

^{241}Am α decay

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	M. S. Basunia	NDS 107, 3323 (2006)	15-Mar-2006

Parent: ^{241}Am : E=0.0; $J^\pi=5/2^-$; $T_{1/2}=432.6$ y 6; $Q(\alpha)=5637.82$ I2; % α decay=100.0

 ^{237}Np Levels

E(level) [†]	J^π [‡]	$T_{1/2}$	Comments
0.0 [#]	5/2 ⁺	2.144×10 ⁶ y 7	$T_{1/2}$: From Adopted Levels.
33.19632 [#] 22	7/2 ⁺	≤4 ns	$T_{1/2}$: From 1955Tu13.
59.54090 [@] 10	5/2 ⁻	67.2 ns 7	$T_{1/2}$: Weighted average is 67.2 ns 4 of data 63 ns 5 (1952Be47), 64.2 ns 20 (1968Ob02), 66.7 ns 7 (1971Ga16), 66.9 ns 10 (1972Mc12), and 68.3 ns 7 (1972Mi23) – uncertainty 0.7 (1%) is assigned by the evaluator, in 1972Mi23 0.2. The uncertainty 0.7 is the lowest expt. value. Other value: 63 ns (1964Sa31), 60 ns 20 (1955Tu13).
75.900 [#] 5	9/2 ⁺		
102.959 [@] 3	7/2 ⁻		
129.99 [#] 3	11/2 ⁺		
158.500 [@] 11	9/2 ⁻		
191.55 [#] 6	13/2 ⁺		
226.005 [@] 8	11/2 ⁻		
267.566 ^{&} 17	3/2 ⁻		
281.363 ^{&} 20	1/2 ⁻		
305.05 [@] 3	13/2 ⁻		
316.8? 2			
324.421 ^{&} 23	(7/2 ⁻)		
332.382 ^a 18	1/2 ⁺		
359.92 ^{&} 20	(5/2 ⁻)		
368.615 ^a 20	5/2 ⁺		
370.931 ^a 23	3/2 ⁺		
395.57 [@] 3	15/2 ⁻		
418.2? 1			E(level): Deduced from $E_\alpha=5133$ and $Q(\alpha)=5637.82$ I2 (^{241}Am) by evaluator.
434.12 ^{&} 5	(11/2 ⁻)		
444.78? 10			
452.547 ^a 22	9/2 ⁺		
459.694 ^a 24	7/2 ⁺		
486.22 ^{&} 9	(9/2 ⁻)		
497.01 [@] 5	17/2 ⁻		
514.20 ^c 5	(3/2 ⁻)		
546.12 ^c 6	(5/2 ⁻)		
590.09 ^c 4	(7/2 ⁻)		
592.33 ^a 7	13/2 ⁺		
597.99 ^a 9	11/2 ⁺		
646.03 ^c 17	(9/2 ⁻)		
666.20 9	(5/2 ⁺ , 7/2 ⁻)		
721.961 ^b 13	5/2 ⁻		
755.685 ^b 19	7/2 ⁻		
770.57 5			
799.82 ^b 4	9/2 ⁻		
805.77 12	(7/2 ⁺ , 9/2 ⁺)		

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²⁴¹Am α decay (continued)

²³⁷Np Levels (continued)

E(level) [†]	J ^π [‡]
853.39 ^b 15	11/2 ⁻
861.80 12	
920.88 20	

[†] From a least squares fit to the γ -ray energies.

[‡] From Adopted Levels.

5/2[642] band.

@ 5/2[523] band.

& 1/2[530] band.

^a 1/2[400] band.

^b K=5/2 band.

^c 3/2[521] band.

α radiations

E α [†]	E(level)	I α ^{@a}	HF&	Comments
4758	799.82	<0.00001	>198	E α : Deduced from Q(α) and level energy, E α =4754 in 1965Mi06 . I α : 0.000014<I α ≤0.00007 from intensity balances at the 800.0- and 721.9-keV levels.
4800	755.685	8.6×10 ⁻⁵	47	
4834	721.961	0.0007	10	
4889 ^{#b}	666.20			
4956 ^{#b}	597.99			
4962 ^{#b}	592.33			An α group with E α =E α (to g.s.)-585 6, corresponding to α transition to a level (or levels) at 595 6 keV, was observed in 1968Ka09 in (γ)(α) spectrum. This α group probably includes α 's to the 590.09- and 597.9-keV levels.
4964 ^{#b}	590.09			
5004	546.12	0.0001	1094	
(5055)	497.01			E α : Expected in 1968Ka09 . E α deduced by the evaluator.
5068	486.22	0.00014	1927	E α : Q(α)=5637.82 (²⁴¹ Am) and level energy gives E α =5066.
5089	459.694	≈0.0004	≈1000	E α : Q(α)=5637.82 (²⁴¹ Am) and level energy gives E α =5092.
5096	452.547	≈0.0004	≈1112	E α : Q(α)=5637.82 (²⁴¹ Am) and level energy gives E α =5099.
5106 ^{#b}	444.78?			
5114	434.12	0.0004	1459	E α : Q(α)=5637.82 (²⁴¹ Am) and level energy gives E α =5117.
5137	418.2?	0.00032	2445	E α : From 1963Ba35 .
5155	395.57	0.0007	1465	E α : From 1963Ba35 .
5178	370.931	0.0003	4881	E α : Q(α)=5637.82 (²⁴¹ Am) and level energy gives E α =5280.
5182	368.615	0.0009	1682	
5192	359.92	0.0006	2860	E α : From 1963Ba35 . Q(α)=5637.82 (²⁴¹ Am) and level energy gives E α =5290.
5217	332.382	0.00001 1	2.5×10 ⁵ 26	E α ,I α : From 1965Mi06 .
5223	324.421	0.0013	2194	E α : Q(α)=5637.82 (²⁴¹ Am) and level energy gives E α =5225.
5232 ^{#b}	316.8?			
5244	305.05	0.0024	1564	
5279	267.566	0.0005	12723	E α : Q(α)=5637.82 (²⁴¹ Am) and level energy gives E α =5281.
5322	226.005	0.015 5	7.6×10 ² 26	
5388	158.500	1.66 2	17.23 22	E α : Average of E α =5589 (1964Ba26) and E α =5587 (1963Ba35). I α : Weighted average of I α =1.67 2 (1998Ya17), 1.6 1 (1987Bo25), 1.65 8 (1984Ah06), 1.5 3 (1965Mi06), 1.66 5 (1955Go57), and 1.42 15 (1952As04).

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^{241}Am α decay (continued) α radiations (continued)

$E\alpha^\dagger$	E(level)	$I\alpha@^\alpha$	HF&	Comments
5416.5	129.99	≈ 0.01	≈ 4205	Other value: 1.33 (1964Ba26). $E\alpha$: Average of $E\alpha=5517$ (1964Ba26) and $E\alpha=5516$ (1963Ba35).
5442.80 [‡] 13	102.959	13.1 3	4.61 11	$I\alpha$: lwm average of $I\alpha=13.40$ 8 (1998Ya17), 13.0 3 (1987Bo25), 13.1 7 (1984Ah06), 12.83 8 (1976BaZZ), 12.3 6 (1965Mi06), 12.8 5 (1955Go57), and 13.6 14 (1952As04); weighted average 13.10 6.
5469	75.900	< 0.04	> 2158	
5485.56 [‡] 12	59.54090	84.8 5	1.268 9	$E\alpha=5485.60$ 19 in 1992Fr04. $I\alpha$: lwm average of $I\alpha=84.30$ 7 (1998Ya17), 84.7 9 (1987Bo25), 84.0 2 (1984Ah06), 85.8 7 (1976BaZZ), 85.6 10 (1965Mi06), 85.0 8 (1955Go57), and 84.2 15 (1952As04); weighted average 84.79 6. Other: 85.1 (1957Ro20).
5511.5	33.19632	0.225 5	676 16	$E\alpha$: Average of $E\alpha=5513$ (1964Ba26) and $E\alpha=5510$ (1963Ba35). $I\alpha$: Weighted average of $I\alpha=0.224$ 7 (1998Ya17), 0.22 3 (1987Bo25), 0.23 1 (1984Ah06), 0.21 5 (1965Mi06), 0.24 2 (1955Go57), and 0.21 2 (1952As04). Other: 0.12 (1964Ba26).
5544.5 [‡] 16	0.0	0.37 3	634 52	$I\alpha$: The Limitation of Relative Statistical Weight (lwm) method (1985ZiZY) average of $I\alpha=0.394$ 9 (1998Ya17), 0.34 4 (1987Bo25), 0.36 1 (1984Ah06), 0.35 8 (1965Mi06), 0.39 2 (1955Go57), 0.34 1 (1952As04); weighted average 0.368 5. Other: 0.25 (1964Ba26).

[†] From 1964Ba26, except otherwise noted. Other measurements: 1976BaZZ, 1971Gr17 (s), 1968Ba25 (s), 1968Ka09 ($\alpha\gamma$), 1965Mi06 (semi, $\alpha\gamma$), 1964Ba26 (s), 1962Le11 (s), 1957Ro20 (s), 1956Go43, 1955Go57 (s), 1952As04 (s). See 1971E110 for tabulation of measured values. Other measurements: 1970By01, 1972De34, 1972Ko04, 1987Go21, 1987Ko07.

[‡] Recommended in 1991Ry01.

Expected in 1968Ka09. $E\alpha$ deduced by the evaluator from $Q(\alpha)=5637.82$ (^{241}Am) and feeding level energy.

@ From 1964Ba26, except otherwise noted. Other $I\alpha$ measurements: 1957Ro20, 1966Le13. See 1971E110 for tabulation of measured intensities.

& $r_0(^{237}\text{Np})=1.5091$ 10, average of $r_0(^{237}\text{U})=1.5168$ 3 and $r_0(^{237}\text{Pu})=1.5013$ 10 (1998Ak04), has been used in calculations. See also 1980Ka41 and 1994Du03 for calculated hindrance factors and discussions.

^a Absolute intensity per 100 decays.

^b Existence of this branch is questionable.

²⁴¹Am α decay (continued)

γ (²³⁷Np)

Annihilation radiation is reported in [1973Lj01](#), probability of pair production was deduced; 3.1×10^{-9} ϵ pairs per α decay were obtained. [1973Lj01](#) suggested that the $e\pm$ pairs were due to internal pair production occurring in the α -decay process. See also [1982Lo10](#) for discussions.

For measured L- and K-subshell energies and intensities, see the references quoted above and [1987De22](#), [1988Co07](#), [1990Po14](#). See also [1974Ga40](#). Other measurements: [1952Be24](#), [1957Ma17](#), [1990Po14](#), [1992An03](#), [1992Ba08](#).

For recommended L-subshell energies and intensities, see [1991BaZS](#).

For deduced L-fluorescence yields, see [1990SeZT](#).

$\alpha\gamma$: see [1965Mi06](#), [1968Ka09](#), [1969KaZR](#), [1977VaZW](#).

$\gamma\gamma$: see [1965Mi06](#), [1955Tu13](#), [1957Ma17](#).

$\alpha\gamma(t)$:

$(\alpha)(59\gamma)(t)$	$T_{1/2}(59$	level)=63 ns 5	1952Be47
		=63 ns	1964Sa31
		=64.2 ns 20	1968Ob02
		=66.7 ns 7	1971Ga16
		=66.9 ns 10	1972Mc12
		=68.3 ns 2	1972Mi23

$\gamma\gamma(t)$:

(ce 43 γ)(ce 26 γ)(t),			
(ce 43 γ)(ce 59 γ)(t):	$T_{1/2}(59$	level)=60 ns 20	1955Tu13
(ce 26 γ)(ce 33 γ)(t):	$T_{1/2}(33$	level) ≤ 4 ns	1955Tu13

$(\alpha)(59\gamma)(\theta)$: see [1963Fl01](#), [1954No31](#).

$(\alpha)(59\gamma)(\theta, H)$: see [1955Kr02](#).

$(\alpha)(59\gamma)(\theta, t)$: see [1957Kr52](#), [1967Gu08](#), [1973Ch22](#)

$(\alpha)(59\gamma)(\theta, H, t)$: see [1966He13](#), [1967Gu08](#), [1970An13](#)

(59 γ)(Circular Polarization): see [1990In01](#).

$(\alpha)(\theta, T)$: see [1974So10](#), [1968Ma42](#), [1990 \$\gamma\$](#)

For calculations of $(\alpha)(\theta)$, including deformation,
see, for example, [1992De37](#).

X rays(neptunium):

M x-rays:	6.3% 6	1971Ka48
L x-rays:	37.7%	1957Ma17
	37.3% 18	1971Ge11
	38.9% 20	1971Wa28
	38.2% 8	1974Ca16
	37.9%	1976GuZN
	45.0%	1977Hs02
	38.3% 10	1988SeZR
	37.7% 19	1992Bl07
K x-rays:	0.0040%	1976GuZN

241Am α decay (continued) $\gamma(^{237}\text{Np})$ (continued)

<u>E_γ[†]</u>	<u>I_γ^{‡f}</u>	<u>E_i(level)</u>	<u>J_i^π</u>	<u>E_f</u>	<u>J_f^π</u>	<u>Mult.#</u>	<u>δ</u>	<u>α^g</u>	<u>Comments</u>
(13.81 [@] 2) 26.3446 2	 2.27×10 ⁵ 12	281.363 59.54090	1/2 ⁻ 5/2 ⁻	267.566 33.19632	3/2 ⁻ 7/2 ⁺	E1 ^a		8 ^b 2	$\alpha(L)_{\text{exp}}=6$ 2; $\alpha(M)_{\text{exp}}=1.6$ 2 B(E1)(W.u.)=3.3×10 ⁻⁶ 11 E _{γ} : From compilation in 2000He14. 26.3448 2 in 1993He18. Other energies: 26.363 14 (1955Da02), 26.356 20 (1964Wo03), 26.35 5 (1966Ko06), 26.345 1 (1970Ne11), 26.344 (1976GuZN), 26.346 6 (1978Ge06). I _{γ} : lwm average of 2.06% 3 (2005Iw01), 2.41% 5 (1983De11) and 2.395% 19 (1992BI07). Other I _{γ} 's (%): 2.5 2 (1957Ma17), 2.23 18 (1971Ge11), 2.4 1 (1974Ca16), 2.45 5 (1976GuZN), 2.54 26 (1978Ge06). Other absolute/relative measurements: 1952Be24, 1955Ja01, 1955Da02, 1971Wa28, 1984Ov02, 1988Co07. 1991BaZS recommend I _{γ} =2.4% 1 from weighted average of measured values prior to 1991. E _{γ} : From 1998Ko61. 27.03 keV in 1959Sa10.
27.020 ⁱ 7 (31.4 ^c) ^x 32.183 33.196 1	 1740 40 1.26×10 ⁴ 3	102.959 546.12 33.19632	7/2 ⁻ (5/2 ⁻) 7/2 ⁺	75.900 514.20 0.0	9/2 ⁺ (3/2 ⁻) 5/2 ⁺	M1+E2	0.13 3	185 23	E _{γ} : From 1976GuZN; not listed by others. $\alpha(L)=138$ 18; $\alpha(M)=35$ 5 B(M1)(W.u.)=0.00080 11; B(E2)(W.u.)=3.6 17 E _{γ} : Other energies: 33.1925 25 (1998Ko61), 33.199 21 (1955Da02), 33.21 2 (1964Wo03), 33.20 2 (1966Ko06), 33.197 (1976GuZN), 33.205 20 (1978Ge17); E _{γ} =33.195 11 from ²³⁷ U β^- decay. I _{γ} : other intensities(%): 0.14 (1955Da02), 0.11 (1957Ma17), 0.104 11 (1971Ge11), 0.106 11 (1978Ge06), 0.125 8 (1983Ah02), 0.12 1 (1984Ov02), 0.1233 28 (1992BI07).
(38.54 [@] 3) 42.704 5	 5.5×10 ² 11	370.931 75.900	3/2 ⁺ 9/2 ⁺	332.382 33.19632	1/2 ⁺ 7/2 ⁺	(M1+E2)	≈0.13	≈80	$\alpha(L) \approx 59$; $\alpha(M) \approx 15$ E _{γ} : From 1998Ko61. 42.73 5 (1978Ge06,1978Ge17), 42.81 (1959Sa10); 42.57 30 from ²³⁷ Np Coulomb excitation. I _{γ} : measured in 1978Ge06; not listed in 1976GuZN. $\delta=0.13$ is expected from $\delta(33.2\gamma)=0.13$, if the strong coupling collective model (see 1953Bo25) is assumed valid for the intraband transitions. The author of 1959Sa10 lists L3/L1≈4 and proposes M3 multipolarity. This ratio gives $\delta \approx 0.86$ for M1+E2 multipolarity. However, $\delta=0.86$ yields $\alpha=401$ and $\alpha(L)=294$, and these are not consistent with the intensity balance at the 75.92 level and nonobservation of its L-conversion lines in ²³⁷ Pu ϵ decay.
43.420 3	73×10 ² 8	102.959	7/2 ⁻	59.54090	5/2 ⁻	M1+E2	0.41 2	168 8	$\alpha(L)=124$ 7; $\alpha(M)=32.8$ 18 E _{γ} : From 1998Ko61. 43.423 10 (1978Ge06,1978Ge17). I _{γ} : From 1978Ge06; this transition was not listed in

²⁴¹Am α decay (continued)

$\gamma(^{237}\text{Np})$ (continued)

E_γ^\dagger	$I_\gamma^{\ddagger f}$	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. [#]	δ	α^g	Comments
(51.01 [@] 3)	2.6 12	332.382	1/2 ⁺	281.363	1/2 ⁻	E1		0.767	1976GuZN, but $I_\gamma=91 \times 10^2$ 19 was given in their earlier work (1971GuZY). Other intensities (1×10^2): 90 (1955Da02), 73 7 (1957Ma17), 57 18 (1971Ge11), 66 5 (1984Ov02), 65.4 29 (1992BI07). $\alpha(L)=0.574$; $\alpha(M)=0.143$; $\alpha(N+..)=0.0502$ I_γ : calculated by the evaluator from $I(51\gamma)/I(332\gamma)=98$ 44/555 22, as measured in ²³⁷ U β^- decay, and $I(332\gamma)=14.9$ 3. Mult.: from ²³⁷ U β^- decay.
(54.0 ^{&})		129.99	11/2 ⁺	75.900	9/2 ⁺				The ratio of $I(\gamma+ce)(54.0\gamma)/I(\gamma+ce)(96.7\gamma)=89/11$, deduced in (p,2n γ) reaction, yields $I(\gamma+ce)(54.0\gamma)=757$, if $I(\gamma+ce)(96.7\gamma)=94$ 32. $I_\gamma \approx 21$ from Alaga rule and $I_\gamma(95\gamma)=4.7$, if $\delta(54.1\gamma) \approx 0.13$ (the interband transition 33.2 γ has $\delta=0.13$ 3). $\alpha(L)=49$ 4; $\alpha(M)=13.1$ 11; $\alpha(N+..)=4.9$ 5 I_γ : from 1978Ge06; this transition was not listed in 1976GuZN. 1840 240 (1992BI07).
55.56 2	18.1×10^2 18	158.500	9/2 ⁻	102.959	7/2 ⁻	M1+E2	0.46 4	67 6	$\alpha(L)=49$ 4; $\alpha(M)=13.1$ 11; $\alpha(N+..)=4.9$ 5 I_γ : from 1978Ge06; this transition was not listed in 1976GuZN. 1840 240 (1992BI07).
(56.8 ^c)		324.421	(7/2 ⁻)	267.566	3/2 ⁻				I_γ : From 1978Ge06; not listed by others.
^x 57.85 5	5.2×10^2 15								$\alpha(L)\text{exp}=0.84$ 6; $\alpha(M)\text{exp}=0.226$ 7; $\alpha(N+...)\text{exp}=0.094$ 10 B(E1)(W.u.)= 4.5×10^{-6} 4 E_γ : From compilation in 2000He14. 59.5412 1 in 1993He18. Other energies: 59.568 17 (1955Da02), 59.59 (1959Sa10), 59.57 2 (1966Ko06), 59.537 1 (1968Je01), 59.536 3 (1976GuZN).
59.5409 1	35.90×10^5 7	59.54090	5/2 ⁻	0.0	5/2 ⁺	E1 ^a		1.16 ^b 7	I_γ : Weighted average of (%): 38.87 17 (2005Iw01), 35.3 6 ($\alpha\gamma$)(1969Pe17), 35.9 4 (1971GuZY), 36.3 4 (4 π $\alpha\gamma$)(1975Le09), 35.5 3 (4 π $\alpha\gamma$)(1976PI05), 35.82 12 (1983Hu04), 36.36 17 (1987De22), 36.03 25 (1992BI07), 35.6 2 (1992Ma16). Other values: 40.0 15 (1952Be24), 35.9 (1957Ma17), 34.6 7 (4 π $\alpha\gamma$)(1965Mc12). See also 1955Ja01, 1965Mi06. $I_\gamma=36.0\%$ 4 was recommended in 1991BaZS from weighted average of I_γ 's of 1975Le09, 1976PI05, 1983Hu04 and 1987De22.
(61.46 ^d)		191.55	13/2 ⁺	129.99	11/2 ⁺				
(64.83 [@] 2)	14.5 18	332.382	1/2 ⁺	267.566	3/2 ⁻	E1		0.408	$\alpha(L)=0.306$; $\alpha(M)=0.0754$; $\alpha(N+..)=0.0265$ I_γ : calculated by the evaluator from $I(64.8\gamma)/I(332\gamma)=5.4$ 6/5.55 22, as measured in ²³⁷ U β^- decay, and $I(332\gamma)=14.9$ 3. Mult.: from ²³⁷ U β^- decay.
67.45 5	42 10	226.005	11/2 ⁻	158.500	9/2 ⁻	(M1+E2)	0.46 12	31 6	$\alpha(L)=23$ 5; $\alpha(M)=5.9$ 13; $\alpha(N+..)=2.2$ 5

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²⁴¹Am α decay (continued)

$\gamma(^{237}\text{Np})$ (continued)

E_γ †	I_γ ‡f	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. #	α^g	Comments
69.76 3	290 40	102.959	7/2 ⁻	33.19632	7/2 ⁺	(E1)	0.336	I_γ : from 1978Ge06; this transition was not listed in 1976GuZN. $\alpha(L)=0.252$; $\alpha(M)=0.0621$; $\alpha(N+..)=0.0219$
75.8 2	≈59	75.900	9/2 ⁺	0.0	5/2 ⁺	(E2)	54.6	I_γ : from 1978Ge06; this γ was not listed in 1976GuZN, but $I_\gamma=201$ 13 was given in their earlier work (1971GuZY). $\alpha(L)=39.4$; $\alpha(M)=11.0$; $\alpha(N+..)=4.17$ E_γ : from 1966Ko06, 1959Sa10. I_γ : calculated by the evaluator from $I_\gamma(75.8\gamma)/I_\gamma(42.7\gamma)=3/28$, as measured in Coulomb excitation, and $I_\gamma(42.7\gamma)=550$.
(78.1 ^c)		799.82	9/2 ⁻	721.961	5/2 ⁻			
(79.1 ^d)		305.05	13/2 ⁻	226.005	11/2 ⁻			
(92.1 ^c)		359.92	(5/2 ⁻)	267.566	3/2 ⁻			
96.7 ⁱ 2		129.99	11/2 ⁺	33.19632	7/2 ⁺			E_γ : from Coulomb excitation and ²³⁸ U(p,2n γ) reaction. This transition was seen only in 1966Ko06 (²⁴¹ Am α decay) of energy 95.0 2. $E_\gamma=96.8$ from level scheme. $I_\gamma=4.7$ 16 from Ice(L2)=37 12 (1966Ko06) and $\alpha(L2)=7.90$ (E2 theory). $I(\gamma+ce)=94$ 32 from $I_\gamma=4.7$ 16 and $\alpha(E2)=18.9$.
98.97 2	2.03×10 ³ 4	158.500	9/2 ⁻	59.54090	5/2 ⁻	E2	15.6	$\alpha(L)=11.3$; $\alpha(M)=3.13$; $\alpha(N+..)=1.20$ E_γ : other energies: 99.00 4 (1964Wo03), 98.97 3 (1966Ko06), 98.951 5 (1976GuZN). I_γ : other intensities (1×10 ³): 2.4 3 (1966Le13), 1.9 6 (1966Mi05), 2.0 3 (1967Gu08), 2.9 2 (1978Ge06), 1.9 2 (1984Ov02).
102.98 2	1.95×10 ³ 4	102.959	7/2 ⁻	0.0	5/2 ⁺	E1	0.121	$\alpha(L)=0.0908$; $\alpha(M)=0.0222$; $\alpha(N+..)=0.00798$ I_γ : other intensities (1×10 ³): 1.9 3 (1966Le13), 1.5 5 (1966Mi05), 2.1 3 (1967Gu08), 2.52 18 (1978Ge06), 2.1 2 (1984Ov02).
^x 106.42 ^e 5	1.5							I_γ : From 1978Ge17; not listed in 1976GuZN.
109.70 7	0.49	434.12	(11/2 ⁻)	324.421	(7/2 ⁻)	[E2]	9.67	$\alpha(L)=6.98$; $\alpha(M)=1.94$; $\alpha(N+..)=0.742$ I_γ : from 1978Ge17; not listed in 1976GuZN. E_γ : from 1979Ar11; not observed by others.
115.54		191.55	13/2 ⁺	75.900	9/2 ⁺			I_γ : from 1978Ge17; not listed in others.
120.36 ⁱ 8	0.45	444.78?		324.421	(7/2 ⁻)			$\alpha(K)=0.188$; $\alpha(L)=4.13$; $\alpha(M)=1.15$; $\alpha(N+..)=0.438$
123.052 7	100 3	226.005	11/2 ⁻	102.959	7/2 ⁻	E2	5.90	E_γ : From 1998Ko061. 123.01 2 (1978Ge06, 1978Ge17). $\alpha(K)=0.233$; $\alpha(L)=0.0545$; $\alpha(M)=0.0133$; $\alpha(N+..)=0.00480$
125.30 2	408 9	158.500	9/2 ⁻	33.19632	7/2 ⁺	[E1]	0.306	$\alpha(K)=0.233$; $\alpha(L)=0.0545$; $\alpha(M)=0.0133$; $\alpha(N+..)=0.00480$ E_γ : From 1979Ar11; not listed by others.
^x 128.05								E_γ : From 1979Ar11; not listed by others.
129.2		434.12	(11/2 ⁻)	305.05	13/2 ⁻			E_γ : from 1979Ar11; not observed by others.
135.3		459.694	7/2 ⁺	324.421	(7/2 ⁻)			E_γ : from 1979Ar11; not seen by others.
^x 136.7								E_γ : From 1979Ar11; not listed by others.
138.5		597.99	11/2 ⁺	459.694	7/2 ⁺			E_γ : from 1979Ar11; not observed by others.
139.44 8	0.53 11	592.33	13/2 ⁺	452.547	9/2 ⁺	[E2]	3.45	$\alpha(K)=0.215$; $\alpha(L)=2.33$; $\alpha(M)=0.649$; $\alpha(N+..)=0.247$
146.55 3	46.1 11	305.05	13/2 ⁻	158.500	9/2 ⁻	E2	2.80	$\alpha(K)=0.214$; $\alpha(L)=1.87$; $\alpha(M)=0.519$; $\alpha(N+..)=0.198$
150.04 3	7.40 21	226.005	11/2 ⁻	75.900	9/2 ⁺	[E1]	0.200	$\alpha(K)=0.154$; $\alpha(L)=0.0343$; $\alpha(M)=0.00837$; $\alpha(N+..)=0.00302$
154.27 20	0.054	514.20	(3/2 ⁻)	359.92	(5/2 ⁻)	[M1]	7.54	I_γ : from 1978Ge17; not listed in 1976GuZN. γ was observed in coincidence spectrum and $I_\gamma=0.8$ was given in 1968Ka09.

²⁴¹Am α decay (continued)

$\gamma(^{237}\text{Np})$ (continued)

E_γ †	I_γ ‡f	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult.#	δ	α^g	Comments
^x 156.4 ^e 3									E_γ : observed only in coincidence spectrum (1968Ka09). I_γ : 1.2 was given in 1968Ka09.
159.26 20	0.14 5	592.33	13/2 ⁺	434.12	(11/2 ⁻)	[E1]		0.174	
161.54 10	0.15	486.22	(9/2 ⁻)	324.421	(7/2 ⁻)	[M1]		6.61	$\alpha(\text{K})=5.23$; $\alpha(\text{L})=1.04$; $\alpha(\text{M})=0.252$; $\alpha(\text{N}+..)=0.094$
164.69 4	6.67 24	267.566	3/2 ⁻	102.959	7/2 ⁻	E2		1.74	I_γ : from 1978Ge17; not listed in 1976GuZN. $\alpha(\text{K})=0.199$; $\alpha(\text{L})=1.12$; $\alpha(\text{M})=0.309$; $\alpha(\text{N}+..)=0.117$
165.81 6	2.32 11	324.421	(7/2 ⁻)	158.500	9/2 ⁻	[M1+E2]		3.9 22	Mult.: from ²³⁷ U β^- decay. $\alpha(\text{K})=2.5$ 23; $\alpha(\text{L})=1.02$ 6; $\alpha(\text{M})=0.27$ 4; $\alpha(\text{N}+..)=0.100$ 14
169.56 3	17.3 4	395.57	15/2 ⁻	226.005	11/2 ⁻	E2		1.55	$\alpha(\text{K})=0.193$; $\alpha(\text{L})=0.980$; $\alpha(\text{M})=0.271$; $\alpha(\text{N}+..)=0.103$
175.07 4	1.82 10	305.05	13/2 ⁻	129.99	11/2 ⁺	[E1]		0.1385	$\alpha(\text{K})=0.107$; $\alpha(\text{L})=0.0232$; $\alpha(\text{M})=0.0057$; $\alpha(\text{N}+..)=0.00204$
^x 190.40	0.22 5								E_γ : from 1976GuZN; not listed by others.
191.96 4	2.16 10	497.01	17/2 ⁻	305.05	13/2 ⁻	[E2]		0.954	$\alpha(\text{K})=0.164$; $\alpha(\text{L})=0.572$; $\alpha(\text{M})=0.158$; $\alpha(\text{N}+..)=0.060$
197.0 2	0.049	592.33	13/2 ⁺	395.57	15/2 ⁻	[E1]		0.105	I_γ : from 1978Ge17; not listed in 1976GuZN. $E_\gamma=195.9$ 2, $I_\gamma=0.86$ 9 was given in 1984Ov02.
^x 201.70 ^e 14	0.08								E_γ : from 1974HeYW, 1971Cl03. I_γ : from 1978Ge17, 1971Cl03.
204.06 6	0.290 19	395.57	15/2 ⁻	191.55	13/2 ⁺	[E1]		0.097	
208.01 3	79.1 17	267.566	3/2 ⁻	59.54090	5/2 ⁻	M1+E2	+0.156 5	3.18	$\alpha(\text{K})=2.50$; $\alpha(\text{L})=0.504$; $\alpha(\text{M})=0.123$; $\alpha(\text{N}+..)=0.0457$ I_γ : other intensities: 56 16 (1966Le13), 64 13 (1966Mi05), 75 4 (1967Gu08), 77 4 (1984Ov02).
221.46 3	4.24 10	324.421	(7/2 ⁻)	102.959	7/2 ⁻	[M1+E2]		1.6 11	$\alpha(\text{K})=1.1$ 10; $\alpha(\text{L})=0.37$ 6; $\alpha(\text{M})=0.095$ 9; $\alpha(\text{N}+..)=0.035$ 3
(221.80 [@] 4)		281.363	1/2 ⁻	59.54090	5/2 ⁻				
232.81 5	0.464 30	514.20	(3/2 ⁻)	281.363	1/2 ⁻	[M1]		2.36	
234.33	0.066 27	267.566	3/2 ⁻	33.19632	7/2 ⁺	M2		8.66	$\alpha(\text{K})=5.87$; $\alpha(\text{L})=2.05$; $\alpha(\text{M})=0.537$; $\alpha(\text{N}+..)=0.205$
246.73 10	0.242 25	514.20	(3/2 ⁻)	267.566	3/2 ⁻	[M1]		2.01	E_γ : from 1976GuZN; not seen in 1978Ge17. $E_\gamma=234.40$ 4 was measured in ²³⁷ U β^- decay.
249.00 15	0.054	324.421	(7/2 ⁻)	75.900	9/2 ⁺	[E1]		0.061	Mult.: from ²³⁷ U β^- decay.
260.80 ^h 15	0.121 19	452.547	9/2 ⁺	191.55	13/2 ⁺	[E2]		0.320	E_γ : other values: 248.0 4 (1968Ka09), 249.05 (1979Ar11); $E_\gamma=248.50$ 7 from level scheme.
260.80 ^h 15		486.22	(9/2 ⁻)	226.005	11/2 ⁻				I_γ : from 1978Ge17; not listed in 1976GuZN.
264.89 ^h 6	0.90 4	324.421	(7/2 ⁻)	59.54090	5/2 ⁻	[M1+E2]		1.0 7	
264.89 ^h 6		546.12	(5/2 ⁻)	281.363	1/2 ⁻				
267.58 5	2.63 8	267.566	3/2 ⁻	0.0	5/2 ⁺	E1+M2	0.490 15	1.11 6	$\alpha(\text{K})=0.77$ 4; $\alpha(\text{L})=0.250$ 12; $\alpha(\text{M})=0.065$ 4; $\alpha(\text{N}+..)=0.0246$ 12
^x 270.63 15	0.064 20								Mult.: E1+M2 with M2/E1=0.240 15 from ²³⁷ U decay.

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²⁴¹Am α decay (continued)

$\gamma(^{237}\text{Np})$ (continued)

E_γ^{\ddagger}	$I_\gamma^{\ddagger f}$	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult.#	δ	α^g	Comments
275.77 8	0.66 4	434.12	(11/2 ⁻)	158.500	9/2 ⁻	[M1+E2]		0.9 6	
278.04 15	0.044	546.12	(5/2 ⁻)	267.566	3/2 ⁻	[M1]		1.44	I_γ : from 1978Ge17; not listed in others.
291.30 20	0.31 3	324.421	(7/2 ⁻)	33.19632	7/2 ⁺	[E1]		0.0433	
292.77 6	1.42 5	368.615	5/2 ⁺	75.900	9/2 ⁺	[E2]		0.220	$\alpha(\text{K})=0.0808$; $\alpha(\text{L})=0.101$; $\alpha(\text{M})=0.0275$; $\alpha(\text{N}+..)=0.0104$
300.13 ⁱ 6		359.92	(5/2 ⁻)	59.54090	5/2 ⁻				Transition is obscured by ²³³ Pa γ .
304.21 20	0.101 21	434.12	(11/2 ⁻)	129.99	11/2 ⁺	[E1]		0.0393	
309.1 3	0.14	368.615	5/2 ⁺	59.54090	5/2 ⁻	[E1]		0.0380	I_γ : from 1978Ge17; not listed in 1976GuZN.
316.8 ⁱ 2	≤ 0.005	316.8?		0.0	5/2 ⁺				I_γ : from 1978Ge17; not listed in 1976GuZN.
322.52 ^h 3	15.18 32	452.547	9/2 ⁺	129.99	11/2 ⁺	(M1+E2)	≈ 0.6	0.75 21	$\alpha(\text{K})=0.58$ 18; $\alpha(\text{L})=0.13$ 2; $\alpha(\text{M})=0.032$ 4; $\alpha(\text{N}+..)=0.012$ 1
322.52 ^h 3		590.09	(7/2 ⁻)	267.566	3/2 ⁻				
332.35 3	14.9 3	332.382	1/2 ⁺	0.0	5/2 ⁺	E2		0.150	$\alpha(\text{K})=0.0640$; $\alpha(\text{L})=0.0624$; $\alpha(\text{M})=0.0169$; $\alpha(\text{N}+..)=0.00639$
335.37 3	49.6 10	368.615	5/2 ⁺	33.19632	7/2 ⁺	M1+E2	0.46 17	0.74 8	$\alpha(\text{K})=0.57$ 7; $\alpha(\text{L})=0.121$ 8; $\alpha(\text{M})=0.0296$ 18; $\alpha(\text{N}+..)=0.0110$ 7
337.7 2	0.429 23	370.931	3/2 ⁺	33.19632	7/2 ⁺	(E2)		0.143	Mult.: from ²³⁷ U β^- decay.
^x 340.56 ^e 8	0.43								I_γ : from 1978Ge17; not listed in 1976GuZN. $I_\gamma=0.79$ from 1971Cl03.
358.25 20	0.120 24	434.12	(11/2 ⁻)	75.900	9/2 ⁺	[E1]		0.0276	
368.65 3	21.7 5	368.615	5/2 ⁺	0.0	5/2 ⁺	M1(+E2)	< 0.31	0.64 2	$\alpha(\text{K})=0.51$ 2; $\alpha(\text{L})=0.100$ 3; $\alpha(\text{M})=0.0244$ 6; $\alpha(\text{N}+..)=0.0091$ 2
370.94 3	5.23 12	370.931	3/2 ⁺	0.0	5/2 ⁺	M1+E2	0.43 +7-21	0.57 2	$\alpha(\text{K})=0.45$ 6; $\alpha(\text{L})=0.092$ 3; $\alpha(\text{M})=0.0225$ 6; $\alpha(\text{N}+..)=0.0084$ 6
376.65 3	13.83 30	452.547	9/2 ⁺	75.900	9/2 ⁺	(M1)		0.627	Mult.: from ²³⁷ U β^- decay. $\alpha(\text{K})=0.497$; $\alpha(\text{L})=0.0973$; $\alpha(\text{M})=0.0235$; $\alpha(\text{N}+..)=0.00874$
383.81 3	2.82 7	459.694	7/2 ⁺	75.900	9/2 ⁺	[M1+E2]		0.35 25	$\alpha(\text{K})=0.26$ 21; $\alpha(\text{L})=0.065$ 28; $\alpha(\text{M})=0.016$ 5; $\alpha(\text{N}+..)=0.006$ 2
^x 389.0 3	0.049								I_γ : from 1978Ge17; not listed by others.
^x 390.62 10	0.590 27								
398.64 15	0.20	666.20	(5/2 ⁺ , 7/2 ⁻)	267.566	3/2 ⁻			0.056 34	I_γ : from 1978Ge17; not given in 1976GuZN, but $I_\gamma=0.15$ was listed in 1971GuZY. Mult.: E1 or E2 from decay scheme.
401.3 30	0.049	592.33	13/2 ⁺	191.55	13/2 ⁺	[M1+E2]		0.31 22	I_γ : from 1978Ge17; not listed by others.
406.35 15	0.145 22	597.99	11/2 ⁺	191.55	13/2 ⁺	[M1+E2]		0.30 21	
^x 415.88 ^e 10	0.31								I_γ : from 1978Ge17; not given in 1976GuZN, but $I_\gamma=0.16$ was listed in 1971GuZY.
419.33 4	2.87 8	452.547	9/2 ⁺	33.19632	7/2 ⁺	[M1+E2]		0.27 20	$\alpha(\text{K})=0.21$ 16; $\alpha(\text{L})=0.050$ 22; $\alpha(\text{M})=0.012$ 5; $\alpha(\text{N}+..)=0.0046$ 19
426.47 4	2.46 7	459.694	7/2 ⁺	33.19632	7/2 ⁺	[M1+E2]		0.27 18	$\alpha(\text{K})=0.20$ 16; $\alpha(\text{L})=0.047$ 22; $\alpha(\text{M})=0.012$ 6; $\alpha(\text{N}+..)=0.0044$ 18
^x 429.94 10	0.115 23								

²⁴¹Am α decay (continued)

								$\gamma(^{237}\text{Np})$ (continued)		
E_γ †	I_γ ‡f	E_i (level)	J_i^π	E_f	J_f^π	Mult. #	α^g	Comments		
^x 442.81 7	0.35 3									
446.43 15	0.049	770.57		324.421	(7/2 ⁻)			I γ : from 1978Ge17; not listed by others.		
452.6 2	0.240 25	452.547	9/2 ⁺	0.0	5/2 ⁺	[E2]	0.065			
454.66 ^h 8	0.97 4	514.20	(3/2 ⁻)	59.54090	5/2 ⁻	[M1]	0.376			
454.66 ^{hi} 8		721.961	5/2 ⁻	267.566	3/2 ⁻					
459.68 10	0.363 27	459.694	7/2 ⁺	0.0	5/2 ⁺	[M1+E2]	0.21 15			
463.22 20	0.1	592.33	13/2 ⁺	129.99	11/2 ⁺	[M1+E2]	0.21 15	I γ : from 1978Ge17; not listed by others.		
468.12 15	0.288 21	597.99	11/2 ⁺	129.99	11/2 ⁺	[M1+E2]	0.20 15			
^x 485.91 20	0.10 3									
487.3 ^h 3	0.044	590.09	(7/2 ⁻)	102.959	7/2 ⁻	[M1]	0.312	I γ : from 1978Ge17; not listed in others.		
487.3 ^h 3		646.03	(9/2 ⁻)	158.500	9/2 ⁻					
512.5 3	0.115 23	546.12	(5/2 ⁻)	33.19632	7/2 ⁺	[E1]	0.0134			
514.0 5	0.258 27	514.20	(3/2 ⁻)	0.0	5/2 ⁺	[E1]	0.0133			
522.06 15	0.095 29	597.99	11/2 ⁺	75.900	9/2 ⁺	[M1+E2]	0.15 11			
529.17 20	0.046	853.39	11/2 ⁻	324.421	(7/2 ⁻)	[E2]	0.0441	I γ : from 1978Ge17; not listed by others.		
545.4 3	0.074	546.12	(5/2 ⁻)	0.0	5/2 ⁺	[E1]	0.01119	I γ : from 1978Ge17; not listed in others.		
563.05 30	0.074	721.961	5/2 ⁻	158.500	9/2 ⁻	[E2]	0.0383	I γ : from 1978Ge17; not listed in 1976GuZN.		
573.94 20	0.125 19	799.82	9/2 ⁻	226.005	11/2 ⁻	[M1+E2]	0.12 8			
^x 582.6 ^e	0.023 12							E γ : from 1976GuZN; not listed by others.		
586.59 20	0.131 20	646.03	(9/2 ⁻)	59.54090	5/2 ⁻	[E2]	0.0350			
590.28 ^h 15	0.286 21	590.09	(7/2 ⁻)	0.0	5/2 ⁺	[E1]	0.0102			
590.28 ^h 15		666.20	(5/2 ⁺ , 7/2 ⁻)	75.900	9/2 ⁺					
597.48 8	0.741 33	755.685	7/2 ⁻	158.500	9/2 ⁻	[M1+E2]	0.11 7			
619.01 2	5.94 6	721.961	5/2 ⁻	102.959	7/2 ⁻	[M1+E2]	0.98 7			
627.18 20	0.056 17	853.39	11/2 ⁻	226.005	11/2 ⁻	[M1+E2]	0.09 6			
632.93 15	0.126 19	666.20	(5/2 ⁺ , 7/2 ⁻)	33.19632	7/2 ⁺	[D]	0.08 7			
641.47 5	0.71 3	799.82	9/2 ⁻	158.500	9/2 ⁻	[M1+E2]	0.089 6			
653.02 4	3.77 11	755.685	7/2 ⁻	102.959	7/2 ⁻	[M1+E2]	0.085 6			
662.40 2	36.4 8	721.961	5/2 ⁻	59.54090	5/2 ⁻	(E0+M1+E2)	0.23 5	α : $\alpha(K)\text{exp}=0.18 4$, $K/(L+M+..)=4 1$ from $(\alpha)(\text{ce})$ and $(\alpha)(\gamma)$ coincidence measurements of 1966Le13.		
666.5 3	0.049	666.20	(5/2 ⁺ , 7/2 ⁻)	0.0	5/2 ⁺	[D]	0.07 6	I γ : from 1978Ge17; not listed by others.		
669.83 20	0.038 12	799.82	9/2 ⁻	129.99	11/2 ⁺	[E1]	0.0080	I γ : 0.084 from 1978Ge17.		
676.03 30	0.064 13	805.77	(7/2 ⁺ , 9/2 ⁺)	129.99	11/2 ⁺	[E2, M1]	0.08 5			
680.10 10	0.313 17	755.685	7/2 ⁻	75.900	9/2 ⁺	[E1]	0.0078			
688.72 4	3.25 8	721.961	5/2 ⁻	33.19632	7/2 ⁺	[E1]	0.0078			
^x 693.62 8	0.368 17									
696.60 ^h 5	0.534 20	755.685	7/2 ⁻	59.54090	5/2 ⁻	[M1+E2]	0.072 5			
696.60 ^h 5		799.82	9/2 ⁻	102.959	7/2 ⁻					
^x 709.45 5	0.641 18									
722.01 ^h 3	19.6 4	721.961	5/2 ⁻	0.0	5/2 ⁺	[E1]	0.0070			
722.01 ^h 3		755.685	7/2 ⁻	33.19632	7/2 ⁺					

241Am α decay (continued) $\gamma(^{237}\text{Np})$ (continued)

E_γ †	I_γ ‡f	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. #	α^g	Comments
729.72 15	0.133 14	805.77	(7/2 ⁺ ,9/2 ⁺)	75.900	9/2 ⁺	[M1]	0.106	
^x 731.5	0.047 15							E_γ : from 1976GuZN; not listed by others.
737.34 5	0.800 24	770.57		33.19632	7/2 ⁺			
^x 742.9 3	0.035							I_γ : from 1978Ge17; not listed in 1976GuZN.
755.90 5	0.760 28	755.685	7/2 ⁻	0.0	5/2 ⁺	[E1]	0.0064	
^x 759.38 10	0.167 9							
^x 763.9 3	0.020 6							
767.00 10	0.500 18	799.82	9/2 ⁻	33.19632	7/2 ⁺	[E1]	0.0063	
770.57 10	0.474 21	770.57		0.0	5/2 ⁺			
772.4 3	0.266 15	805.77	(7/2 ⁺ ,9/2 ⁺)	33.19632	7/2 ⁺	[M1]	0.091	
^x 777.2	0.0061 31							E_γ : from 1976GuZN; not listed by others.
^x 780.7 2	0.025 5							I_γ : from 1978Ge17; not listed by others.
^x 782.2 5	0.015							I_γ : from 1978Ge17; not listed in 1976GuZN. Measured intensities of 1978Ge17 and 1971Cl03 disagree: $I_\gamma=0.54$ was given in 1971Cl03.
786.00 15	0.062	861.80		75.900	9/2 ⁺			
^x 789.17 25	0.039 6							I_γ : from 1978Ge17; not listed by others.
^x 794.92 20	0.094							
801.94 20	0.136 14	861.80		59.54090	5/2 ⁻			
806.26 30	0.031	805.77	(7/2 ⁺ ,9/2 ⁺)	0.0	5/2 ⁺	[M1,E2]	0.050 32	I_γ : from 1978Ge17; not listed by others.
^x 812.01 30	0.061 8							
^x 819.0 10	0.040 6							
^x 822.6	0.022 6							E_γ : from 1976GuZN; not listed by others.
828.5	0.024 6	861.80		33.19632	7/2 ⁺			E_γ : from 1976GuZN; not listed in 1978Ge17. $E_\gamma=827.7$ 3 (1984Ov02). I_γ : from 1978Ge17; not listed in 1976GuZN. $I_\gamma=0.003$ 1 was given in 1984Ov02.
^x 835.6 10	0.021							
^x 841.5 10	0.004 1							E_γ : from 1984Ov02; not listed by others.
^x 847.4 ^e 5	0.027 3							E_γ and I_γ are from 1984Ov02; not listed by others.
^x 851.6 10	0.038 6							
^x 854.7	0.020 4							E_γ : from 1976GuZN; not listed by others.
860.7 5	0.0082 25	920.88		59.54090	5/2 ⁻			I_γ : there is a discrepancy of measured intensities in 1976GuZN and 1978Ge17: $I_\gamma=0.129$ from 1978Ge17.
862.7 5	0.053 6	861.80		0.0	5/2 ⁺			
^x 870.7 ^e 3	0.046							I_γ : from 1978Ge17; not listed in 1976GuZN. $I_\gamma=0.079$ 16 from 1967Gu08, 0.093 5 from 1984Ov02. This transition was considered in 1978Ov01 to be probably from ¹⁵⁴ Eu decay.
887.3 3	0.022 5	920.88		33.19632	7/2 ⁺			
^x 898.4	0.0072 29							E_γ : from 1976GuZN; not listed by others.
^x 902.5	0.030 5							E_γ : from 1976GuZN; not listed in 1978Ge17. $E_\gamma=901.9$ 3 from 1984Ov02.
^x 912.4	0.025 5							E_γ : from 1976GuZN; not listed in 1978Ge17. $E_\gamma=912.3$ 3 from 1984Ov02.
921.5 3	0.019 4	920.88		0.0	5/2 ⁺			
^x 928.8	0.0055 28							E_γ : from 1976GuZN; not listed in 1978Ge17. $E_\gamma=929.7$ 10 from 1984Ov02.

²⁴¹Am α decay (continued)

$\gamma(^{237}\text{Np})$ (continued)

<u>Eγ[†]</u>	<u>Iγ^{‡,f}</u>	<u>E$_i$(level)</u>	<u>Comments</u>
^x 945.7	0.0056 28		E γ : from 1976GuZn; E γ =946.0 7 from 1984Ov02.
^x 955.7	0.058 6		E γ : from 1976GuZn; E γ =955.7 4 from 1984Ov02.
^x 1014.7 5	0.0064 10		E γ : from 1984Ov02; not listed by others. I γ : from 1984Ov02.

[†] From 1978Ge06, 1978Ge17 (semi), unless otherwise indicated. See also 1955Da02 (cryst), 1959Sa10 (s ce), 1964Wo03 (s ce), 1966Ko06 (s ce), 1966Le13 (semi), 1966Mi05 (semi), 1967Gu08 (semi), 1968Ka09 ($\alpha\gamma$ semi), 1976GuZn (semi), 1978Ov01 (semi). Other measurements: 1952Be24, 1955Ba31, 1955Da02, 1955Ja01, 1955Tu13, 1956Ho38, 1957Ro20, 1965Be38, 1967Br26, 1979Ce04.

[‡] From 1976GuZn, unless otherwise noted (photons per 1×10^7 α decays). The quoted intensities of 1967Gu08, 1971Ge11, 1974Ca16, 1976GuZn, 1978Ge06, and 1984Ov02 have been normalized to $I\gamma(59.537\gamma)=35.9 \times 10^5$; intensities of 1978Ge17 and of 1971Cl03 have been normalized to $I\gamma(208\gamma)=79.1$. See also 1966Le13, 1966Mi05, and 1968Ka09 for measured I γ 's. Other measurements: 1992Ba08. For the multiply placed transitions, when one component is expected to be much weaker, the measured photon intensity is assigned to the stronger component.

[#] From ce data of 1964Wo03, 1966Ko06, 1959Sa10. See 1971E110 for tabulation of ce data. The quoted Ice's here have been normalized to $\text{Ice}(L3; 59.54\gamma)=4.7 \times 10^5$ 5 so that $\alpha(L3)=0.131$ 13, as deduced in ²³⁷U β^- decay. Multipolarities deduced in ²³⁷U β^- decay are also included for completeness, and are noted. Multipolarities in square brackets are from level scheme. Early electron measurements: 1955Ba31, 1955Ja01, 1956Ho38.

[@] From ²³⁷U β^- decay; transition was not observed in ²⁴¹Am decay.

[&] From ²³⁸U(p,2n γ); transition was not observed in ²⁴¹Am decay.

^a Anomalous converted. See 1960As02, 1966Ya05, 1967Pa23, and 1970Gr36 for discussions.

^b Obtained from measured Ice's and I γ 's in ²⁴¹Am α and ²³⁷U β^- decays.

^c Transition not observed, energy from level scheme; existence expected because of observed coincidences.

^d Intraband transition, expected but not observed; energy from level scheme.

^e Questionable transition.

^f For absolute intensity per 100 decays, multiply by 1.00×10^{-5} 1.

^g 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.

^h Multiply placed.

ⁱ Placement of transition in the level scheme is uncertain.

^x γ ray not placed in level scheme.

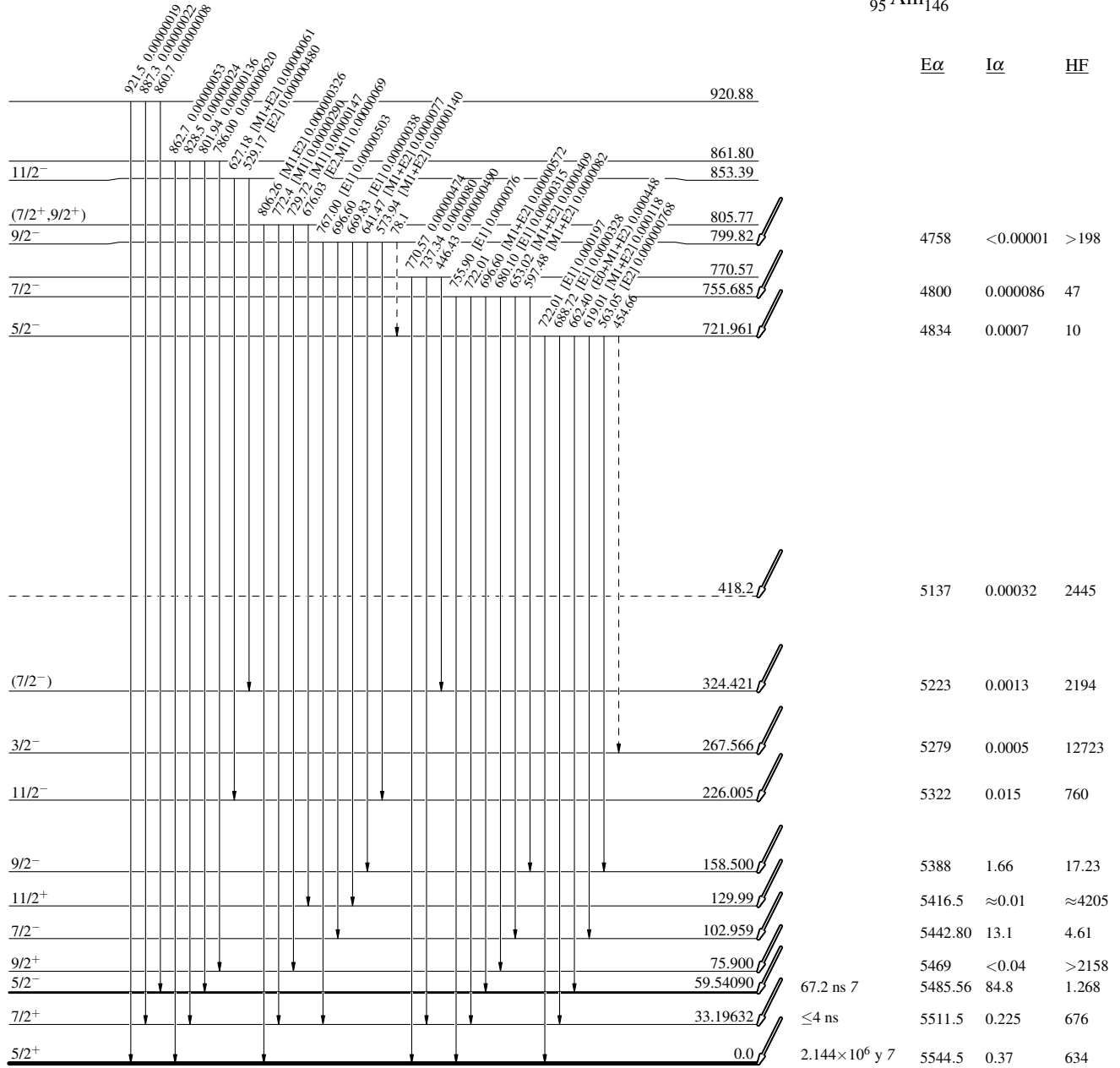
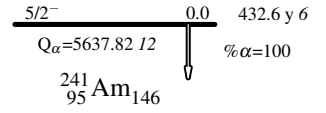
^{241}Am α decay

Decay Scheme

Legend

- ▶ $I_\gamma < 2\% \times I_\gamma^{\text{max}}$
- ▶ $I_\gamma < 10\% \times I_\gamma^{\text{max}}$
- ▶ $I_\gamma > 10\% \times I_\gamma^{\text{max}}$
- - - -▶ γ Decay (Uncertain)

Intensities: $I_{(\gamma+ce)}$ per 100 decays through this branch



$^{237}_{93}\text{Np}_{144}$

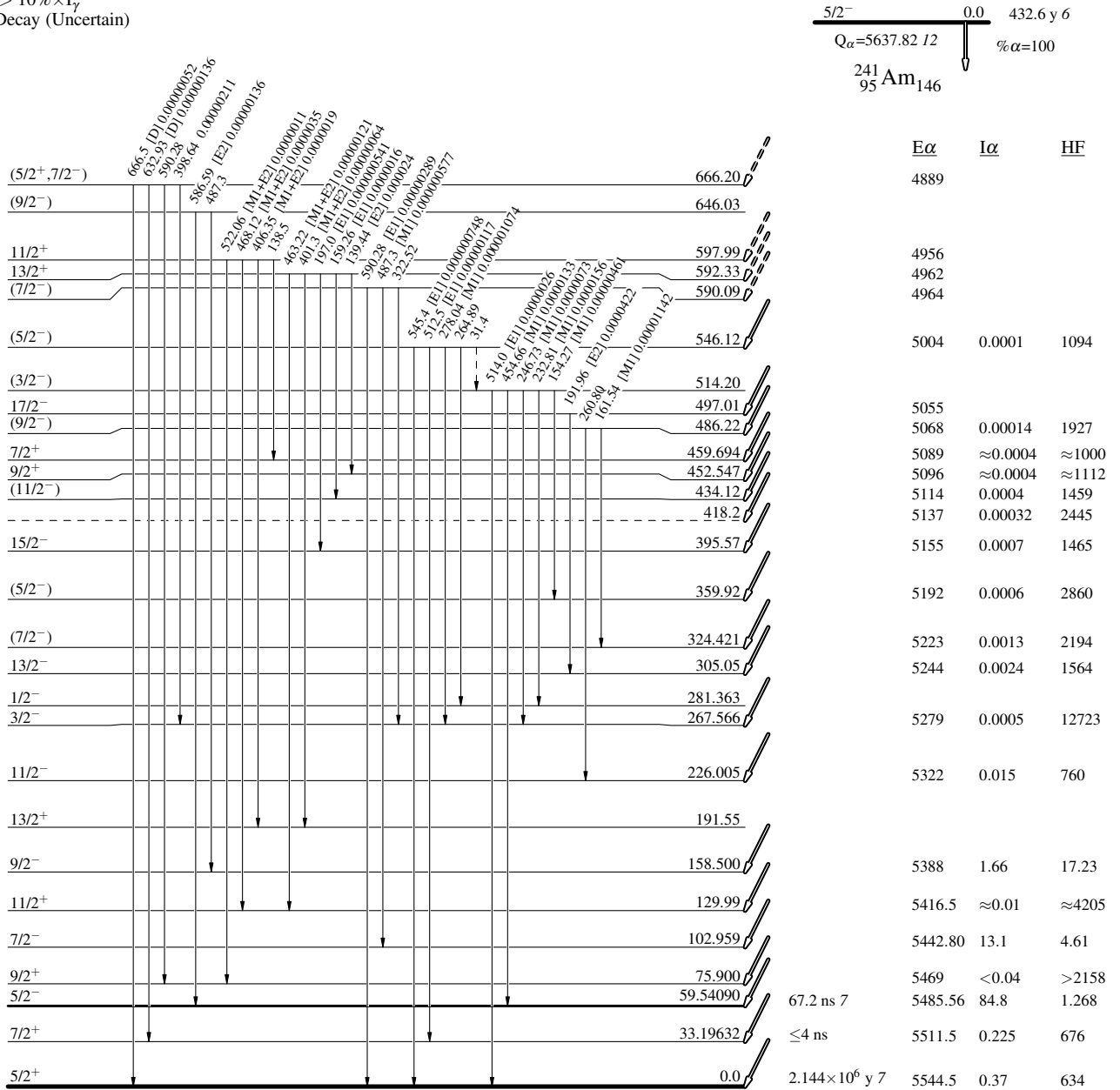
^{241}Am α decay

Decay Scheme (continued)

Legend

- $I_\gamma < 2\% \times I_\gamma^{\text{max}}$
- $I_\gamma < 10\% \times I_\gamma^{\text{max}}$
- $I_\gamma > 10\% \times I_\gamma^{\text{max}}$
- - - - - γ Decay (Uncertain)

Intensities: $I_{(\gamma+ce)}$ per 100 decays through this branch



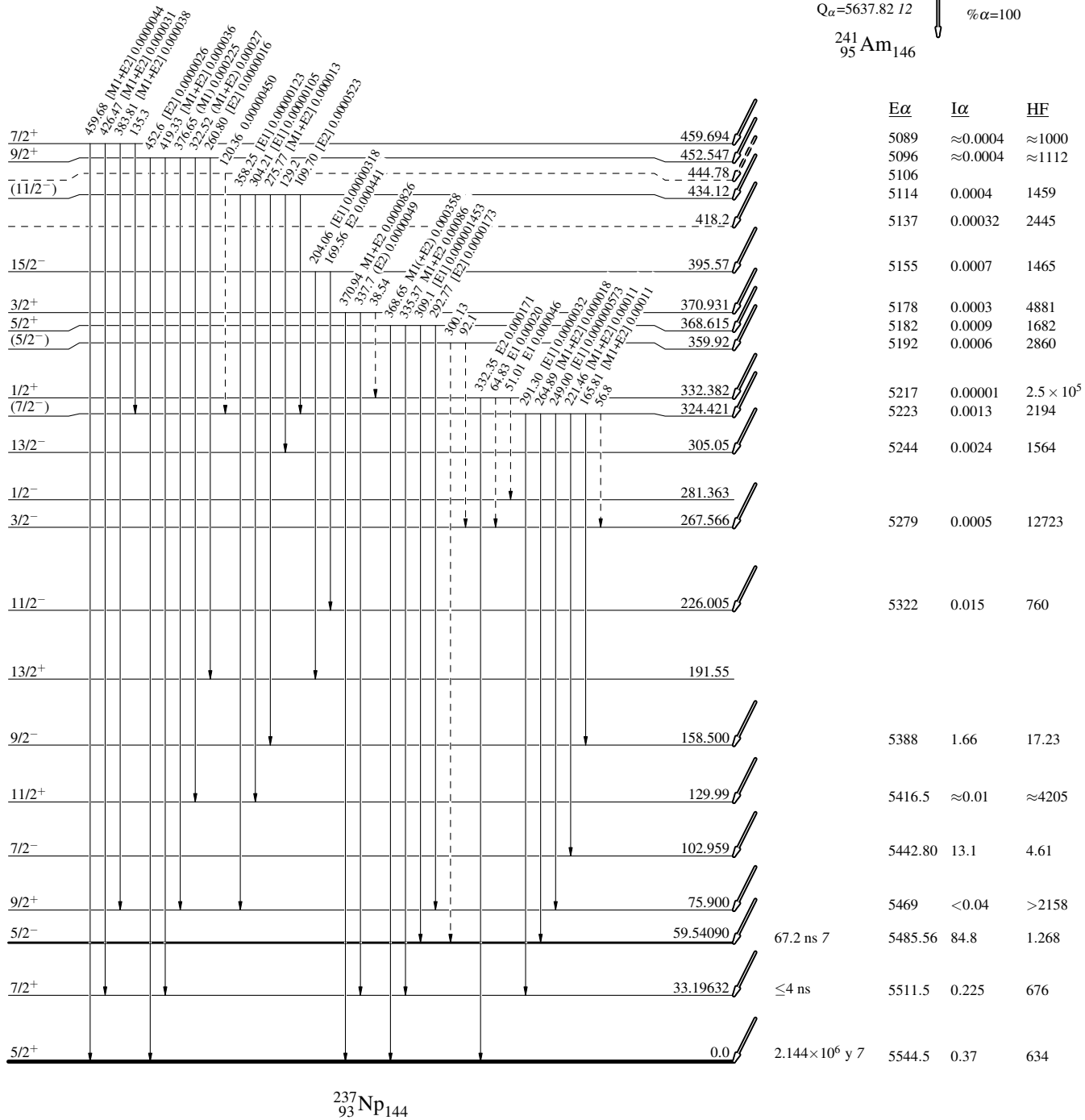
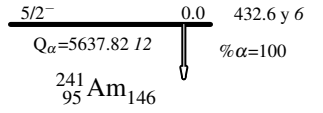
^{241}Am α decay

Decay Scheme (continued)

Legend

- $I_\gamma < 2\% \times I_\gamma^{\text{max}}$
- $I_\gamma < 10\% \times I_\gamma^{\text{max}}$
- $I_\gamma > 10\% \times I_\gamma^{\text{max}}$
- - - γ Decay (Uncertain)

Intensities: $I_{(\gamma+ce)}$ per 100 decays through this branch



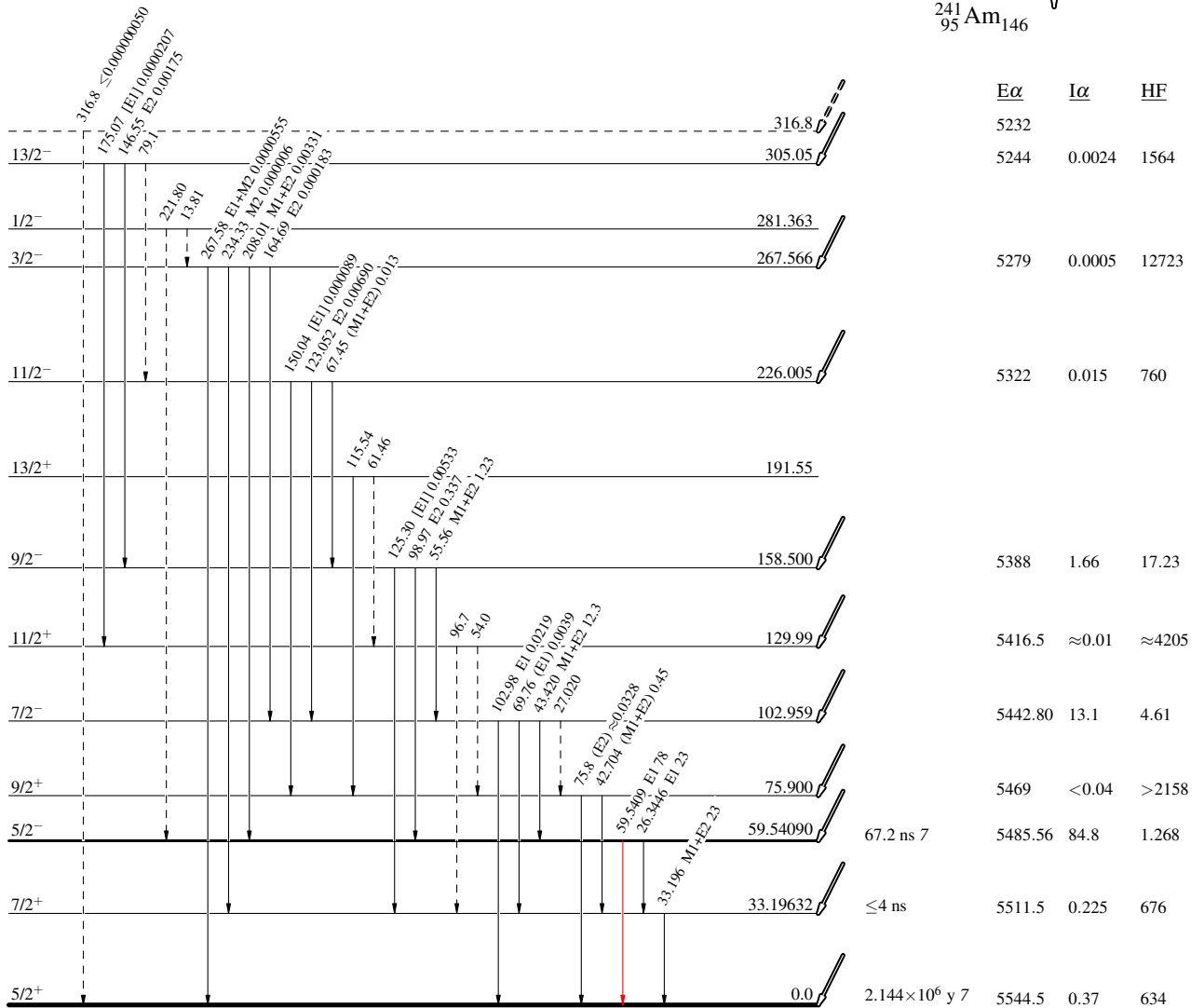
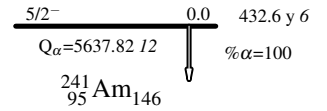
^{241}Am α decay

Decay Scheme (continued)

Legend

- ▶ $I_\gamma < 2\% \times I_\gamma^{\text{max}}$
- ▶ $I_\gamma < 10\% \times I_\gamma^{\text{max}}$
- ▶ $I_\gamma > 10\% \times I_\gamma^{\text{max}}$
- - - -▶ γ Decay (Uncertain)

Intensities: $I_{(\gamma+ce)}$ per 100 decays through this branch



$^{237}_{93}\text{Np}_{144}$