



1 Decay Scheme

Sr-89 disintegrates by beta minus emission mainly to the Y-89 fundamental level. A small fraction 0,0096% populates the isomeric level at 909 keV in Y-89.

Le strontium 89 se désintègre par émission bêta moins principalement vers le niveau fondamental de l'yttrium 89 ainsi que vers le niveau excité de 909 keV avec une intensité de 0,0096 %.

2 Nuclear Data

$$\begin{aligned}
T_{1/2}({}^{89}\text{Sr}) &: 50,57 \quad (3) \quad \text{d} \\
Q^{-}({}^{89}\text{Sr}) &: 1495,1 \quad (22) \quad \text{keV}
\end{aligned}$$

2.1 β^{-} Transitions

	Energy keV	Probability $\times 100$	Nature	lg ft
$\beta_{0,1}^{-}$	586,1 (22)	0,00964 (6)	2nd Forbidden	11,1
$\beta_{0,0}^{-}$	1495,1 (22)	99,99036 (4)	Unique 1st Forbidden	9,4

2.2 Gamma Transitions and Internal Conversion Coefficients

	Energy keV	$P_{\gamma+ce}$ $\times 100$	Multipolarity	α_K	α_L	α_T
$\gamma_{1,0}(\text{Y})$	909,0 (1)	0,00964 (6)	(M4)	0,00746 (23)	0,00091 (3)	0,00850 (26)

3 Atomic Data

3.1 Y

ω_K	:	0,716	(4)
$\bar{\omega}_L$:	0,0289	(7)
n_{KL}	:	1,081	(4)

3.1.1 X Radiations

	Energy keV	Relative probability		
X _K	Kα ₂	14,8829	52,15	
	Kα ₁	14,9585	100	
	Kβ ₃	16,7259	}	25,11
	Kβ ₁	16,7381		
	Kβ ₅ ''	16,88		
	Kβ ₂	17,0156	}	3,47
	Kβ ₄	17,0362		

4 Photon Emissions

4.1 X-Ray Emissions

		Energy keV	Photons per 100 disint.	
XL	(Y)	—		
XK α_2	(Y)	14,8829	0,086 (7)	} K α
XK α_1	(Y)	14,9585		}
XK β_3	(Y)	16,7259	}	K' β_1
XK β_1	(Y)	16,7381		
XK β_5''	(Y)	16,88		
XK β_2	(Y)	17,0156	}	K' β_2
XK β_4	(Y)	17,0362		

4.2 Gamma Emissions

	Energy keV	Photons per 100 disint.
$\gamma_{1,0}(\text{Y})$	909,0 (1)	0,00956 (6)

5 Electron Emissions

	Energy keV	Electrons per 100 disint.
$\beta_{0,1}^-$	max: 586,1 (22)	0,00964 (6)
$\beta_{0,1}^-$	avg: 189,1 (9)	
$\beta_{0,0}^-$	max: 1495,1 (22)	99,99036 (4)
$\beta_{0,0}^-$	avg: 584,6 (10)	

6 Main Production Modes

$\left\{ \begin{array}{l} \text{Sr} - 88(\text{n},\gamma)\text{Sr} - 89 \quad \sigma : 0,058 (4) \text{ barns} \\ \text{Possible impurities : Sr} - 85, \text{Sr} - 90 \end{array} \right.$

$\left\{ \begin{array}{l} \text{Fission product}() \\ \text{Possible impurities : Sr} - 90 \end{array} \right.$

Rb – 89 β^- decay()

Sr – 87(t,p)Sr – 89

Kr – 86(α ,n γ)Sr – 89

7 References

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