Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	A. Hashizume	NDS 112,1647 (2011)	1-Oct-2009

Q(β^-)=−662.3 *21*; S(n)=9144 *3*; S(p)=6208 *4*; Q(α)=−2184 *4* 2012Wa38
Note: Current evaluation has used the following Q record −662.3 20 *9144* 3 6208 *3* −2184 4 2003Au03.
For IAR see ^{126}Te(p,p).
Nuclear structure calculations: 2009To03 (level energies, spin and parities, magnetic moments, B(M1), shell model). 2009Al20 (level energies, spin and parities, B(E2), B(M1), branching ratios, IBFM); others: 2007Ji14, 2004So06, 2002Ma44, 2000Vo12, 1998To02, 1996Ar09, 1985Ha34.

^{127}I Levels

Band(U,α) $2d_{5/2}$ band.
Band(vby) $1h_{11/2}$ band.
Band(W,C) $1g_{9/2}$ ΔJ=1 band.
Band(x,D) $1g_{7/2}$ band.
J(A,B,D) ΔJ=2 γ cascade relation and expected band structure.

Cross Reference (XREF) Flags

A	^{127}Te β^- decay (9.35 h)	F	^{126}Te(^{3}He,d),(α,t)
B	^{127}Te β^- decay (106.1 d)	G	^{126}Te(p,p) IAR
C	^{127}Xe ε decay (36.4 d)	H	^{127}I(γ,γ')
D	Coulomb excitation	I	^{127}I(n,n'γ)
E	^{124}Sn(^{6}Li,3nγ)		

E(level)[†]	Jπ	$T_{1/2}$[b]	XREF	Comments
0.0	5/2$^+$	stable	ABCDEF HI	μ=+2.813273 *84*; Q=−0.789 μ: nuclear magnetic res and optical spectroscopy; value relative to μ for ^{1}H (1989Ra17). Q: atomic beam magnetic res (1989Ra17). Others: −0.722 *21* (2004Al08), −0.710 *10* (2001Bi17), −0.69 *3* (2000Va33) and −0.689 *15* (2000Ha64): The value from 1989Ra17 is the result of systematic treatment on wide range of nuclides. However, the recent values are significantly smaller than adopted. The weighted mean of the above 4 values is −0.705 *8* (evaluator). $<r^2>^{1/2}$(charge)=4.750 *4* (2004An14). Jπ: atomic beam J=5/2 (1976Fu06); L=2 in (^{3}He,d),(α,t). Configuration=(π $2d_{5/2}$). $T_{1/2}$: The lower limit of half-life due to unusual decay mode is 1.5×10^{24} y (2005Be17), 1.1×10^{25} y (1993Ej01); others: (2005Be03), (1999Be61), (1991Ej01), (1991Ke05), (1987Ho02).
57.608 *11*	7/2$^+$	1.95 ns *1*	ABCDEF HI	μ=+2.54 *5*; Q=−0.71 Jπ: L=4 in (^{3}He,d),(α,t); M1+E2 γ to 5/2$^+$. $T_{1/2}$: from $\beta\gamma$(t) in ^{127}Te β^- decay (106.1 d) (1976Sa20): others: 1.90 ns *15* (1969BeZH), 1.93 ns *7* (1967Sv01), 1.5 ns *3* (1964Jh02) in ^{127}Te β^- decay (106.1 d); 1.86 ns *11* (1965Ge04), 1.0 ns *2* (1964Jh02), 2.0 ns *2* (1962Th12) in ^{127}Xe ε decay. μ,Q: Moss; values relative to those of g.s. for ^{127}I (1989Ra17). Configuration=(π $1g_{7/2}$).
202.860 *8*	3/2$^+$	0.387 ns *9*	A CD F HI	μ=+0.97 *7* Jπ: L=4 in (^{3}He,d),(α,t), M1+E2 γ from 1/2$^+$. $T_{1/2}$: from ε decay. Others: 0.39 ns *6* from (γ,γ'), 0.52 ns *10* from DSA in

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Adopted Levels, Gammas (continued)

^{127}I Levels (continued)

E(level)[†]	Jπ	$T_{1/2}$[b]	XREF	Comments
				Coul. ex (1975An19).
				μ: integral PAC; value recalculated based on new measurements (2005St24).
				Configuration=(π $2d_{3/2}$).
295 *4*			F	
374.992 *9*	1/2+	31 ps *8*	A CD F HI	Jπ: L=0 in (^{3}He,d),(α,t).
				$T_{1/2}$: from unweighted av of 15 ps *3* from (γ,γ′), 34 ps *3* from B(E2) and 43 ps *4* from DSA in Coul. ex. Other: ≤0.135 ns from (K x ray)γ(t) and ceγ(t) in ε decay (1968Ko01).
				Configuration=(π $3s_{1/2}$).
417.99 *6*	5/2+	3.3 ps *3*	A D F HI	Jπ: L=2 in (^{3}He,d),(α,t); linear pol of (γ,γ′) is compatible only with J=5/2.
				$T_{1/2}$: weighted average of 3.4 ps *3* from (γ,γ′) and 3.0 ps *6* from DSA in Coul. ex.
				B(E2)↑: B(E2)=0.0082 *12* from Coul. ex.
473 *4*			F	
618.31 *13*	3/2+	<2.1 ps	A CD HI	Jπ: fed directly in ε decay from 1/2+, D+Q γ to 5/2+.
				$T_{1/2}$: from (γ,γ′).
628.69 *16*	7/2+	1.9 ps *6*	B D F HI	Jπ: fed in β^- decay from 11/2−, D+Q γ to 5/2+.
				$T_{1/2}$: from DSA in Coul. ex., other; ⟨3.1 ps in (γ,γ′).
650.92 *8*	9/2(+)	3.9 ps *4*	B DE HI	Jπ: D+Q γ to 7/2+; 9/2 supported by γ(θ) in Coul. ex.
				$T_{1/2}$: from B(E2) in Coul. ex., Other: 1.5 ps *3* in DSA.
716.50 *6*	(11/2+)	3.0 ps *6*	B DE I	
744.71 *8*	9/2(+)	2.79 ps *18*	DEF HI	Jπ: D+Q γ to 7/2+; 9/2 supported by γ(θ) in Coul. ex.
				$T_{1/2}$: from B(E2) in Coul. ex., others: 1.6 ps *3* from DSA, <3.5 ps in (γ,γ′).
831 *4*			F	
883 *4*			F	
990.94 *12*	3/2+,5/2+		D F HI	Jπ: L=2 in (^{3}He,d),(α,t).
1044.10 *16*	7/2+	0.21 ps *7*	D F HI	Jπ: L=4 in (^{3}He,d),(α,t); γ to 3/2+.
				$T_{1/2}$: from DSA in Coul. ex.
1094.37 *12*	3/2+,5/2+	0.21 ps *7*	D F HI	Jπ: L=2 in (^{3}He,d),(α,t).
				$T_{1/2}$: from DSA in Coul. ex.
1122.76 *20*	1/2+		F I	Jπ: L=0 in (^{3}He,d),(α,t).
1181.40 *15*	(9/2+)		I	Jπ: (E2) γ to 5/2+, D+Q γ to 7/2+.
1218.45 *17*	(7/2+)		I	Jπ: (E2) γ to 3/2+, D+Q γ to 5/2+.
1228.91 *20*			HI	
1235.07 *13*	(11/2)−		EF I	Jπ: L=5 in (^{3}He,d),(α,t); syst of the negative-parity states in lighter odd I isotopes.
1266.6 *3*	(13/2+)		E	
1274.97 *10*	(7/2)+		F HI	Jπ: L=4 in (^{3}He,d),(α,t); (E2) γ to 3/2+.
1319 *6*	(7/2+,9/2+)		F	Jπ: L=(4) in (^{3}He,d),(α,t).
1342 *6*	(7/2+,9/2+)		F	Jπ: L=(4) in (^{3}He,d),(α,t).
1350.2[a] *4*	(9/2+)		E I	Jπ: γ to 7/2+, syst of the ΔJ=1 bands in lighter odd I isotopes.
1363.97 *20*			I	
1375 *6*			F	
1401.82 *13*	3/2+,5/2+		F HI	Jπ: L=2 in (^{3}He,d),(α,t).
1413.20 *15*	(9/2+)	<0.64 ps	HI	Jπ: (E2) γ to 5/2+.
				$T_{1/2}$: from (γ,γ′).
1442.9 *12*	1/2+,3/2+,5/2+		F I	E(level): doublet in (^{3}He,d),(α,t).
				Jπ: from L=0+2 in (^{3}He,d),(α,t).
1480.0 *3*	(15/2+)		E	
1507 *6*	3/2+,5/2+		F	Jπ: L=2 in (^{3}He,d).
1516.65? *15*			I	

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Adopted Levels, Gammas (continued)

^{127}I Levels (continued)

E(level)[†]	Jπ	XREF	Comments
1555.6 *17*	(1/2$^+$,3/2$^+$,5/2$^+$)	F HI	E(level): doublet in (^{3}He,d),(α,t). Jπ: from L=2+(0) in (^{3}He,d),(α,t).
1569 *6*	7/2$^+$,9/2$^+$	F	Jπ: L=4 in (α,t).
1654.08[@] *21*		I	
1658.6[@] *3*	5/2$^+$,3/2$^+$	F HI	Jπ: L=2 in (^{3}He,d),(α,t).
1675.8 *9*	(11/2$^+$)[‡]	E	
1696 *6*		F	
1719 *6*		F	
1775.5 *8*		I	
1792 *8*	(1/2$^+$)	F	Jπ: L=(0) in (^{3}He,d),(α,t).
1836 *8*		F	
1860.4[&] *4*		F I	XREF: F(1864).
1869.5[&] *9*	(3/2$^+$,5/2$^+$)	F HI	XREF: F(1864). Jπ: L=(2) in (^{3}He,d),(α,t).
1873 *8*		F	
1876.7 *5*	(17/2$^+$)	E	
1886 *8*	3/2$^+$,5/2$^+$	F H	XREF: H(1890). E(level): from (γ,γ'). Jπ: L=2 in (^{3}He,d),(α,t).
1894.0 *10*	(15/2)$^-$	E	
1909 *3*	5/2$^+$,7/2,9/2$^+$	H	
1913 *8*	(1/2$^+$)	F	Jπ: L=(0) in (^{3}He,d),(α,t).
1978 *8*		F	
2060 *8*		F	
2072.2 *9*	(13/2$^+$)[‡]	E	
2075.4? *8*		I	
2136 *8*	(3/2$^+$,5/2$^+$)	F	Jπ: L=(2) in (^{3}He,d),(α,t).
2168 *8*	(3/2$^+$,5/2$^+$)	F	Jπ: L=(2) in (^{3}He,d),(α,t).
2237 *3*		F H	E(level): from (γ,γ').
2264 *3*		F H	E(level): from (γ,γ').
2314 *3*		F H	E(level): from (γ,γ').
2355 *3*		F H	XREF: F(2359). E(level): from (γ,γ').
2360.1 *6*	(19/2$^+$)	E	
2399 *3*		F H	E(level): from (γ,γ').
2412.3 *9*	(15/2$^+$)[‡]	E	
2431 *8*		F	
2456 *8*		F	
2496 *8*		F	
2524 *8*		F	
2545.8 *15*	(19/2)$^-$	E	
2611 *8*		F	
2641 *8*		F	
2689 *8*		F	
2735 *8*		F	
2752 *8*		F	
2792 *8*		F	
2810.2 *12*	(21/2$^+$)	E	
2816 *8*		F	
2849 *8*		F	
2894 *8*		F	
2947 *8*		F	
2975.8 *18*	(23/2)$^-$	E	

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Adopted Levels, Gammas (continued)

^{127}I Levels (continued)

E(level)†	Jπ	XREF	E(level)†	Jπ	XREF	E(level)†	Jπ	XREF
2997 *8*		F	7798 *20*	$1/2^+$	G	9903 *20*	#	G
3010 *8*		F	8507 *20*	$(5/2^+)$	G	10083? *20*		G
3102 *8*		F	8870? *20*	$(5/2^+)$	G	10150 *20*	$(3/2^-)$#	G
3126 *8*		F	9100 *20*		G	10347 *20*	$1/2^-$	G
3218 *8*		F	9292 *20*		G	10423 *20*		G
3283 *8*		F	9410 *20*		G	10518? *20*		G
3335 *8*		F	9545 *20*		G	10780 *20*		G
3350.3 *18*	‡	E	9632 *20*	$7/2^-$	G	11142 *20*	$3/2^-$	G
3372 *8*		F	9705 *20*		G	11421 *20*		G
3404 *8*		F	9740 *20*	$7/2^-$#	G	11885 *20*		G
7727 *20*	$3/2^+$	G	9847 *20*	$7/2^-$#	G	12193 *20*		G

† Energies of levels connected by γ's are from a least-squares fit to adopted E(γ's). Others from (^{3}He,d),(α,t), unless otherwise noted.

‡ γ-cascade relation and expected band structure.

From angular distribution of (p,p′).

@ L=2 in (^{3}He,d),(d,t) for E=1656 *6*.

& L=(2) in (^{3}He,d),(d,t) for E=1864 *8*. The 1860 *4* level decays via a D,Q γ to $5/2^+$ and a γ to $7/2^+$.

a Existence is not well established. Assignment to the bandhead of the $1g_{9/2}$ ΔJ=1 band is tentative (evaluator).

b In comments, g=(2J+1)/[2J(g.s.)+1].

Adopted Levels, Gammas (continued)

γ(^{127}I)

E_i(level)	J_i^π	E_γ[†]	I_γ	E_f	J_f^π	Mult.[d]	δ[e]	α[f]	Comments
57.608	7/2$^+$	57.61[‡] *2*	100	0.0	5/2$^+$	M1+E2	−0.083 *5*	3.72	B(M1)(W.u.)=0.0123 *3*; B(E2)(W.u.)=17.3 *22* α(K)=3.16 *5*; α(L)=0.449 *8*; α(M)=0.0910 *16*; α(N+..)=0.0204 *4* α(N)=0.0183 *4*; α(O)=0.00209 *4*
202.860	3/2$^+$	145.252[‡] *10*	6.28 *19*	57.608	7/2$^+$	E2		0.471	B(E2)(W.u.)=31.0 *14* α(K)=0.357 *5*; α(L)=0.0906 *13*; α(M)=0.0189 *3*; α(N+..)=0.00405 *6* α(N)=0.00369 *6*; α(O)=0.000362 *5*
		202.860[‡] *10*	100 *2*	0.0	5/2$^+$	M1+E2	+0.52 *5*	0.1143 *22*	B(M1)(W.u.)=0.00444 *25*; B(E2)(W.u.)=20 *3* α(K)=0.0965 *17*; α(L)=0.0142 *5*; α(M)=0.00289 *10*; α(N+..)=0.000645 *20* α(N)=0.000580 *18*; α(O)=6.50×10^{-5} *17*
374.992	1/2$^+$	172.132[‡] *10*	100 *3*	202.860	3/2$^+$	M1+E2	−0.085 *6*	0.1649 *24*	B(M1)(W.u.)=0.075 *20*; B(E2)(W.u.)=12 *4* α(K)=0.1419 *20*; α(L)=0.0185 *3*; α(M)=0.00373 *6*; α(N+..)=0.000843 *12* α(N)=0.000754 *11*; α(O)=8.82×10^{-5} *13*
		374.991[‡] *12*	67 *2*	0.0	5/2$^+$	E2		0.0199	B(E2)(W.u.)=24 *7* α(K)=0.01671 *24*; α(L)=0.00257 *4*; α(M)=0.000524 *8*; α(N+..)=0.0001158 *17* α(N)=0.0001044 *15*; α(O)=1.144×10^{-5} *16*
417.99	5/2$^+$	215.17 *13*	3.91 *17*	202.860	3/2$^+$	(M1+E2)	−0.203 *15*	0.0910	B(M1)(W.u.)=(0.0210 *22*); B(E2)(W.u.)=(12.7 *23*) α(K)=0.0781 *11*; α(L)=0.01031 *16*; α(M)=0.00208 *4*; α(N+..)=0.000469 *7* α(N)=0.000420 *7*; α(O)=4.88×10^{-5} *8* δ: weighted av of δ values quoted by 1977Kr13.
		360.32 *10*	13.6 *4*	57.608	7/2$^+$	(M1+E2)	+0.194 *15*	0.0233	B(M1)(W.u.)=(0.0156 *16*); B(E2)(W.u.)=(3.1 *6*) α(K)=0.0201 *3*; α(L)=0.00256 *4*; α(M)=0.000515 *8*; α(N+..)=0.0001164 *17* α(N)=0.0001042 *15*; α(O)=1.222×10^{-5} *18* δ: weighted av of δ values quoted by 1977Kr13. Other: +0.33 *9* from (360γ)(57γ)(θ) for A_2=0.41 *5* and δ(57γ)=−0.086 *5* (1977Ku17).
		417.95 *10*	100 *3*	0.0	5/2$^+$	(M1+E2)	−0.087 *+5−7*	0.01598	B(M1)(W.u.)=(0.076 *8*); B(E2)(W.u.)=(2.2 *4*) α(K)=0.01381 *20*; α(L)=0.001741 *25*; α(M)=0.000350 *5*; α(N+..)=7.92×10^{-5} *11* α(N)=7.09×10^{-5} *10*; α(O)=8.34×10^{-6} *12* δ: absolute value is from $T_{1/2}$ and B(E2) in Coul. ex. Sign is from 1977Kr13.
618.31	3/2$^+$	560.0[@g] *5*	3[@]	57.608	7/2$^+$				

Adopted Levels, Gammas (continued)

γ(^{127}I) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ	E_f	J_f^π	Mult.[d]	δ[e]	α[f]	Comments
618.31	3/2$^+$	618.41[&] *14*	100 *10*	0.0	5/2$^+$	M1+E2	0.083 *+16−19*	0.00609 *9*	B(M1)(W.u.)>0.043; B(E2)(W.u.)>0.32 α(K)=0.00528 *8*; α(L)=0.000656 *10*; α(M)=0.0001316 *19*; α(N+..)=2.98×10^{-5} *5* α(N)=2.67×10^{-5} *4*; α(O)=3.15×10^{-6} *5* δ: from $T_{1/2}$ and B(E2) in Coul. ex.
628.69	7/2$^+$	426.1[@g]	2.2[@]	202.860	3/2$^+$				
		570.9 *5*	5.9 *12*	57.608	7/2$^+$				I_γ: other: 8 in Coul. ex.
		628.6 *2*	100 *8*	0.0	5/2$^+$	(M1+E2)	0.59 *11*	0.00555 *12*	B(M1)(W.u.)=(0.032 *12*); B(E2)(W.u.)=(19 *9*) α(K)=0.00479 *11*; α(L)=0.000607 *11*; α(M)=0.0001219 *22*; α(N+..)=2.75×10^{-5} α(N)=2.47×10^{-5} *5*; α(O)=2.89×10^{-6} *6* δ: from $T_{1/2}$ and B(E2).
650.92	9/2$^{(+)}$	593.31[b] *9*	100 *8*	57.608	7/2$^+$	(M1+E2)	−0.23 *3*	0.00668 *10*	B(M1)(W.u.)=(0.023 *4*); B(E2)(W.u.)=(2.3 *7*) α(K)=0.00578 *9*; α(L)=0.000722 *11*; α(M)=0.0001448 *21*; α(N+..)=3.28×10^{-5} *5* α(N)=2.93×10^{-5} *5*; α(O)=3.46×10^{-6} *5* δ: other: −0.4>δ>−1.5 in (^{6}Li,3nγ).
		650.91[b] *13*	12.5 *5*	0.0	5/2$^+$	(E2)		0.00423 *6*	B(E2)(W.u.)=3.6 *5* α(K)=0.00362 *5*; α(L)=0.000488 *7*; α(M)=9.85×10^{-5} *14*; α(N+..)=2.21×10^{-5} *3* α(N)=1.98×10^{-5} *3*; α(O)=2.26×10^{-6} *4*
716.50	(11/2$^+$)	658.89[b] *6*	100	57.608	7/2$^+$	(E2)		0.00410 *6*	B(E2)(W.u.)=40 *8* α(K)=0.00351 *5*; α(L)=0.000472 *7*; α(M)=9.53×10^{-5} *14*; α(N+..)=2.13×10^{-5} *3* α(N)=1.92×10^{-5} *3*; α(O)=2.19×10^{-6} *3*
744.71	9/2$^{(+)}$	116.2[@g] *5*	1[@]	628.69	7/2$^+$				
		687.10[c] *17*	29 *4*	57.608	7/2$^+$	(M1+E2)	+0.30 *20*	0.00466 *14*	B(M1)(W.u.)=0.0050 *11*; B(E2)(W.u.)=0.6 *+8−6* α(K)=0.00403 *13*; α(L)=0.000502 *13*; α(M)=0.0001006 *25*; α(N+..)=2.28×10^{-5} α(N)=2.04×10^{-5} *5*; α(O)=2.40×10^{-6} *7* δ: from (^{6}Li,3nγ).
		744.70[c] *9*	100 *11*	0.0	5/2$^+$	(E2)		0.00302 *5*	B(E2)(W.u.)=18 *3* α(K)=0.00260 *4*; α(L)=0.000342 *5*; α(M)=6.89×10^{-5} *10*; α(N+..)=1.548×10^{-5} *22* α(N)=1.388×10^{-5} *20*; α(O)=1.596×10^{-6} *23*
990.94	3/2$^+$,5/2$^+$	572.83[a] *19*	100 *8*	417.99	5/2$^+$	(M1+E2)	−2.5 *15*	0.0061 *6*	α(K)=0.0052 *5*; α(L)=0.00071 *4*; α(M)=0.000143 *7*; α(N+..)=3.21×10^{-5} *18*

$^{127}_{53}I_{74}$-6

Adopted Levels, Gammas (continued)

γ(^{127}I) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ	E_f	J_f^π	Mult.[d]	δ[e]	α[f]	Comments
									α(K)=0.0052 *5*; α(L)=0.00071 *4*; α(M)=0.000143 *7*; α(N+..)=3.21×10^{-5} *18* α(N)=2.88×10^{-5} *15*; α(O)=3.28×10^{-6} *23* δ: from (n,n′γ) as given by 1980Kr22.
990.94	3/2$^+$,5/2$^+$	615.7[a] *4*	43 *5*	374.992	1/2$^+$				
		788.24[a] *19*	28 *4*	202.860	3/2$^+$				
		933.2[a] *4*	10 *3*	57.608	7/2$^+$				
		991.1[a] *4*	45 *5*	0.0	5/2$^+$	(M1+E2)	0.29 *+13−8*	0.00198 *5*	α(K)=0.00172 *4*; α(L)=0.000211 *5*; α(M)=4.23×10^{-5} *9*; α(N+..)=9.59×10^{-6} *20* α(N)=8.58×10^{-6} *18*; α(O)=1.014×10^{-6} *22* δ: B(E2) in Coul. ex. and g$\Gamma^2_{\gamma 0}/\Gamma$ in (γ,γ′).
1044.10	7/2$^+$	840.5[a] *4*	≈8	202.860	3/2$^+$				
		986.7[a] *4*	48 *2*	57.608	7/2$^+$	(M1+E2)		0.00181 *24*	B(M1)(W.u.)<0.036; B(E2)(W.u.)<25 α(K)=0.00157 *21*; α(L)=0.000195 *23*; α(M)=3.9×10^{-5} *5*; α(N+..)=8.8×10^{-6} *11* α(N)=7.9×10^{-6} *9*; α(O)=9.3×10^{-7} *12*
		1044.21[a] *19*	100 *15*	0.0	5/2$^+$	(M1+E2)	0.35 *5*	0.00175 *3*	B(M1)(W.u.)=(0.053 *20*); B(E2)(W.u.)=(4.0 *19*) α(K)=0.001518 *24*; α(L)=0.000186 *3*; α(M)=3.73×10^{-5} *6*; α(N+..)=8.45×10^{-6} *13* α(N)=7.56×10^{-6} *12*; α(O)=8.93×10^{-7} *14* δ: from $T_{1/2}$ and B(E2) in Coul. ex.
1094.37	3/2$^+$,5/2$^+$	465.4 *3*	16 *2*	628.69	7/2$^+$				
		1037.0 *6*	18 *4*	57.608	7/2$^+$				
		1094.40 *12*	100 *27*	0.0	5/2$^+$	(M1+E2)	0.151 *+17−13*	0.001606 *23*	B(M1)(W.u.)=0.06 *3*; B(E2)(W.u.)=0.8 *4* α(K)=0.001393 *20*; α(L)=0.0001703 *24*; α(M)=3.41×10^{-5} *5*; α(N+..)=7.73×10^{-6} α(N)=6.91×10^{-6} *10*; α(O)=8.18×10^{-7} *12* δ: B(E2) and g$\Gamma^2_{\gamma 0}/\Gamma$ in (γ,γ′).
1122.76	1/2$^+$	919.9 *2*	100	202.860	3/2$^+$				
1181.40	(9/2$^+$)	763.2 *2*	62 *4*	417.99	5/2$^+$	(E2)		0.00285 *4*	α(K)=0.00245 *4*; α(L)=0.000322 *5*; α(M)=6.47×10^{-5} *9*; α(N+..)=1.454×10^{-5} *21* α(N)=1.304×10^{-5} *19*; α(O)=1.501×10^{-6} *21*
		1124.0 *2*	100 *9*	57.608	7/2$^+$	D+Q			
1218.45	(7/2$^+$)	1015.7 *3*	74 *5*	202.860	3/2$^+$	(E2)		0.001480 *21*	α(K)=0.001279 *18*; α(L)=0.0001619 *23*; α(M)=3.25×10^{-5} *5*; α(N+..)=7.32×10^{-6} α(N)=6.56×10^{-6} *10*; α(O)=7.64×10^{-7} *11*
		1218.4 *2*	100 *7*	0.0	5/2$^+$	D+Q			
1228.91		1228.9 *2*	100	0.0	5/2$^+$				
1235.07	(11/2)$^-$	490.36 *10*	100	744.71	9/2$^{(+)}$	(E1+M2)		0.019 *17*	α(K)=0.016 *14*; α(L)=0.0022 *20*; α(M)=0.0005 *4*;

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Adopted Levels, Gammas (continued)

γ(^{127}I) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ	E_f	J_f^π	Mult.[d]	δ[e]	α[f]	Comments
									α(N+..)=0.00010 *9* α(N)=9.E−5 *8*; α(O)=1.1×10^{-5} *10*
1266.6	(13/2$^+$)	550.1[#] *3*	100 *9*	716.50	(11/2$^+$)	D+Q	−0.40 *15*		δ: from (^{6}Li,3nγ).
		615.5[#] *10*	63 *6*	650.92	9/2$^{(+)}$	Q			
1274.97	(7/2)$^+$	529.7 *7*	20 *5*	744.71	9/2$^{(+)}$				
		857.2 *2*	39 *5*	417.99	5/2$^+$				
		1071.95 *12*	100 *8*	202.860	3/2$^+$	(E2)		0.001318 *19*	α(K)=0.001139 *16*; α(L)=0.0001434 *20*; α(M)=2.88×10^{-5} *4*; α(N+..)=6.49×10^{-6} α(N)=5.81×10^{-6} *9*; α(O)=6.77×10^{-7} *10*
		1275.2 *2*	29 *7*	0.0	5/2$^+$	(E2)		0.000934 *13*	α(K)=0.000794 *12*; α(L)=9.84×10^{-5} *14*; α(M)=1.97×10^{-5} *3*; α(N+..)=2.22×10^{-5} *4* α(N)=3.99×10^{-6} *6*; α(O)=4.67×10^{-7} *7*; α(IPF)=1.77×10^{-5} *3*
1350.2	(9/2$^+$)	1292.6 *4*	100	57.608	7/2$^+$				
1363.97		1306.4 *2*	100 *8*	57.608	7/2$^+$				
		1362.8	<22	0.0	5/2$^+$				E$_\gamma$: complex peak.
1401.82	3/2$^+$,5/2$^+$	783.7 *2*	100 *11*	618.31	3/2$^+$	D,Q			
		1025.8 *4*	37 *11*	374.992	1/2$^+$				
		1198.8 *4*	26 *8*	202.860	3/2$^+$				
		1345.4 *4*	34 *11*	57.608	7/2$^+$				
		1401.6 *2*	97 *16*	0.0	5/2$^+$	(M1+E2)		0.00089 *9*	α(K)=0.00073 *8*; α(L)=9.0×10^{-5} *9*; α(M)=1.79×10^{-5} *18*; α(N+..)=5.05×10^{-5} *13* α(N)=3.6×10^{-6} *4*; α(O)=4.3×10^{-7} *5*; α(IPF)=4.64×10^{-5} *16*
1413.20	(9/2$^+$)	995.0 *2*	93 *9*	417.99	5/2$^+$				
		1413.4 *2*	100 *14*	0.0	5/2$^+$	(E2)		0.000797 *12*	B(E2)(W.u.)>2.1 α(K)=0.000647 *9*; α(L)=7.95×10^{-5} *12*; α(M)=1.591×10^{-5} *23*; α(N+..)=5.50×10^{-5} *8* α(N)=3.22×10^{-6} *5*; α(O)=3.78×10^{-7} *6*; α(IPF)=5.14×10^{-5} *8*
1442.9	1/2$^+$,3/2$^+$,5/2$^+$	1442.9[g] *12*	100	0.0	5/2$^+$				
1480.0	(15/2$^+$)	763.5[#] *3*	100	716.50	(11/2$^+$)	(E2)		0.00285 *4*	α(K)=0.00245 *4*; α(L)=0.000321 *5*; α(M)=6.47×10^{-5} *9*; α(N+..)=1.453×10^{-5} *21* α(N)=1.303×10^{-5} *19*; α(O)=1.499×10^{-6} *21*
1516.65?		1142.1 *2*	41 *4*	374.992	1/2$^+$				
		1516.2 *2*	100 *11*	0.0	5/2$^+$				
1555.6	(1/2$^+$,3/2$^+$,5/2$^+$)	1555.6 *17*	100	0.0	5/2$^+$				
1654.08		909.4 *2*	≈100	744.71	9/2$^{(+)}$				
		1235.5 *10*	≈18	417.99	5/2$^+$				

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Adopted Levels, Gammas (continued)

$\gamma(^{127}I)$ (continued)

E_i(level)	J_i^π	E_γ [†]	I_γ	E_f	J_f^π	Mult.[d]	α[f]	Comments
1654.08		1653.1 *20*	≈12	0.0	$5/2^+$			
1658.6	$5/2^+$,$3/2^+$	1601.1 *8*	46 *13*	57.608	$7/2^+$			
		1658.6 *3*	100 *7*	0.0	$5/2^+$			
1675.8	$(11/2^+)$	325.6# *10*	100	1350.2	$(9/2^+)$			
1775.5		1358.0 *9*	33 *17*	417.99	$5/2^+$			
		1774.3 *13*	100 *42*	0.0	$5/2^+$			
1860.4		1802.9 *17*	30 *17*	57.608	$7/2^+$			
		1860.4 *4*	100 *13*	0.0	$5/2^+$	D,Q		
1869.5	$(3/2^+,5/2^+)$	1869.5 *9*	100	0.0	$5/2^+$			
1876.7	$(17/2^+)$	610.1# *4*	100	1266.6	$(13/2^+)$	(E2)	0.00500 *7*	α(K)=0.00427 *6*; α(L)=0.000583 *9*; α(M)=0.0001177 *17*; α(N+..)=2.63×10^{-5} *4* α(N)=2.36×10^{-5} *4*; α(O)=2.69×10^{-6} *4*
1894.0	$(15/2)^-$	658.9# *10*	100	1235.07	$(11/2)^-$	(E2)	0.00410 *6*	α(K)=0.00351 *5*; α(L)=0.000472 *7*; α(M)=9.53×10^{-5} *14*; α(N+..)=2.13×10^{-5} *4* α(N)=1.92×10^{-5} *3*; α(O)=2.19×10^{-6} *4*
2072.2	$(13/2^+)$	396.5# *4*	100 *25*	1675.8	$(11/2^+)$			
		722.0# *10*	25 *13*	1350.2	$(9/2^+)$			
2075.4?		2017	100 *39*	57.608	$7/2^+$			E_γ: complex peak.
		2076.5 *12*	67 *28*	0.0	$5/2^+$			
2360.1	$(19/2^+)$	880.1# *5*	100	1480.0	$(15/2^+)$	(E2)	0.00204 *3*	α(K)=0.001757 *25*; α(L)=0.000226 *4*; α(M)=4.55×10^{-5} *7*; α(N+..)=1.023×10^{-5} *15* α(N)=9.17×10^{-6} *13*; α(O)=1.062×10^{-6} *15*
2412.3	$(15/2^+)$	340.1# *4*	100 *25*	2072.2	$(13/2^+)$			
		736.0# *10*	25 *13*	1675.8	$(11/2^+)$			
2545.8	$(19/2)^-$	651.8# *10*	100	1894.0	$(15/2)^-$	(E2)	0.00421 *7*	α(K)=0.00361 *6*; α(L)=0.000486 *8*; α(M)=9.81×10^{-5} *15*; α(N+..)=2.20×10^{-5} *4* α(N)=1.97×10^{-5} *3*; α(O)=2.25×10^{-6} *4*
2810.2	$(21/2^+)$	933.5# *10*	100	1876.7	$(17/2^+)$	(E2)	0.00178 *3*	α(K)=0.001539 *22*; α(L)=0.000197 *3*; α(M)=3.95×10^{-5} *6*; α(N+..)=8.90×10^{-6} *13* α(N)=7.97×10^{-6} *12*; α(O)=9.25×10^{-7} *14*
2975.8	$(23/2)^-$	430.0# *10*	100	2545.8	$(19/2)^-$	(E2)	0.01321 *21*	α(K)=0.01115 *18*; α(L)=0.00165 *3*; α(M)=0.000335 *6*; α(N+..)=7.44×10^{-5} *12* α(N)=6.69×10^{-5} *11*; α(O)=7.42×10^{-6} *12*
3350.3		374.5# *5*	100	2975.8	$(23/2)^-$			

[†] From (n,n′γ), unless otherwise noted.

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Adopted Levels, Gammas (continued)

$\gamma(^{127}I)$ (continued)

‡ From ^{127}Xe ε decay.
# From $^{124}Sn(^{6}Li,3n\gamma)$.
@ From Coul. ex.
& Weighted av from ^{127}Te β^- decay (9.35 h) and (36.4 d), Coul. ex., and (n,n′γ).
[a] Weighted av from Coul. ex. and (n,n′γ).
[b] Weighted av from ^{127}Te β^- decay (109 d), Coul. ex., ($^{6}Li,3n\gamma$), and (n,n′γ).
[c] Weighted av from Coul. ex., ($^{6}Li,3n\gamma$) and (n,n′γ).
[d] Multipolarities are based on L-subshell ratios in ^{127}Xe ε decay, $\gamma\gamma(\theta)$ in ^{127}Te β^- decay and ^{127}Xe ε decay, and $\gamma(\theta)$ in Coul. ex. ($^{6}Li,3n\gamma$) and ^{127}I(n,n′γ).
[e] From ^{127}Xe ε decay and ^{127}Te β^- decay as given by 1977Kr13 and 1980Kr22, unless otherwise noted.
[f] 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.
[g] Placement of transition in the level scheme is uncertain.

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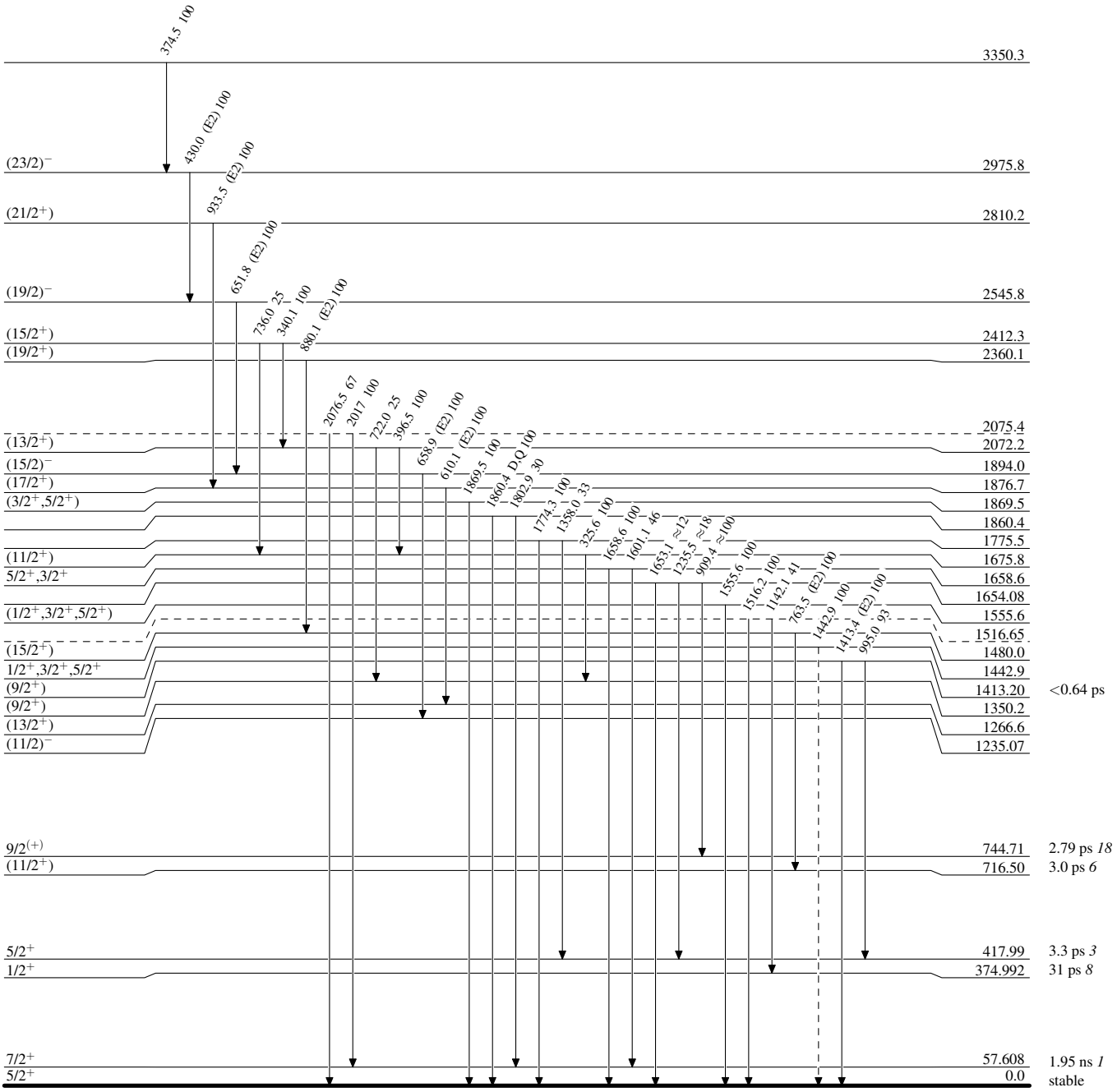
Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



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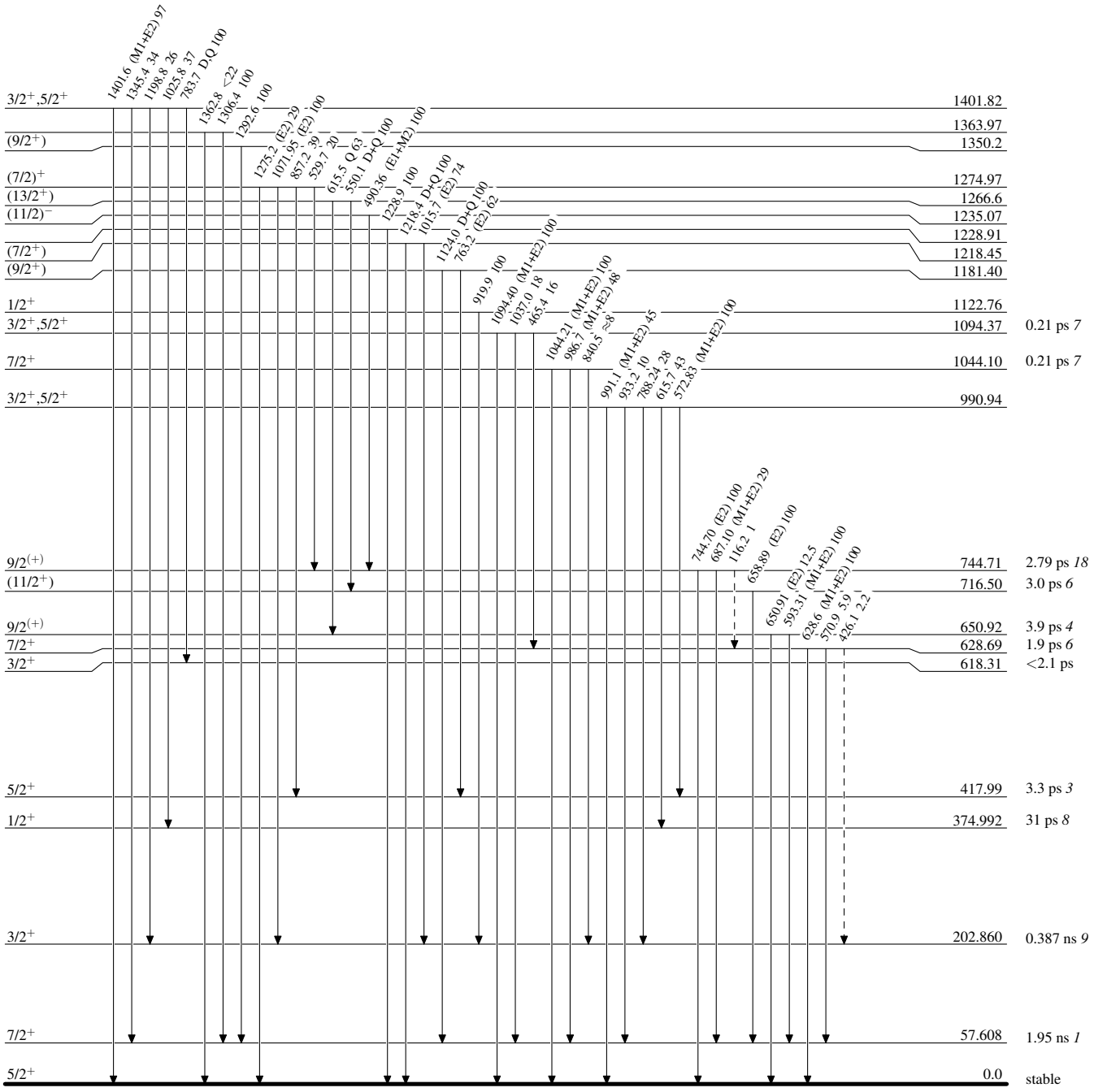
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



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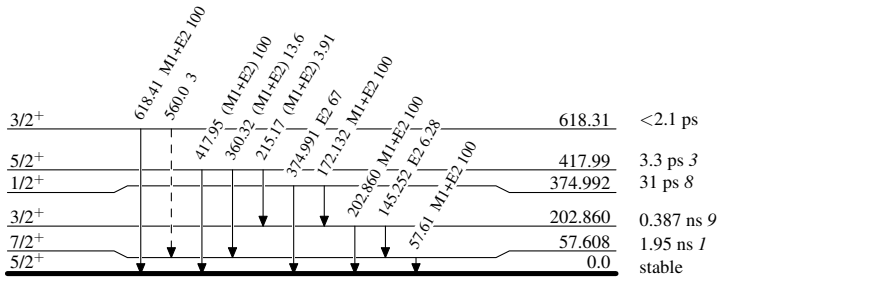
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

– – – – – – ► γ Decay (Uncertain)



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