



1 Decay Scheme

Xe-133m disintegrates by a strong converted gamma transition to the ground state of Xe-133.
Le Xénon 133 métastable se déexcite selon une transition gamma fortement convertie.

2 Nuclear Data

$T_{1/2}(^{133\text{m}}\text{Xe})$:	2,198	(13)	d
$T_{1/2}(^{133}\text{Xe})$:	5,2474	(5)	d
$Q^{IT}(^{133\text{m}}\text{Xe})$:	233,219	(15)	keV

2.1 Gamma Transitions and Internal Conversion Coefficients

	Energy keV	$P_{\gamma+ce}$ $\times 100$	Multipolarity	α_K	α_L	α_M	α_T
$\gamma_{1,0}(\text{Xe})$	233,219 (15)	100	M4	6,25 (9)	2,04 (3)	0,453 (7)	8,84 (13)

3 Atomic Data

3.1 Xe

ω_K	:	0,888	(5)
$\bar{\omega}_L$:	0,097	(5)
n_{KL}	:	0,902	(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
$K\beta_3$	33,562	}
$K\beta_1$	33,625	}
$K\beta_5''$	33,881	}
		28,99
$K\beta_2$	34,415	}
$K\beta_4$	34,496	}
$KO_{2,3}$	34,552	}
		6,84
X_L		
$L\ell$	3,638	
$L\alpha$	4,098 – 4,11	
$L\eta$	3,958	
$L\beta$	4,418 – 4,776	
$L\gamma$	4,895 – 5,296	

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	2,4 – 5,2	

4 Electron Emissions

		Energy keV	Electrons per 100 disint.
e _{AL}	(Xe)	2,4 - 5,2	70,4 (10)
e _{AK}	(Xe)		7,1 (4)
	KLL	23,512 - 24,842	}
	KLX	27,897 - 29,770	}
	KXY	32,27 - 34,54	}
ec _{1,0} K	(Xe)	198,655 (15)	63,5 (12)
ec _{1,0} L	(Xe)	227,766 - 228,437	20,73 (40)
ec _{1,0} M	(Xe)	232,070 - 232,542	4,60 (8)
ec _{1,0} N	(Xe)	233,006 - 233,152	0,943 (18)

5 Photon Emissions

5.1 X-Ray Emissions

		Energy keV	Photons per 100 disint.	
XL	(Xe)	3,638 — 5,296	7,6 (4)	
XK α_2	(Xe)	29,459	16,0 (4)	} K α
XK α_1	(Xe)	29,779	29,7 (6)	}
XK β_3	(Xe)	33,562	}	
XK β_1	(Xe)	33,625	}	K' β_1
XK β_5''	(Xe)	33,881	}	
XK β_2	(Xe)	34,415	}	
XK β_4	(Xe)	34,496	}	K' β_2
XKO _{2,3}	(Xe)	34,552	}	

5.2 Gamma Emissions

	Energy keV	Photons per 100 disint.
$\gamma_{1,0}$ (Xe)	233,219 (15)	10,16 (13)

6 Main Production Modes

- { Fission product()
- { Possible impurities : Xe – 127, Xe – 131m, Xe – 131, Xe – 133, Xe – 135
- { Xe – 132(n,γ)Xe – 133m σ : 0,05 (1) barns
- { Possible impurities : Xe – 125, Xe – 129m, Xe – 133, Xe – 135, Xe – 135m, Xe – 137

7 References

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γ Emission intensities
per 100 disintegrations

