Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	C. D. Nesaraja	NDS 195,718 (2024)	12-Oct-2023

Q(β^-)=904.4 *26*; S(n)=4713.37 *25*; S(p)=7100 *syst*; Q(α)=5148 *13* 2021Wa16
ΔS(p)=200 (syst,2021Wa16).
S(2n)=10925 *4*, S(2p)=13040 *200* (syst) (2021Wa16).

^{249}Cm Levels

Cross Reference (XREF) Flags

A	^{253}Cf α decay	E	^{248}Cm(α,^{3}He)	I	^{248}Cm(^{18}O,^{16}O nγ)
B	^{248}Cm(n,γ)E=th:primary γ's	F	^{248}Cm(^{13}C,^{12}Cγ)	J	^{248}Cm(^{209}Bi,^{208}Biγ)
C	^{248}Cm(n,γ)E=th:secondary γ's	G	^{248}Cm(^{16}O,^{15}Oγ)		
D	^{248}Cm(d,p)	H	^{248}Cm(^{18}O,^{17}Oγ)		

E(level)	J^π	$T_{1/2}$	XREF	Comments
0.0#	1/2$^+$	64.15 min *3*	ABCD FGHIJ	%β^-=100 J^π: from (d,p) measurements by 1971Br27 based on DWBA analysis of cross sections, Nilsson level systematics for N=153 isotones (^{251}Cf, ^{253}Fm, ^{255}No) and calculated bandhead energies using the cranked shell model with the pairing correlations (2012Zh01). %β^-: No α decay observed. Calculated $T_{1/2}(\alpha)\approx 1\times10^8$ d (2019Mo01). $T_{1/2}$: from 1973DrZM. No details have been provided by 1973DrZM. Prior evaluations in Nuclear Data Sheets (2011Ab07, 1999Ar21, 1990Sc03, 1981Sc22, 1976Sc09) have cited an incorrect reference. Other: 64 min *3* (1958Ea06), 64.3 min *6* (1975HoZA). It is noted that the evaluator is unable to verify this value.
26.2‡ *10*	3/2$^+$		CD FGHIJ	J^π: from (d,p) measurements by 1971Br27 based on DWBA analysis of cross sections, and band member.
48.2# *10*	5/2$^+$		CD FGHIJ	J^π: from (d,p) measurements by 1971Br27 based on DWBA analysis of cross sections, and band member.
48.8@ *10*	(7/2$^+$)	23 μs	A C FGHI	J^π: from favored α decay from (7/2$^+$) ^{253}Cf. $T_{1/2}$: from delayed coin (1966As12). It is noted that the evaluator is unable to verify this value as this private communication is not available.
109.6@ *10*	(9/2$^+$)		A dEFGHI	XREF: F(108.81). J^π: (M1) 60.80γ to (7/2$^+$) 48.774-keV level, band member.
110.2‡ *10*	7/2$^+$		Cd FGHIJ	J^π: 83.922γ to 3/2$^+$ 26.230-keV level, band member.
148.4# *10*	9/2$^+$		D FGHIJ	J^π: from (d,p) measurements by 1971Br27 based on DWBA analysis of cross sections and band member.
182.8@ *10*	(11/2$^+$)		FGHI	J^π: (M1) 73.60γ to (9/2$^+$) 109.55-keV level, band member.
208.0& *10*	3/2$^+$		BCD FGH	J^π: J=1/2 or 3/2 from being populated by primary gamma (4505.0γ). 159.215γ to (7/2$^+$) 48.774-keV level and from (d,p) measurements by 1971Br27 based on DWBA analysis of cross sections and band member.
220 *5*	(9/2$^+$)		D	J^π: from (d,p) measurements by 1971Br27 based on DWBA analysis of cross sections.
242.0& *10*	5/2$^+$		CD FGH	J^π: from (d,p) measurements by 1971Br27 based on DWBA analysis of cross sections, and band member.
244.8‡ *10*	11/2$^+$		FGHIJ	J^π: (E2) 134.60γ to 7/2$^+$ 110.160-keV level, band member.
268.8@ *10*	(13/2$^+$)		FGHI	J^π: (M1) 86.00γ to (11/2$^+$) 182.89-keV level, band member.
289.1& *10*	7/2$^+$		CD FGH	J^π: from (d,p) measurements by 1971Br27 based on DWBA analysis of cross

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Adopted Levels, Gammas (continued)

^{249}Cm Levels (continued)

E(level)	J^π	$T_{1/2}$	XREF	Comments
				sections, and band member.
299.0[#] *10*	(13/2$^+$)		FGHIJ	J^π: (E2) 150.6γ to 9/2$^+$ 148.40-keV level, band member.
300 *5*	(11/2$^+$)		D	J^π: from (d,p) measurements by 1971Br27 based on DWBA analysis of cross sections, and band member.
307.1 *11*			B	
350[&] *1*	9/2$^+$		DE	J^π: from (d,p) measurements by 1971Br27 based on DWBA analysis of cross sections, and band member. E(level): from (d,p). Other: 350 *5* from (α,^{3}He).
375.3[e] *10*	(11/2$^-$)	19.4 ns *16*	FGHI	J^π: E1 265.7γ to (9/2$^+$) 109.55-keV level, 182.89-keV level, and configuration 11/2[725]. Configuration=11/2[725]. $T_{1/2}$: Weighted average of 18.7 ns *9* from (particle)(266γ)(t) and 23 ns *2* from (particle)(193γ)(t) in the one-neutron stripping reaction ^{248}Cm(^{16}O,^{15}Oγ) (2008Is05).
429.8[‡] *10*	15/2$^+$		FGHIJ	J^π: (E2) 185.00γ to 11/2$^+$ 244.76-keV level, band member.
452 *5*			E	
470.2[a] *10*	3/2$^-$		BCD FGH	J^π: from (d,p) measurements by 1971Br27 based on DWBA analysis of cross sections, 470.197γ to 1/2$^+$ g.s.
494.5 *10*	(1/2$^-$,3/2$^-$)		BC FGH	J^π: J=1/2 or 3/2 from being populated by primary gamma (4219.0γ). Intense primary gammas are often E1 transitions (1982Ho07).
498.6[#] *10*	(17/2$^+$)		FGHIJ	J^π: (E2) 199.59γ to (13/2$^+$) 299.00-keV level, band member.
502.0[a] *10*	7/2$^-$		D FGH	J^π: from (d,p) measurements by 1971Br27 based on DWBA analysis of cross sections, and band member.
518? *4*			D	
526.5[f] *10*	(9/2$^+$)		D FGH	XREF: D(528). J^π: from anisotropy data in 2008Is05.
529.7[b] *10*	(5/2$^+$)		C	J^π: 240.618γ to 7/2$^+$ 289.09-keV level, band member.
533[e] *5*	(15/2$^-$)[†]		E	
546.9 *10*	(5/2$^-$)		CD	J^π: 257.74γ to 7/2$^+$ 289.09-keV level, 76.64γ to 3/2- 470.207-keV level, 339.23γ to 3/2$^+$ 208.001-keV level, band member.
577.5[a] *10*	(11/2$^-$)		D FGH	J^π: (E1) 429.1γ to 9/2$^+$ 148.40-keV level, (E1) 278.5γ to (13/2$^+$) 299.00-keV level.
578.4[b] *10*	(7/2$^+$)		C	J^π: 468.259γ to 7/2$^+$ 110.160-keV level, band member.
604[f] *6*	(11/2$^+$)[†]		E	
634 *2*			D	
663.5[‡] *10*	19/2$^+$		FGHIJ	J^π: (E2) 233.71γ to 15/2$^+$ 429.76-keV level, band member.
690.7 *11*			B D	
699.1[a] *10*	(15/2$^-$)		FGHI	J^π: (E1) 400.1γ to (13/2$^+$) 299.00-keV level, band member.
718 *5*			E	
744.8[#] *12*	(21/2$^+$)		J	J^π: 246.2γ to (17/2$^+$) 498.59-keV, band member.
772.8[c] *10*	(3/2$^-$)		C	J^π: 772.80γ to 1/2$^+$ g.s., configuration from calculation with Coriolis interaction by 1982Ho07, consistent with rotational parameter A=8.0.
818.9[c] *10*	(5/2$^-$)		C	J^π: 240.451γ to (7/2$^+$) to 578.421-keV level, band member.
859.0 *10*	(1/2,3/2)		BC	J^π: J=1/2 or 3/2 from being populated by primary gamma (3854.5γ).
868.3[a] *11*	(19/2$^-$)		FGHI	J^π: (E1) 369.7γ to (17/2$^+$) 498.59-keV level, band member.
870[c] *4*	(7/2$^-$)		D	J^π: band member. This state is expected to be populated strongly by the (d,p) reaction as suggested by the authors in 1982Ho07.
917.6[d] *10*	(1/2$^-$)		BCD	J^π: J=1/2 or 3/2 from being populated by primary gamma (3796.1γ). Band head energy assigned by 1982Ho07 based on calculated excitation energy of the odd-neutron configuration 1/2$^-$[501] for ^{243}Cm, ^{245}Cm, ^{247}Cm and ^{249}Cm by 1971Ga20. Configuration=1/2$^-$[501].

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Adopted Levels, Gammas (continued)

^{249}Cm Levels (continued)

E(level)	J^π	$T_{1/2}$	XREF	Comments
943.3[‡] *11*	(23/2$^+$)		J	J$^\pi$: 279.8γ to 19/2$^+$ 663.47-keV level, band member.
963.1[d] *10*	(3/2$^-$)		BC	J$^\pi$: 963.06γ to 1/2$^+$ g.s., band member.
971.2[d] *10*	(5/2$^-$)[†]		C	
1011.6 *11*	(1/2,3/2)		B	J$^\pi$: J=1/2 or 3/2 from being populated by primary gamma (3702.1γ).
1029.9 *11*	(5/2$^+$,7/2$^+$,9/2$^+$)	<1.4 ps	EFGH	J$^\pi$: (M1) 981.1γ to (7/2$^+$) 48.199-keV level. T$_{1/2}$: From estimated lifetime by 2008Is05 to be much shorter than 2 ps stopping time of the Doppler-shifted 981γ in the thick target backing in the ^{248}Cm(^{18}O,^{17}Oγ).
1030[c] *7*	(11/2$^-$)		D	J$^\pi$: band member. This state is expected to be populated strongly by the (d,p) reaction as suggested by the authors in 1982Ho07.
1034.0[#] *13*	(25/2$^+$)[†]		J	
1047.8 *10*	(1/2,3/2)		BC	J$^\pi$: J=1/2 or 3/2 from being populated by primary gamma (3663.5γ).
1090 *5*			E	
1153.4 *10*	(1/2,3/2)		BC	J$^\pi$: J=1/2 or 3/2 from being populated by primary gamma (3560.6γ).
1175.9 *10*	(1/2,3/2)		BC	J$^\pi$: J=1/2 or 3/2 from being populated by primary gamma (3538.3γ).
1204.0 *11*	(1/2,3/2)		B D	J$^\pi$: J=1/2 or 3/2 from being populated by primary gamma (3509.7γ).
1263.6 *11*	(1/2,3/2)		B	J$^\pi$: J=1/2 or 3/2 from being populated by primary gamma (3450.1γ).
1266.0[‡] *13*	(27/2$^+$)[†]		J	
1269.5 *10*	(1/2,3/2)		BC E	J$^\pi$: J=1/2 or 3/2 from being populated by primary gamma (3444.9γ).
1314.7 *11*	(1/2,3/2)		B	J$^\pi$: J=1/2 or 3/2 from being populated by primary gamma (3399.0γ).
1358 *5*	(13/2$^+$)		DE	J$^\pi$: from ^{248}Cm(^{4}He,^{3}He) (2009Ah03). Configuration=1/2[880] (2009Ah03). E(level): weighted average of 1353 *7* from (d,p) and 1360 *5* from (α,^{3}He).
1363.9[#] *14*	(29/2$^+$)[†]		J	
1382 *7*			D	
1504.8 *12*	(17/2$^+$)		EFGH	J$^\pi$: from ^{248}Cm(^{4}He,^{3}He) (2009Ah03). Configuration=1/2[880] (2009Ah03).
1528 *7*			D	
1550 *7*			D	
1570 *7*			D	
1627.9[‡] *13*	(31/2$^+$)[†]		J	
1650 *7*			D	
1730.2[#] *15*	(33/2$^+$)[†]		J	
1838 *5*	(15/2$^-$)		E	J$^\pi$: from ^{248}Cm(^{4}He,^{3}He) (2009Ah03). Configuration=13/2[716] (2009Ah03).
2024.6[‡] *14*	(35/2$^+$)[†]		J	
2128.4[#] *15*	(37/2$^+$)[†]		J	
2450.2[‡] *15*	(39/2$^+$)[†]		J	
2553.1[#] *16*	(41/2$^+$)[†]		J	
2899.1[‡] *16*	(43/2$^+$)[†]		J	
2998.6[#] *17*	(45/2$^+$)[†]		J	
3365.1[‡] *17*	(47/2$^+$)[†]		J	
3461.6[#] *18*	(49/2$^+$)[†]		J	
3843.0[‡] *18*	(51/2$^+$)		J	
3937.7[#] *18*	(53/2$^+$)[†]		J	
4336.8[‡] *18*	(55/2$^+$)[†]		J	
4429.7[#] *19*	(57/2$^+$)[†]		J	
(4713.7 *10*)	1/2$^+$		B	E(level): Neutron capture state. E=S(n)= 4713.37 keV *25* (2021Wa16) is in agreement with the deduced value of 4713.7 keV *4* by

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Adopted Levels, Gammas (continued)

^{249}Cm Levels (continued)

E(level)	J^π	$T_{1/2}$	XREF	Comments
				19802Ho07.
				J^π: from s-wave capture on the 0^+ target, $J^\pi=1/2^+$ or $3/2^+$; no gammas to levels with J>5/2.

† From band member.
‡ Band(A): 1/2[620],α=−1/2 A=6.5.
# Band(a): 1/2[620],α=+1/2 A=6.2.
@ Band(B): 7/2[613] A=6.7.
& Band(C): 3/2[622] A=6.8.
a Band(D): 1/2[761] A=4.9. This band was labeled as $1/2^-$[750] by 1971Br27. A=8.0. Decrease of value A from the average 6.4 for unperturbed is presumed due to Coriolis interaction (1982Ho07).
b Band(E): 5/2[622] A=7.0.
c Band(F): 3/2[752] A=8.0. Increase of value A from the average 6.4 for unperturbed is presumed due to Coriolis interaction (1982Ho07).
d Band(G): 1/2[501] A=6.2.
e Band(H): 11/2[725] A=5.6.
f Band(I): 9/2[615] A=5.6.

Adopted Levels, Gammas (continued)

γ(^{249}Cm)

Additional information 1.

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.[@]	α[&]	Comments
109.6	(9/2$^+$)	60.80 *1*	100	48.8	(7/2$^+$)	(M1)	29.5 *4*	α(N)=1.491 *21*; α(O)=0.380 *5*; α(P)=0.0748 *10*; α(Q)=0.00539 *8* α(L)=22.15 *31*; α(M)=5.43 *8* E_γ: from (^{13}C,^{12}Cγ). Others: 60.8 *1* from (^{16}O,^{15}Oγ), 60.8 *1* from (^{18}O,^{17}Oγ), and 60.8 *1* from (^{18}O,^{16}Onγ).
110.2	7/2$^+$	83.922 *7*	100	26.2	3/2$^+$			E_γ: from (n,γ)E=th:secondary γ′s.
182.8	(11/2$^+$)	73.6 *3*	100	109.6	(9/2$^+$)	(M1)	16.89 *31*	α(L)=12.68 *23*; α(M)=3.10 *6* α(N)=0.853 *16*; α(O)=0.217 *4*; α(P)=0.0428 *8*; α(Q)=0.00308 *6* E_γ: from (^{13}C,^{12}Cγ). Others: 73.6 *3* from (^{16}O,^{15}Oγ), 73.6 *3* from (^{18}O,^{17}Oγ), and 73.6 *3* from (^{18}O,^{16}Onγ).
208.0	3/2$^+$	97.799[‡b] *10*	28[‡] *5*	110.2	7/2$^+$			
		159.215[‡] *21*	63[‡] *15*	48.8	(7/2$^+$)			
		159.765[‡] *16*	57[‡] *12*	48.2	5/2$^+$	[M1]	8.35 *12*	α(K)=6.55 *9*; α(L)=1.352 *19*; α(M)=0.331 *5* α(N)=0.0908 *13*; α(O)=0.02314 *32*; α(P)=0.00455 *6*; α(Q)=0.000326 *5*
		181.778[‡] *11*	65[‡] *14*	26.2	3/2$^+$			
		208.011 *7*	100 *14*	0.0	1/2$^+$	[M1]	3.97 *6*	α(K)=3.11 *4*; α(L)=0.639 *9*; α(M)=0.1562 *22* α(N)=0.0429 *6*; α(O)=0.01093 *15*; α(P)=0.002150 *30*; α(Q)=0.0001537 *22*
242.0	5/2$^+$	193.24[‡b] *6*	69[‡] *16*	48.8	(7/2$^+$)			
		193.805[‡] *20*	100[‡] *15*	48.2	5/2$^+$			
		242.01[‡] *8*	35[‡] *5*	0.0	1/2$^+$			
244.8	11/2$^+$	134.6 *1*	100	110.2	7/2$^+$	(E2)	4.94 *7*	α(K)=0.1530 *22*; α(L)=3.46 *5*; α(M)=0.978 *14* α(N)=0.272 *4*; α(O)=0.0660 *10*; α(P)=0.01106 *16*; α(Q)=6.08×10^{-5} *9* E_γ: from (^{13}C,^{12}Cγ). Others: 134.6 *1* from (^{16}O,^{15}Oγ), 134.6 *1* from (^{18}O,^{17}Oγ), and 134.6 *1* from (^{18}O,^{16}Onγ).
268.8	(13/2$^+$)	86.0 *2*	100	182.8	(11/2$^+$)	(M1)	10.74 *17*	α(L)=8.06 *13*; α(M)=1.971 *31* α(N)=0.542 *8*; α(O)=0.1380 *21*; α(P)=0.0272 *4*; α(Q)=0.001953 *30* E_γ: from (^{13}C,^{12}Cγ). Others: 86.0 *2* from (^{16}O,^{15}Oγ), 86.0 *2* from (^{18}O,^{17}Oγ), and 86.0 *2* from (^{18}O,^{16}Onγ).
289.1	7/2$^+$	240.51 *9*	63 *10*	48.8	(7/2$^+$)	[M1]	2.64 *4*	α(K)=2.074 *29*; α(L)=0.425 *6*; α(M)=0.1038 *15* α(N)=0.0285 *4*; α(O)=0.00726 *10*; α(P)=0.001428 *20*; α(Q)=0.0001019 *14* E_γ: unweighted average of 240.253 *9* from (n,γ)E=th:secondary γ′s, 240.6 *1* from (^{13}C,^{12}Cγ), 240.6 *1* from (^{16}O,^{15}Oγ), and 240.6 *1* from (^{18}O,^{17}Oγ). I_γ: from (n,γ)E=th:secondary γ′s.
		240.65[†] *5*	100 *18*	48.2	5/2$^+$	[M1]	2.64 *4*	α(K)=2.070 *29*; α(L)=0.424 *6*; α(M)=0.1036 *15* α(N)=0.0284 *4*; α(O)=0.00725 *10*; α(P)=0.001426 *20*; α(Q)=0.0001018 *14*

$^{249}_{96}Cm_{153}$-5

Adopted Levels, Gammas (continued)

γ(^{249}Cm) (continued)

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.[@]	α[&]	Comments
								E_γ: uncertainty multiplied by a factor of 2 in the fitting; level-energy difference=240.90.
								E_γ: unweighted average of 240.780 *20* from (n,γ)E=th:secondary γ′s, 240.6 *1* from (^{13}C,^{12}Cγ), 240.6 *1* from (^{16}O,^{15}Oγ), and 240.6 *1* from (^{18}O,^{17}Oγ).
								I_γ: from (n,γ)E=th:secondary γ′s.
299.0	(13/2$^+$)	150.6 *1*	100	148.4	9/2$^+$	(E2)	3.07 *4*	α(K)=0.1733 *24*; α(L)=2.094 *30*; α(M)=0.590 *8* α(N)=0.1642 *23*; α(O)=0.0399 *6*; α(P)=0.00670 *10*; α(Q)=4.20×10^{-5} *6* E_γ: from (^{13}C,^{12}Cγ). Others: 150.6 *1* from (^{16}O,^{15}Oγ), 150.6 *1* from (^{18}O,^{17}Oγ), and 150.6 *1* from (^{18}O,^{16}Onγ).
375.3	(11/2$^-$)	192.5 *1*	40.9 *32*	182.8	(11/2$^+$)			B(E1)(W.u.)=3.34×10^{-7} *+38−34* α(N)=0.001340 *19*; α(O)=0.000333 *5*; α(P)=6.06×10^{-5} *9*; α(Q)=3.05×10^{-6} *4* E_γ: from (^{13}C,^{12}Cγ). Others: 192.5 *1* from (^{16}O,^{15}Oγ), 192.5 *1* from (^{18}O,^{17}Oγ), and 192.5 *1* from (^{18}O,^{16}Onγ).
								I_γ: unweighted average of 47.0 *28* from (^{13}C,^{12}Cγ), 32.3 *20* from (^{16}O,^{15}Oγ), 40.2 *20* from (^{18}O,^{17}Oγ), and 44 *5* from (^{18}O,^{16}Onγ).
		265.7 *1*	100 *6*	109.6	(9/2$^+$)	E1	0.0566	α(K)=0.0443 *6*; α(L)=0.00928 *13*; α(M)=0.002267 *32* α(N)=0.000618 *9*; α(O)=0.0001543 *22*; α(P)=2.86×10^{-5} *4*; α(Q)=1.561×10^{-6} *22* B(E1)(W.u.)=3.10×10^{-7} *+29−25* Mult.: D from the ratio Iγ(in-plane)/Iγ(out-plane) in the one-neutron stripping reaction ^{248}Cm(^{16}O,^{15}Oγ) (2008Is05). M1 can be ruled out from RUL. E_γ: from (^{16}O,^{15}Oγ) . Others: 100 *5* from (^{13}C,^{12}Cγ), 100 *5* from (^{18}O,^{17}Oγ), and 100 *6* from (^{18}O,^{16}Onγ).
429.8	15/2$^+$	185.0 *1*	100	244.8	11/2$^+$	(E2)	1.331 *19*	α(K)=0.1585 *22*; α(L)=0.849 *12*; α(M)=0.2384 *34* α(N)=0.0663 *9*; α(O)=0.01612 *23*; α(P)=0.00273 *4*; α(Q)=2.228×10^{-5} *31* E_γ: from (^{13}C,^{12}Cγ). Others: 185.0 *1* from (^{16}O,^{15}Oγ), 185.0 *1* from (^{18}O,^{17}Oγ), 185.0 *1* from (^{18}O,^{16}Onγ), and 185.2 *5* from (^{209}Bi,^{208}Biγ).
470.2	3/2$^-$	422.015 *6*	100 *17*	48.2	5/2$^+$			E_γ: from (n,γ)E=th:secondary γ′s. Others: 422.0 *1* from (^{13}C,^{12}Cγ), 422.0 *1* from (^{16}O,^{15}Oγ), and 422.0 *1* from (^{18}O,^{17}Oγ).
		444.10[b] *8*	6.9 *22*	26.2	3/2$^+$			E_γ: from (n,γ)E=th:secondary γ′s.
		470.197 *9*	83 *20*	0.0	1/2$^+$	[E1]	0.01732 *24*	α(K)=0.01380 *19*; α(L)=0.00264 *4*; α(M)=0.000640 *9* α(N)=0.0001746 *24*; α(O)=4.39×10^{-5} *6*; α(P)=8.36×10^{-6} *12*; α(Q)=5.14×10^{-7} *7* E_γ: weighted average of 470.198 *9* from (n,γ)E=th:secondary γ′s, 470.1 *2* from (^{13}C,^{12}Cγ), 470.1 *2* from (^{16}O,^{15}Oγ), and 470.1 *2* from

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Adopted Levels, Gammas (continued)

γ(^{249}Cm) (continued)

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.[@]	α[&]	Comments
								(^{18}O,^{17}Oγ).
								I_γ: from (n,γ)E=th:secondary γ′s.
494.5	(1/2$^-$,3/2$^-$)	468.259 *8*	78 *15*	26.2	3/2$^+$			E_γ: from (n,γ)E=th:secondary γ′s. Others: 468.1 *3* from (^{13}C,^{12}Cγ), 468.1 *3* from (^{16}O,^{15}Oγ), and 468.1 *3* from (^{18}O,^{17}Oγ).
								I_γ: from (n,γ)E=th:secondary γ′s.
		494.484 *3*	100 *22*	0.0	1/2$^+$			E_γ: from (n,γ)E=th:secondary γ′s. Others: 494.3 *2* from (^{13}C,^{12}Cγ), 494.3 *2* from (^{16}O,^{15}Oγ), and 494.3 *2* from (^{18}O,^{17}Oγ).
								I_γ: from (n,γ)E=th:secondary γ′s.
498.6	(17/2$^+$)	199.6 *2*	100	299.0	(13/2$^+$)	(E2)	0.992 *14*	α(K)=0.1461 *21*; α(L)=0.613 *9*; α(M)=0.1718 *25* α(N)=0.0478 *7*; α(O)=0.01162 *17*; α(P)=0.001978 *29*; α(Q)=1.788×10^{-5} *26* E_γ: from (^{13}C,^{12}Cγ). Others: 199.6 *2* from (^{16}O,^{15}Oγ), 199.6 *2* from (^{18}O,^{17}Oγ), 199.6 *2* from (^{18}O,^{16}Onγ), and 199.3 *5* from (^{209}Bi,^{208}Biγ).
502.0	7/2$^-$	353.6 *1*	93 *13*	148.4	9/2$^+$	[E1]	0.0308 *4*	α(K)=0.02430 *34*; α(L)=0.00486 *7*; α(M)=0.001181 *17* α(N)=0.000322 *5*; α(O)=8.08×10^{-5} *11*; α(P)=1.519×10^{-5} *21*; α(Q)=8.83×10^{-7} *12* E_γ: from (^{16}O,^{15}Oγ). I_γ: from (^{16}O,^{15}Oγ). Others 85 *5* from (^{13}C,^{12}Cγ), and 82 *5* from (^{18}O,^{17}Oγ).
		453.8 *1*	100 *5*	48.2	5/2$^+$	[E1]	0.01856 *26*	α(K)=0.01478 *21*; α(L)=0.00285 *4*; α(M)=0.000689 *10* α(N)=0.0001881 *26*; α(O)=4.73×10^{-5} *7*; α(P)=8.98×10^{-6} *13*; α(Q)=5.49×10^{-7} *8* E_γ: from (^{16}O,^{15}Oγ). I_γ: from (^{18}O,^{17}Oγ).
526.5	(9/2$^+$)	417.0 *1*	79 *9*	109.6	(9/2$^+$)			E_γ: from (^{16}O,^{15}Oγ). I_γ: from (^{16}O,^{15}Oγ). Others 54 *4* from (^{13}C,^{12}Cγ), and 54 *4* from (^{18}O,^{17}Oγ).
		477.6 *1*	100 *7*	48.8	(7/2$^+$)			E_γ,I_γ: from (^{16}O,^{15}Oγ).
529.7	(5/2$^+$)	240.618[‡] *15*	100[‡] *17*	289.1	7/2$^+$			
		321.9[‡b] *4*	31[‡] *21*	208.0	3/2$^+$			
546.9	(5/2$^-$)	76.647[a‡] *4*	39[a‡] *8*	470.2	3/2$^-$			
		257.74[‡b] *5*	100[‡] *31*	289.1	7/2$^+$			
		339.23[†‡] *12*	26[‡] *7*	208.0	3/2$^+$			E_γ: uncertainty multiplied by a factor of 2 in the fitting; level-energy difference=338.857.
577.5	(11/2$^-$)	278.5 *1*	36 *4*	299.0	(13/2$^+$)	(E1)	0.0511 *7*	α(K)=0.0400 *6*; α(L)=0.00832 *12*; α(M)=0.002031 *28* α(N)=0.000554 *8*; α(O)=0.0001383 *19*; α(P)=2.57×10^{-5} *4*;

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Adopted Levels, Gammas (continued)

γ(^{249}Cm) (continued)

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.[@]	α[&]	Comments
								α(Q)=1.419×10^{-6} *20* E_γ,I_γ: from (^{16}O,^{15}Oγ).
577.5	(11/2$^-$)	429.1 *1*	100 *6*	148.4	9/2$^+$	(E1)	0.02074 *29*	α(K)=0.01649 *23*; α(L)=0.00320 *4*; α(M)=0.000776 *11* α(N)=0.0002117 *30*; α(O)=5.32×10^{-5} *7*; α(P)=1.008×10^{-5} *14*; α(Q)=6.10×10^{-7} *9* E_γ,I_γ: from (^{16}O,^{15}Oγ).
578.4	(7/2$^+$)	468.259[a] *8*	100[a]	110.2	7/2$^+$			E_γ,I_γ: from (^{16}O,^{15}Oγ).
663.5	19/2$^+$	233.7 *1*	100	429.8	15/2$^+$	(E2)	0.554 *8*	α(N)=0.02452 *35*; α(O)=0.00598 *8*; α(P)=0.001025 *14*; α(Q)=1.156×10^{-5} *16* α(K)=0.1183 *17*; α(L)=0.316 *4*; α(M)=0.0882 *12* E_γ: from (^{13}C,^{12}Cγ). Others: 233.7 *1* from (^{16}O,^{15}Oγ), 233.7 *1* from (^{18}O,^{17}Oγ), 233.7 *1* from (^{18}O,^{16}Onγ), and 234.4 *5* from (^{209}Bi,^{208}Biγ).
699.1	(15/2$^-$)	400.1 *1*	100	299.0	(13/2$^+$)	(E1)	0.02387 *33*	α(K)=0.01894 *27*; α(L)=0.00371 *5*; α(M)=0.000901 *13* α(N)=0.0002459 *34*; α(O)=6.17×10^{-5} *9*; α(P)=1.167×10^{-5} *16*; α(Q)=6.96×10^{-7} *10* E_γ,I_γ: from (^{16}O,^{15}Oγ).
744.8	(21/2$^+$)	246.2 *5*	100	498.6	(17/2$^+$)			E_γ: from (^{209}Bi,^{208}Biγ).
772.8	(3/2$^-$)	225.94[‡] *7*	47[‡#] *16*	546.9	(5/2$^-$)			
		278.23[‡] *7*	36[‡#] *11*	494.5	(1/2$^-$,3/2$^-$)			
		302.59 *7*	100 *33*	470.2	3/2$^-$			
		531.7[‡b] *5*	244[‡#] *78*	242.0	5/2$^+$			
		724.44[‡b] *7*	100[‡#] *32*	48.2	5/2$^+$			
		772.80[‡b] *10*	55[‡#] *14*	0.0	1/2$^+$			
818.9	(5/2$^-$)	240.451[‡] *10*	42[‡] *8*	578.4	(7/2$^+$)			
		272.04[‡] *5*	31[‡] *18*	546.9	(5/2$^-$)			
		348.75[‡] *4*	100[‡] *26*	470.2	3/2$^-$			
859.0	(1/2,3/2)	312.120[‡] *16*	22[‡] *6*	546.9	(5/2$^-$)			
		832.70[‡] *10*	100[‡] *17*	26.2	3/2$^+$			
868.3	(19/2$^-$)	369.7 *1*	100	498.6	(17/2$^+$)	(E1)	0.0281 *4*	α(K)=0.02220 *31*; α(L)=0.00441 *6*; α(M)=0.001071 *15* α(N)=0.000292 *4*; α(O)=7.33×10^{-5} *10*; α(P)=1.380×10^{-5} *19*; α(Q)=8.10×10^{-7} *11* E_γ: from (^{16}O,^{15}Oγ).
917.6	(1/2$^-$)	422.94[‡] *10*	57[‡] *15*	494.5	(1/2$^-$,3/2$^-$)			
		447.31[‡] *7*	34[‡] *11*	470.2	3/2$^-$			
		891.25[‡] *21*	100[‡] *31*	26.2	3/2$^+$			

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Adopted Levels, Gammas (continued)

γ(^{249}Cm) (continued)

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.[@]	α[&]	Comments
943.3	(23/2$^+$)	279.8 *5*	100	663.5	19/2$^+$			
963.1	(3/2$^-$)	914.74[‡] *11*	100[‡] *22*	48.2	5/2$^+$			
		963.06[‡] *9*	57[‡] *14*	0.0	1/2$^+$			
971.2	(5/2$^-$)	441.55[‡] *11*	23[‡] *7*	529.7	(5/2$^+$)			
		860.80[‡] *13*	100[‡] *25*	110.2	7/2$^+$			
1029.9	(5/2$^+$,7/2$^+$,9/2$^+$)	981.1 *5*	100	48.8	(7/2$^+$)	(M1)	0.0575 *8*	α(K)=0.0454 *6*; α(L)=0.00904 *13*; α(M)=0.002200 *31* α(N)=0.000603 *8*; α(O)=0.0001537 *22*; α(P)=3.02×10^{-5} *4*; α(Q)=2.163×10^{-6} *30* B(M1)(W.u.)>0.016 E_γ: from (^{16}O,^{15}Oγ).
1034.0	(25/2$^+$)	289.2 *5*		744.8	(21/2$^+$)			
1047.8	(1/2,3/2)	76.647[a‡] *4*	42[a‡] *9*	971.2	(5/2$^-$)			
		84.700[‡] *6*	43[‡] *9*	963.1	(3/2$^-$)			
		130.260[‡] *12*	100[‡] *27*	917.6	(1/2$^-$)			
		228.95[‡b] *3*	20.7[‡] *33*	818.9	(5/2$^-$)			
1153.4	(1/2,3/2)	182.15[‡b] *4*	75[‡] *8*	971.2	(5/2$^-$)			
		606.73[‡] *14*	75[‡] *20*	546.9	(5/2$^-$)			
		683.35[‡] *16*	75[‡] *28*	470.2	3/2$^-$			
		1127.37[‡] *22*	100[‡]	26.2	3/2$^+$			
1175.9	(1/2,3/2)	705.65[‡] *5*	48[‡] *14*	470.2	3/2$^-$			
		968.23[†‡] *12*	71[‡] *19*	208.0	3/2$^+$			E_γ: uncertainty multiplied by a factor of 2 in the fitting; level-energy difference=967.86.
		1175.8[‡] *3*	100[‡] *19*	0.0	1/2$^+$			
1266.0	(27/2$^+$)	322.7 *5*		943.3	(23/2$^+$)			
1269.5	(1/2,3/2)	1269.50[‡] *15*	100[‡]	0.0	1/2$^+$			
1363.9	(29/2$^+$)	329.9 *5*		1034.0	(25/2$^+$)			
1504.8	(17/2$^+$)	636.5 *5*	100	868.3	(19/2$^-$)	[E1]	0.00975 *14*	α(K)=0.00784 *11*; α(L)=0.001444 *20*; α(M)=0.000348 *5* α(N)=9.50×10^{-5} *13*; α(O)=2.397×10^{-5} *34*; α(P)=4.60×10^{-6} *6*; α(Q)=2.98×10^{-7} *4* E_γ: from (^{16}O,^{15}Oγ).
1627.9	(31/2$^+$)	361.9 *5*		1266.0	(27/2$^+$)			
1730.2	(33/2$^+$)	366.3 *5*		1363.9	(29/2$^+$)			
2024.6	(35/2$^+$)	396.7 *5*		1627.9	(31/2$^+$)			
2128.4	(37/2$^+$)	398.2 *5*		1730.2	(33/2$^+$)			
2450.2	(39/2$^+$)	425.6 *5*		2024.6	(35/2$^+$)			
2553.1	(41/2$^+$)	424.7 *5*		2128.4	(37/2$^+$)			
2899.1	(43/2$^+$)	448.9 *5*		2450.2	(39/2$^+$)			

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Adopted Levels, Gammas (continued)

$\gamma(^{249}Cm)$ (continued)

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Comments
2998.6	$(45/2^+)$	445.5 *5*		2553.1	$(41/2^+)$	
3365.1	$(47/2^+)$	466.0 *5*		2899.1	$(43/2^+)$	
3461.6	$(49/2^+)$	463.0 *5*		2998.6	$(45/2^+)$	
3843.0	$(51/2^+)$	477.9		3365.1	$(47/2^+)$	
3937.7	$(53/2^+)$	476.1 *5*		3461.6	$(49/2^+)$	
4336.8	$(55/2^+)$	493.8 *5*		3843.0	$(51/2^+)$	
4429.7	$(57/2^+)$	492.0		3937.7	$(53/2^+)$	
(4713.7)	$1/2^+$	3399.0 *4*	10.5 *11*	1314.7	(1/2,3/2)	
		3444.9 *6*	73.0 *30*	1269.5	(1/2,3/2)	
		3450.1[b] *5*	6.7 *13*	1263.6	(1/2,3/2)	
		3509.7 *3*	37.9 *19*	1204.0	(1/2,3/2)	
		3538.3 *3*	100.0 *4*	1175.9	(1/2,3/2)	
		3560.6 *10*	36 *5*	1153.4	(1/2,3/2)	
		3663.5 *3*	29.5 *18*	1047.8	(1/2,3/2)	E_γ: very poor fit and omitted in the fitting; level-energy difference=3665.84.
		3702.1 *4*	9.2 *8*	1011.6	(1/2,3/2)	
		3750.7 *3*	62.0 *30*	963.1	$(3/2^-)$	
		3796.1 *3*	21.2 *12*	917.6	$(1/2^-)$	
		3854.5[b] *8*	5.5 *21*	859.0	(1/2,3/2)	
		4022.9 *4*	12.9 *12*	690.7		
		4219.0 *3*	57.1 *24*	494.5	$(1/2^-,3/2^-)$	
		4243.5 *3*	35.2 *16*	470.2	$3/2^-$	
		4406.5 *4*	7.5 *7*	307.1		
		4505.0 *3*	12.4 *8*	208.0	$3/2^+$	
		4713.4 *4*	8.6 *7*	0.0	$1/2^+$	

† Poor fit; uncertainty multiplied by a factor in the fitting.
‡ From (n,γ) E=th:secondary γ's.
# Normalized to strongest branch. Note that the gamma with the strongest branch is considered tentative.
@ From the ratio Iγ(in-plane)/Iγ(out-plane) in the one-neutron stripping reaction ^{248}Cm(^{16}O,^{15}Oγ) (2008Is05) and from assignment to rotational band except, as noted.
& Additional information 2.
[a] Multiply placed with undivided intensity.
[b] Placement of transition in the level scheme is uncertain.

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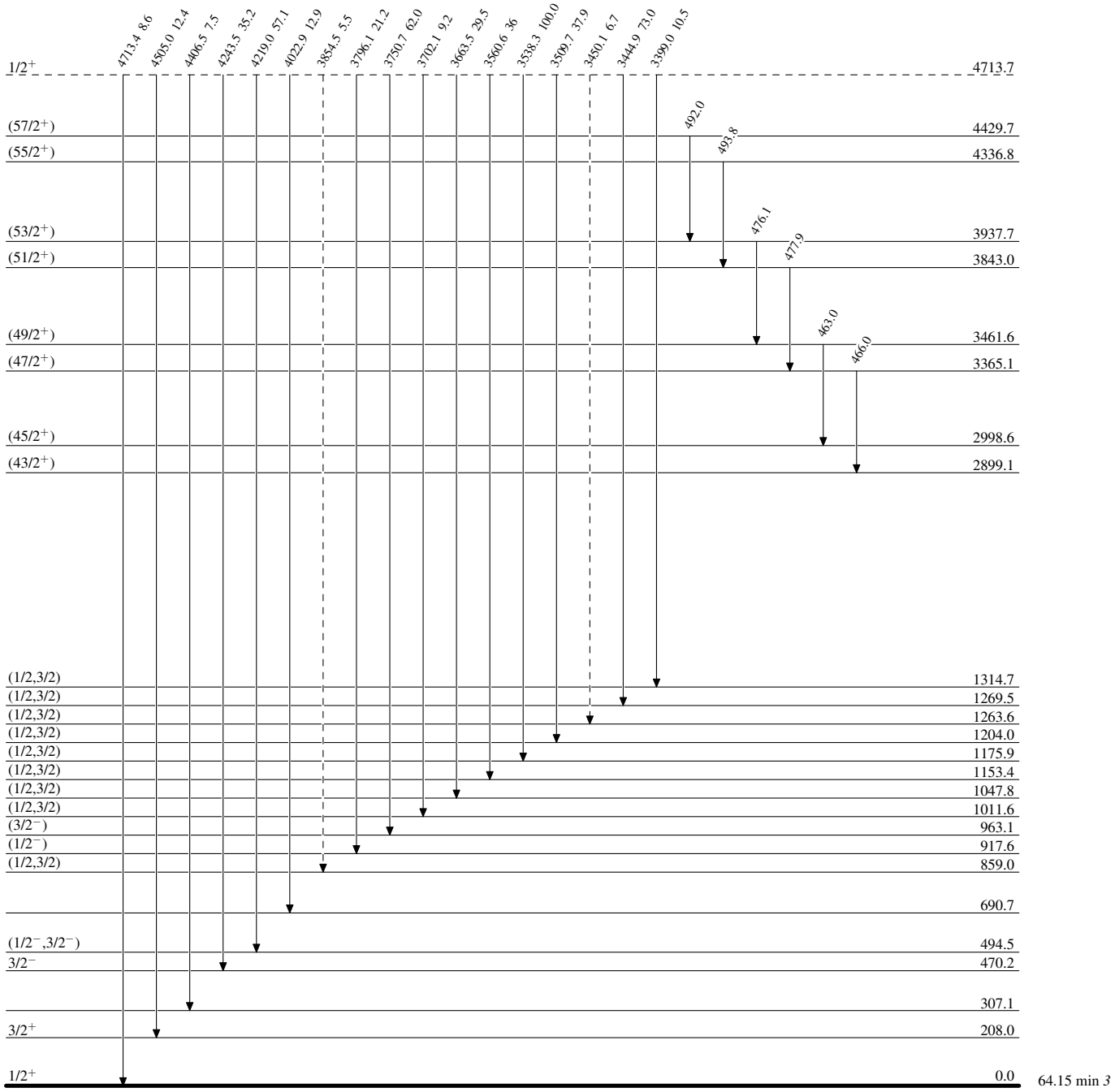
Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



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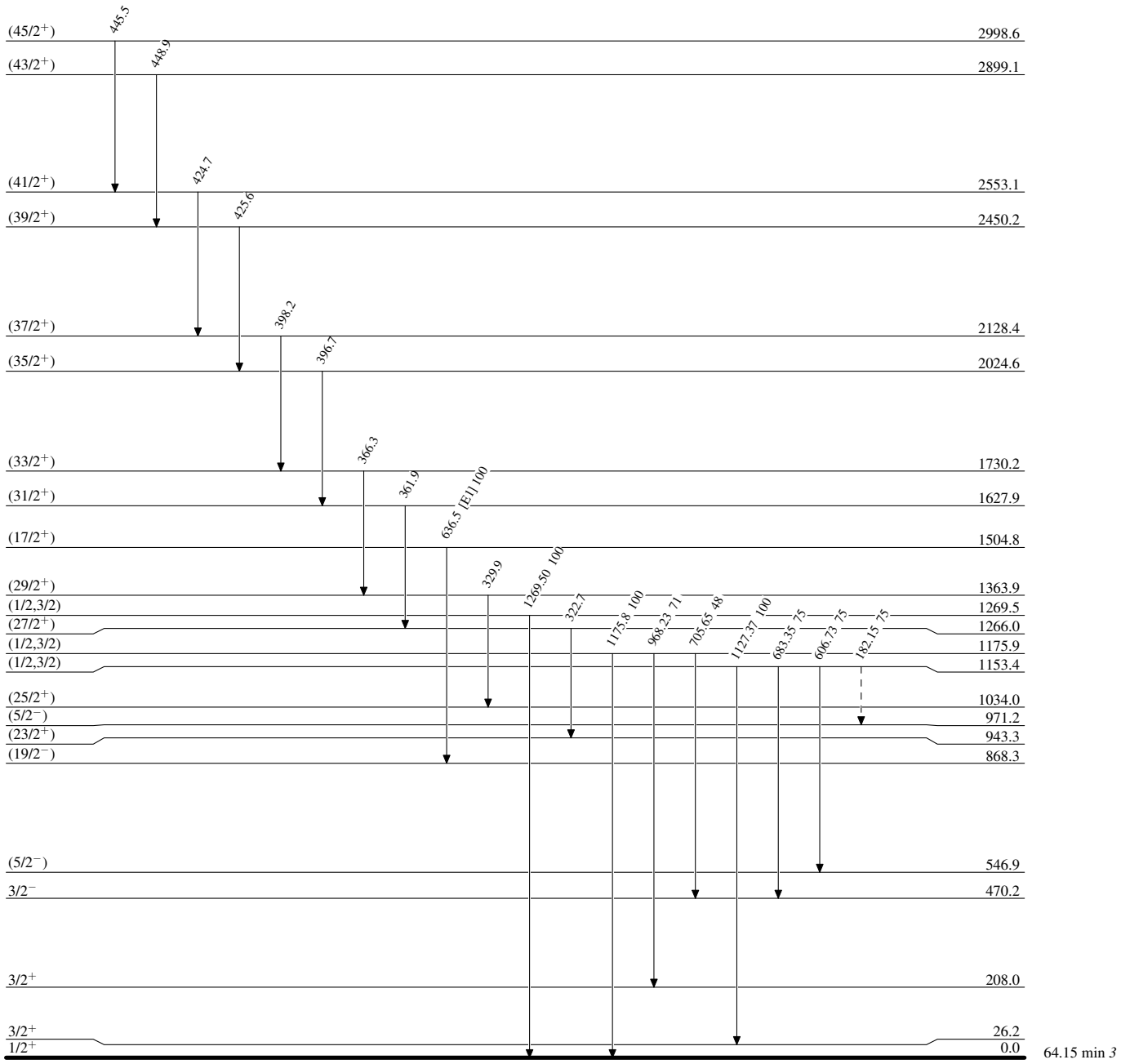
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



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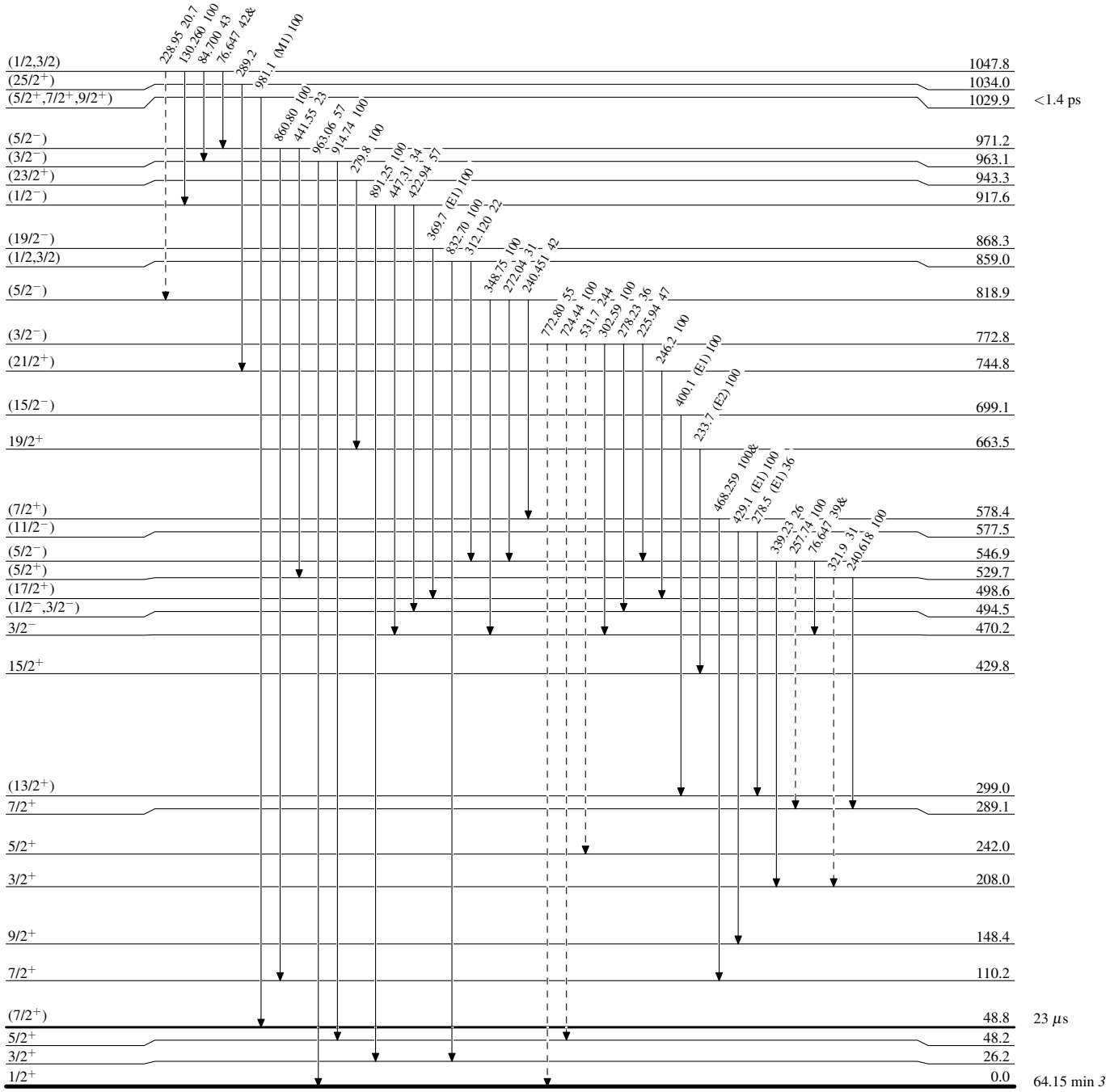
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given

γ Decay (Uncertain)



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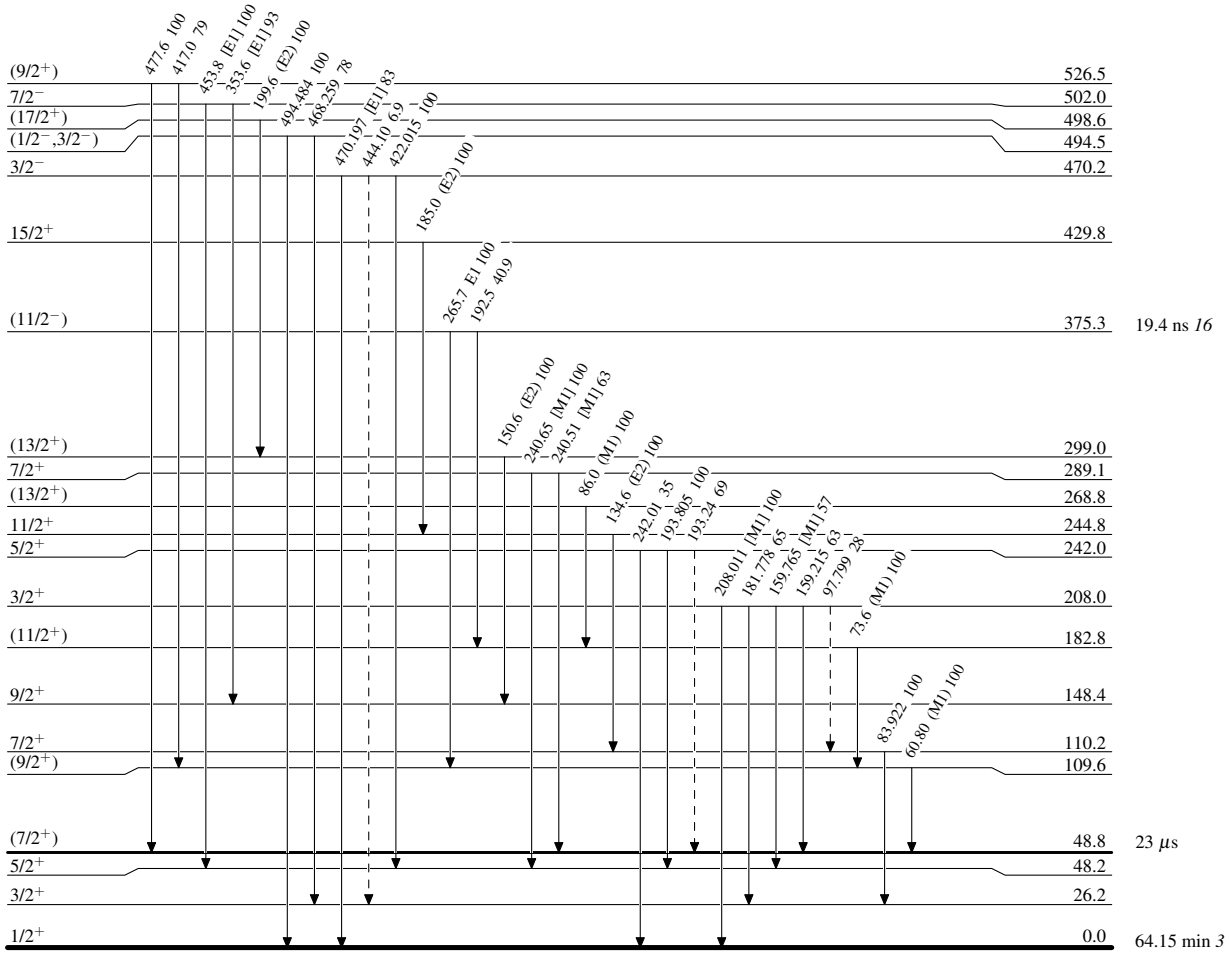
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given

- - - - - - ► γ Decay (Uncertain)



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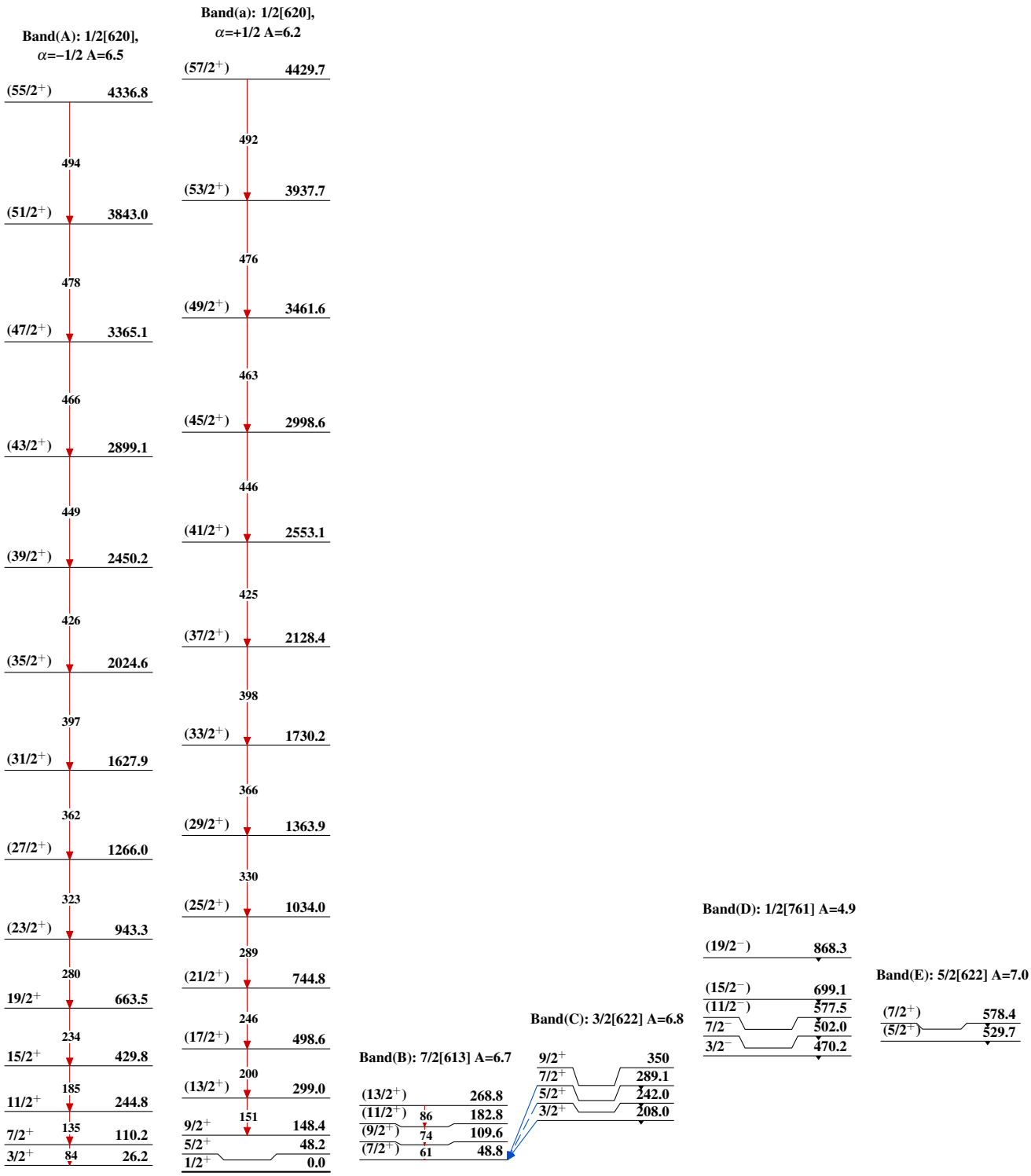
Adopted Levels, Gammas



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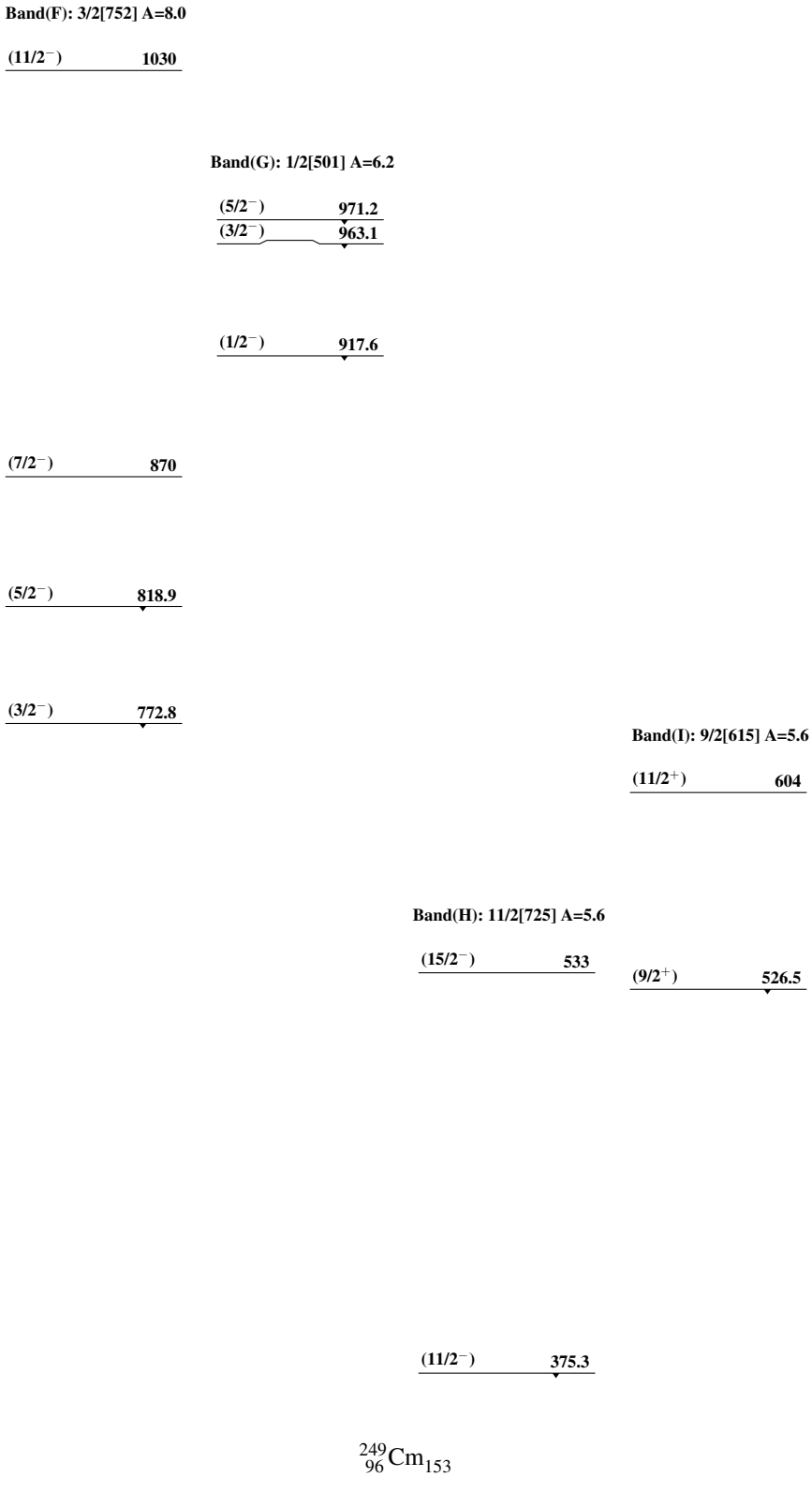
Adopted Levels, Gammas (continued)



$^{249}_{96}Cm_{153}$