$^{238}_{92}\mathrm{U}_{146}$

1 Decay Scheme

U-238 disintegrates by alpha emission to two excited levels and to the ground state of Th-234. Branching of U-238 decay by spontaneous fission is 5,45 (4) E-05 %.
L'uranium 238 se désintègre pas émission alpha, principalement vers les niveaux excités et fondamental du thorium 234. Le rapport de branchement par fission spontanée est 5,45 (4)E-05 %.

2 Nuclear Data

$T_{1/2}(^{238}\mathrm{U})$	:	4,468	(5)	10^9 a
$T_{1/2}(^{234}\mathrm{Th})$	:	24,10	(3)	d
$Q^{\alpha}(^{238}\mathrm{U})$	:	4269,7	(29)	keV

2.1 α Transitions

	Energy keV	Probability × 100	F
$\alpha_{0,2}$	4106,7 (29)	0,13 (3)	24
$\alpha_{0,1}$	4220,2 (29)	22,33 (50)	1,33
$\alpha_{0,0}$	4269,7 (29)	77,54 (50)	1

2.2 Gamma Transitions and Internal Conversion Coefficients

	Energy keV	$P_{\gamma+ce}$ × 100	Multipolarity	α_K	α_L	α_M	α_T
$\gamma_{1,0}$(Th)	49,55 (6)	22,46 (50)	E2		235 (7)	64,4 (19)	321 (10)
$\gamma_{2,1}$(Th)	113,5 (1)	0,13 (3)	[E2]	0,219 (7)	4,57 (14)	1,257 (38)	6,47 (19)

3 Atomic Data

3.1 Th

ω_K : 0,969 (4)
$\bar{\omega}_L$: 0,476 (18)
n_{KL} : 0,797 (5)

3.1.1 X Radiations

		Energy keV		Relative probability
X_K				
	$K\alpha_2$	89,9566		61,82
	$K\alpha_1$	93,3479		100
	$K\beta_3$	104,8172	}	
	$K\beta_1$	105,602	}	
	$K\beta_5''$	106,1564	}	35,58
	$K\beta_5'$	106,3149	}	
	$K\beta_2$	108,581	}	
	$K\beta_4$	108,953	}	11,99
	$KO_{2,3}$	109,442	}	
X_L				
	$L\ell$	11,118		
	$L\alpha$	12,8085 – 12,967		
	$L\eta$	14,509		
	$L\beta$	14,972 – 17,1383		
	$L\gamma$	18,3633 – 19,504		

3.1.2 Auger Electrons

	Energy keV	Relative probability
Auger K		
KLL	68,406 – 76,745	100
KLX	83,857 – 93,345	58,8
KXY	99,29 – 109,64	8,64
Auger L	5,8 – 20,3	

4 α Emissions

	Energy keV	Probability × 100
$\alpha_{0,2}$	4038 (5)	0,13 (3)
$\alpha_{0,1}$	4151 (5)	22,33 (50)
$\alpha_{0,0}$	4198 (3)	77,54 (50)

5 Electron Emissions

		Energy keV	Electrons per 100 disint.
e_{AL}	(Th)	5,8 - 20,3	8,43 (25)
e_{AK}	(Th)		0,00012 (4)
	KLL	68,406 - 76,745 }	
	KLX	83,857 - 93,345 }	
	KXY	99,29 - 109,64 }	
$ec_{1,0\ L}$	(Th)	29,08 - 33,20	16,3 (8)
$ec_{1,0\ M}$	(Th)	44,37 - 46,22	4,46 (21)
$ec_{1,0\ N}$	(Th)	48,22 - 49,22	1,19 (6)
$ec_{2,1\ L}$	(Th)	93,0 - 97,2	0,080 (22)

6 Photon Emissions

6.1 X-Ray Emissions

		Energy keV	Photons per 100 disint.	
XL	(Th)	11,118 — 19,504	7,94 (28)	
$XK\alpha_2$	(Th)	89,9566	0,00109 (30)	} Kα
$XK\alpha_1$	(Th)	93,3479	0,0018 (5)	}
$XK\beta_3$	(Th)	104,8172 }		
$XK\beta_1$	(Th)	105,602 }	0,00063 (17)	$K'\beta_1$
$XK\beta_5''$	(Th)	106,1564 }		
$XK\beta_5'$	(Th)	106,3149 }		
$XK\beta_2$	(Th)	108,581 }		
$XK\beta_4$	(Th)	108,953 }	0,00021 (6)	$K'\beta_2$
$XKO_{2,3}$	(Th)	109,442 }		

6.2 Gamma Emissions

	Energy keV	Photons per 100 disint.
$\gamma_{1,0}$(Th)	49,55 (6)	0,0697 (26)
$\gamma_{2,1}$(Th)	113,5 (1)	0,0174 (47)

7 References

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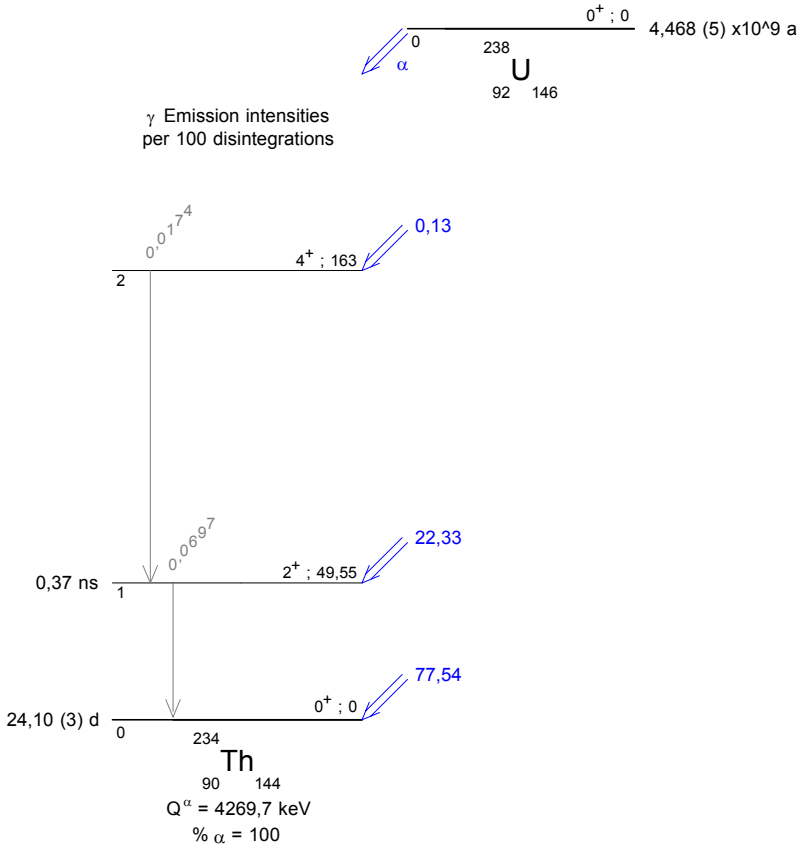
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