$^{131m}_{54}\mathrm{Xe}_{77}$

1 Decay Scheme

Le xénon 131 métastable se désexcite par une transition gamma (163,930 keV) fortement convertie.
Xe-131m decays by a strongly converted gamma transition.

2 Nuclear Data

$T_{1/2}(^{131m}\mathrm{Xe}) : 11{,}962 \quad (20) \quad \mathrm{d}$
$Q^{IT}(^{131m}\mathrm{Xe}) : 163{,}930 \quad (8) \quad \mathrm{keV}$

2.1 Gamma Transitions and Internal Conversion Coefficients

	Energy (keV)	$P_{\gamma+ce}$ (%)	Multipolarity	α_K	α_L	α_M	α_T
$\gamma_{1,0}$(Xe)	163,930 (8)	100	M4	31,6 (5)	14,75 (21)	3,38 (5)	50,5 (7)

3 Atomic Data

3.1 Xe

$\omega_K : 0{,}888 \quad (5)$
$\bar{\omega}_L : 0{,}097 \quad (5)$
$n_{KL} : 0{,}902 \quad (4)$

3.1.1 X Radiations

	Energy (keV)	Relative probability
X_K		
$K\alpha_2$	29,459	53,98
$K\alpha_1$	29,779	100

		Energy (keV)	Relative probability
	$K\beta_3$	33,562	28,99
	$K\beta_1$	33,625	
	$K\beta''_5$	33,881	
	$K\beta_2$	34,415	6,84
	$K\beta_4$	34,496	
	$KO_{2,3}$	34,552	
X_L			
	$L\ell$	3,64	
	$L\alpha$	4,1 - 4,11	
	$L\eta$	3,96	
	$L\beta$	4,42 - 4,78	
	$L\gamma$	4,89 - 5,3	

3.1.2 Auger Electrons

	Energy (keV)	Relative probability
Auger K		
KLL	23,512 - 24,842	100
KLX	27,897 - 29,770	46,5
KXY	32,27 - 34,54	5,41
Auger L	2,50 - 5,43	

4 Electron Emissions

		Energy (keV)	Electrons (per 100 disint.)
e_{AL}	(Xe)	2,50 - 5,43	75,8 (5)
e_{AK}	(Xe)		6,9 (4)
	KLL	23,512 - 24,842	
	KLX	27,897 - 29,770	
	KXY	32,27 - 34,54	
$ec_{1,0\ K}$	(Xe)	129,366 (8)	61,4 (13)
$ec_{1,0\ L}$	(Xe)	158,48 - 159,15	28,6 (6)
$ec_{1,0\ M}$	(Xe)	162,78 - 163,25	6,56 (13)
$ec_{1,0\ N}$	(Xe)	163,72 - 163,86	1,342 (26)

5 Photon Emissions

5.1 X-Ray Emissions

		Energy (keV)	Photons (per 100 disint.)	
XL	(Xe)	3,64 - 5,3	8,12 (16)	
XKα_2	(Xe)	29,459	15,5 (4)	Kα
XKα_1	(Xe)	29,779	28,7 (7)	
XKβ_3	(Xe)	33,562	8,31 (22)	K$'\beta_1$
XKβ_1	(Xe)	33,625		
XKβ''_5	(Xe)	33,881		
XKβ_2	(Xe)	34,415	1,96 (7)	K$'\beta_2$
XKβ_4	(Xe)	34,496		
XKO$_{2,3}$	(Xe)	34,552		

5.2 Gamma Emissions

	Energy (keV)	Photons (per 100 disint.)
$\gamma_{1,0}$(Xe)	163,930 (8)	1,942 (26)

6 Main Production Modes

Fission product
Possible impurities: Xe – 127, Xe – 129m, Xe – 133, Xe – 133m, Xe – 135

Xe – 130(n,γ)Xe – 131m $\quad \sigma$: 0,45 (10) barns
Possible impurities: Xe – 129m

I – 131(β^-)Xe – 131m

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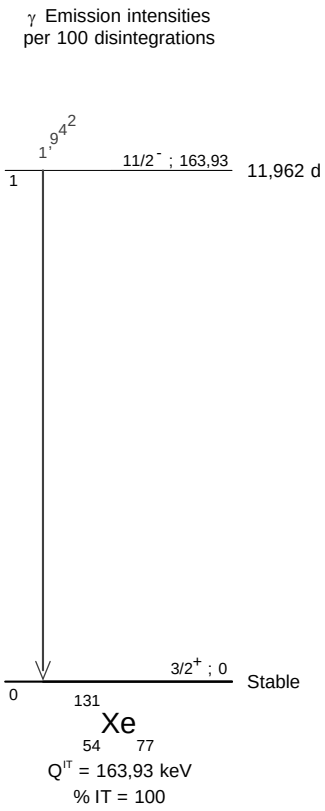
γ Emission intensities
per 100 disintegrations
1,942
11/2⁻ ; 163,93
11,962 d
1
3/2⁺ ; 0
Stable
0
131
Xe
54 77
Q^IT = 163,93 keV
% IT = 100