3.14 6; Q=2.13 22 T _{1/2} : weighted av of 128 ns 4 from γ(t) in (d,2nγ) and 134 ns 6 γ(t) in (HI,xnγ). μ,Q: TDPAD (1991Io02). J ^π : (E2) γ to (15/2 ⁻), (E1) γ to 17/2 ⁺ ; no γ's to level with J ^π <15/2 ⁺ , γ(θ) in (HI,xnγ).
2561 10			E		
2624 [‡] 8			DE		
2707.74 24	17/2 ⁻		C		
2708 10	1/2 ⁺ ,3/2 ⁺ ,5/2 ⁺		E		J ^π : L(³ He,d)=0+2.
2747.68 25			C		
2749 [‡] 8			DE		
2769.08 ^d 24	(17/2 ⁺)		C		
2841.7 4	(21/2 ⁻)		C		
2841.7+x	(27/2 ⁺)	0.85 s 9	C	M	%IT=100 Additional information 2. T _{1/2} : from γ(t) in (HI,xnγ). J ^π : tentative assignment from syst of lifetime and isomerism in odd Sb nuclei.
2848.99 ^c 22	19/2 ⁺		C		
2862 10			E		
2885 10			E		
2980 10			E		
3002.5 ^e 3	19/2 ⁻		C		
3035 10			E		
3062 10			E		
3064.89 25	17/2 ⁻		C		
3068.70 ^f 22	17/2 ⁻		C		
3280 30				J	
3295.85 ^f 20	19/2 ⁻		C		
3310.37 ^c 24	21/2 ⁺		C		
3440 30				J	
3505.5 ^d 3	(21/2 ⁺)		C		
3581.9 ^f 3	21/2 ⁻		C		
3608.4 ^e 4	23/2 ⁻		C		
3620 30				J	

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Adopted Levels, Gammas (continued) ^{119}Sb Levels (continued)

E(level) [†]	J ^π #	XREF	Comments
3630 & 20		J	Γ=1.2 MeV 3.
3778 15		D	
3784.6 ^c 3	23/2 ⁺	C	
3830 15		D	
3939.6 ^f 3	23/2 ⁻	C	
3990 ^a 30		J	
4020 15	(23/2 ⁺ , 25/2 ⁺)	D	J ^π : L(α,p)=12,14; equally good fit for L=11.
4120 15	(19/2 ⁺ , 21/2 ⁺)	D	J ^π : L(α,p)=10; equally good fit for L=9.
4200 ^a 30		J	
4210 15	(19/2 ⁺ , 21/2 ⁺)	D	J ^π : L(α,p)=10; equally good fit for L=9.
4211.5 4	25/2 ⁺	C	
4274.3 ^c 3	25/2 ⁺	C	
4298.1 4	27/2 ⁻	C	
4342.0 ^d 4	(25/2 ⁺)	C	
4346.5 ^f 3	25/2 ⁻	C	
4352.6 ^e 4	27/2 ⁻	C	
4444.7 5	29/2 ⁻	C	
4490 ^a 30		J	
4542.6 4	(27/2 ⁺)	C	
4776.1 ^f 3	27/2 ⁻	C	
4785.2 ^c 4	(27/2 ⁺)	C	
4940.3 5	(29/2 ⁺)	C	
5190.5 ^e 5	(31/2 ⁻)	C	
5232.1 ^f 3	(29/2 ⁻)	C	
5243.5 ^d 5	(29/2 ⁺)	C	
5354.0 5	(31/2 ⁺)	C	
5490 & 20		J	Γ=2.1 MeV 3.
5712.0 ^f 4	(31/2 ⁻)	C	
6113.9 ^e 5	(35/2 ⁻)	C	
6880 ^a 30		J	
7200 ^a 30		J	
8090 & 25		J	Γ=2.9 MeV 3.
12368 12	1/2 ⁺	IJ	IAS of the 1/2 ⁺ g.s. in ^{119}Sn . Γ≈50 keV, Γ(p)/Γ=0.320 15.
12386 17	3/2 ⁺	I	IAS of the 23.9-keV 3/2 ⁺ level in ^{119}Sn . Γ=32 keV, Γ(p)=6 keV.
13170	7/2 ⁺	I	IAS of the 787-keV 7/2 ⁺ level in ^{119}Sn .
13300	3/2 ⁺	I	IAS of the 920-keV 3/2 ⁺ level in ^{119}Sn .
13433 12	5/2 ⁺	I	IAS of the 1089-keV 5/2 ⁺ level in ^{119}Sn . Γ=40 keV, Γ(p)=3 keV.
13708? 17	5/2 ⁺	I	IAS of the 1355-keV 5/2 ⁺ level in ^{119}Sn . Γ≈40 keV, Γ(p)≈1.7 keV.
13710 & 25		J	Γ=5.7 MeV 3.
14290?		I	Γ≈70 keV, Γ(p)≈4 keV.

[†] E(levels) from a least-squares fit by the evaluators to the adopted γ-ray energies, except where cross references clearly indicate other sources.

[‡] From (α,p).

The bases for the assignments of high spin (≥13/2) levels from (HI,xnγ) are A₂, A₄, and DCO ratios of γ and level systematics

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Adopted Levels, Gammas (continued)

 ^{119}Sb Levels (continued)

from (HI,xn γ), except as noted.

@ From $\sigma(\theta)$ and yield ratios for on/off resonance in (p,n).

& Gamow-Teller resonance state.

^a Doorway state with $\Delta L=1$ in ^{119}Sb .

^b From DSA in (p,n γ) ([1975Du05](#)), except as noted.

^c Band(A): $\Delta J=1$ band built on 971-keV $9/2^+$ level.

^d Band(B): $\Delta J=2$ band built on 2138-keV $13/2^+$ level.

^e Band(C): $\Delta J=2$ band built on 2505-keV $15/2^-$ level.

^f Band(D): $\Delta J=1$ band built on 3068-keV $17/2^-$ level.

Adopted Levels, Gammas (continued)

$\gamma(^{119}\text{Sb})$									
$E_i(\text{level})$	J_i^π	$E_\gamma^{\ddagger}$	I_γ	E_f	J_f^π	Mult.#	$\delta^@$	$\alpha^\dagger$	Comments
270.52	7/2 ⁺	270.53 4	100	0	5/2 ⁺	M1+E2	-0.118 16	0.0410	B(M1)(W.u.)=0.030 9; B(E2)(W.u.)=4.2 17 $\alpha(\text{K})=0.0355$ 5; $\alpha(\text{L})=0.00447$ 7; $\alpha(\text{M})=0.000885$ 13; $\alpha(\text{N}+..)=0.000188$ 3 $\alpha(\text{N})=0.0001707$ 25; $\alpha(\text{O})=1.687\times 10^{-5}$ 24 Mult.: from $\alpha(\text{K})$ exp and subshell ratio in ¹¹⁹ Te ε decay (4.70 d and 16.0 h). δ : from the compilation by 1980Kr22. Other: -0.04 4 (1979Sh03).
644.03	1/2 ⁺	644.01 & 4	100	0	5/2 ⁺	[E2]		0.00391 6	$\alpha(\text{K})=0.00336$ 5; $\alpha(\text{L})=0.000442$ 7; $\alpha(\text{M})=8.75\times 10^{-5}$ 13; $\alpha(\text{N}+..)=1.84\times 10^{-5}$ 3 $\alpha(\text{N})=1.675\times 10^{-5}$ 24; $\alpha(\text{O})=1.606\times 10^{-6}$ 23 B(E2)(W.u.)=3.E+1 3
699.88	3/2 ⁺ ,5/2 ⁺	429.50 & 10	0.83 25	270.52	7/2 ⁺	E2		0.01207	B(E2)(W.u.)<31 $\alpha(\text{K})=0.01026$ 15; $\alpha(\text{L})=0.001460$ 21; $\alpha(\text{M})=0.000291$ 4; $\alpha(\text{N}+..)=6.04\times 10^{-5}$ 9 $\alpha(\text{N})=5.53\times 10^{-5}$ 8; $\alpha(\text{O})=5.13\times 10^{-6}$ 8
		699.85 & 6	100 5	0	5/2 ⁺	M1,E2		0.0035 4	B(M1)(W.u.)<0.21 $\alpha(\text{K})=0.0030$ 4; $\alpha(\text{L})=0.00038$ 3; $\alpha(\text{M})=7.5\times 10^{-5}$ 6; $\alpha(\text{N}+..)=1.59\times 10^{-5}$ 12 $\alpha(\text{N})=1.45\times 10^{-5}$ 11; $\alpha(\text{O})=1.42\times 10^{-6}$ 13
970.90	9/2 ⁺	700.33 8	100 11	270.52	7/2 ⁺	M1+E2	-0.09 7	0.00384 6	$\alpha(\text{K})=0.00334$ 5; $\alpha(\text{L})=0.000406$ 6; $\alpha(\text{M})=8.00\times 10^{-5}$ 12; $\alpha(\text{N}+..)=1.700\times 10^{-5}$ 25 $\alpha(\text{N})=1.546\times 10^{-5}$ 22; $\alpha(\text{O})=1.541\times 10^{-6}$ 22
		970.91 15	50 7	0	5/2 ⁺	E2		0.001457 21	$\alpha(\text{K})=0.001263$ 18; $\alpha(\text{L})=0.0001572$ 22; $\alpha(\text{M})=3.10\times 10^{-5}$ 5; $\alpha(\text{N}+..)=6.55\times 10^{-6}$ $\alpha(\text{N})=5.97\times 10^{-6}$ 9; $\alpha(\text{O})=5.85\times 10^{-7}$ 9
1048.42	7/2 ⁺	777.91 19	2.1 12	270.52	7/2 ⁺	[M1]		0.00301 5	B(M1)(W.u.)<0.0032 $\alpha(\text{K})=0.00261$ 4; $\alpha(\text{L})=0.000317$ 5; $\alpha(\text{M})=6.24\times 10^{-5}$ 9; $\alpha(\text{N}+..)=1.327\times 10^{-5}$ 19 $\alpha(\text{N})=1.207\times 10^{-5}$ 17; $\alpha(\text{O})=1.204\times 10^{-6}$ 17
		1048.44 6	100.0 15	0	5/2 ⁺	M1(+E2)	≤ 0.97	0.00145 8	B(M1)(W.u.)<0.031 $\alpha(\text{K})=0.00126$ 7; $\alpha(\text{L})=0.000152$ 7; $\alpha(\text{M})=3.00\times 10^{-5}$ 14; $\alpha(\text{N}+..)=6.4\times 10^{-6}$ 3 $\alpha(\text{N})=5.8\times 10^{-6}$ 3; $\alpha(\text{O})=5.8\times 10^{-7}$ 3
1212.74	9/2 ⁺	164.34 5	1.96 8	1048.42	7/2 ⁺	M1+E2	+1.0 +11-7	0.22 6	δ : from $\alpha(\text{K})$ exp in 4.7-d ¹¹⁹ Te ε decay (1977Ya03). $\alpha(\text{K})=0.18$ 4; $\alpha(\text{L})=0.032$ 13; $\alpha(\text{M})=0.007$ 3; $\alpha(\text{N}+..)=0.0013$ 6 $\alpha(\text{N})=0.0012$ 5; $\alpha(\text{O})=0.00011$ 4 B(M1)(W.u.)=0.008 +13-8; B(E2)(W.u.)=2.3 $\times 10^2$

Adopted Levels, Gammas (continued)

$\gamma(^{119}\text{Sb})$ (continued)									Comments
$E_i(\text{level})$	J_i^π	$E_\gamma^{\ddagger}$	I_γ	E_f	J_f^π	Mult. #	$\delta^@$	$\alpha^\dagger$	
1212.74	9/2 ⁺	241.78 8	0.09 2	970.90	9/2 ⁺	M1(+E2)		0.065 11	+34-23 δ : from the compilation by 1980Kr22. B(M1)(W.u.)=0.00012 12; B(E2)(W.u.)=1.5 15 $\alpha(K)$ =0.055 8; $\alpha(L)$ =0.0083 24; $\alpha(M)$ =0.0017 5; $\alpha(N+..)$ =0.00034 10 $\alpha(N)$ =0.00032 9; $\alpha(O)$ =2.9×10 ⁻⁵ 7
		942.21 6	7.69 9	270.52	7/2 ⁺	M1+E2	-0.72 +14-10	0.00181 5	B(M1)(W.u.)=0.00023 22; B(E2)(W.u.)=0.10 10 $\alpha(K)$ =0.00157 4; $\alpha(L)$ =0.000191 4; $\alpha(M)$ =3.77×10 ⁻⁵ 8; $\alpha(N+..)$ =8.00×10 ⁻⁶ 18 $\alpha(N)$ =7.27×10 ⁻⁶ 16; $\alpha(O)$ =7.22×10 ⁻⁷ 17
		1212.73 7	100	0	5/2 ⁺	E2		0.000911 13	δ : from the compilation by 1980Kr22. B(E2)(W.u.)=1.1 10 $\alpha(K)$ =0.000784 11; $\alpha(L)$ =9.57×10 ⁻⁵ 14; $\alpha(M)$ =1.88×10 ⁻⁵ 3; $\alpha(N+..)$ =1.244×10 ⁻⁵ 1 $\alpha(N)$ =3.63×10 ⁻⁶ 5; $\alpha(O)$ =3.59×10 ⁻⁷ 5; $\alpha(\text{IPF})$ =8.44×10 ⁻⁶ 12
1249.74	9/2 ⁺	979.29 7	100 2	270.52	7/2 ⁺	M1+E2	-0.38 +11-6	0.00173 4	$\alpha(K)$ =0.00150 3; $\alpha(L)$ =0.000182 4; $\alpha(M)$ =3.58×10 ⁻⁵ 7; $\alpha(N+..)$ =7.61×10 ⁻⁶ 14 $\alpha(N)$ =6.92×10 ⁻⁶ 12; $\alpha(O)$ =6.90×10 ⁻⁷ 13
		1249.65 17	5.8 4	0	5/2 ⁺	(E2)		0.00095 9	δ : from the compilation by 1980Kr22. $\alpha(K)$ =0.00082 8; $\alpha(L)$ =9.9×10 ⁻⁵ 9; $\alpha(M)$ =1.94×10 ⁻⁵ 18; $\alpha(N+..)$ =1.73×10 ⁻⁵ 5 $\alpha(N)$ =3.7×10 ⁻⁶ 4; $\alpha(O)$ =3.7×10 ⁻⁷ 4; $\alpha(\text{IPF})$ =1.32×10 ⁻⁵ 8
1327.25	(1/2 ⁻)	627.72 &	13	699.88	3/2 ⁺ ,5/2 ⁺	[E1]		0.001501 21	B(E1)(W.u.)<0.0016 $\alpha(K)$ =0.001307 19; $\alpha(L)$ =0.0001566 22; $\alpha(M)$ =3.08×10 ⁻⁵ 5; $\alpha(N+..)$ =6.51×10 ⁻⁶ $\alpha(N)$ =5.92×10 ⁻⁶ 9; $\alpha(O)$ =5.84×10 ⁻⁷ 9
		683.21 & 10	100 23	644.03	1/2 ⁺	[E1]		0.001249 18	B(E1)(W.u.)<0.0095 $\alpha(K)$ =0.001088 16; $\alpha(L)$ =0.0001300 19; $\alpha(M)$ =2.55×10 ⁻⁵ 4; $\alpha(N+..)$ =5.41×10 ⁻⁶ $\alpha(N)$ =4.92×10 ⁻⁶ 7; $\alpha(O)$ =4.86×10 ⁻⁷ 7
1338.61	3/2 ⁺	1327.38 &	8	0	5/2 ⁺				
		639 & c 1		699.88	3/2 ⁺ ,5/2 ⁺				
		694.5 & 3	41 15	644.03	1/2 ⁺				
1340.75	11/2 ⁺	1338.70 & 10	100 19	0	5/2 ⁺				
		369.8 b 2	100	970.90	9/2 ⁺	M1+E2	0.30 5	0.0184	$\alpha(K)$ =0.01588 23; $\alpha(L)$ =0.00200 3; $\alpha(M)$ =0.000396

Adopted Levels, Gammas (continued)

$\gamma(^{119}\text{Sb})$ (continued)									Comments
$E_i(\text{level})$	J_i^π	$E_\gamma^{\ddagger}$	I_γ	E_f	J_f^π	Mult. #	$\delta^@$	$\alpha^\dagger$	
1366.34	11/2 ⁻	116.62 6	0.68 4	1249.74	9/2 ⁺	E1		0.1223	6; $\alpha(\text{N}+..)=8.39\times 10^{-5}$ 13 $\alpha(\text{N})=7.63\times 10^{-5}$ 12; $\alpha(\text{O})=7.52\times 10^{-6}$ 11 B(E1)(W.u.)= 9.6×10^{-6} 15 $\alpha(\text{K})=0.1057$ 15; $\alpha(\text{L})=0.01341$ 19; $\alpha(\text{M})=0.00263$ 4; $\alpha(\text{N}+..)=0.000547$ 8 $\alpha(\text{N})=0.000500$ 7; $\alpha(\text{O})=4.68\times 10^{-5}$ 7 B(E1)(W.u.)=0.00062 9 $\alpha(\text{K})=0.0487$ 7; $\alpha(\text{L})=0.00610$ 9; $\alpha(\text{M})=0.001197$ 17; $\alpha(\text{N}+..)=0.000250$ 4 $\alpha(\text{N})=0.000228$ 4; $\alpha(\text{O})=2.16\times 10^{-5}$ 3 B(E1)(W.u.)= 1.8×10^{-7} 3 $\alpha(\text{K})=0.00386$ 6; $\alpha(\text{L})=0.000469$ 7; $\alpha(\text{M})=9.21\times 10^{-5}$ 13; $\alpha(\text{N}+..)=1.94\times 10^{-5}$ 3 $\alpha(\text{N})=1.770\times 10^{-5}$ 25; $\alpha(\text{O})=1.729\times 10^{-6}$ 25 B(M2)(W.u.)=0.22 3; B(E3)(W.u.)=3 +4-3 $\alpha(\text{K})=0.00282$ 5; $\alpha(\text{L})=0.000353$ 6; $\alpha(\text{M})=6.98\times 10^{-5}$ 11; $\alpha(\text{N}+..)=1.483\times 10^{-5}$ 23 $\alpha(\text{N})=1.349\times 10^{-5}$ 21; $\alpha(\text{O})=1.342\times 10^{-6}$ 21 δ : from $\gamma\gamma(t)$ and $\alpha(\text{K})\text{exp}$ in 4.7-d ^{119}Te ε decay. B(E3)(W.u.)=21 3 $\alpha(\text{K})=0.001163$ 17; $\alpha(\text{L})=0.0001484$ 21; $\alpha(\text{M})=2.94\times 10^{-5}$ 5; $\alpha(\text{N}+..)=1.92\times 10^{-5}$ $\alpha(\text{N})=5.65\times 10^{-6}$ 8; $\alpha(\text{O})=5.53\times 10^{-7}$ 8; $\alpha(\text{IPF})=1.296\times 10^{-5}$ 19 E_γ : not reported in ^{119}Te ε decay (4.7 d). E_γ : not reported in ^{119}Te ε decay (4.7 d). $\alpha(\text{K})=0.000898$ 13; $\alpha(\text{L})=0.0001101$ 16; $\alpha(\text{M})=2.17\times 10^{-5}$ 3; $\alpha(\text{N}+..)=6.15\times 10^{-6}$ $\alpha(\text{N})=4.18\times 10^{-6}$ 6; $\alpha(\text{O})=4.12\times 10^{-7}$ 6; $\alpha(\text{IPF})=1.553\times 10^{-6}$ 22 I_γ : from (HL,xny).
		153.59 3	100 4	1212.74	9/2 ⁺	E1		0.0563	
		395.42 6	0.50 4	970.90	9/2 ⁺	E1		0.00444 7	
		1095.75 10	3.38 4	270.52	7/2 ⁺	M2(+E3)	+0.12 8	0.00326 6	
		1366.39 14	1.61 3	0	5/2 ⁺	E3		0.001360 19	
1407.35	11/2 ⁺	40.8 ^b 2	<18	1366.34	11/2 ⁻	E2		0.001036 15	
		157.4 ^b 2	<18	1249.74	9/2 ⁺				
		1136.75 7	100 9	270.52	7/2 ⁺				
1413.21	3/2 ⁻	713.2 ^{&} 2	5.4 15	699.88	3/2 ⁺ ,5/2 ⁺	[M1,E2]		0.30 10	
		769.30 ^{&} 15	10.0 23	644.03	1/2 ⁺				
		1413.19 ^{&} 8	100 8	0	5/2 ⁺				
1487.61	(3/2 ⁺)	149.36 ^{&} 20	10	1338.61	3/2 ⁺	[M1,E2]		0.30 10	$\alpha(\text{K})=0.24$ 7; $\alpha(\text{L})=0.046$ 24; $\alpha(\text{M})=0.009$ 5; $\alpha(\text{N}+..)=0.0019$ 10 $\alpha(\text{N})=0.0017$ 9; $\alpha(\text{O})=0.00015$ 7
		787.76 ^{&} 10	91 14	699.88	3/2 ⁺ ,5/2 ⁺				

Adopted Levels, Gammas (continued)

$\gamma(^{119}\text{Sb})$ (continued)									
$E_i(\text{level})$	J_i^π	E_γ ‡	I_γ	E_f	J_f^π	Mult. #	$\delta^@$	$\alpha^\dagger$	Comments
1487.61	(3/2 ⁺)	843.57 $^\&$ 8	100 14	644.03	1/2 ⁺				
		1216.87 $^\&$ 20	0.14	270.52	7/2 ⁺				
		1487.36 $^\&$ 20	0.29	0	5/2 ⁺				
1646.5	1/2 ⁺	1646.5 a	100	0	5/2 ⁺				
1675.72	13/2 ⁺	334.9 b 2	100.0 12	1340.75	11/2 ⁺	M1+E2	0.20 4	0.0236	$\alpha(\text{K})=0.0205$ 3; $\alpha(\text{L})=0.00257$ 4; $\alpha(\text{M})=0.000508$ 8; $\alpha(\text{N}+..)=0.0001077$ 16 $\alpha(\text{N})=9.81\times 10^{-5}$ 15; $\alpha(\text{O})=9.68\times 10^{-6}$ 14
		704.9 b 2	18.1 12	970.90	9/2 ⁺	E2		0.00311 5	$\alpha(\text{K})=0.00268$ 4; $\alpha(\text{L})=0.000347$ 5; $\alpha(\text{M})=6.86\times 10^{-5}$ 10; $\alpha(\text{N}+..)=1.442\times 10^{-5}$ 21 $\alpha(\text{N})=1.316\times 10^{-5}$ 19; $\alpha(\text{O})=1.268\times 10^{-6}$ 18 δ : -0.12 14 from $\gamma(\theta)$ in (HI,xn γ).
1749.64	3/2 ⁺	1050 $^\&c$ 1		699.88	3/2 ⁺ , 5/2 ⁺				
		1105.57 $^\&$ 8	14 2	644.03	1/2 ⁺				
		1479.5 $^\&$ 4	0.9 4	270.52	7/2 ⁺	[E2]		0.000678 10	$\alpha(\text{K})=0.000526$ 8; $\alpha(\text{L})=6.33\times 10^{-5}$ 9; $\alpha(\text{M})=1.245\times 10^{-5}$ 18; $\alpha(\text{N}+..)=7.62\times 10^{-5}$ 11 $\alpha(\text{N})=2.40\times 10^{-6}$ 4; $\alpha(\text{O})=2.38\times 10^{-7}$ 4; $\alpha(\text{IPF})=7.35\times 10^{-5}$ 11 B(E2)(W.u.)=0.8 +5-6
		1749.65 $^\&$ 8	100 6	0	5/2 ⁺	M1,E2		0.00065 3	$\alpha(\text{K})=0.00041$ 3; $\alpha(\text{L})=4.9\times 10^{-5}$ 4; $\alpha(\text{M})=9.6\times 10^{-6}$ 7; $\alpha(\text{N}+..)=0.000180$ 5 $\alpha(\text{N})=1.85\times 10^{-6}$ 13; $\alpha(\text{O})=1.85\times 10^{-7}$ 14; $\alpha(\text{IPF})=0.000178$ 5
1821.14	1/2 ⁺	1121.30 $^\&$ 10	28 6	699.88	3/2 ⁺ , 5/2 ⁺				
		1177.04 $^\&$ 10	100 12	644.03	1/2 ⁺				
		1821.31 $^\&$ 30	4.7 24	0	5/2 ⁺	[E2]		0.000621 9	B(E2)(W.u.)=0.5 4 $\alpha(\text{K})=0.000354$ 5; $\alpha(\text{L})=4.21\times 10^{-5}$ 6; $\alpha(\text{M})=8.27\times 10^{-6}$ 12; $\alpha(\text{N}+..)=0.000217$ 3 $\alpha(\text{N})=1.597\times 10^{-6}$ 23; $\alpha(\text{O})=1.591\times 10^{-7}$ 23; $\alpha(\text{IPF})=0.000215$ 3
1848.2		1848.2 a	100	0	5/2 ⁺				
1875.32	(1/2 ⁺ , 3/2)	1875.30 20	100	0	5/2 ⁺				
1982.0		1982.0 a	100	0	5/2 ⁺				
2037.61	15/2 ⁺	361.8 b 2	100.0 15	1675.72	13/2 ⁺	M1+E2	0.19 8	0.0194	$\alpha(\text{K})=0.01678$ 24; $\alpha(\text{L})=0.00210$ 4; $\alpha(\text{M})=0.000415$ 7; $\alpha(\text{N}+..)=8.80\times 10^{-5}$ 14 $\alpha(\text{N})=8.00\times 10^{-5}$ 13; $\alpha(\text{O})=7.92\times 10^{-6}$ 12
		696.9 b 2	21.7 15	1340.75	11/2 ⁺	E2		0.00320 5	$\alpha(\text{K})=0.00275$ 4; $\alpha(\text{L})=0.000357$ 5; $\alpha(\text{M})=7.07\times 10^{-5}$ 10; $\alpha(\text{N}+..)=1.486\times 10^{-5}$ 21

Adopted Levels, Gammas (continued)

$\gamma(^{119}\text{Sb})$ (continued)									
$E_i(\text{level})$	J_i^π	$E_\gamma^{\ddagger}$	I_γ	E_f	J_f^π	Mult. #	$\delta^@$	$\alpha^\dagger$	Comments
									$\alpha(\text{N})=1.356\times 10^{-5}$ 19; $\alpha(\text{O})=1.306\times 10^{-6}$ 19 δ : -0.03 9 from $\gamma(\theta)$ in (HL,xny).
2094.38		730.3 ^{bc} 2		1366.34	11/2 ⁻				
		881.6 ^b 2		1212.74	9/2 ⁺				
2129.82	9/2 ⁻	1046.0 ^b 2		1048.42	7/2 ⁺				
		917.6 3	5.4 25	1212.74	9/2 ⁺				
		1081.35 10	100.0 21	1048.42	7/2 ⁺	E1		0.000500 7	$\alpha(\text{K})=0.000436$ 7; $\alpha(\text{L})=5.14\times 10^{-5}$ 8; $\alpha(\text{M})=1.009\times 10^{-5}$ 15; $\alpha(\text{N}+..)=2.14\times 10^{-6}$ 3 $\alpha(\text{N})=1.95\times 10^{-6}$ 3; $\alpha(\text{O})=1.94\times 10^{-7}$ 3
2138.38	13/2 ⁺	1859.0 5	8.7 25	270.52	7/2 ⁺				
		731.0 ^b 2	<100	1407.35	11/2 ⁺	M1+E2		0.0032 4	$\alpha(\text{K})=0.0027$ 3; $\alpha(\text{L})=0.00034$ 3; $\alpha(\text{M})=6.7\times 10^{-5}$ 5; $\alpha(\text{N}+..)=1.42\times 10^{-5}$ 12 $\alpha(\text{N})=1.30\times 10^{-5}$ 11; $\alpha(\text{O})=1.28\times 10^{-6}$ 12
		888.6 ^b 2	<100	1249.74	9/2 ⁺				
		925.7 ^b 2	100 50	1212.74	9/2 ⁺	E2		0.001622 23	$\alpha(\text{K})=0.001405$ 20; $\alpha(\text{L})=0.0001758$ 25; $\alpha(\text{M})=3.47\times 10^{-5}$ 5; $\alpha(\text{N}+..)=7.32\times 10^{-6}$ $\alpha(\text{N})=6.67\times 10^{-6}$ 10; $\alpha(\text{O})=6.52\times 10^{-7}$ 10
2202.35	13/2 ⁺	794.8 ^b 2	<100	1407.35	11/2 ⁺				
		989.8 ^b 2	100 50	1212.74	9/2 ⁺	E2		0.001396 20	$\alpha(\text{K})=0.001210$ 17; $\alpha(\text{L})=0.0001503$ 21; $\alpha(\text{M})=2.96\times 10^{-5}$ 5; $\alpha(\text{N}+..)=6.27\times 10^{-6}$ $\alpha(\text{N})=5.71\times 10^{-6}$ 8; $\alpha(\text{O})=5.59\times 10^{-7}$ 8
2226.06	11/2 ⁻	818.80 17	3.9 10	1407.35	11/2 ⁺				
		859.68 9	5.9 7	1366.34	11/2 ⁻	M1(+E2)	≤ 0.89	0.00228 11	$\alpha(\text{K})=0.00198$ 10; $\alpha(\text{L})=0.000242$ 10; $\alpha(\text{M})=4.76\times 10^{-5}$ 19; $\alpha(\text{N}+..)=1.01\times 10^{-5}$ 5 $\alpha(\text{N})=9.2\times 10^{-6}$ 4; $\alpha(\text{O})=9.1\times 10^{-7}$ 5 δ : from $\alpha(\text{K})\text{exp}$ in 4.7-d ^{119}Te ε decay.
		976.37 7	100.0 24	1249.74	9/2 ⁺	E1		0.000606 9	$\alpha(\text{K})=0.000529$ 8; $\alpha(\text{L})=6.25\times 10^{-5}$ 9; $\alpha(\text{M})=1.227\times 10^{-5}$ 18; $\alpha(\text{N}+..)=2.60\times 10^{-6}$ 4 $\alpha(\text{N})=2.37\times 10^{-6}$ 4; $\alpha(\text{O})=2.35\times 10^{-7}$ 4
		1013.20 8	92.2 20	1212.74	9/2 ⁺				
		1255.64 24	0.6 3	970.90	9/2 ⁺				
		1955.45 ^c 20	<1	270.52	7/2 ⁺				
2269.1	1/2 ⁺ , 3/2 ⁺ , 5/2 ⁺	2269.1	100	0	5/2 ⁺				
2278.93	13/2 ⁻	871.46 13	6.1 5	1407.35	11/2 ⁺	E1		0.000756 11	$\alpha(\text{K})=0.000659$ 10; $\alpha(\text{L})=7.82\times 10^{-5}$ 11; $\alpha(\text{M})=1.535\times 10^{-5}$ 22; $\alpha(\text{N}+..)=3.26\times 10^{-6}$ $\alpha(\text{N})=2.96\times 10^{-6}$ 5; $\alpha(\text{O})=2.94\times 10^{-7}$ 5
		912.60 5	100.0 13	1366.34	11/2 ⁻	M1+E2	-0.41 +6-5	0.00202 4	$\alpha(\text{K})=0.00176$ 3; $\alpha(\text{L})=0.000213$ 4; $\alpha(\text{M})=4.20\times 10^{-5}$ 7; $\alpha(\text{N}+..)=8.92\times 10^{-6}$ 14

Adopted Levels, Gammas (continued)

$\gamma(^{119}\text{Sb})$ (continued)									Comments
$E_i(\text{level})$	J_i^π	$E_\gamma^{\ddagger}$	I_γ	E_f	J_f^π	Mult. #	$\delta^@$	$\alpha^\dagger$	
2283.7	9/2 ⁻	2013.2 ⁴	100	270.52	7/2 ⁺	E1		0.000786 ¹¹	$\alpha(\text{K})=0.00176$ ³ ; $\alpha(\text{L})=0.000213$ ⁴ ; $\alpha(\text{M})=4.20\times 10^{-5}$ ⁷ ; $\alpha(\text{N}+..)=8.92\times 10^{-6}$ ¹⁴ $\alpha(\text{N})=8.11\times 10^{-6}$ ¹³ ; $\alpha(\text{O})=8.08\times 10^{-7}$ ¹³ δ : from the compilation by 1980Kr22 . $\alpha(\text{K})=0.0001524$ ²² ; $\alpha(\text{L})=1.773\times 10^{-5}$ ²⁵ ; $\alpha(\text{M})=3.47\times 10^{-6}$ ⁵ ; $\alpha(\text{N}+..)=0.000612$ $\alpha(\text{N})=6.71\times 10^{-7}$ ¹⁰ ; $\alpha(\text{O})=6.71\times 10^{-8}$ ¹⁰ ; $\alpha(\text{IPF})=0.000612$ ⁹
2314.02	(15/2) ⁻	947.6 ^b ⁵	100	1366.34	11/2 ⁻	E2		0.001539 ²²	$\alpha(\text{K})=0.001333$ ¹⁹ ; $\alpha(\text{L})=0.0001664$ ²⁴ ; $\alpha(\text{M})=3.28\times 10^{-5}$ ⁵ ; $\alpha(\text{N}+..)=6.93\times 10^{-6}$ $\alpha(\text{N})=6.32\times 10^{-6}$ ⁹ ; $\alpha(\text{O})=6.18\times 10^{-7}$ ⁹
2360.20	9/2 ⁻	952.82 ¹⁵ 1111.2 ^c ⁸ 1312.01 ¹⁷	1.8 ⁹ 0.24 ²⁰ 2.6 ³	1407.35 11/2 ⁺ 1249.74 9/2 ⁺ 1048.42 7/2 ⁺	11/2 ⁺ 9/2 ⁺ 7/2 ⁺	E1		0.000447 ⁷	$\alpha(\text{K})=0.000308$ ⁵ ; $\alpha(\text{L})=3.62\times 10^{-5}$ ⁵ ; $\alpha(\text{M})=7.09\times 10^{-6}$ ¹⁰ ; $\alpha(\text{N}+..)=9.59\times 10^{-5}$ ¹⁴ $\alpha(\text{N})=1.370\times 10^{-6}$ ²⁰ ; $\alpha(\text{O})=1.365\times 10^{-7}$ ²⁰ ; $\alpha(\text{IPF})=9.44\times 10^{-5}$ ¹⁴
		2089.57 ¹²	100.0 ¹¹	270.52	7/2 ⁺	E1(+M2)	+0.01 ⁶	0.000830 ¹²	$\alpha(\text{K})=0.000144$ ³ ; $\alpha(\text{L})=1.67\times 10^{-5}$ ⁴ ; $\alpha(\text{M})=3.28\times 10^{-6}$ ⁷ ; $\alpha(\text{N}+..)=0.000666$ ¹⁰ $\alpha(\text{N})=6.34\times 10^{-7}$ ¹⁴ ; $\alpha(\text{O})=6.34\times 10^{-8}$ ¹⁴ ; $\alpha(\text{IPF})=0.000665$ ¹⁰ δ : from $\gamma\gamma(\theta)$ in 4.7-d ¹¹⁹ Te ε decay.
2379.60	(9/2,13/2)	972.8 ^c ⁸ 1013.20 ^c ⁸	4 ³ 100 ²	1407.35 11/2 ⁺ 1366.34 11/2 ⁻	11/2 ⁺ 11/2 ⁻				
2415.53	1/2 ⁺	2415.5 ^a ²	100	0	5/2 ⁺	[E2]		0.000742 ¹¹	$\alpha(\text{K})=0.000212$ ³ ; $\alpha(\text{L})=2.49\times 10^{-5}$ ⁴ ; $\alpha(\text{M})=4.90\times 10^{-6}$ ⁷ ; $\alpha(\text{N}+..)=0.000500$ ⁷ $\alpha(\text{N})=9.47\times 10^{-7}$ ¹⁴ ; $\alpha(\text{O})=9.46\times 10^{-8}$ ¹⁴ ; $\alpha(\text{IPF})=0.000499$ ⁷ B(E2)(W.u.)=1.6 +9- ¹⁶
2419.34	17/2 ⁺	381.7 ^b ²	100 ²	2037.61	15/2 ⁺	M1+E2	0.15 ⁵	0.01690	$\alpha(\text{K})=0.01464$ ²¹ ; $\alpha(\text{L})=0.00182$ ³ ; $\alpha(\text{M})=0.000360$ ⁶ ; $\alpha(\text{N}+..)=7.64\times 10^{-5}$ ¹¹ $\alpha(\text{N})=6.95\times 10^{-5}$ ¹⁰ ; $\alpha(\text{O})=6.89\times 10^{-6}$ ¹⁰
		743.7 ^b ²	28.8 ¹⁵	1675.72	13/2 ⁺	E2		0.00272 ⁴	$\alpha(\text{K})=0.00235$ ⁴ ; $\alpha(\text{L})=0.000302$ ⁵ ; $\alpha(\text{M})=5.96\times 10^{-5}$ ⁹ ; $\alpha(\text{N}+..)=1.255\times 10^{-5}$ ¹⁸ $\alpha(\text{N})=1.144\times 10^{-5}$ ¹⁶ ; $\alpha(\text{O})=1.107\times 10^{-6}$ ¹⁶
2475.44	15/2 ⁻	196.5 ^b ² 273.1 ^b ² 1109.1 ^b ²	<40 <40 100 ²⁰	2278.93 13/2 ⁻ 2202.35 13/2 ⁺ 1366.34 11/2 ⁻	13/2 ⁻ 13/2 ⁺ 11/2 ⁻	E2		0.001091 ¹⁶	$\alpha(\text{K})=0.000946$ ¹⁴ ; $\alpha(\text{L})=0.0001163$ ¹⁷ ;

Adopted Levels, Gammas (continued)

$\gamma(^{119}\text{Sb})$ (continued)									Comments
$E_i(\text{level})$	J_i^π	$E_\gamma^\ddagger$	I_γ	E_f	J_f^π	Mult. #	$\delta^@$	$\alpha^\dagger$	
2505.24	15/2 ⁻	1138.9 ^b 2	100	1366.34	11/2 ⁻	E2		0.001032 15	$\alpha(\text{M})=2.29\times 10^{-5}$ 4; $\alpha(\text{N}+..)=5.49\times 10^{-6}$ $\alpha(\text{N})=4.41\times 10^{-6}$ 7; $\alpha(\text{O})=4.35\times 10^{-7}$ 6; $\alpha(\text{IPF})=6.40\times 10^{-7}$ 10 $\alpha(\text{K})=0.000894$ 13; $\alpha(\text{L})=0.0001097$ 16; $\alpha(\text{M})=2.16\times 10^{-5}$ 3; $\alpha(\text{N}+..)=6.23\times 10^{-6}$
2553.6	(19/2 ⁻)	134.2 ^b 2	100 4	2419.34	17/2 ⁺	(E1+M2)	0.11 3	0.107 16	$\alpha(\text{N})=4.16\times 10^{-6}$ 6; $\alpha(\text{O})=4.10\times 10^{-7}$ 6; $\alpha(\text{IPF})=1.65\times 10^{-6}$ 3 $\alpha(\text{K})=0.091$ 13; $\alpha(\text{L})=0.0125$ 22; $\alpha(\text{M})=0.0025$ 5; $\alpha(\text{N}+..)=0.00052$ 10 $\alpha(\text{N})=0.00048$ 9; $\alpha(\text{O})=4.5\times 10^{-5}$ 9 B(E1)(W.u.)=(6.6 $\times 10^{-7}$ 5); B(M2)(W.u.)=(2.0 12) δ : from $\gamma(\theta)$ in (HI,xny).
		239.7 ^b 7	20 4	2314.02	(15/2 ⁻)	(E2)		0.0779 14	$\alpha(\text{K})=0.0642$ 11; $\alpha(\text{L})=0.01104$ 20; $\alpha(\text{M})=0.00222$ 4; $\alpha(\text{N}+..)=0.000453$ 8 $\alpha(\text{N})=0.000417$ 8; $\alpha(\text{O})=3.61\times 10^{-5}$ 7 B(E2)(W.u.)=0.024 5 I_γ : other: 28 3 in (d,2ny). δ : -0.06 9 from $\gamma(\theta)$ in (HI,xny).
2707.74	17/2 ⁻	232.3 ^b 2	100	2475.44	15/2 ⁻	(M1+E2)		0.074 13	$\alpha(\text{K})=0.062$ 10; $\alpha(\text{L})=0.010$ 3; $\alpha(\text{M})=0.0019$ 6; $\alpha(\text{N}+..)=0.00039$ 12 $\alpha(\text{N})=0.00036$ 11; $\alpha(\text{O})=3.3\times 10^{-5}$ 8
2747.68		653.3 ^b 2	100	2094.38					
2769.08	(17/2 ⁺)	630.7 ^b 2	100	2138.38	13/2 ⁺				
2841.7	(21/2 ⁻)	288.1 ^b 2	100	2553.6	(19/2 ⁻)	M1+E2	0.51 5	0.0363 6	$\alpha(\text{K})=0.0311$ 5; $\alpha(\text{L})=0.00415$ 9; $\alpha(\text{M})=0.000823$ 18; $\alpha(\text{N}+..)=0.000173$ 4 $\alpha(\text{N})=0.000158$ 4; $\alpha(\text{O})=1.52\times 10^{-5}$ 3
2848.99	19/2 ⁺	429.6 ^b 2	100 10	2419.34	17/2 ⁺	(M1+E2)		0.0123 3	$\alpha(\text{K})=0.0106$ 4; $\alpha(\text{L})=0.00140$ 6; $\alpha(\text{M})=0.000278$ 14; $\alpha(\text{N}+..)=5.84\times 10^{-5}$ 22 $\alpha(\text{N})=5.33\times 10^{-5}$ 22; $\alpha(\text{O})=5.12\times 10^{-6}$ 8
3002.5	19/2 ⁻	811.4 ^b 2 497.3 ^b 2	40 10 100	2037.61 2505.24	15/2 ⁺ 15/2 ⁻	E2		0.00788 11	$\alpha(\text{K})=0.00673$ 10; $\alpha(\text{L})=0.000928$ 13; $\alpha(\text{M})=0.000184$ 3; $\alpha(\text{N}+..)=3.85\times 10^{-5}$ 6 $\alpha(\text{N})=3.52\times 10^{-5}$ 5; $\alpha(\text{O})=3.31\times 10^{-6}$ 5
3064.89	17/2 ⁻	750.8 ^b 2	100	2314.02	(15/2 ⁻)	(M1+E2)		0.0030 3	$\alpha(\text{K})=0.0026$ 3; $\alpha(\text{L})=0.00032$ 3; $\alpha(\text{M})=6.3\times 10^{-5}$ 5; $\alpha(\text{N}+..)=1.33\times 10^{-5}$ 11 $\alpha(\text{N})=1.21\times 10^{-5}$ 10; $\alpha(\text{O})=1.19\times 10^{-6}$ 12
3068.70	17/2 ⁻	754.7 ^b 2	50 25	2314.02	(15/2 ⁻)	(M1+E2)		0.0029 3	$\alpha(\text{K})=0.0025$ 3; $\alpha(\text{L})=0.00032$ 3; $\alpha(\text{M})=6.2\times 10^{-5}$ 5; $\alpha(\text{N}+..)=1.32\times 10^{-5}$ 11 $\alpha(\text{N})=1.20\times 10^{-5}$ 10; $\alpha(\text{O})=1.18\times 10^{-6}$ 12

Adopted Levels, Gammas (continued)

$\gamma(^{119}\text{Sb})$ (continued)								
$E_i(\text{level})$	J_i^π	$E_\gamma^{\ddagger}$	I_γ	E_f	J_f^π	Mult.#	$\alpha^\dagger$	Comments
3068.70	17/2 ⁻	1031.0 ^b 2	100 25	2037.61	15/2 ⁺	E1	0.000546 8	$\alpha(\text{K})=0.000477$ 7; $\alpha(\text{L})=5.63\times 10^{-5}$ 8; $\alpha(\text{M})=1.105\times 10^{-5}$ 16; $\alpha(\text{N}+..)=2.34\times 10^{-6}$ 4 $\alpha(\text{N})=2.13\times 10^{-6}$ 3; $\alpha(\text{O})=2.12\times 10^{-7}$ 3
3295.85	19/2 ⁻	227.1 ^b 2	100 14	3068.70	17/2 ⁻	(M1+E2)	0.079 15	$\alpha(\text{K})=0.066$ 11; $\alpha(\text{L})=0.010$ 4; $\alpha(\text{M})=0.0021$ 7; $\alpha(\text{N}+..)=0.00043$ 13 $\alpha(\text{N})=0.00039$ 12; $\alpha(\text{O})=3.5\times 10^{-5}$ 9
		230.9 ^b 2	29 14	3064.89	17/2 ⁻	(M1+E2)	0.075 14	$\alpha(\text{K})=0.063$ 10; $\alpha(\text{L})=0.010$ 3; $\alpha(\text{M})=0.0019$ 7; $\alpha(\text{N}+..)=0.00040$ 12 $\alpha(\text{N})=0.00037$ 11; $\alpha(\text{O})=3.3\times 10^{-5}$ 8
		876.50 ^b 2	29 14	2419.34	17/2 ⁺	E1	0.000748 11	$\alpha(\text{K})=0.000652$ 10; $\alpha(\text{L})=7.73\times 10^{-5}$ 11; $\alpha(\text{M})=1.518\times 10^{-5}$ 22; $\alpha(\text{N}+..)=3.22\times 10^{-6}$ $\alpha(\text{N})=2.93\times 10^{-6}$ 4; $\alpha(\text{O})=2.90\times 10^{-7}$ 4
3310.37	21/2 ⁺	461.3 ^b 2	100 14	2848.99	19/2 ⁺	(M1+E2)	0.0102 4	$\alpha(\text{K})=0.0087$ 5; $\alpha(\text{L})=0.00115$ 3; $\alpha(\text{M})=0.000227$ 6; $\alpha(\text{N}+..)=4.78\times 10^{-5}$ 9 $\alpha(\text{N})=4.36\times 10^{-5}$ 9; $\alpha(\text{O})=4.20\times 10^{-6}$ 9
		891.0 ^b 2	29 14	2419.34	17/2 ⁺			
3505.5	(21/2 ⁺)	736.4 ^b 2	100	2769.08	(17/2 ⁺)			
3581.9	21/2 ⁻	286.1 ^b 2	100	3295.85	19/2 ⁻	(M1+E2)	0.039 4	$\alpha(\text{K})=0.033$ 3; $\alpha(\text{L})=0.0048$ 10; $\alpha(\text{M})=0.00096$ 21; $\alpha(\text{N}+..)=0.00020$ 4 $\alpha(\text{N})=0.00018$ 4; $\alpha(\text{O})=1.69\times 10^{-5}$ 25
3608.4	23/2 ⁻	605.9 ^b 2	100	3002.5	19/2 ⁻	E2	0.00459 7	$\alpha(\text{K})=0.00394$ 6; $\alpha(\text{L})=0.000523$ 8; $\alpha(\text{M})=0.0001036$ 15; $\alpha(\text{N}+..)=2.17\times 10^{-5}$ 3 $\alpha(\text{N})=1.98\times 10^{-5}$ 3; $\alpha(\text{O})=1.89\times 10^{-6}$ 3
3784.6	23/2 ⁺	474.2 ^b 2	100 25	3310.37	21/2 ⁺	(M1+E2)	0.0094 5	$\alpha(\text{K})=0.0081$ 5; $\alpha(\text{L})=0.001061$ 19; $\alpha(\text{M})=0.000210$ 5; $\alpha(\text{N}+..)=4.42\times 10^{-5}$ 7 $\alpha(\text{N})=4.03\times 10^{-5}$ 7; $\alpha(\text{O})=3.89\times 10^{-6}$ 11
		935.7 ^b 2	50 25	2848.99	19/2 ⁺			
3939.6	23/2 ⁻	357.5 ^b 2	100 20	3581.9	21/2 ⁻	M1,E2	0.0205 7	$\alpha(\text{K})=0.0176$ 4; $\alpha(\text{L})=0.0024$ 3; $\alpha(\text{M})=0.00048$ 6; $\alpha(\text{N}+..)=0.000100$ 10 $\alpha(\text{N})=9.1\times 10^{-5}$ 10; $\alpha(\text{O})=8.7\times 10^{-6}$ 6
		643.7 ^b 2	<40	3295.85	19/2 ⁻			
4211.5	25/2 ⁺	426.9 ^b 2	100 50	3784.6	23/2 ⁺	(M1+E2)	0.0125 3	$\alpha(\text{K})=0.0108$ 4; $\alpha(\text{L})=0.00143$ 7; $\alpha(\text{M})=0.000283$ 14; $\alpha(\text{N}+..)=5.95\times 10^{-5}$ 23 $\alpha(\text{N})=5.43\times 10^{-5}$ 23; $\alpha(\text{O})=5.21\times 10^{-6}$ 8
4274.3	25/2 ⁺	489.8 ^b 2	100 50	3784.6	23/2 ⁺	M1,E2	0.0087 5	$\alpha(\text{K})=0.0075$ 5; $\alpha(\text{L})=0.000970$ 14; $\alpha(\text{M})=0.000192$ 3; $\alpha(\text{N}+..)=4.05\times 10^{-5}$ 6 $\alpha(\text{N})=3.69\times 10^{-5}$ 6; $\alpha(\text{O})=3.57\times 10^{-6}$ 12
		963.8 ^b 2	<100	3310.37	21/2 ⁺			
4298.1	27/2 ⁻	689.7 ^b 2	100	3608.4	23/2 ⁻	E2	0.00328 5	$\alpha(\text{K})=0.00283$ 4; $\alpha(\text{L})=0.000367$ 6; $\alpha(\text{M})=7.27\times 10^{-5}$ 11;

Adopted Levels, Gammas (continued)

$\gamma(^{119}\text{Sb})$ (continued)

$E_i(\text{level})$	J_i^π	$E_\gamma^{\ddagger}$	I_γ	E_f	J_f^π	Mult. #	$\alpha^\dagger$	Comments
								$\alpha(\text{N}+..)=1.528\times 10^{-5}$ 22 $\alpha(\text{N})=1.393\times 10^{-5}$ 20; $\alpha(\text{O})=1.342\times 10^{-6}$ 19
4342.0	(25/2 ⁺)	836.5 ^b 2		3505.5	(21/2 ⁺)			
4346.5	25/2 ⁻	407.0 ^b 2	100 33	3939.6	23/2 ⁻	M1,E2	0.01428 23	$\alpha(\text{K})=0.0123$ 3; $\alpha(\text{L})=0.00164$ 10; $\alpha(\text{M})=0.000325$ 22; $\alpha(\text{N}+..)=6.8\times 10^{-5}$ 4 $\alpha(\text{N})=6.2\times 10^{-5}$ 4; $\alpha(\text{O})=5.96\times 10^{-6}$ 14
		764.8 ^b 2	<67	3581.9	21/2 ⁻			
4352.6	27/2 ⁻	744.2 ^b 2	100	3608.4	23/2 ⁻	E2	0.00271 4	$\alpha(\text{K})=0.00234$ 4; $\alpha(\text{L})=0.000301$ 5; $\alpha(\text{M})=5.95\times 10^{-5}$ 9; $\alpha(\text{N}+..)=1.253\times 10^{-5}$ 18 $\alpha(\text{N})=1.142\times 10^{-5}$ 16; $\alpha(\text{O})=1.105\times 10^{-6}$ 16
4444.7	29/2 ⁻	146.6 ^b 2	100	4298.1	27/2 ⁻			
4542.6	(27/2 ⁺)	331.1 ^b 2	100	4211.5	25/2 ⁺			
4776.1	27/2 ⁻	429.9 ^b 2	100 50	4346.5	25/2 ⁻	M1,E2	0.0123 3	$\alpha(\text{K})=0.0106$ 4; $\alpha(\text{L})=0.00140$ 6; $\alpha(\text{M})=0.000278$ 13; $\alpha(\text{N}+..)=5.83\times 10^{-5}$ 22 $\alpha(\text{N})=5.32\times 10^{-5}$ 21; $\alpha(\text{O})=5.11\times 10^{-6}$ 8
		836.2 ^b 2	<100	3939.6	23/2 ⁻			
4785.2	(27/2 ⁺)	510.9 ^b 2	100	4274.3	25/2 ⁺			
4940.3	(29/2 ⁺)	397.7 ^b 2	100	4542.6	(27/2 ⁺)			
5190.5	(31/2 ⁻)	837.8 ^b 2	100	4352.6	27/2 ⁻			
5232.1	(29/2 ⁻)	455.8 ^b 2		4776.1	27/2 ⁻			
		885.7 ^b 2		4346.5	25/2 ⁻			
5243.5	(29/2 ⁺)	901.5 ^b 2	100	4342.0	(25/2 ⁺)			
5354.0	(31/2 ⁺)	413.7 ^b 2	100	4940.3	(29/2 ⁺)			
5712.0	(31/2 ⁻)	479.9 ^b 2		5232.1	(29/2 ⁻)			
		935.8 ^b 2		4776.1	27/2 ⁻			
6113.9	(35/2 ⁻)	923.4 ^b 2	100	5190.5	(31/2 ⁻)			

[†] Additional information 3.

[‡] From ¹¹⁹Te ε decay (4.70 d), except as noted.

From $\gamma(\theta)$ and DCO ratio in (HI,xn γ), except as noted.

@ From $\gamma(\theta)$ in (HI,xn γ) (1979Sh03), except as noted.

& From 16.0-h ¹¹⁹Te ε decay.

^a From (p,n γ).

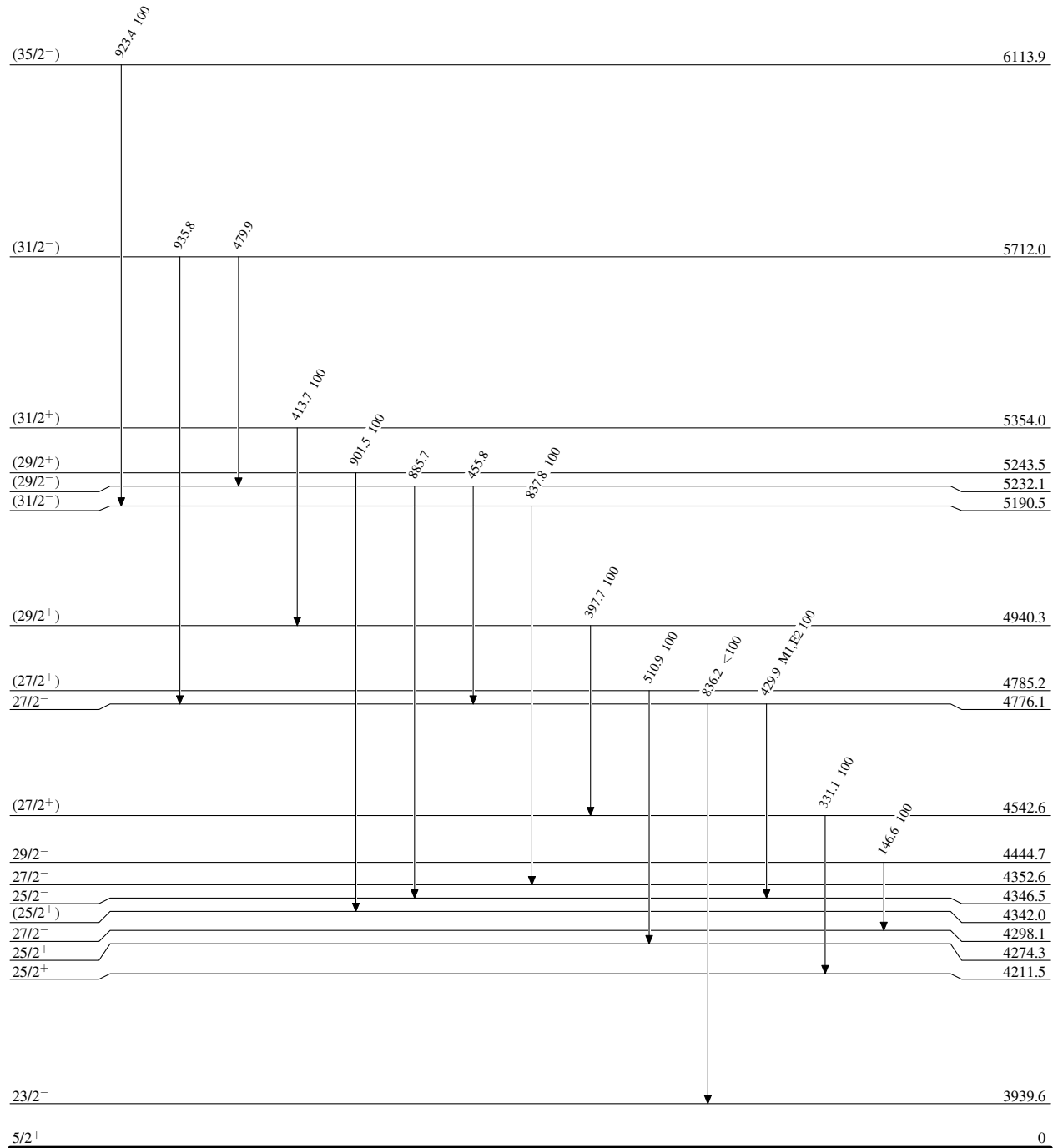
^b From (HI,xn γ).

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

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level

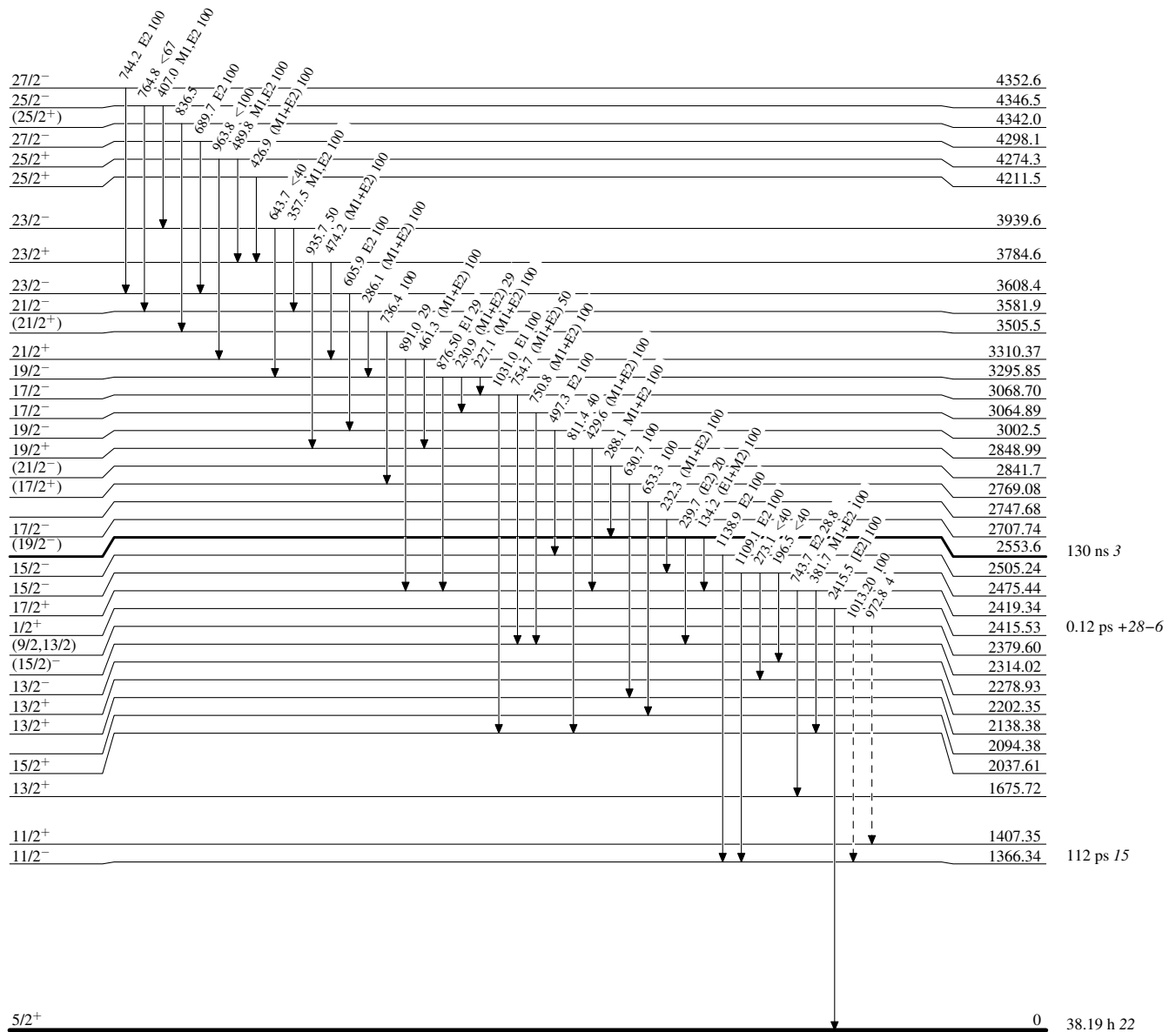


Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

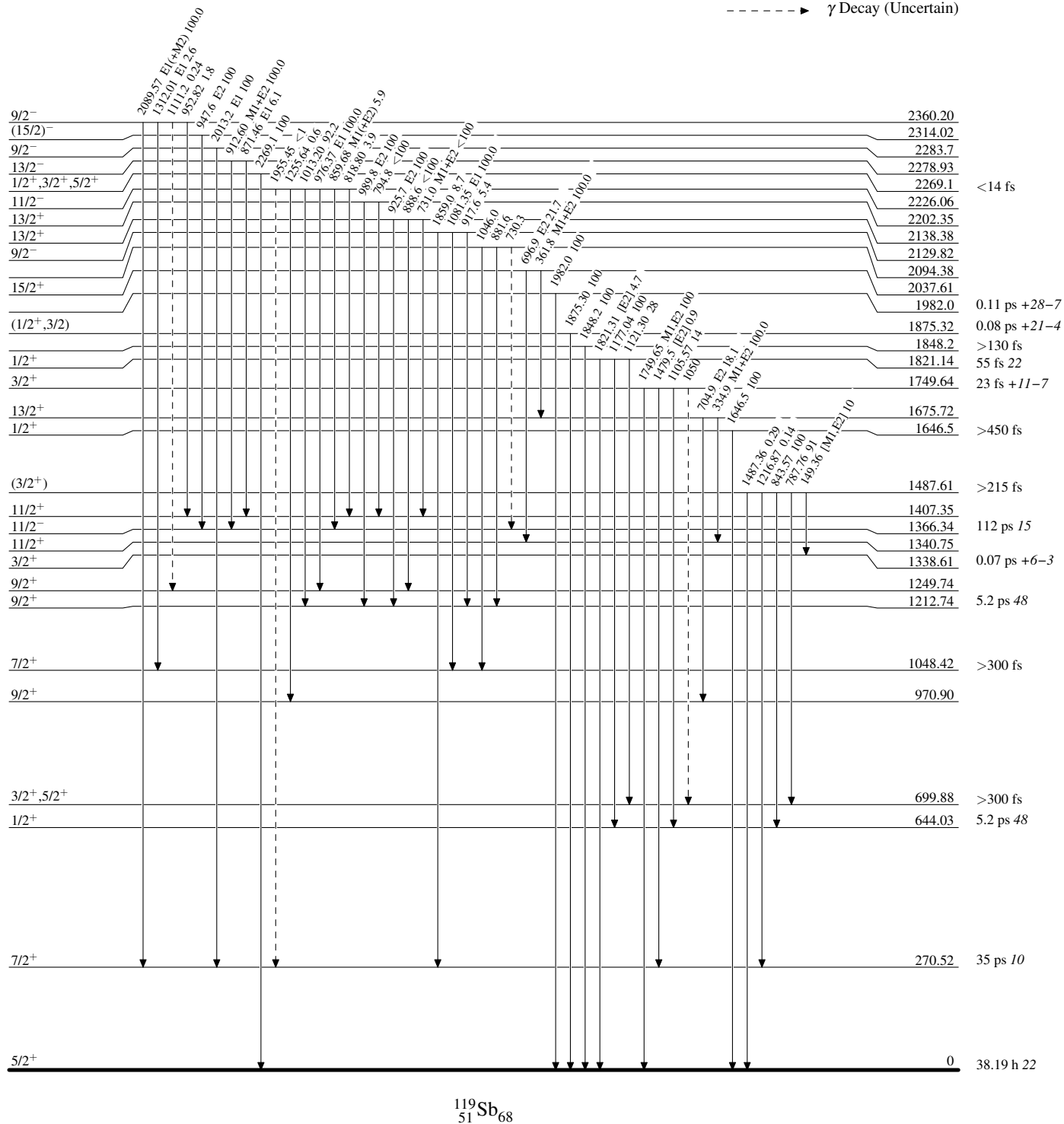
-----► γ Decay (Uncertain)

Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

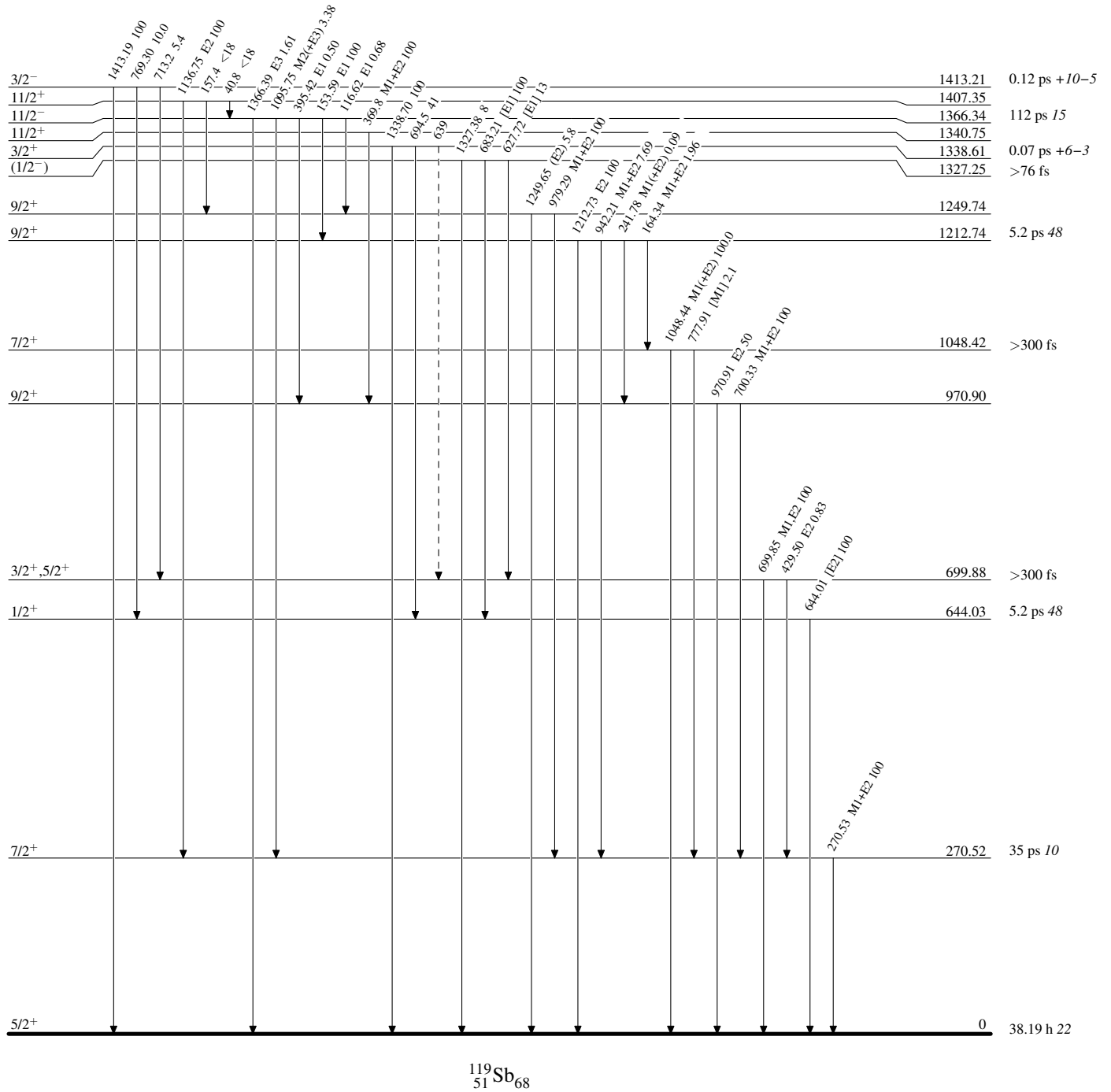
-----► γ Decay (Uncertain)

Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

-----► γ Decay (Uncertain) $^{119}_{51}\text{Sb}_{68}$

Adopted Levels, Gammas