



1 Decay Scheme

The $^{137\text{m}}\text{Ba}$ decays by gamma transition most predominantly to the ground state of ^{137}Ba .
Le $^{137\text{m}}\text{Ba}$ se désintègre par transition gamma très majoritairement vers l'état fondamental du ^{137}Ba .

2 Nuclear Data

$$T_{1/2}(^{137\text{m}}\text{Ba}) : 2,5545 \quad (13) \quad \text{min}$$

$$Q^{IT}(^{137\text{m}}\text{Ba}) : 661,657 \quad (3) \quad \text{keV}$$

2.1 Gamma Transitions and Internal Conversion Coefficients

	Energy (keV)	$P_{\gamma+\text{ce}}$ (%)	Multipolarity	α_K (10^{-1})	α_L (10^{-1})	α_M (10^{-1})	α_T (10^{-1})
$\gamma_{1,0}(\text{Ba})$	283,46 (7)	0,0000202 (20)	M1+E2	0,461 (7)	0,0726 (11)	0,01516 (22)	0,552 (8)
$\gamma_{2,1}(\text{Ba})$	378,20 (7)	0,0000202 (20)	E5	4,63 (7)	3,44 (5)	0,787 (11)	9,04 (13)
$\gamma_{2,0}(\text{Ba})$	661,657 (3)	100,0 (2)	M4	0,915 (13)	0,1648 (23)	0,0352 (5)	1,124 (16)

3 Atomic Data

3.1 Ba

$$\omega_K : 0,900 \quad (4)$$

$$\bar{\omega}_L : 0,110 \quad (5)$$

$$n_{KL} : 0,888 \quad (4)$$

3.1.1 X Radiations

	Energy (keV)		Relative probability
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X _K			
Kα ₂	31,8174		54,28
Kα ₁	32,1939		100
Kβ ₃	36,3045	}	29,41
Kβ ₁	36,3786		
Kβ ₅ ^{''}	36,654		
Kβ ₂	37,258	}	7,41
Kβ ₄	37,312		
KO _{2,3}	37,425		
X _L			
Lℓ	3,9544		
Lα	4,4515 - 4,4666		
Lη	4,3307		
Lβ	4,8278 - 5,207		
Lγ	5,3715 - 5,8104		

3.1.2 Auger Electrons

	Energy (keV)	Relative probability
Auger K		
KLL	25,314 - 26,786	100
KLX	30,095 - 32,179	47,7
KXY	34,86 - 37,41	5,7
Auger L		
	2,6614 - 5,8064	

4 Electron Emissions

		Energy (keV)	Electrons (per 100 disint.)
e _{AL}	(Ba)	2,6614 - 5,8064	7,81 (5)
e _{AK}	(Ba)		
	KLL	25,314 - 26,786	} 0,82 (4)
	KLX	30,095 - 32,179	
	KXY	34,86 - 37,41	
ec _{2,0 T}	(Ba)	624,216 - 661,642	10,10 (14)
ec _{2,0 K}	(Ba)	624,216 (3)	8,23 (12)
ec _{2,0 L}	(Ba)	655,668 - 656,410	1,482 (21)
ec _{2,0 M}	(Ba)	660,364 - 660,876	0,3164 (45)

5 Photon Emissions

5.1 X-Ray Emissions

		Energy (keV)	Photons (per 100 disint.)	
XL	(Ba)	3,9544 - 5,8104	0,972 (17)	
XK α_2	(Ba)	31,8174	2,10 (4)	} K α
XK α_1	(Ba)	32,1939	3,87 (6)	
XK β_3	(Ba)	36,3045	} 1,139 (22)	K' β_1
XK β_1	(Ba)	36,3786		
XK β_5''	(Ba)	36,654		
XK β_2	(Ba)	37,258	} 0,287 (8)	K' β_2
XK β_4	(Ba)	37,312		
XK $\text{O}_{2,3}$	(Ba)	37,425		

5.2 Gamma Emissions

	Energy (keV)	Photons (per 100 disint.)
$\gamma_{1,0}(\text{Ba})$	283,46 (7)	0,0000191 (20)
$\gamma_{2,1}(\text{Ba})$	378,20 (7)	0,0000106 (9)
$\gamma_{2,0}(\text{Ba})$	661,655 (3)	89,90 (13)

6 Main Production Modes

The metastable state of ¹³⁷Ba is mainly produced by the beta decay of ¹³⁷Cs.

7 References

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