$^{245}_{96}\mathrm{Cm}_{149}$

1 Decay Scheme

Cm-245 decays 100% by alpha transitions to Pu-241.
Le curium 245 se désintègre à 100 % par émissions alpha vers le plutonium 241.

2 Nuclear Data

$T_{1/2}(^{245}\mathrm{Cm})$	:	8250	(70)	a
$T_{1/2}(^{241}\mathrm{Pu})$	:	14,33	(4)	a
$Q^{\alpha}(^{245}\mathrm{Cm})$	:	5622,3	(5)	keV

2.1 α Transitions

	Energy keV	Probability × 100	F
$\alpha_{0,8}$	5237 (3)	≤ 0,005	1000
$\alpha_{0,7}$	5321,4 (12)	0,32	51
$\alpha_{0,6}$	5391,7 (12)	5,0 (1)	8,7
$\alpha_{0,5}$	5450,9 (12)	93,2 (5)	1,03
$\alpha_{0,4}$	5460,6 (5)	0,0210 (9)	5520
$\alpha_{0,3}$	5461,0 (5)	0,39 (22)	300
$\alpha_{0,2}$	5526,4 (5)	0,04	7130
$\alpha_{0,1}$	5579,7 (5)	0,83	768
$\alpha_{0,0}$	5622,3 (5)	0,58	1770

2.2 Gamma Transitions and Internal Conversion Coefficients

	Energy keV	$P_{\gamma+ce}$ × 100	Multipolarity	α_K	α_L	α_M	α_T
$\gamma_{1,0}$(Pu)	41,972 (1)	38,2 (22)	M1+E2		76,2 (15)	19,4 (4)	102,4 (20)
$\gamma_{2,1}$(Pu)	53,807 (1)	3,34 (20)	M1+E2		33,3 (8)	8,42 (21)	44,7 (11)
$\gamma_{6,5}$(Pu)	56,89 (3)	3,16 (17)	M1+E2		64 (5)	17,3 (14)	87 (7)
$\gamma_{3,2}$(Pu)	65,535 (3)	0,45 (22)	M1+E2		18 (9)	4,5 (24)	24 (12)
$\gamma_{7,6}$(Pu)	69,237 (18)	0,20 (4)	M1(+E2)		21 (10)	5 (3)	28 (14)
$\gamma_{5,2}$(Pu)	79,2728 (18)	2,8 (7)	M1+E2		16 (5)	4,3 (12)	22 (6)
$\gamma_{2,0}$(Pu)	95,7795 (12)	0,221 (47)	E2		14,0 (2)	3,92 (6)	19,3 (3)
$\gamma_{7,5}$(Pu)	126,09 (4)	0,046 (13)	[E2]	0,1705 (24)	3,94 (6)	1,101 (16)	5,59 (8)
$\gamma_{5,1}$(Pu)	133,081 (2)	34,7 (10)	M1+E2	8,80 (13)	1,92 (3)	0,473 (7)	11,36 (17)
$\gamma_{6,2}$(Pu)	136,156 (9)	1,13 (12)	M1+E2	6,2 (12)	2,04 (15)	0,52 (5)	9 (1)
$\gamma_{7,3}$(Pu)	139,858 (16)	0,064 (33)	[M1,E2]	4 (4)	2,0 (5)	0,54 (15)	7 (4)
$\gamma_{4,0}$(Pu)	161,685 (1)	0,210 (9)	E2	0,190 (3)	1,289 (18)	0,360 (5)	1,96 (3)
$\gamma_{5,0}$(Pu)	175,0524 (14)	61,0 (16)	M1+E2	4,07 (7)	0,855 (12)	0,209 (3)	5,21 (8)
$\gamma_{6,1}$(Pu)	189,965 (10)	0,889 (42)	M1+E2	2,46 (15)	0,665 (10)	0,1680 (25)	3,36 (16)
$\gamma_{7,2}$(Pu)	205,393 (16)	0,028 (13)	[M1,E2]	1,4 (13)	0,50 (5)	0,129 (3)	2,1 (14)
$\gamma_{6,0}$(Pu)	231,935 (9)	0,0175 (27)	[E2]	0,1200 (17)	0,275 (4)	0,0760 (11)	0,498 (7)
$\gamma_{(-1,1)}$(Pu)	388,16 (5)	0,019 (1)					

3 Atomic Data

3.1 Pu

ω_K : 0,971 (4)
$\bar{\omega}_L$: 0,521 (20)
n_{KL} : 0,790 (5)

3.1.1 X Radiations

		Energy keV		Relative probability
X_K				
	$K\alpha_2$	99,525		63,17
	$K\alpha_1$	103,734		100
	$K\beta_3$	116,244	}	
	$K\beta_1$	117,228	}	
	$K\beta_5''$	117,918	}	36,70
	$K\beta_2$	120,54	}	
	$K\beta_4$	120,969	}	12,74
	$KO_{2,3}$	121,543	}	
X_L				
	$L\ell$	12,1246		
	$L\alpha$	14,0834 – 14,2791		
	$L\eta$	16,334		
	$L\beta$	16,4987 – 19,331		
	$L\gamma$	20,7081 – 21,9844		

3.1.2 Auger Electrons

	Energy keV	Relative probability
Auger K		
KLL	75,263 – 85,357	100
KLX	92,607 – 103,729	60,6
KXY	109,93 – 121,78	9,18
Auger L	6,19 – 22,99	

4 α Emissions

	Energy keV	Probability × 100
$\alpha_{0,8}$	5152 (3)	≤0,005
$\alpha_{0,7}$	5234,4 (12)	0,32
$\alpha_{0,6}$	5303,6 (12)	5,0 (1)
$\alpha_{0,5}$	5361,8 (12)	93,2 (5)
$\alpha_{0,4}$	5371,4 (5)	0,0210 (9)
$\alpha_{0,3}$	5371,7 (5)	0,39 (22)
$\alpha_{0,2}$	5436,1 (5)	0,04
$\alpha_{0,1}$	5488,5 (5)	0,83
$\alpha_{0,0}$	5530,4 (4)	0,58

5 Electron Emissions

		Energy keV	Electrons per 100 disint.
e_{AL}	(Pu)	6,19 - 22,99	50,1 (13)
e_{AK}	(Pu)		1,91 (27)
	KLL	75,263 - 85,357	}
	KLX	92,607 - 103,729	}
	KXY	109,93 - 121,78	}
$ec_{5,1\ K}$	(Pu)	11,290 (2)	24,7 (7)
$ec_{6,2\ K}$	(Pu)	14,365 (9)	0,70 (14)
$ec_{1,0\ L}$	(Pu)	18,868 - 23,915	28,1 (16)
$ec_{2,1\ L}$	(Pu)	30,703 - 35,750	2,43 (15)
$ec_{6,5\ L}$	(Pu)	33,79 - 38,83	2,30 (22)
$ec_{1,0\ M}$	(Pu)	36,039 - 38,197	7,16 (42)
$ec_{1,0\ N}$	(Pu)	40,413 - 41,548	1,96 (11)
$ec_{3,2\ L}$	(Pu)	42,431 - 47,478	0,32 (17)
$ec_{7,6\ L}$	(Pu)	46,133 - 51,180	0,15 (9)
$ec_{2,1\ M}$	(Pu)	47,874 - 50,032	0,615 (37)
$ec_{6,5\ M}$	(Pu)	50,96 - 53,12	0,62 (6)
$ec_{2,1\ N}$	(Pu)	52,248 - 53,383	0,168 (10)
$ec_{5,0\ K}$	(Pu)	53,2613 (14)	40,0 (11)
$ec_{6,5\ N}$	(Pu)	55,33 - 56,47	0,169 (17)
$ec_{5,2\ L}$	(Pu)	56,169 - 61,216	1,9 (6)
$ec_{6,1\ K}$	(Pu)	68,17 (1)	0,502 (34)
$ec_{2,0\ L}$	(Pu)	72,676 - 77,722	0,153 (32)
$ec_{5,2\ M}$	(Pu)	73,340 - 75,498	0,52 (15)
$ec_{5,2\ N}$	(Pu)	77,714 - 78,849	0,144 (49)

		Energy keV	Electrons per 100 disint.
$ec_{5,1\ L}$	(Pu)	109,977 - 115,024	5,40 (16)
$ec_{6,2\ L}$	(Pu)	113,052 - 118,099	0,231 (19)
$ec_{5,1\ M}$	(Pu)	127,148 - 129,306	1,329 (39)
$ec_{5,1\ N}$	(Pu)	131,522 - 132,657	0,362 (10)
$ec_{5,0\ L}$	(Pu)	151,948 - 156,995	8,40 (22)
$ec_{6,1\ L}$	(Pu)	166,861 - 171,908	0,1357 (45)
$ec_{5,0\ M}$	(Pu)	169,119 - 171,277	2,05 (5)
$ec_{5,0\ N}$	(Pu)	173,493 - 174,628	0,560 (15)

6 Photon Emissions

6.1 X-Ray Emissions

		Energy keV		Photons per 100 disint.	
XL	(Pu)	12,1246 — 21,9844		51,7 (10)	
$XK\alpha_2$	(Pu)	99,525		19,0 (5)	} Kα
$XK\alpha_1$	(Pu)	103,734		30,1 (7)	}
$XK\beta_3$	(Pu)	116,244	}		
$XK\beta_1$	(Pu)	117,228	}	11,06 (30)	$K'\beta_1$
$XK\beta_5''$	(Pu)	117,918	}		
$XK\beta_2$	(Pu)	120,54	}		
$XK\beta_4$	(Pu)	120,969	}	3,84 (12)	$K'\beta_2$
$XKO_{2,3}$	(Pu)	121,543	}		

6.2 Gamma Emissions

	Energy keV	Photons per 100 disint.
$\gamma_{1,0}$(Pu)	41,972 (1)	0,369 (20)
$\gamma_{2,1}$(Pu)	53,807 (1)	0,073 (4)
$\gamma_{6,5}$(Pu)	56,89 (3)	0,0359 (21)
$\gamma_{3,2}$(Pu)	65,535 (3)	0,018 (2)
$\gamma_{7,6}$(Pu)	69,237 (18)	0,007 (3)
$\gamma_{5,2}$(Pu)	79,2728 (18)	0,120 (7)
$\gamma_{2,0}$(Pu)	95,7795 (12)	0,0109 (23)
$\gamma_{7,5}$(Pu)	126,09 (4)	0,007 (2)
$\gamma_{5,1}$(Pu)	133,081 (2)	2,81 (7)

	Energy keV	Photons per 100 disint.
$\gamma_{6,2}$(Pu)	136,156 (9)	0,113 (4)
$\gamma_{7,3}$(Pu)	139,858 (16)	0,008 (1)
$\gamma_{4,0}$(Pu)	161,685 (1)	0,071 (3)
$\gamma_{5,0}$(Pu)	175,0523 (14)	9,83 (22)
$\gamma_{6,1}$(Pu)	189,965 (10)	0,204 (6)
$\gamma_{7,2}$(Pu)	205,393 (16)	0,009 (1)
$\gamma_{6,0}$(Pu)	231,935 (9)	0,0117 (18)
$\gamma_{(-1,1)}$(Pu)	388,16 (5)	0,019 (1)

7 Main Production Modes

$\left\{ \begin{array}{l} \mathrm{Cm-244(n,\gamma)Cm-245} \\ \text{Possible impurities : } \mathrm{Cm-242,\ Cm-243,\ Cm-244} \end{array} \right.$

$\mathrm{Cf-249}(\alpha)\mathrm{Cm-245}$

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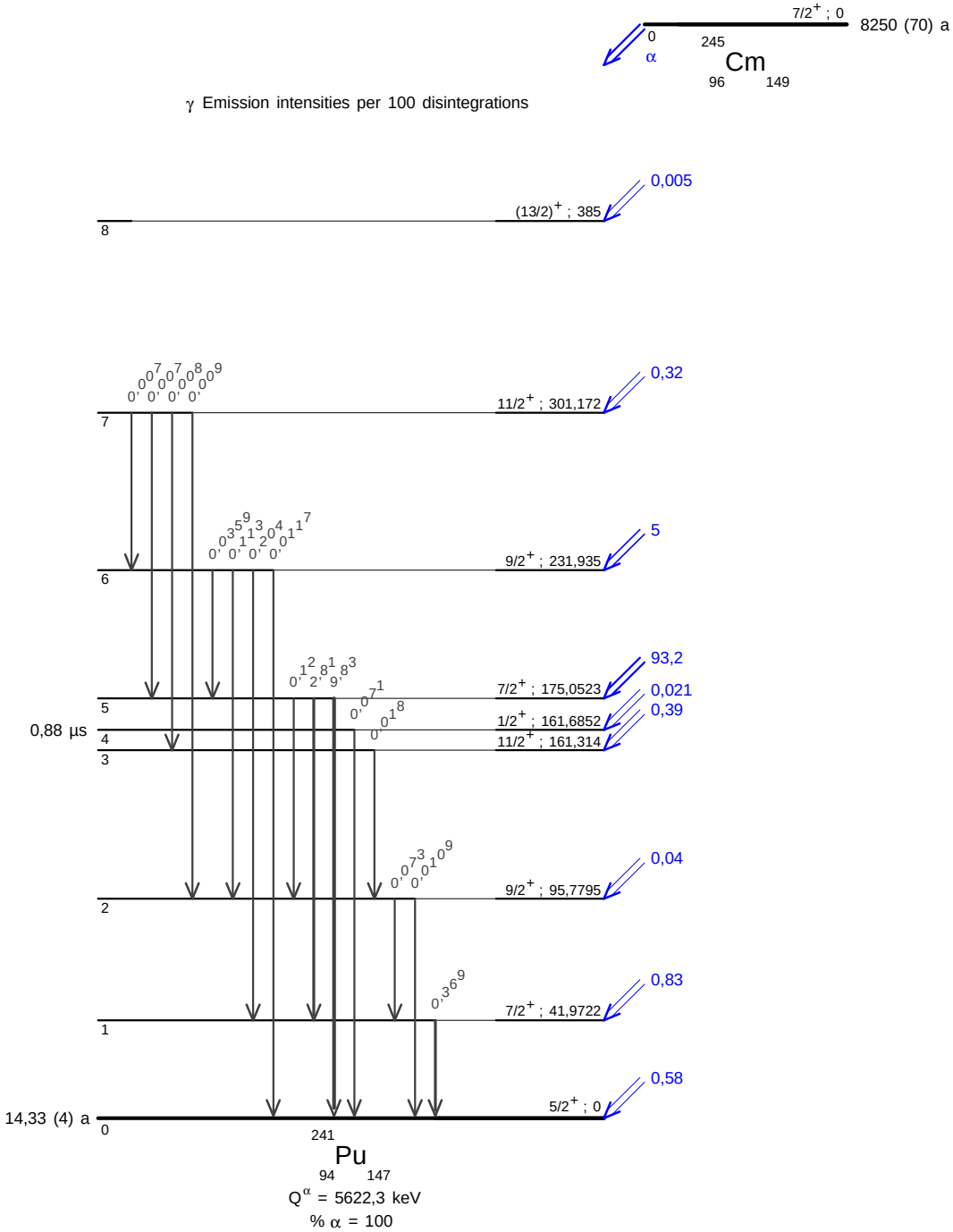
7/2+ ; 0
8250 (70) a
0
α
245
Cm
96
149
γ Emission intensities per 100 disintegrations
0,005
(13/2)+ ; 385
8
0,32
11/2+ ; 301,172
7
5
9/2+ ; 231,935
6
93,2
7/2+ ; 175,0523
0,021
1/2+ ; 161,6852
0,39
11/2+ ; 161,314
0,88 µs
5
4
3
0,04
9/2+ ; 95,7795
2
0,83
7/2+ ; 41,9722
1
0,58
5/2+ ; 0
14,33 (4) a
0
241
Pu
94
147
Q^α = 5622,3 keV
% α = 100