$^{244}_{95}\mathrm{Am}^{\,m}_{149}$

1 Decay Scheme

Am-244m decays predominantly by beta minus emission to a number of excited levels and the ground state of Cm-244. A small electron capture branch also occurs directly to the ground state of Pu-244.
L'américium 244 métastable se désintègre principalement vers des niveaux excités et le niveau fondamental du curium 244. Un faible branchement par capture électronique vers le plutonium 244 a été observé.

2 Nuclear Data

$T_{1/2}(^{244}\mathrm{Am^m})$	:	26	(3)	min
$T_{1/2}(^{244}\mathrm{Pu})$	:	80,0	(9)	10^6 a
$T_{1/2}(^{244}\mathrm{Cm})$	:	18,11	(3)	a
$Q^-(^{244}\mathrm{Am^m})$	:	1516	(3)	keV
$Q^+(^{244}\mathrm{Am^m})$	:	164	(9)	keV

2.1 Electron Capture Transitions

	Energy keV	Probability × 100	Nature	lg ft	P_K	P_L	P_M
$\epsilon_{0,0}$	164 (9)	0,036 (1)	allowed	6,37	0,24 (5)	0,53 (4)	0,168 (12)

2.2 β^- Transitions

	Energy keV	Probability × 100	Nature	lg ft
$\beta^-_{0,11}$	410 (3)	0,35 (9)	(1st forbidden non-unique)	6,8
$\beta^-_{0,10}$	432 (3)	0,56 (13)	(allowed)	6,67
$\beta^-_{0,7}$	496 (3)	0,08 (2)	(allowed)	7,7

	Energy keV	Probability × 100	Nature	lg ft
$\beta^-_{0,6}$	531,1 (30)	1,36 (16)	allowed	6,58
$\beta^-_{0,1}$	1473 (3)	31 (9)	allowed	6,74
$\beta^-_{0,0}$	1516 (3)	67 (9)	allowed	6,45

2.3 Gamma Transitions and Internal Conversion Coefficients

	Energy keV	$P_{\gamma+ce}$ × 100	Multipolarity	α_K	α_L	α_M	α_T
$\gamma_{1,0}$(Cm)	42,965 (10)	32 (9)	E2		760 (11)	214 (3)	1050 (15)
$\gamma_{6,1}$(Cm)	941,95 (3)	0,36 (12)	E2	0,01120 (16)	0,00318 (5)	0,000807 (12)	0,01547 (22)
$\gamma_{7,1}$(Cm)	977,80 (4)	0,08 (2)	E0 (+ M1+E2)				
$\gamma_{6,0}$(Cm)	984,91 (2)	1,0 (1)	E0				
$\gamma_{10,1}$(Cm)	1041,22 (3)	0,19 (6)	(M1+E2)				
$\gamma_{11,1}$(Cm)	1062,95 (3)	0,30 (9)	anomalous E1	0,09 (3)	0,015 (4)	0,0032 (1)	0,11 (3)
$\gamma_{10,0}$(Cm)	1084,181 (14)	0,37 (12)	anomalous (E2)	0,030 (8)	0,008 (2)	0,0020 (1)	0,041 (11)
$\gamma_{11,0}$(Cm)	1105,91 (2)	0,05 (2)	anomalous (E1)	0,14 (3)	0,024 (6)	0,0058 (1)	0,17 (4)

3 Atomic Data

3.1 Cm

ω_K : 0,972 (4)
$\bar{\omega}_L$: 0,538 (23)
n_{KL} : 0,785 (5)

3.1.1 X Radiations

		Energy keV		Relative probability
X_K				
	$K\alpha_2$	104,59		65
	$K\alpha_1$	109,271		100
	$K\beta_3$	122,304	}	
	$K\beta_1$	123,403	}	
	$K\beta''_5$	124,124	}	38
	$K\beta_2$	126,889	}	
	$K\beta_4$	127,352	}	13,5
	$KO_{2,3}$	127,97	}	

		Energy keV	Relative probability
X_L			
	Lℓ	12,633	
	Lα	14,746 – 14,961	
	Lη	17,314	
	Lβ	17,286 – 19,688	
	Lγ	22,735 – 23,527	

3.1.2 Auger Electrons

	Energy keV	Relative probability
Auger K		
KLL	78,858 – 89,973	100
KLX	97,226 – 109,267	61,6
KXY	115,57 – 128,23	9,5
Auger L	6,19 – 14,46	1450000

4 Electron Emissions

		Energy keV	Electrons per 100 disint.
e_{AL}	(Pu)	6,09 - 13,83	0,0124 (11)
e_{AK}	(Pu)		0,000253 (45)
	KLL	75,263 - 85,357 }	
	KLX	92,607 - 103,729 }	
	KXY	109,93 - 121,78 }	
e_{AL}	(Cm)	6,19 - 14,46	10,6 (23)
e_{AK}	(Cm)		0,00125 (27)
	KLL	78,858 - 89,973 }	
	KLX	97,226 - 109,267 }	
	KXY	115,57 - 128,23 }	
$ec_{1,0\ L}$	(Cm)	18,439 - 23,995	23 (7)
$ec_{1,0\ M+}$	(Cm)	36,628 - 42,948	9 (3)
$\beta^-_{0,11}$	max:	410 (3)	0,35 (9)
$\beta^-_{0,11}$	avg:	116,9 (7)	

		Energy keV		Electrons per 100 disint.
$\beta^-_{0,10}$	max:	432	(3)	0,56 (13)
$\beta^-_{0,10}$	avg:	123,7	(7)	
$\beta^-_{0,7}$	max:	496	(3)	0,08 (2)
$\beta^-_{0,7}$	avg:	144,0	(7)	
$\beta^-_{0,6}$	max:	531,1	(30)	1,36 (16)
$\beta^-_{0,6}$	avg:	155,7	(7)	
$\beta^-_{0,1}$	max:	1473	(3)	31 (9)
$\beta^-_{0,1}$	avg:	495,8	(9)	
$\beta^-_{0,0}$	max:	1516	(3)	67 (9)
$\beta^-_{0,0}$	avg:	512,3	(9)	

5 Photon Emissions

5.1 X-Ray Emissions

		Energy keV		Photons per 100 disint.	
XL	(Cm)	12,633 — 23,527		12,3 (27)	
XKα_2	(Cm)	104,59		0,013 (4)	} Kα
XKα_1	(Cm)	109,271		0,020 (6)	}
XKβ_3	(Cm)	122,304	}		
XKβ_1	(Cm)	123,403	}	0,0076 (21)	K$'\beta_1$
XKβ''_5	(Cm)	124,124	}		
XKβ_2	(Cm)	126,889	}		
XKβ_4	(Cm)	127,352	}	0,0027 (8)	K$'\beta_2$
XKO$_{2,3}$	(Cm)	127,97	}		

5.2 Gamma Emissions

	Energy keV	Photons per 100 disint.
$\gamma_{1,0}$(Cm)	42,965 (10)	0,030 (9)
$\gamma_{6,1}$(Cm)	941,95 (3)	0,35 (12)
$\gamma_{10,1}$(Cm)	1041,22 (3)	0,19 (6)
$\gamma_{11,1}$(Cm)	1062,95 (3)	0,27 (8)
$\gamma_{10,0}$(Cm)	1084,181 (14)	0,36 (12)
$\gamma_{11,0}$(Cm)	1105,91 (2)	0,04 (2)

6 Main Production Modes

Am − 243(n,γ)Am − 244m

7 References

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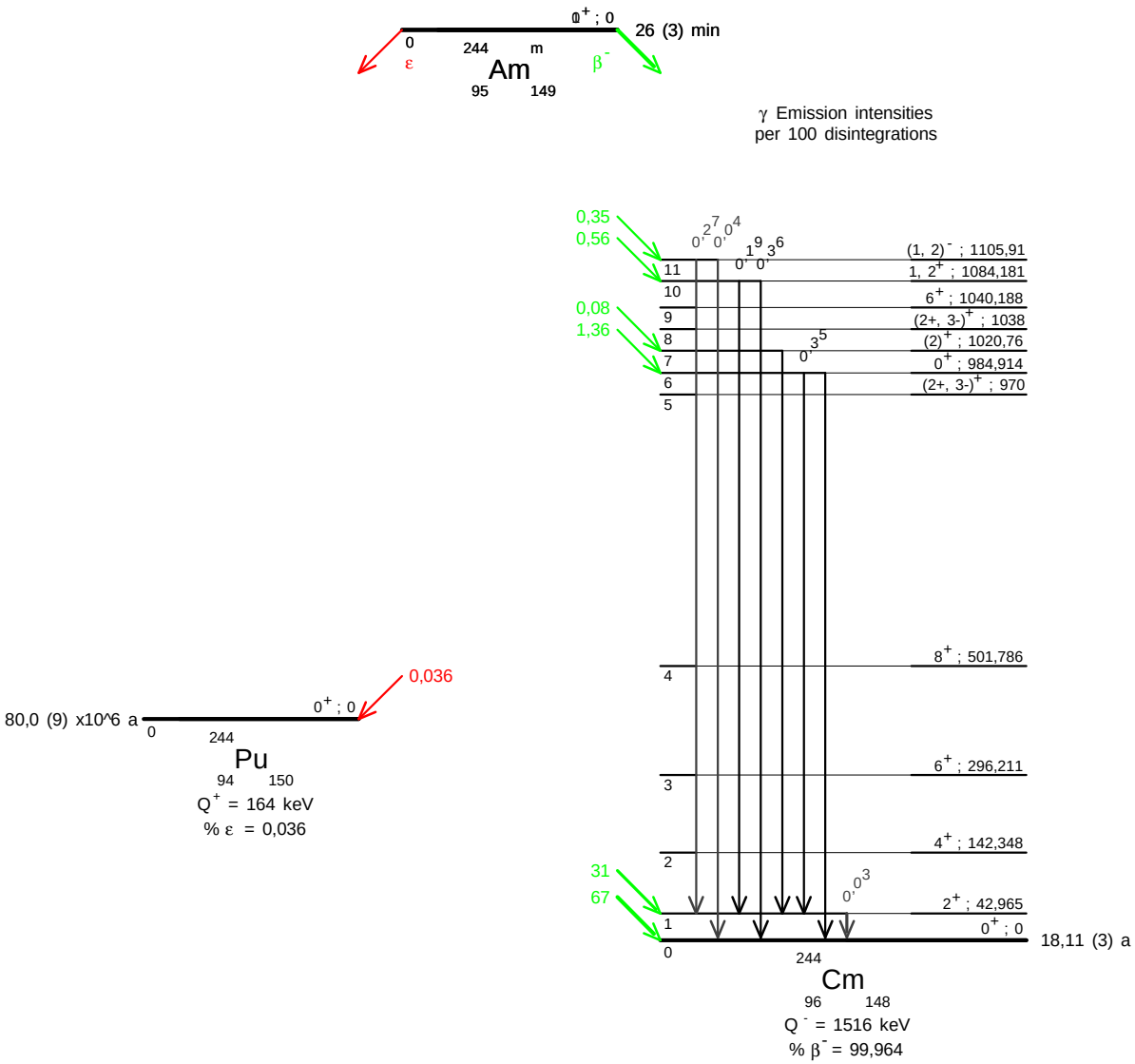
0+ ; 0
26 (3) min
0
244
m
ε
Am
β-
95
149
γ Emission intensities
per 100 disintegrations
0,35
0,56
0,08
1,36
(1, 2)- ; 1105,91
1, 2+ ; 1084,181
6+ ; 1040,188
(2+, 3-)+ ; 1038
(2)+ ; 1020,76
0+ ; 984,914
(2+, 3-)+ ; 970
8+ ; 501,786
6+ ; 296,211
4+ ; 142,348
2+ ; 42,965
0+ ; 0
18,11 (3) a
31
67
11
10
9
8
7
6
5
4
3
2
1
0
244
Cm
96
148
Q - = 1516 keV
% β- = 99,964
0,036
80,0 (9) x10^6 a
0+ ; 0
0
244
Pu
94
150
Q+ = 164 keV
% ε = 0,036