Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	C. D. Nesaraja	NDS 130,183 (2015)	30-Sep-2015

Q(β^-)=−767.4 *12*; S(n)=6647 *14*; S(p)=4479.96 *13*; Q(α)=5637.82 *12* 2012Wa38

Experimental Studies.

2011He12: Determined beta shape function and activity of ^{241}Pu β decay. Resolved the difference between efficiency tracing method and the triple-to-double coincidence ratio (TDCR) method using a shape function derived from experimental data.

Theoretical/Systematical Studies:

2015Er03: Calculation of fission probabilities with a dynamic statistical approach.

2013Zd01: $T_{1/2}$ for α decay calculated with phenomenological model based on Gamow theory with WKB approximation for Coulomb barrier penetration.

2013Af01: Calculated pairing and rotational properties in the density functional framework.

2013Ni13: Study of α decay of g.s Bk to rotational bands using the multichannel cluster model (MCCM).

2013Ta07: Partial $T_{1/2}$ for cluster decay of ^{241}Am using semi-empirical model.

2013Zd02: Coupled-channel calculation to describe α transition to several rotational bands in ^{241}Am.

2012Ba35, 2011Sh13: Calculated $T_{1/2}$ of cluster decay for ^{241}Am using a generalized liquid-drop model.

2012Ni16: α decay branching ratio and $T_{1/2}$ for transitions from ground state to favored rotational bands using Multichannel Cluster Model.

2012Sa05, 2012Sa31: Calculated cluster decay half-lives using the Coulomb and Proximity Potential Model (CPPM).

2012Ta10: Partial $T_{1/2}$, Q(β^-)values, branching ratios using a semi-empirical with the one-parameter model dependence on cluster radius.

2011He12: Compilation of longest lived known in nuclides with Z≥ 82 with half-life, spin, excitation energy, and primary reference.

1990Bh02: Calculated $T_{1/2}$(SF).

1982Li02: Calculated energy band heads, magnetic moments, B(E2) and B(M1) using the rotor plus quasiparticle approximation.

1992Gu10, 1990Sh01, 1989Ba20,1989Si13, 1989Sh37, 1989Ma43, 1988Bl11, 1986Po15, 1987GrZO, 1987Po08, 1987Sh04, 1988Ba01: Theoretical calculations and discussions on decays by heavy ions such as ^{34}Si, ^{28}Si, and neon isotopes.

1988Io05: Decay by ion emission was considered and compared with SF decay.

1983Penetration parameters for the 32.639- and 41.176-keV transitions have been calculated by 1983Bh10 as a function of nuclear deformation.

1977Ch27: Calculated Proton occupation probabilities for various Nilsson states.

1976Ch22, 1971Ga20: Calculations of excited-state energies and configurations.

^{241}Am Levels

Cross Reference (XREF) Flags

A	^{245}Bk α decay	D	^{241}Cm ε decay
B	^{241}Pu β^- decay	E	^{243}Am(p,t)
C	^{241}Am(^{209}Bi,^{209}Bi′γ)	F	^{240}Pu(α,t)

E(level)	J$^{\pi}$†	$T_{1/2}$	XREF	Comments
0.0‡	5/2$^-$	432.6 y *6*	ABCDE	%α=100; %SF=3.6×10^{-10} *9* μ=+1.58 *1*; Q=+4.34 *5* %SF is obtained from adopted $T_{1/2}$ and $T_{1/2}$(SF) values. $T_{1/2}$: From evaluated $t_{1/2}$ as recommended by 2004ChZX. $T_{1/2}$: Measured values 432.7 y *7* by calorimetry (1967Oe01) 433 y *7* by specific activity (1968Br22) 436.6 y *30* by specific activity (1968St02) 426.3 y *21* by calorimetry (1972Jo07) 432.8 y *16* by specific activity (1974Po16) 432.5 y *7* by calorimetry (1974StYG) 432.0 y *2* by calorimetry (1975Ra35). 1989Ho24 recommend $T_{1/2}$=432.7 y *6*, 1991BaZS recommend 432.2 y *7*, 2004ChZX recommend 432.6 y *6*, 2004Wo02 recommend 433.1 *11* Earlier $t_{1/2}$ measurements prior to 1967: 470 +*6*−*10* y (1952Ha68), 458.1 y *5* (1957Ha10), 457.7 y *18* (1958Wa69).

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Adopted Levels, Gammas (continued)

^{241}Am Levels (continued)

E(level)	Jπ†	XREF	Comments
			These measurements have been excluded from 2004ChZX′s evaluation due to large systematic uncertainties. $T_{1/2}$(SF): Measured values 2.3×10^{14} y *8* (1961Dr03) 0.90×10^{14} y *4* (1970Ga27) 1.147×10^{14} y *24* (1970Go06) 1.8×10^{14} y *4* (1986Pa17) 1.2×10^{14} y *6* (1993Ku16) 1.2×10^{14} y *3* Adopted as recommended by 2000Ho27. No ^{34}Si decay was observed: ^{34}Si/α<3.0×10^{-12} (1985Ho21), <4.2×10^{-13} (1986Pa17), <8.7×10^{-15} (1985TrZY), <7.4×10^{-16} (1987Mo28). No other cluster emission was observed: cluster/α<5.0×10^{-15} (1986Tr10). See also 1995Ar33. μ measured by atomic beam with laser fluorescent spectroscopy (1990Iz01). Compiled by 2014StZZ, others:+1.61 *3* (1966Ar04). Q measured by Muonic X-ray hyperfine structure method (1985Jo04) (1990Iz01) and recommended by 2013StZZ. Compiled by 2014StZZ, others: +3.8 12 (1989DrE26), +3.14 *5* (1990Iz01), +4.2 *13* (1988Be30). Jπ: J from optical spectroscopy (1953Fr01 and 1956Th18) and atomic beam (1960Ma30). Configuration 5/2[523] Nilsson-state assignment is from the measured magnetic moment.
41.176[#] *3*	7/2⁻	A CDE	Jπ: M1+E2 γ to 5/2⁻. Reaction data.
93.70[‡] *10*	9/2⁻	A CDEF	Jπ: Energy fit to a band. Reaction data.
157.50[#] *18*	11/2⁻	A C EF	Jπ: Energy fit to a band. Reaction data.
205.883[@] *10*	5/2⁺	A CD	Jπ: E1 γ to 5/2⁻. γ to 7/2⁻. Reaction data.
233.68[‡] *20*	13/2⁻	C E	Jπ: γ to 9/2⁻. Energy fit to a band.
235.2[&] *5*	7/2⁺	A F	Jπ: Fit to a band.
239?		A	
270?		A	
273.2[@] *5*	9/2⁺	A C F	Jπ: Reaction data. Fit to a band.
319.8[&] *10*	11/2⁺	A C F	
319.82[#] *23*	15/2⁻	C	
381.1[@] *5*	13/2⁺	A C F	
418.18[‡] *23*	17/2⁻	C	
453.1[&] *9*	15/2⁺	C	
459?		A	
471.810[a] *9*	3/2⁻	A CD F	Jπ: α hindrance factor is 1.8 from 3/2⁻.
495		A	
504.449[b] *9*	5/2⁻	A CD F	Jπ: M1+E2 γ to 3/2⁻. Anomalous M1+E2 γ to 7/2⁻.
525.67[#] *25*	19/2⁻	C	
530.9[@] *4*	17/2⁺	C	
543?		A	
550.4[a] *4*	7/2⁻	A C F	
623.10[c] *4*	(1/2⁺)	D F	Jπ: E2 γ to 5/2⁺. log *ft*=8.2 from 1/2⁺. Likely configuration 1/2[400].
625.2[b] *5*	9/2⁻	C	
629.8[&] *7*	19/2⁺	C	
636.861[d] *10*	3/2⁻	D	Jπ: M1+E2 γ′s to 3/2⁻ and 5/2⁻. log *ft*=6.25 from 1/2⁺.
645.0[‡] *3*	21/2⁻	C	
652.089[d] *10*	(1/2)⁻	D	Jπ: M1+E2 γ to 3/2⁻. log *ft*=6.32 from 1/2⁺ rules out 5/2⁻. In ε decay, 1974Po08 suggest that the 652 level is the bandhead of the 1/2[530] band with the 3/2⁻ member at 637 keV.
653.23[c] *4*	3/2⁺	D F	Jπ: M1+E2 γ to 5/2⁺. log *ft*=8.2 from 1/2⁺ rules out 5/2⁺ and 7/2⁺.
670.24 *8*	3/2⁺	D	Jπ: M1+E2 γ to 5/2⁺. log *ft*=7.7 from 1/2⁺ rules out 5/2⁺ and 7/2⁺. Configuration 3/2[651].
682.1[a] *6*	11/2⁻	C F	

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Adopted Levels, Gammas (continued)

^{241}Am Levels (continued)

E(level)	J$^{\pi}$†	T$_{1/2}$	XREF	Comments
723.9@ 4	21/2$^+$		C	
732 4	(11/2$^+$)		F	J$^{\pi}$: 1975Er01 propose an 11/2$^+$,7/2[633] assignment on the basis of their (α,t) work.
773.8# 3	23/2$^-$		C	
787.2b 6	13/2$^-$		C	
822 4	(13/2$^+$)		F	J$^{\pi}$: 1975Er01 propose a 13/2$^+$,7/2[633] assignment based on their (α,t) work.
851.3& 5	23/2$^+$		C	
863.8a 7	15/2$^-$		C	
884 4			F	
912.7‡ 3	25/2$^-$		C	
952 1	5/2$^-$		E	J$^{\pi}$: L=0 in ^{243}Am(p,t) with target J^{π}=5/2$^-$. 1974Fr01 interpret this level as a pairing excitation.
959.4@ 4	25/2$^+$		C	
982 2			E	
989.1b 7	17/2$^-$		C	
1020 4			F	
1061.7# 4	27/2$^-$		C	
1064 4			F	
1084.6a 7	19/2$^-$		C	
1106 4			F	
1117.6& 5	27/2$^+$		C	
1132 5			F	
1136 3			E	
1163 3			F	J$^{\pi}$: 1975Er01 propose a tentative assignment of 9/2$^-$,7/2[514] on the basis of their (α,t) work.
1219.2‡ 4	29/2$^-$		C	
1227 3			F	
1230.9b 8	21/2$^-$		C	
1235.9@ 5	29/2$^+$		C	
1345.0a 8	23/2$^-$		C	
1387.5# 4	31/2$^-$		C	
1426.4& 6	31/2$^+$		C	
1510.2b 8	25/2$^-$		C	
1550 4	(5/2$^-$)		E	J$^{\pi}$: L=(0) in ^{243}Am(p,t) with target J^{π}=5/2$^-$.
1551.2@ 6	33/2$^+$		C	
1562.6‡ 4	33/2$^-$		C	
1642.7a 9	27/2$^-$		C	
1749.4# 5	35/2$^-$		C	
1775.2& 7	35/2$^+$		C	
1826.9b 9	29/2$^-$		C	
1903.5@ 7	37/2$^+$		C	
1940.6‡ 5	37/2$^-$		C	
1975.8a 9	31/2$^-$		C	
2145.4# 5	39/2$^-$		C	
2161.6& 7	39/2$^+$		C	
2178.0b 10	33/2$^-$		C	
≈2200		1.2 μs 3		%SF=100 Additional information 1.

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Adopted Levels, Gammas (continued)

^{241}Am Levels (continued)

E(level)	J$^{\pi}$ †	XREF	Comments
			Assignment: ^{242}Pu(p,2n) excit (1969La14); ^{241}Pu(13-MeV d,2n) (1969La14); ^{241}Am(14.7-MeV n,n′) (1973Be04). E(level): Threshold energy of (p,2n) reaction, obtained by 1969La14 yielded E=2500 *100*; from fit to excitation function for (p,2n) reaction of 1969La14, E(level)=2200 *200* obtained by 1971Br39, 1972Br35. For calculated isomeric level energy, see, for example, 1970Ja16, 1972We09, 1987Gu03. Only SF decay was observed. $\Gamma(\gamma)/\Gamma(SF)<1$ from absence of 472γ (1976Be55). 1972We09 calculated $T_{1/2}(\gamma)/T_{1/2}(SF)=2.7\times10^{-3}/0.45\times10^{-6}$. $T_{1/2}$: Unweighted average of 1.5 μs *6* (1969La14) and 0.9 μs *3* (1993Ku16). For calculated $T_{1/2}$(SF), see 1990Bh02, for example. Fission-barrier parameters were deduced from fission probability measured in ^{240}Pu(^{3}He,d) reaction (1974Ba73,1976Ga11). 1981Re06 deduced barrier heights from fission probability data of 1976Ga11. See 1980Ku14, 1984Ku05, 1987Gu03, 1989Bh01, 1990Bh02, 1992Gr10 for calculated barrier parameters.
2289.7@ *9*	41/2+	C	
2343.9a *10*	35/2−	C	
2352.2‡ *6*	41/2−	C	
2561.5b *11*	37/2−	C	
2574.6# *8*	43/2−	C	
2582.7& *9*	43/2+	C	
2708.0@ *10*	45/2+	C	
2743.8a *11*	39/2−	C	
2794.7‡ *8*	45/2−	C	
2977.2b *12*	41/2−	C	
3035.1# *9*	47/2−	C	
3036.3& *10*	47/2+	C	
3156.7@ *11*	49/2+	C	
3174.7a *12*	43/2−	C	
3266.9‡ *9*	49/2−	C	
3424.3b *13*	45/2−	C	
3520.8& *12*	51/2+	C	
3525.1# *10*	51/2−	C	
3633.5@ *13*	53/2+	C	
3635.1a *13*	47/2−	C	
3767.7‡ *11*	53/2−	C	
3903.0b *14*	(49/2−)	C	
4034.4& *13*	55/2+	C	
4043.2# *12*	55/2−	C	
4122.5a *14*	51/2−	C	
4137.6@ *14*	57/2+	C	
4294.9‡ *12*	57/2−	C	
4575.6# *13*	59/2−	C	
4577.5& *14*	(59/2+)	C	
4669.4@ *14*	61/2+	C	
4845.9‡ *13*	61/2−	C	
5117.2# *14*	63/2−	C	

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Adopted Levels, Gammas (continued)

^{241}Am Levels (continued)

E(level)	J$^{\pi}$†	XREF
5228.9@ *15*	65/2^{+}	C
5407.9‡ *14*	65/2^{-}	C
5816.8@ *16*	(69/2^{+})	C
5980.9‡ *14*	(69/2^{-})	C

† The argument "Reaction data" includes assignments from ^{240}Pu(α,t) that are based on a comparison of the observed spectroscopic factors with calculated values, and assignments from ^{243}Am(p,t) that are based on angular distributions. Assignments for higher band members, given with no argument are from 2004Ab16 from their ^{241}Am(^{209}Bi,^{209}Bi$'\gamma$) work and are based on observation of these bands individually in triple coincidence runs gated on multiplicity and sum energy.

‡ Band(A): 5/2[523] band, α=+1/2.

Band(B): 5/2[523] band, α=−1/2.

@ Band(C): 5/2[642] band, α=+1/2.

& Band(D): 5/2[642] band, α=−1/2.

[a] Band(E): 3/2[521] band, α=−1/2.

[b] Band(F): 3/2[521] band, α=+1/2.

[c] Band(G): 1/2[400] band.

[d] Band(H): 1/2[530] band.

Adopted Levels, Gammas (continued)

$\gamma(^{241}Am)$

E_i(level)	J_i^π	E_γ[†]	I_γ[#]	E_f	J_f^π	Mult.[&]	δ[e]	α[d]	$I_{(\gamma+ce)}$[b]	Comments
41.176	7/2−	41.176 *3*		0.0	5/2−	M1+E2	0.486 *23*	295 *17*		α(L)=216 *13*; α(M)=59 *4* α(N)=16.2 *10*; α(O)=3.90 *23*; α(P)=0.64 *4*; α(Q)=0.01151 *20*
157.50	11/2−	116.4 *2*		41.176	7/2−					
205.883	5/2+	164.8 *2*	16 *3*	41.176	7/2−	[E1]		0.1635		α(K)=0.1255 *18*; α(L)=0.0285 *4*; α(M)=0.00699 *10* α(N)=0.00189 *3*; α(O)=0.000463 *7*; α(P)=8.08×10^{-5} *12*; α(Q)=3.52×10^{-6} *5* E_γ: Eγ=165.1 *2* in $^{241}Am(^{209}Bi,^{209}Bi'\gamma)$. I_γ: Iγ=21 *6* in α decay.
		205.879 *13*	100 *6*	0.0	5/2−	E1		0.0980		α(K)=0.0761 *11*; α(L)=0.01647 *23*; α(M)=0.00402 *6* α(N)=0.001091 *16*; α(O)=0.000268 *4*; α(P)=4.75×10^{-5} *7*; α(Q)=2.19×10^{-6} *3*
233.68	13/2−	139.9 *2*	100	93.70	9/2−					
235.2	7/2+	194.0 *5*	100	41.176	7/2−	[E1]		0.1123 *17*		α(K)=0.0870 *14*; α(L)=0.0190 *3*; α(M)=0.00466 *8* α(N)=0.001262 *20*; α(O)=0.000309 *5*; α(P)=5.46×10^{-5} *9*; α(Q)=2.48×10^{-6} *4*
273.2	9/2+	179.5 *5*	100	93.70	9/2−					
319.82	15/2−	162.4 *2*	100	157.50	11/2−					
381.1	13/2+	108.0[f] *5*	100	273.2	9/2+					
		147.6 *5*	100	233.68	13/2−					
418.18	17/2−	98.0 *5*	4.6[@] *23*	319.82	15/2−					
		184.4 *2*	100 *43*	233.68	13/2−					
453.1	15/2+	133.3 *5*		319.8	11/2+					
471.810	3/2−	265.922 *12*	0.56 *6*	205.883	5/2+	[E1][a]		0.0552	3.0[c] *2*	ce(K)/(γ+ce)=0.0410 *6*; ce(L)/(γ+ce)=0.00847 *12*; ce(M)/(γ+ce)=0.00206 *3* ce(N)/(γ+ce)=0.000560 *8*; ce(O)/(γ+ce)=0.0001380 *20*; ce(P)/(γ+ce)=2.48×10^{-5} *4*; ce(Q)/(γ+ce)=1.217×10^{-6} *17* α(K)=0.0433 *6*; α(L)=0.00894 *13*; α(M)=0.00218 *3* α(N)=0.000590 *9*; α(O)=0.0001456 *21*; α(P)=2.62×10^{-5} *4*; α(Q)=1.284×10^{-6} *18*
		430.634 *20*	5.7 *3*	41.176	7/2−	E2		0.0805	5.1 *3*	ce(K)/(γ+ce)=0.0385 *6*; ce(L)/(γ+ce)=0.0264 *4*; ce(M)/(γ+ce)=0.00710 *10* ce(N)/(γ+ce)=0.00196 *3*; ce(O)/(γ+ce)=0.000475

Adopted Levels, Gammas (continued)

$\gamma(^{241}Am)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[#]	E_f	J_f^π	Mult.[&]	δ[e]	α[d]	$I_{(\gamma+ce)}$[b]	Comments
										7; ce(P)/(γ+ce)=8.22×10^{-5} *12*; ce(Q)/(γ+ce)=1.92×10^{-6} *3* α(K)=0.0416 *6*; α(L)=0.0285 *4*; α(M)=0.00767 *11* α(N)=0.00211 *3*; α(O)=0.000514 *8*; α(P)=8.88×10^{-5} *13*; α(Q)=2.08×10^{-6} *3*
471.810	3/2$^-$	471.805 *20*	100 *4*	0.0	5/2$^-$	M1+E2[a]		0.22 *16*	100[c] *4*	ce(K)/(γ+ce)=0.14 *10*; ce(L)/(γ+ce)=0.033 *16*; ce(M)/(γ+ce)=0.008 *4* ce(N)/(γ+ce)=0.0023 *11*; ce(O)/(γ+ce)=0.0006 *3*; ce(P)/(γ+ce)=0.00010 *6*; ce(Q)/(γ+ce)=6 α(K)=0.17 *14*; α(L)=0.040 *20*; α(M)=0.010 *5* α(N)=0.0028 *12*; α(O)=0.0007 *4*; α(P)=0.00013 *7*; α(Q)=7
504.449	5/2$^-$	32.639 *3*	16.5 *6*	471.810	3/2$^-$	M1+E2	0.124 *4*	220 *5*	100 *3*	ce(L)/(γ+ce)=0.741 *12*; ce(M)/(γ+ce)=0.188 *6* ce(N)/(γ+ce)=0.0515 *16*; ce(O)/(γ+ce)=0.0128 *4*; ce(P)/(γ+ce)=0.00233 *7*; ce(Q)/(γ+ce)=0.000116 *3* α(L)=163 *4*; α(M)=41.4 *10* α(N)=11.4 *3*; α(O)=2.82 *6*; α(P)=0.513 *11*; α(Q)=0.0257 *4*
		298.57 *5*	6.4 *16*	205.883	5/2$^+$	[E1][a]		0.0429	0.29[c] *7*	ce(K)/(γ+ce)=0.0324 *5*; ce(L)/(γ+ce)=0.00655 *10*; ce(M)/(γ+ce)=0.001594 *23* ce(N)/(γ+ce)=0.000433 *6*; ce(O)/(γ+ce)=0.0001068 *15*; ce(P)/(γ+ce)=1.93×10^{-5} *3*; ce(Q)/(γ+ce)=9.73×10^{-7} *14* α(K)=0.0338 *5*; α(L)=0.00684 *10*; α(M)=0.001662 *24* α(N)=0.000451 *7*; α(O)=0.0001114 *16*; α(P)=2.02×10^{-5} *3*; α(Q)=1.015×10^{-6} *15*
		410.8 *1*	7.0 *7*	93.70	9/2$^-$	[E2]		0.0910	2.11 *22*	ce(K)/(γ+ce)=0.0414 *6*; ce(L)/(γ+ce)=0.0307 *5*; ce(M)/(γ+ce)=0.00830 *12* ce(N)/(γ+ce)=0.00229 *4*; ce(O)/(γ+ce)=0.000555 *8*; ce(P)/(γ+ce)=9.57×10^{-5} *14*; ce(Q)/(γ+ce)=2.11×10^{-6} *3* α(K)=0.0452 *7*; α(L)=0.0335 *5*; α(M)=0.00905 *13* α(N)=0.00249 *4*; α(O)=0.000606 *9*; α(P)=0.0001044 *15*; α(Q)=2.31×10^{-6} *4*
		463.273 *20*	100 *7*	41.176	7/2$^-$	M1+E2[a]		0.23 *17*	3.38[c] *18*	ce(K)/(γ+ce)=0.14 *10*; ce(L)/(γ+ce)=0.034 *17*; ce(M)/(γ+ce)=0.009 *4* ce(N)/(γ+ce)=0.0024 *11*; ce(O)/(γ+ce)=0.0006 *3*; ce(P)/(γ+ce)=0.00011 *6*; ce(Q)/(γ+ce)=6 α(K)=0.18 *14*; α(L)=0.042 *21*; α(M)=0.011 *5* α(N)=0.0029 *13*; α(O)=0.0007 *4*; α(P)=0.00013 *7*; α(Q)=7
		504.45 *3*	48 *3*	0.0	5/2$^-$	M1+E2[a]		0.18 *13*	1.49[c] *9*	ce(K)/(γ+ce)=0.12 *9*; ce(L)/(γ+ce)=0.028 *14*;

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Adopted Levels, Gammas (continued)

$\gamma(^{241}Am)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[#]	E_f	J^π_f	Mult.[&]	δ[e]	α[d]	$I_{(\gamma+ce)}$[b]	Comments
										ce(M)/(γ+ce)=0.007 *4* ce(N)/(γ+ce)=0.0019 *9*; ce(O)/(γ+ce)=0.00048 *23*; ce(P)/(γ+ce)=9; ce(Q)/(γ+ce)=5 α(K)=0.14 *11*; α(L)=0.033 *17*; α(M)=0.008 *4* α(N)=0.0023 *11*; α(O)=0.0006 *3*; α(P)=0.00011 *6*; α(Q)=6
525.67	19/2⁻	107.2 *2*	13[@] *5*	418.18	17/2⁻					
		206.0 *2*	100	319.82	15/2⁻					
530.9	17/2⁺	149.9 *5*	100 *50*	381.1	13/2⁺					
		211.0 *5*	10 *5*	319.82	15/2⁻					
550.4	7/2⁻	77.0[f] *5*		471.810	3/2⁻					
		455.9 *5*		93.70	9/2⁻					
		510.0 *5*		41.176	7/2⁻					
623.10	(1/2⁺)	151.4 *4*	≈3	471.810	3/2⁻	[E1]		0.199		α(K)=0.1519 *24*; α(L)=0.0353 *6*; α(M)=0.00866 *14* α(N)=0.00234 *4*; α(O)=0.000572 *9*; α(P)=9.92×10⁻⁵ *16*; α(Q)=4.22×10⁻⁶ *7*
		417.24 *4*	100 *6*	205.883	5/2⁺	E2		0.0874		α(K)=0.0440 *7*; α(L)=0.0318 *5*; α(M)=0.00857 *12* α(N)=0.00236 *4*; α(O)=0.000573 *8*; α(P)=9.89×10⁻⁵ *14*; α(Q)=2.23×10⁻⁶ *4*
		623.1 *3*	1.8 *5*	0.0	5/2⁻	[M2]		0.433		α(K)=0.322 *5*; α(L)=0.0821 *12*; α(M)=0.0207 *3* α(N)=0.00571 *8*; α(O)=0.001435 *21*; α(P)=0.000272 *4*; α(Q)=1.650×10⁻⁵ *24*
625.2	9/2⁻	120.8 *5*		504.449	5/2⁻					
629.8	19/2⁺	176.7 *5*		453.1	15/2⁺					
636.861	3/2⁻	132.413 *7*	100 *5*	504.449	5/2⁻	M1+E2[a]	0.061 *+13−17*	12.94	100[c] *4*	ce(K)/(γ+ce)=0.728 *7*; ce(L)/(γ+ce)=0.151 *3*; ce(M)/(γ+ce)=0.0368 *7* ce(N)/(γ+ce)=0.01005 *20*; ce(O)/(γ+ce)=0.00253 *5*; ce(P)/(γ+ce)=0.000483 *10*; ce(Q)/(γ+ce)=3.06×10⁻⁵ *6* α(K)=10.15 *15*; α(L)=2.10 *3*; α(M)=0.512 *8* α(N)=0.1401 *20*; α(O)=0.0353 *5*; α(P)=0.00674 *10*; α(Q)=0.000427 *6*
		165.049 *8*	77 *5*	471.810	3/2⁻	M1+E2[a]	0.22 *3*	6.73 *12*	44.9[c] *18*	ce(K)/(γ+ce)=0.677 *7*; ce(L)/(γ+ce)=0.145 *3*; ce(M)/(γ+ce)=0.0357 *8* ce(N)/(γ+ce)=0.00976 *21*; ce(O)/(γ+ce)=0.00245 *5*; ce(P)/(γ+ce)=0.000465 *10*; ce(Q)/(γ+ce)=2.82×10⁻⁵ *7* α(K)=5.24 *10*; α(L)=1.123 *16*; α(M)=0.276 *4*

Adopted Levels, Gammas (continued)

$\gamma(^{241}Am)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[#]	E_f	J_f^π	Mult.[&]	δ[e]	α[d]	$I_{(\gamma+ce)}$[b]	Comments
										α(N)=0.0755 *11*; α(O)=0.0189 *3*; α(P)=0.00359 *5*; α(Q)=0.000218 *4*
636.861	3/2⁻	430 *1*	≈1.0	205.883	5/2⁺	[E1]		0.0200	≈0.09	ce(K)/(γ+ce)=0.01567 *23*; ce(L)/(γ+ce)=0.00300 *5*; ce(M)/(γ+ce)=0.000725 *11* ce(N)/(γ+ce)=0.000197 *3*; ce(O)/(γ+ce)=4.89×10^{-5} *8*; ce(P)/(γ+ce)=8.99×10^{-6} *14*; ce(Q)/(γ+ce)=4.87×10^{-7} *8* α(K)=0.01598 *24*; α(L)=0.00306 *5*; α(M)=0.000739 *11* α(N)=0.000201 *3*; α(O)=4.99×10^{-5} *8*; α(P)=9.17×10^{-6} *14*; α(Q)=4.97×10^{-7} *8*
		595.8 *3*	0.38 *8*	41.176	7/2⁻	[E2]		0.0373	0.036 *7*	ce(K)/(γ+ce)=0.0227 *4*; ce(L)/(γ+ce)=0.00974 *14*; ce(M)/(γ+ce)=0.00255 *4* ce(N)/(γ+ce)=0.000702 *10*; ce(O)/(γ+ce)=0.0001721 *25*; ce(P)/(γ+ce)=3.06×10^{-5} *5*; ce(Q)/(γ+ce)=1.012×10^{-6} *15* α(K)=0.0236 *4*; α(L)=0.01010 *15*; α(M)=0.00265 *4* α(N)=0.000728 *11*; α(O)=0.000178 *3*; α(P)=3.17×10^{-5} *5*; α(Q)=1.050×10^{-6} *15*
		636.88 *3*	40 *3*	0.0	5/2⁻	M1+E2	0.59 *18*	0.133 *16*	3.9 *3*	ce(K)/(γ+ce)=0.092 *11*; ce(L)/(γ+ce)=0.0191 *19*; ce(M)/(γ+ce)=0.0047 *5* ce(N)/(γ+ce)=0.00128 *12*; ce(O)/(γ+ce)=0.00032 *3*; ce(P)/(γ+ce)=6.1×10^{-5} *6*; ce(Q)/(γ+ce)=3.7×10^{-6} *5* α(K)=0.104 *13*; α(L)=0.0217 *21*; α(M)=0.0053 *5* α(N)=0.00145 *14*; α(O)=0.00036 *4*; α(P)=6.9×10^{-5} *7*; α(Q)=4.2×10^{-6} *5*
645.0	21/2⁻	120.3 *5*	4.1[@] *13*	525.67	19/2⁻					
		226.9 *2*	100 *43*	418.18	17/2⁻					
652.089	(1/2)⁻	15.228 *2*	11.4 *5*	636.861	3/2⁻	M1+E2	0.0302 *14*	437 *8*		α(M)=322 *6* α(N)=88.3 *15*; α(O)=22.1 *4*; α(P)=4.16 *7*; α(Q)=0.249 *4*
		29.02 *5*	6.3 *13*	623.10	(1/2⁺)	[E1]		3.42		α(L)=2.54 *4*; α(M)=0.663 *10* α(N)=0.177 *3*; α(O)=0.0404 *6*; α(P)=0.00542 *8*; α(Q)=0.0001288 *19*
		147.67 *3*	2.75 *23*	504.449	5/2⁻	[E2]		3.08		α(K)=0.185 *3*; α(L)=2.10 *3*; α(M)=0.589 *9* α(N)=0.1629 *23*; α(O)=0.0390 *6*; α(P)=0.00631 *9*; α(Q)=3.40×10^{-5} *5*

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$\gamma(^{241}Am)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[#]	E_f	J^π_f	Mult.[&]	δ[e]	α[d]	Comments
652.089	(1/2)⁻	180.277 *8*	100 *9*	471.810	3/2⁻	M1(+E2)	<0.25	5.31 *14*	α(K)=4.15 *14*; α(L)=0.868 *13*; α(M)=0.212 *4* α(N)=0.0581 *9*; α(O)=0.01460 *21*; α(P)=0.00278 *4*; α(Q)=0.000172 *6*
		652.1 *4*	8.3 *21*	0.0	5/2⁻	[E2]		0.0306	α(K)=0.0201 *3*; α(L)=0.00777 *11*; α(M)=0.00202 *3* α(N)=0.000555 *8*; α(O)=0.0001364 *20*; α(P)=2.44×10^{-5} *4*; α(Q)=8.76×10^{-7} *13*
653.23	3/2⁺	447.35 *4*	80 *10*	205.883	5/2⁺	M1+E2	<0.77	0.37 *7*	α(K)=0.29 *6*; α(L)=0.061 *9*; α(M)=0.0149 *19* α(N)=0.0041 *6*; α(O)=0.00102 *14*; α(P)=0.00019 *3*; α(Q)=1.17×10^{-5} *23*
		653.2 *2*	100 *7*	0.0	5/2⁻	[E1]		0.00898	α(K)=0.00724 *11*; α(L)=0.001313 *19*; α(M)=0.000316 *5* α(N)=8.57×10^{-5} *12*; α(O)=2.14×10^{-5} *3*; α(P)=3.99×10^{-6} *6*; α(Q)=2.32×10^{-7} *4*
670.24	3/2⁺	464.36 *8*	14.8 *24*	205.883	5/2⁺	M1+E2	1.5 +*17*−*5*	0.17 *8*	α(K)=0.12 *6*; α(L)=0.034 *9*; α(M)=0.0088 *21* α(N)=0.0024 *6*; α(O)=0.00059 *15*; α(P)=0.00011 *3*; α(Q)=5.1×10^{-6} *24*
		670.2 *2*	100 *7*	0.0	5/2⁻	[E1]		0.00856	α(K)=0.00691 *10*; α(L)=0.001250 *18*; α(M)=0.000300 *5* α(N)=8.16×10^{-5} *12*; α(O)=2.04×10^{-5} *3*; α(P)=3.80×10^{-6} *6*; α(Q)=2.22×10^{-7} *4*
682.1	11/2⁻	131.7 *5*		550.4	7/2⁻				
723.9	21/2⁺	193.0 *5*	100	530.9	17/2⁺				
		198.0 *5*	10[@] *7*	525.67	19/2⁻				
773.8	23/2⁻	129.1 *2*	45 *25*	645.0	21/2⁻				
		247.9 *2*	100	525.67	19/2⁻				
787.2	13/2⁻	106.2[f] *5*	10 *9*	682.1	11/2⁻				
		162.0 *5*	100 *90*	625.2	9/2⁻				
851.3	23/2⁺	127.3 *5*	29 *14*	723.9	21/2⁺				
		221.5 *5*	100 *43*	629.8	19/2⁺				
863.8	15/2⁻	181.7 *5*		682.1	11/2⁻				
912.7	25/2⁻	139.1 *5*	16[@] *6*	773.8	23/2⁻				
		267.8 *2*	100	645.0	21/2⁻				
959.4	25/2⁺	108.1 *5*	10[@] *5*	851.3	23/2⁺				
		185.6 *5*	10[@] *5*	773.8	23/2⁻				
		235.5 *5*	100 *50*	723.9	21/2⁺				
989.1	17/2⁻	124.5 *5*	10 *8*	863.8	15/2⁻				
		201.9 *5*	100 *92*	787.2	13/2⁻				
1061.7	27/2⁻	149.6 *5*	36 *13*	912.7	25/2⁻				
		287.8 *2*	100	773.8	23/2⁻				
1084.6	19/2⁻	91.3[f] *5*	10[@] *14*	989.1	17/2⁻				E_γ: The energy fit is poor. The least-squares adjustment gives 95.5 *5*.

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Adopted Levels, Gammas (continued)

$\gamma(^{241}Am)$ (continued)

E_i(level)	J^π_i	E_γ†	I_γ#	E_f	J^π_f
1084.6	19/2−	221.5 *5*	100	863.8	15/2−
1117.6	27/2+	158.2 *5*	100	959.4	25/2+
		266.3 *5*	31 *22*	851.3	23/2+
1219.2	29/2−	157.3 *5*	30 *12*	1061.7	27/2−
		306.6 *2*	100	912.7	25/2−
1230.9	21/2−	147.2 *5*	10@ *12*	1084.6	19/2−
		241.0 *5*	100	989.1	17/2−
1235.9	29/2+	118.3 *5*	10@ *5*	1117.6	27/2+
		174.3 *5*	10@ *5*	1061.7	27/2−
		276.5 *5*	100 *43*	959.4	25/2+
1345.0	23/2−	113.7f *5*	10@ *13*	1230.9	21/2−
		260.3 *5*	100	1084.6	19/2−
1387.5	31/2−	168.6 *5*	19 *7*	1219.2	29/2−
		325.8 *5*	100	1061.7	27/2−
1426.4	31/2+	190.5 *5*	100	1235.9	29/2+
		308.8 *5*	97 *64*	1117.6	27/2+
1510.2	25/2−	164.9 *5*	10@ *12*	1345.0	23/2−
		279.5 *5*	100	1230.9	21/2−
1551.2	33/2+	124.8 *5*	10@ *6*	1426.4	31/2+
		315.3 *5*	100	1235.9	29/2+
1562.6	33/2−	175.1 *5*	22 *7*	1387.5	31/2−
		343.3 *2*	100	1219.2	29/2−
1642.7	27/2−	132.9 *5*	10@ *7*	1510.2	25/2−
		297.8 *5*	100	1345.0	23/2−
1749.4	35/2−	186.6 *5*	17 *8*	1562.6	33/2−
		361.9 *2*	100	1387.5	31/2−
1775.2	35/2+	224.0 *5*	21 *40*	1551.2	33/2+
		348.8 *5*	100	1426.4	31/2+
1826.9	29/2−	184.5 *5*	10@ *9*	1642.7	27/2−
		316.1 *5*	100	1510.2	25/2−
1903.5	37/2+	352.3 *5*		1551.2	33/2+
1940.6	37/2−	191.1 *5*	15 *6*	1749.4	35/2−
		378.0 *2*	100	1562.6	33/2−
1975.8	31/2−	148.2 *5*	10@ *7*	1826.9	29/2−
		333.6 *5*	100	1642.7	27/2−
2145.4	39/2−	204.9 *5*	18@ *9*	1940.6	37/2−
		396.3 *5*	100	1749.4	35/2−
2161.6	39/2+	258.1 *5*	41 *41*	1903.5	37/2+
		386.4 *5*	100	1775.2	35/2+

From ENSDF

$^{241}_{95}Am_{146}$-11

Adopted Levels, Gammas (continued)

γ(^{241}Am) (continued)

E$_i$(level)	J^{π}_i	E$_\gamma$[†]	I$_\gamma$[#]	E$_f$	J^{π}_f
2178.0	33/2$^-$	351.3 *5*		1826.9	29/2$^-$
2289.7	41/2$^+$	386.2 *5*		1903.5	37/2$^+$
2343.9	35/2$^-$	166.2 *5*	10[@] *6*	2178.0	33/2$^-$
		367.8 *5*	100	1975.8	31/2$^-$
2352.2	41/2$^-$	207.1 *5*	16[@] *7*	2145.4	39/2$^-$
		411.2 *5*	100	1940.6	37/2$^-$
2561.5	37/2$^-$	383.5 *5*		2178.0	33/2$^-$
2574.6	43/2$^-$	429.2 *5*		2145.4	39/2$^-$
2582.7	43/2$^+$	421.1 *5*		2161.6	39/2$^+$
2708.0	45/2$^+$	418.3 *5*		2289.7	41/2$^+$
2743.8	39/2$^-$	399.9 *5*		2343.9	35/2$^-$
2794.7	45/2$^-$	442.5 *5*		2352.2	41/2$^-$
2977.2	41/2$^-$	415.7 *5*		2561.5	37/2$^-$
3035.1	47/2$^-$	460.5 *5*		2574.6	43/2$^-$
3036.3	47/2$^+$	453.6 *5*		2582.7	43/2$^+$
3156.7	49/2$^+$	448.7 *5*		2708.0	45/2$^+$
3174.7	43/2$^-$	430.9 *5*		2743.8	39/2$^-$
3266.9	49/2$^-$	472.2 *5*		2794.7	45/2$^-$
3424.3	45/2$^-$	447.1 *5*		2977.2	41/2$^-$
3520.8	51/2$^+$	484.5 *5*		3036.3	47/2$^+$

E$_i$(level)	J^{π}_i	E$_\gamma$[†]	E$_f$	J^{π}_f
3525.1	51/2$^-$	490.0 *5*	3035.1	47/2$^-$
3633.5	53/2$^+$	476.8 *5*	3156.7	49/2$^+$
3635.1	47/2$^-$	460.4 *5*	3174.7	43/2$^-$
3767.7	53/2$^-$	500.8 *5*	3266.9	49/2$^-$
3903.0	(49/2$^-$)	479.3[f] *5*	3424.3	45/2$^-$
4034.4	55/2$^+$	513.6 *5*	3520.8	51/2$^+$
4043.2	55/2$^-$	518.1 *5*	3525.1	51/2$^-$
4122.5	51/2$^-$	487.4 *5*	3635.1	47/2$^-$
4137.6	57/2$^+$	504.1 *5*	3633.5	53/2$^+$
4294.9	57/2$^-$	527.2 *5*	3767.7	53/2$^-$
4575.6	59/2$^-$	532.4 *5*	4043.2	55/2$^-$
4577.5	(59/2$^+$)	542.8[‡f] *5*	4034.4	55/2$^+$
4669.4	61/2$^+$	531.8 *5*	4137.6	57/2$^+$
4845.9	61/2$^-$	551.0 *5*	4294.9	57/2$^-$
5117.2	63/2$^-$	541.6 *5*	4575.6	59/2$^-$
5228.9	65/2$^+$	559.5 *5*	4669.4	61/2$^+$
5407.9	65/2$^-$	562.0 *5*	4845.9	61/2$^-$
5816.8	(69/2$^+$)	587.6[‡f] *5*	5228.9	65/2$^+$
5980.9	(69/2$^-$)	573.0[‡f] *5*	5407.9	65/2$^-$

[†] From ^{241}Cm ε decay where available. Others are from (^{209}Bi,^{209}Bi′γ).

[‡] The tentative placement assigned to this transition results from the observation of a weak transition at this energy in sums of coincidence spectra double gated on transitions between high-spin levels in the g.s. band.

[#] Relative photon branching from each level taken from ^{241}Cm ε decay where available. Others are from (^{209}Bi,^{209}Bi′γ).

[@] Value given is an upper limit.

[&] From ^{241}Cm ε decay.

[a] Probable anomalous conversion. See 1974Po08 in ε decay for calculations of penetration effects.

[b] Relative Iγ+Ice from each level, given for levels for which one or more of the deexciting transitions exhibits anomalous conversion.

[c] From sum of Iγ and Ice. Given where internal conversion is anomalous.

[d] Additional information 2.

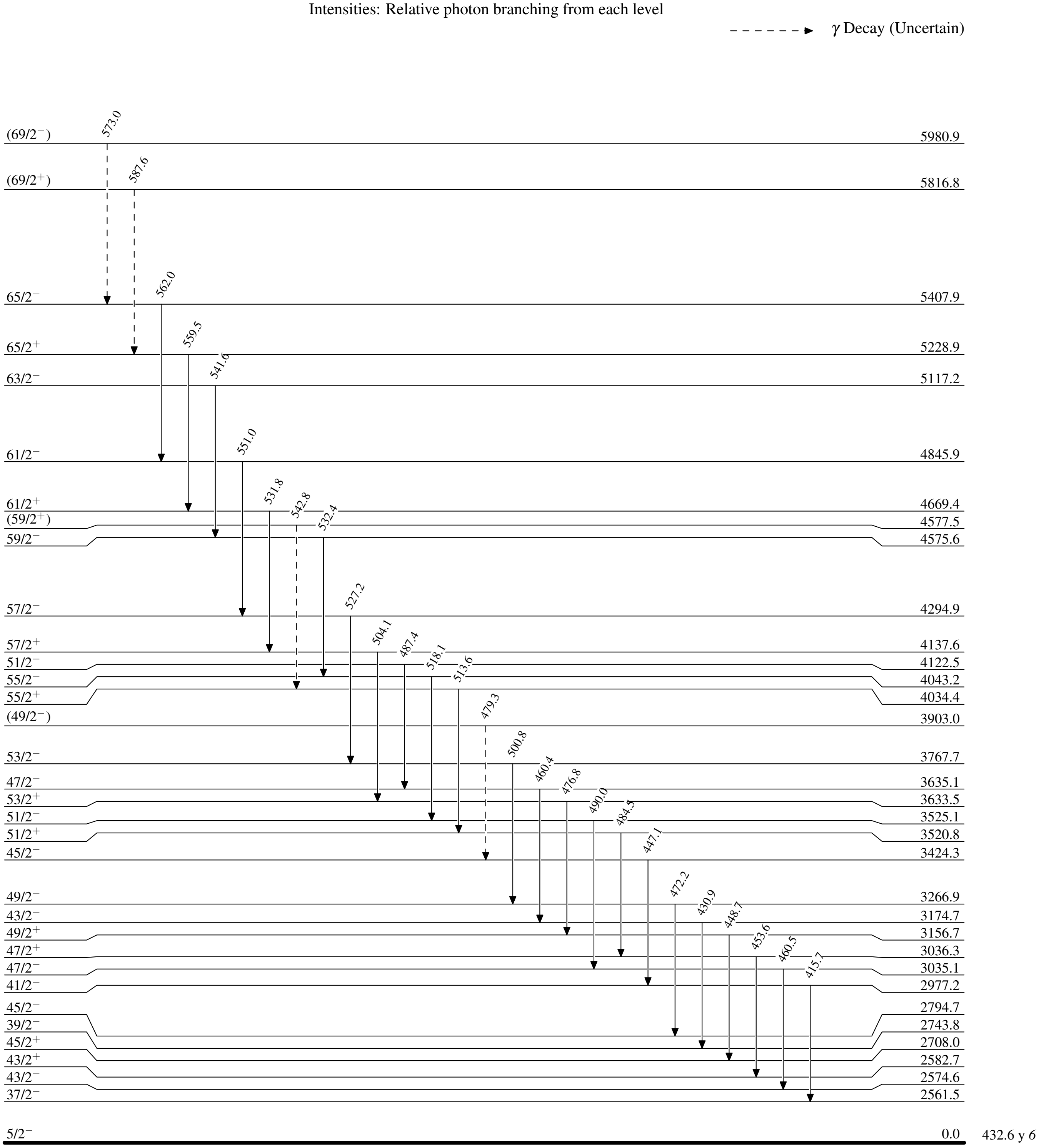
[e] If no value given it was assumed δ=1.00 for E2/M1,

[f] Placement of transition in the level scheme is uncertain.

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level



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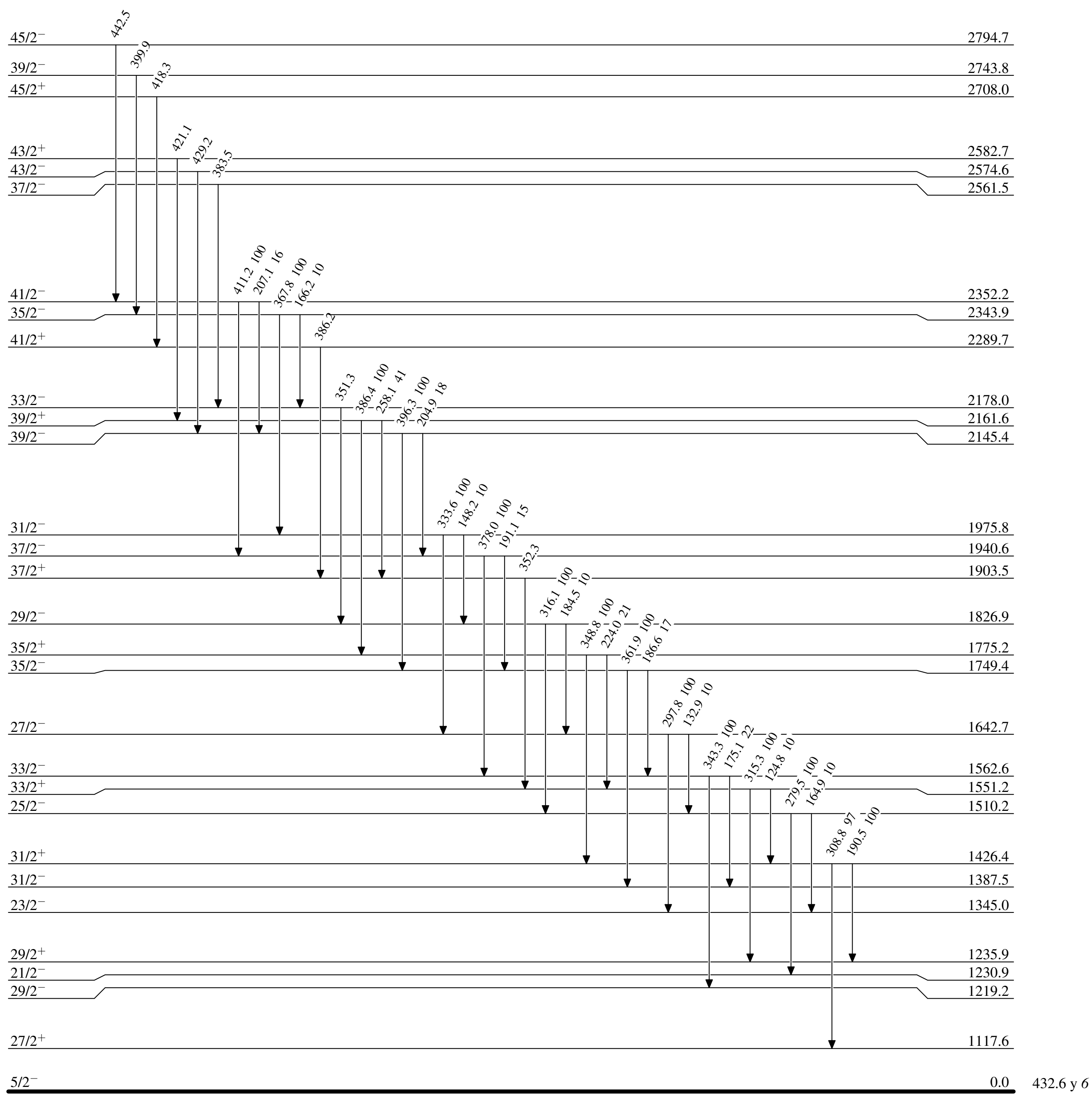
Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



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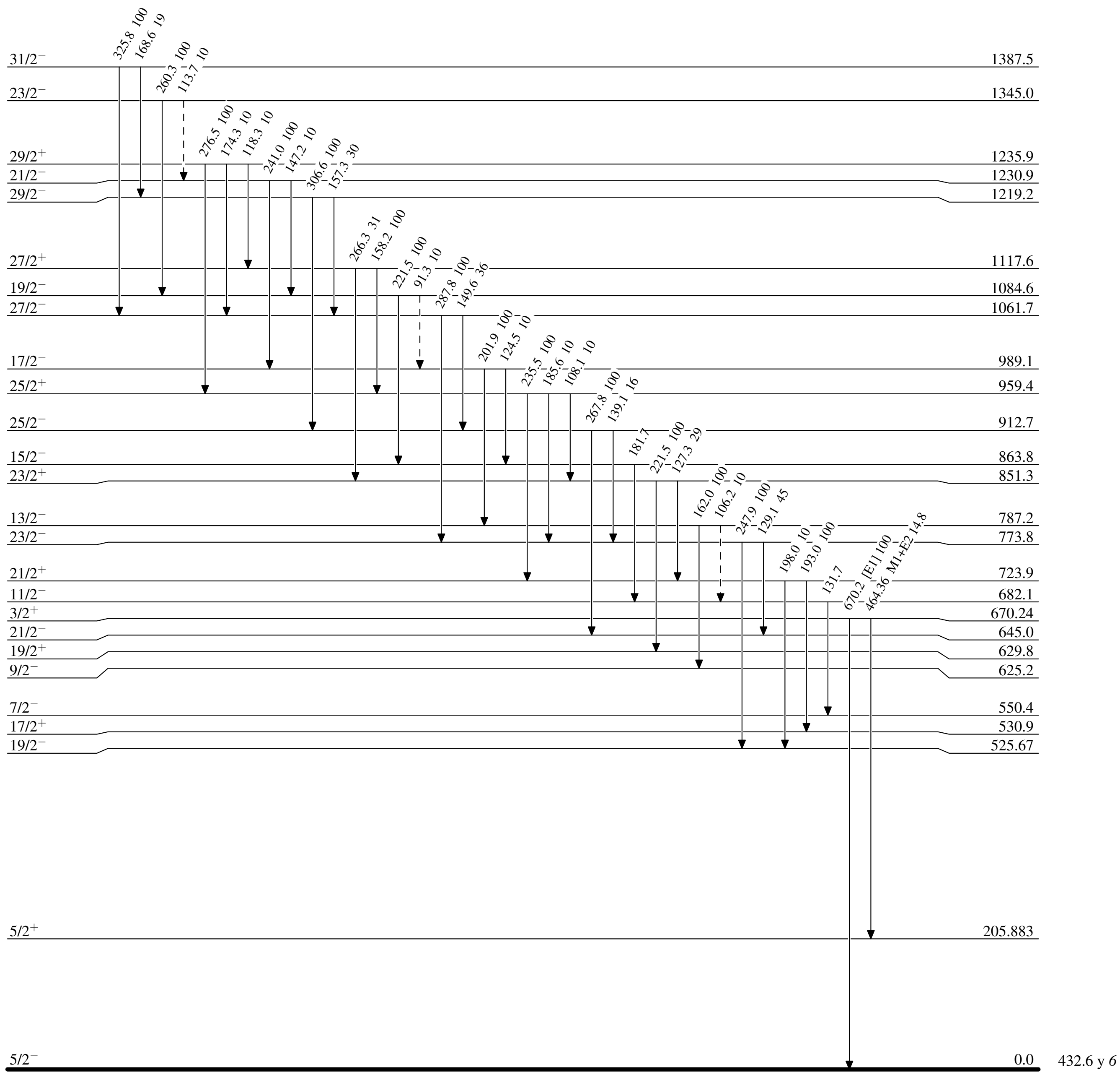
Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

Legend

γ Decay (Uncertain)



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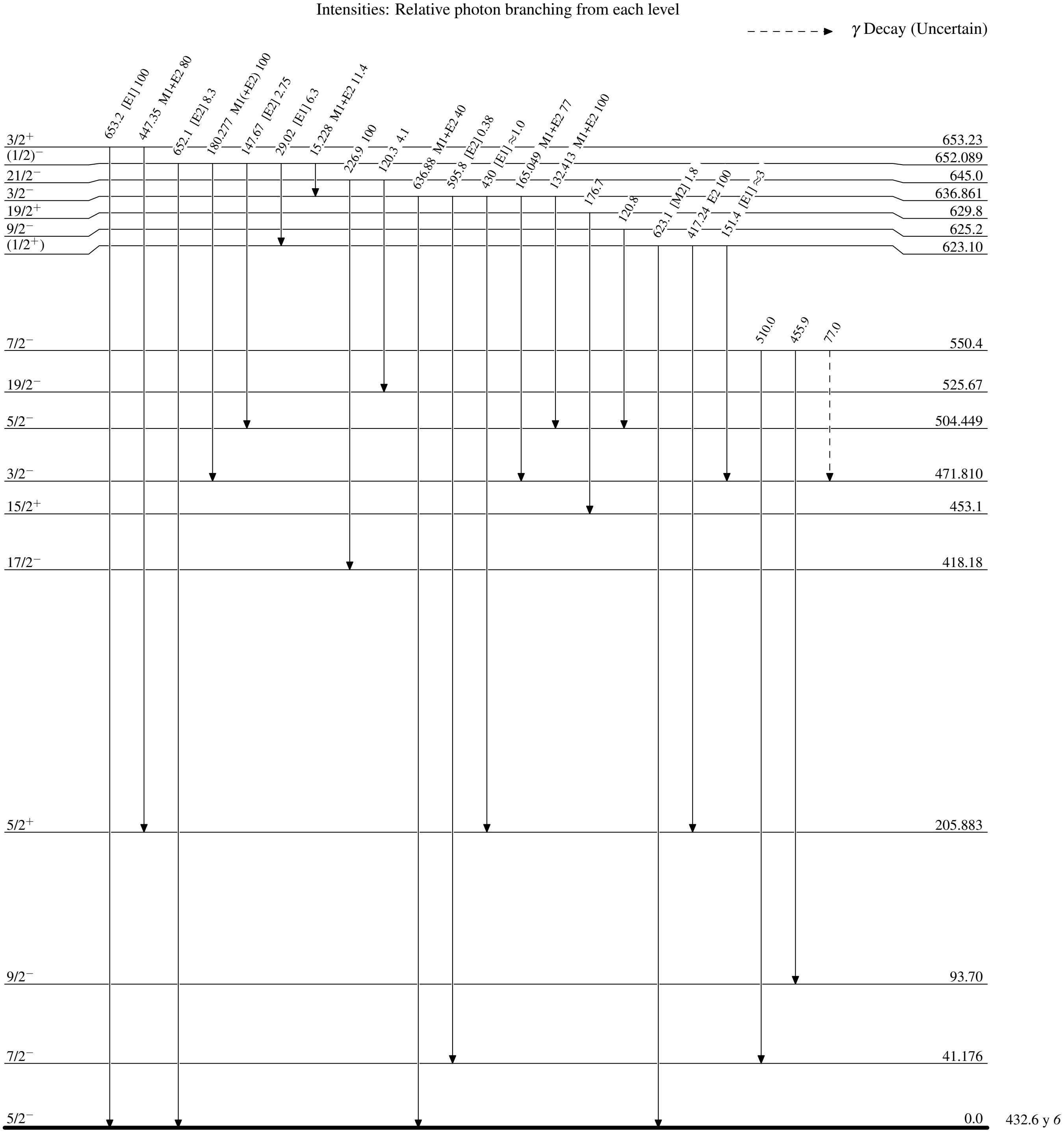
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

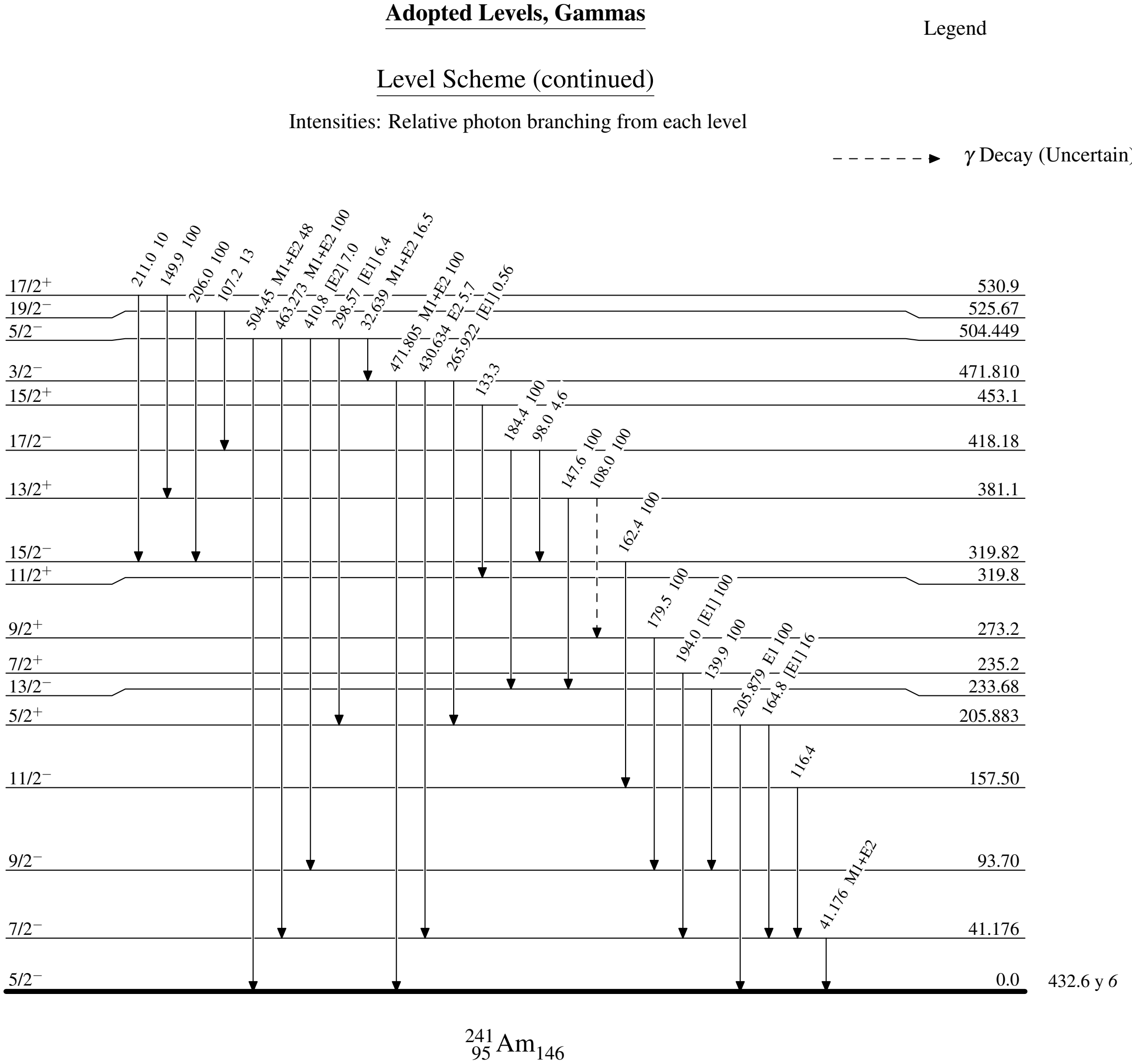


$^{241}_{95}Am_{146}$

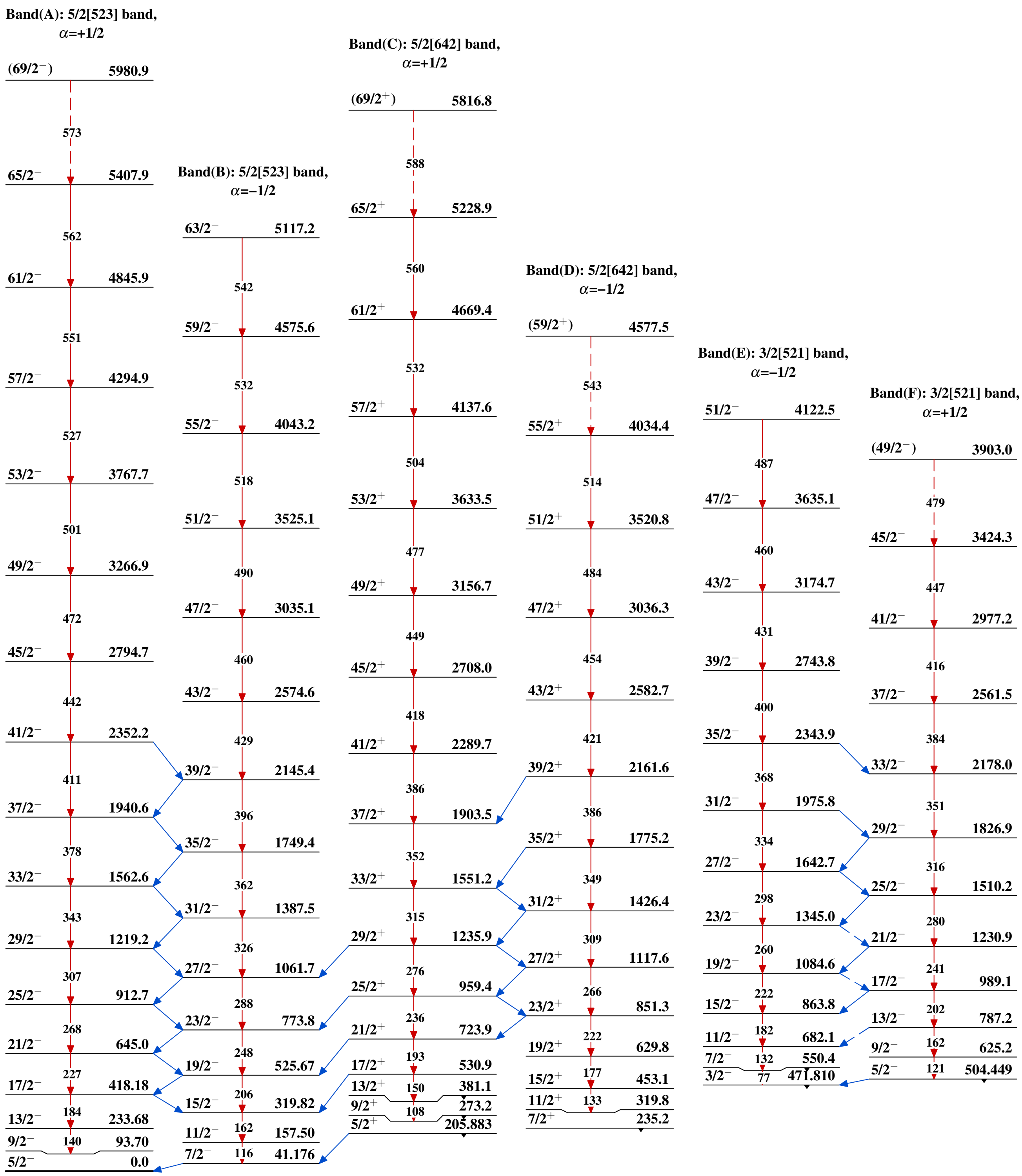
Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

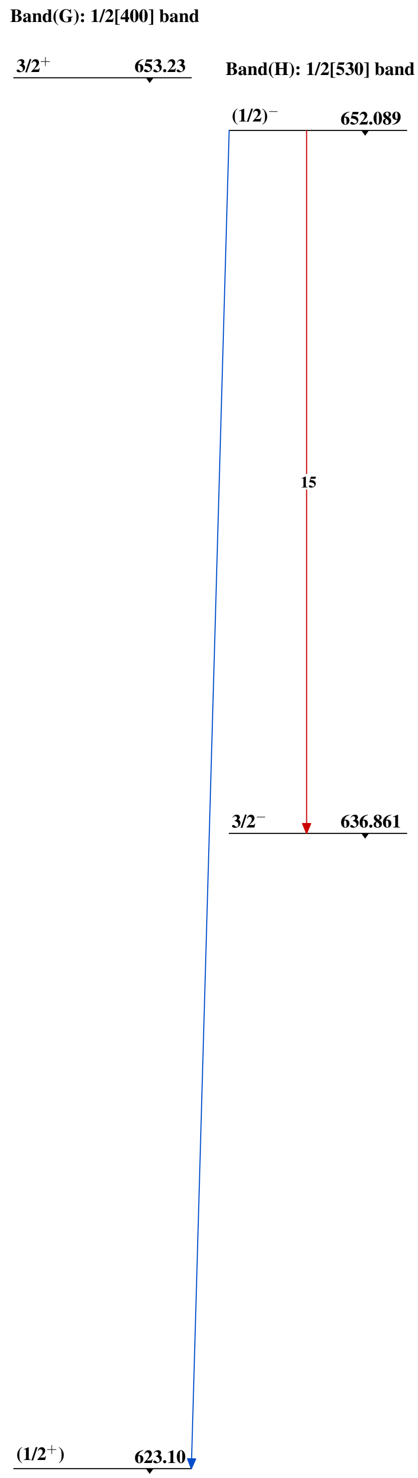


Adopted Levels, Gammas



$^{241}_{95}Am_{146}$

Adopted Levels, Gammas (continued)



$^{241}_{95}Am_{146}$