



1 Decay Scheme

Au-198 decays via beta minus transitions to two excited levels and the ground state of Hg-198.

L'or 198 se désintègre 100 % par émission bêta vers deux niveaux excités et le niveau fondamental du mercure 198.

2 Nuclear Data

$T_{1/2}({}^{198}\text{Au})$: 2,6943 (3) d

$Q^{-}({}^{198}\text{Au})$: 1372,8 (5) keV

2.1 β^{-} Transitions

	Energy (keV)	Probability (%)	Nature	lg ft
$\beta_{0,2}^{-}$	285,1 (5)	0,985 (5)	1st Forbidden	7,6
$\beta_{0,1}^{-}$	961,0 (5)	98,99 (6)	1st Forbidden	7,37
$\beta_{0,0}^{-}$	1372,8 (5)	0,025 (5)	Unique 1st Forbidden	12,4

2.2 Gamma Transitions and Internal Conversion Coefficients

	Energy (keV)	$P_{\gamma+ce}$ (%)	Multipolarity	α_K	α_L	α_M	α_T
$\gamma_{1,0}(\text{Hg})$	411,80250 (17)	99,82 (9)	E2	0,0300 (5)	0,01055 (15)	0,00263 (4)	0,0439 (7)
$\gamma_{2,1}(\text{Hg})$	675,8849 (5)	0,825 (5)	M1+E2	0,0216 (17)	0,00389 (24)	0,00091 (6)	0,0267 (20)
$\gamma_{2,0}(\text{Hg})$	1087,6874 (5)	0,1599 (21)	E2	0,00414 (6)	0,000751 (11)	0,0001766 (25)	0,00512 (8)

3 Atomic Data

3.1 Hg

ω_K	:	0,962	(4)
$\bar{\omega}_L$:	0,355	(14)
n_{KL}	:	0,813	(4)

3.1.1 X Radiations

	Energy (keV)	Relative probability
X_K		
$K\alpha_2$	68,895	58,99
$K\alpha_1$	70,82	100
$K\beta_3$	79,823	} 33,94
$K\beta_1$	80,254	
$K\beta_5''$	80,762	
$K\beta_2$	82,435	} 9,94
$K\beta_4$	82,776	
$KO_{2,3}$	83,028	
X_L		
Ll	8,7226	
$L\alpha$	9,8981 - 9,9886	
$L\eta$	10,6473	
$L\beta$	11,4835 - 12,5471	
$L\gamma$	13,4081 - 14,2672	

3.1.2 Auger Electrons

	Energy (keV)	Relative probability
Auger K		
KLL	53,178 - 58,277	100
KLX	64,594 - 70,811	55,2
KXY	75,98 - 83,09	7,62
Auger L		
	5,16 - 14,82	

4 Electron Emissions

		Energy (keV)	Electrons (per 100 disint.)
e _{AL}	(Hg)	5,161 - 14,822	2,156 (24)
e _{AK}	(Hg)		
	KLL	53,178 - 58,277	} 0,110 (12)
	KLX	64,594 - 70,811	
	KXY	75,98 - 83,09	
ec _{1,0 T}	(Hg)	328,7002 - 411,7947	4,20 (7)
ec _{1,0 K}	(Hg)	328,70020 (17)	2,869 (48)
ec _{1,0 L}	(Hg)	396,9632 - 399,5186	1,009 (14)
ec _{1,0 M}	(Hg)	408,2409 - 409,5076	0,2515 (38)
ec _{1,0 N}	(Hg)	411,0000 - 411,7026	0,0626 (10)
ec _{2,1 K}	(Hg)	592,7826 (5)	0,0174 (14)
$\beta_{0,2}^-$	max:	285,1 (5)	} 0,985 (5)
	avg:	79,5 (2)	
$\beta_{0,1}^-$	max:	961,0 (5)	} 98,99 (6)
	avg:	314,7 (2)	
$\beta_{0,0}^-$	max:	1372,8 (5)	} 0,025 (5)
	avg:	467,3 (2)	

5 Photon Emissions

5.1 X-Ray Emissions

		Energy (keV)	Photons (per 100 disint.)
XL	(Hg)	8,7226 - 14,2672	1,203 (22)
XK α_2	(Hg)	68,895	0,807 (15)
XK α_1	(Hg)	70,82	1,369 (24)
XK β_3	(Hg)	79,823	} 0,465 (11)
XK β_1	(Hg)	80,254	
XK β_5''	(Hg)	80,762	
XK β_2	(Hg)	82,435	} 0,136 (4)
XK β_4	(Hg)	82,776	
XK $O_{2,3}$	(Hg)	83,028	

5.2 Gamma Emissions

	Energy (keV)	Photons (per 100 disint.)
$\gamma_{1,0}(\text{Hg})$	411,80205 (17)	95,62 (6)
$\gamma_{2,1}(\text{Hg})$	675,8836 (7)	0,804 (5)
$\gamma_{2,0}(\text{Hg})$	1087,6842 (7)	0,1591 (21)

6 Main Production Modes

$\left\{ \begin{array}{l} \text{Au} - 197(n,\gamma)\text{Au} - 198 \\ \text{Possible impurities: Au} - 199 \end{array} \right.$

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