87 Se β^- decay 1980Ze04

	History	7	
Туре	Author	Citation	Literature Cutoff Date
Full Evaluation	T. D. Johnson and W. D. Kulp(a)	NDS 129, 1 (2015)	27-Jul-2015

Parent: ⁸⁷Se: E=0.0; $J^{\pi}=(3/2^+)$; $T_{1/2}=5.50$ s 14; $Q(\beta^-)=7466$ 4; $\%\beta^-$ decay=?

1980Ze04: ⁸⁷Se produced by thermal neutron fission of 235 U, chemical separation of fission products, measured γ spectra with GeLi detectors and measured coincidences. 1975Hu02:: ⁸⁷Se [from ²³⁵U(n,F) E=thermal] chemically separated from fission products; measured γ , γ (t), assigned gamma rays

at 468.0 and 1497.9 keV based on decay curve $T_{1/2}$ of 6 seconds.

See 2014Al15 for TAGs data and implication for decay heat.

⁸⁷Br Levels

E(level) [†]	J#‡	T _{1/2}	Comments
0.0	(5/2 ⁻)	55.65 s <i>13</i>	J^{π} : From Adopted Levels. T _{1/2} : from ⁸⁷ Br Adopted Levels.
242.51 <i>23</i> 334.0 <i>3</i>	(1/2,3/2,5/2)		-,
573.17 <i>24</i> 710 51 <i>21</i>	(1/2,3/2,5/2) (1/2,3/2,5/2)		
1035.5 6	(1/2,3/2,5/2) (1/2,3/2,5/2) (1/2,2/2,5/2)		
3926.4 <i>4</i> 3987.1 <i>6</i>	(1/2,3/2,5/2) (1/2,3/2,5/2) (1/2,3/2,5/2)		

[†] From least-squares fit to γ energies.

^{\ddagger} From logft values and γ 's to daughter levels. However as the level scheme is very incomplete, assignments are done with some risk.

β^{-} radiations

IB,LOGFT I_{β} are computed from γ -ray intensity balances. Since the decay energy is over 7 MeV and only a few levels have been reported, this scheme must be considered incomplete. A comparison to the 1419 keV transition in the ⁸⁷Kr daughter indicates that ground state feeding may be as high as 32%. Further experimental investigation is warranted. Due to the incompleteness, no normalizaton given.

E(decay)	E(level)	$I\beta^{-\dagger}$	Log ft	Comments
(3479 4)	3987.1	1.4	6.0	av E β =1502.3 20
(3540 4)	3926.4	2.8	5.7	av $E\beta = 1531.3\ 20$
(5588 4)	1878.14	14	5.9	av $E\beta = 2518.8\ 20$
(6431 4)	1035.5	2.5	6.9	av $E\beta = 2926.7\ 20$
(6755 4)	710.51	11	6.4	av E β =3084.1 20
(6893 4)	573.17	7.8	6.6	av $E\beta = 3150.6\ 20$
(7132 4)	334.0	19	6.2	av E β =3266.4 20
(7223 4)	242.51	9.5	6.6	av $E\beta = 3310.7\ 20$
(7466 4)	0.0	32	6.1	av $E\beta = 3428.1\ 20$

[†] Absolute intensity per 100 decays.

				87 Se β^-	decay 198	0Ze04 (continued)
					$\gamma(^{87}\text{E}$	<u>3r)</u>
Ε _γ ‡#	I_{γ}	E_i (level)	\mathbf{J}_i^π	\mathbf{E}_{f}	\mathbf{J}_{f}^{π}	Comments
242.5 3	100	242.51	(1/2,3/2,5/2)	0.0	(5/2-)	
334.0 [†] 3	93.6 [†]	334.0		0.0	$(5/2^{-})$	
468.0 <i>3</i>	48.2	710.51	(1/2,3/2,5/2)	242.51	(1/2,3/2,5/2)	E_{γ} : others: 469.1 (1977Pf01) and 468.0 10 (1975Hu02).
573.2 <i>3</i>	51.8	573.17	(1/2,3/2,5/2)	0.0	$(5/2^{-})$	
701.5 [†] 5	11.0	1035.5	(1/2, 3/2, 5/2)	334.0		
710.5 <i>3</i>	19.7	710.51	(1/2, 3/2, 5/2)	0.0	$(5/2^{-})$	
1167.6 <i>3</i>	18.4	1878.14	(1/2,3/2,5/2)	710.51	(1/2,3/2,5/2)	
1305.0 <i>3</i>	17.8	1878.14	(1/2, 3/2, 5/2)	573.17	(1/2,3/2,5/2)	
1878.1 <i>3</i>	23.6	1878.14	(1/2, 3/2, 5/2)	0.0	$(5/2^{-})$	
3683.8 5	4.4	3926.4	(1/2, 3/2, 5/2)	242.51	(1/2, 3/2, 5/2)	
3744.5 5	6.1	3987.1	(1/2,3/2,5/2)	242.51	(1/2,3/2,5/2)	
3926.3 5	7.7	3926.4	(1/2,3/2,5/2)	0.0	$(5/2^{-})$	

[†] 1980Ze04 suggest that the 334 and 701 γ 's, which are in coincidence with each other, might not belong to the ⁸⁷Se decay since they are not seen in coincidence with other strong γ 's. Their placement however, does not require any other coincidences. In this γ sequence, the larger intensity of the 334 γ suggests this to be the transition feeding the gs.

[‡] From 1980Ze04, uncertainties are 0.3 keV for the stronger γ lines and 0.5 keV for those with weaker intensities. So for $\Delta I\gamma$ >11, the evaluators chose ΔE =0.3 keV and 0.5 for the rest.

[#] A 1497.9 γ was reported by 1975Hu02, but not confirmed by 1980Ze04.

$\frac{^{87}\text{Se }\beta^{-} \text{ decay } 1980\text{Ze04}}{1980\text{Ze04}}$



 $^{87}_{35}{
m Br}_{52}$