



1 Decay Scheme

Ga-67 disintegrates by 100 % electron capture to the excited levels of 887,7 keV, 393,5 keV, 184,6 keV, 93,3 keV and the ground state level of the stable Zn-67.

Le gallium 67 se désintègre à 100% par capture électronique vers les niveaux excités de 887,7 keV, 393,5 keV, 184,6 keV et 93,3 keV, ainsi que vers le niveau fondamental du zinc 67.

2 Nuclear Data

$$T_{1/2}({}^{67}\text{Ga}) : 3,2613 \quad (5) \quad \text{d}$$

$$Q^+({}^{67}\text{Ga}) : 1000,8 \quad (12) \quad \text{keV}$$

2.1 Electron Capture Transitions

	Energy keV	Probability × 100	Nature	lg ft	P_K	P_L	P_M
$\epsilon_{0,4}$	113,1 (12)	0,280 (8)	Allowed	5,648	0,8680 (17)	0,1119 (14)	0,0188 (5)
$\epsilon_{0,3}$	607,3 (12)	23,60 (47)	Allowed	5,239	0,8824 (15)	0,0999 (12)	0,0165 (4)
$\epsilon_{0,2}$	816,2 (12)	22,3 (27)	Allowed	5,523	0,8832 (15)	0,0993 (12)	0,0164 (4)
$\epsilon_{0,1}$	907,5 (12)	50,5 (17)	Allowed	5,261	0,8834 (15)	0,0991 (12)	0,0164 (4)
$\epsilon_{0,0}$	1000,8 (12)	3,3 (32)	Allowed	6,532	0,8836 (15)	0,0989 (12)	0,0164 (4)

2.2 Gamma Transitions and Internal Conversion Coefficients

	Energy keV	$P_{\gamma+ce}$ × 100	Multipolarity	α_K (10^{-4})	α_L (10^{-4})	α_M (10^{-4})	α_T (10^{-4})
$\gamma_{2,1}(\text{Zn})$	91,263 (15)	3,37 (24)	M1+1,5(6)%E2	810 (50)	87 (7)	12,5 (9)	910 (60)
$\gamma_{1,0}(\text{Zn})$	93,307 (12)	70,6 (16)	E2	7480 (110)	922 (13)	130,0 (19)	8540 (120)
$\gamma_{2,0}(\text{Zn})$	184,577 (17)	21,30 (27)	M1+8,8(36)%E2	151 (19)	15,8 (20)	2,3 (3)	169 (21)
$\gamma_{3,2}(\text{Zn})$	208,939 (15)	2,40 (6)	M1+0,18(14)%E2	80,6 (13)	8,27 (13)	1,186 (19)	90,1 (14)
$\gamma_{3,1}(\text{Zn})$	300,233 (21)	16,67 (45)	M1+3,07(33)%E2	34,8 (6)	3,54 (6)	0,508 (8)	38,8 (6)

	Energy keV	$P_{\gamma+ce}$ $\times 100$	Multipolarity	α_K (10^{-4})	α_L (10^{-4})	α_M (10^{-4})	α_T (10^{-4})
$\gamma_{3,0}(\text{Zn})$	393,529 (20)	4,60 (12)	M1+0,26(16)%E2	17,28 (25)	1,748 (25)	0,251 (4)	19,3 (3)
$\gamma_{4,3}(\text{Zn})$	494,145 (28)	0,0667 (31)	M1+1,2(7)%E2	10,30 (16)	1,038 (17)	0,1488 (24)	11,49 (18)
$\gamma_{4,2}(\text{Zn})$	703,11 (8)	0,0113 (9)	M1+0,8(5)%E2	4,70 (7)	0,470 (7)	0,0674 (10)	5,24 (8)
$\gamma_{4,1}(\text{Zn})$	794,405 (41)	0,053 (6)	E2+0,8(19)%M3	4,8 (5)	0,49 (6)	0,070 (8)	5,4 (6)
$\gamma_{4,0}(\text{Zn})$	887,682 (33)	0,1493 (48)	M1+47,4(47)%E2	3,18 (6)	0,318 (6)	0,0456 (8)	3,54 (7)

2.3 Zn

ω_K	:	0,486	(4)
$\bar{\omega}_L$:	0,0108	(4)
n_{KL}	:	1,326	(4)

2.3.1 X Radiations

	Energy keV	Relative probability	
X _K	K α_2	8,61587	
	K α_1	8,63896	
	K β_1	9,5721	}
	K β_5''	9,6499	}
	K β_2	9,6581	}
X _L	L ℓ	0,8836	
	L α	1,0119 – 1,0122	
	L η	0,9065	
	L β	1,02044 – 1,1861	
	L γ	1,04333 – 1,04333	

2.3.2 Auger Electrons

	Energy keV	Relative probability
Auger K	KLL	7,21 – 7,55
	KLX	8,31 – 8,63
	KXY	9,39 – 9,65
Auger L	0,732 – 0,997	361,7

3 Electron Emissions

		Energy keV	Electrons per 100 disint.
e _{AL}	(Zn)	0,732 - 0,997	167,5 (21)
e _{AK}	(Zn)		60,4 (21)
	KLL	7,21 - 7,55	}
	KLX	8,31 - 8,63	}
	KXY	9,39 - 9,65	}
ec _{2,1} K	(Zn)	81,604 (15)	0,250 (16)
ec _{1,0} K	(Zn)	83,651 (5)	28,4 (7)
ec _{1,0} L	(Zn)	92,116 - 93,290	3,55 (9)
ec _{1,0} M	(Zn)	93,174 - 93,302	0,522 (13)
ec _{2,0} K	(Zn)	174,918 (17)	0,316 (40)
ec _{3,1} K	(Zn)	290,558 (10)	0,060 (3)

4 Photon Emissions

4.1 X-Ray Emissions

		Energy keV	Photons per 100 disint.	
XL	(Zn)	0,8836 — 1,1861	1,75 (5)	
XK α_2	(Zn)	8,61587	17,0 (6)	} K α
XK α_1	(Zn)	8,63896	33,0 (12)	}
XK β_1	(Zn)	9,5721	}	K β'_1
XK β''_5	(Zn)	9,6499	}	
XK β_2	(Zn)	9,6581	}	
XK β_4	(Zn)		}	K β'_2

4.2 Gamma Emissions

	Energy keV	Photons per 100 disint.
$\gamma_{2,1}$ (Zn)	91,263 (15)	3,09 (7)
$\gamma_{1,0}$ (Zn)	93,307 (12)	38,1 (7)
$\gamma_{2,0}$ (Zn)	184,577 (17)	20,96 (44)
$\gamma_{3,2}$ (Zn)	208,939 (15)	2,37 (5)

	Energy keV	Photons per 100 disint.
$\gamma_{3,1}(\text{Zn})$	300,232 (21)	16,60 (37)
$\gamma_{3,0}(\text{Zn})$	393,528 (20)	4,59 (10)
$\gamma_{4,3}(\text{Zn})$	494,143 (28)	0,0666 (29)
$\gamma_{4,2}(\text{Zn})$	703,11 (8)	0,0113 (9)
$\gamma_{4,1}(\text{Zn})$	794,400 (41)	0,0528 (17)
$\gamma_{4,0}(\text{Zn})$	887,676 (33)	0,1492 (38)

5 Main Production Modes

- { Zn – 67(p,n)Ga – 67 σ : 640 barns
- Possible impurities : Ga – 66
- { Zn – 67(d,2n)Ga – 67
- Possible impurities : Ga – 66
- Zn – 68(p,2n)Ga – 67

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