

$^{88}\text{Se} \beta^-$ decay (1.53 s) 1980Ze04

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	E. A. Mccutchan and A. A. Sonzogni		NDS 115, 135 (2014)	1-Nov-2013

Parent: ^{88}Se : $E=0.0$; $J^\pi=0^+$; $T_{1/2}=1.53$ s 6; $Q(\beta^-)=6832$ 5; $\% \beta^-$ decay=100.0

1980Ze04: ^{88}Se activity produced in $^{235}\text{U}(\text{n},\text{f})$ followed by fast chemical separation. Measured E_γ , I_γ , and $\gamma\gamma$ using two Ge(Li) detectors (FWHM=1.75 keV and 2.1 keV at 1.33 keV).

Feeding to the g.s. is unknown. 1982Li09 reported a 20.5 % value, while results from 1980Ze04 can be interpreted as showing a 38% g.s. intensity. These values give $\log ft$ values of 5.6 and 5.3, respectively. On the other hand, in its β^- decay, ^{88}Br has $\log f^{lu}_t=9.9$ to 2276-keV, $J^\pi=0^+$ level and $\log f^{lu}_t=10.3$ to 1643-keV, $J^\pi=4^+$ level in ^{88}Kr , which leads to a J^π value of (2^-) for ^{88}Br , incompatible with the $\log ft$ values for $^{88}\text{Se}(\text{g.s.})$ to $^{88}\text{Br}(\text{g.s.})$ using the intensities from 1982Li09 and 1980Ze04. We have adopted a (2^-) value, which will give a g.s. intensity of $\leq 3\%$ assuming a $\log f^{lu}_t \geq 8.5$.

α : Additional information 1.

 ^{88}Br Levels

E(level) [†]	J^π [‡]	$T_{1/2}$ [‡]	Comments
0	(2^-)	16.34 s 8	$\% \beta^- = 100$; $\% \beta^- \text{ n} = 6.58$ 18
159.20 23	$(1^-, 2^-, 3^-)$		
259.2 3	$(1, 2, 3^+)$		
272.7 3	(1)		
408.7 3	(1)		
566.0 4	(1)		
1903.72 25	(1^+)		
3154.1 6	(1^+)		

[†] From a least-squares fit to E_γ , by evaluators.

[‡] From the Adopted Levels.

 β^- radiations

E(decay)	E(level)	$I\beta^-$ ^{†‡}	$\log ft$ [‡]	Comments
(3678 5)	3154.1	6.8	4.8	av $E\beta=1597.6$ 25
(4928 5)	1903.72	40	4.6	av $E\beta=2199.9$ 25
(6266 5)	566.0	6.1	5.9	av $E\beta=2847.0$ 25
(6423 5)	408.7	5.5	6.0	av $E\beta=2923.1$ 25
(6559 5)	272.7	≥ 6.1	≤ 6.0	av $E\beta=2989.0$ 25

[†] Approximate values, deduced from γ intensity balance.

[‡] Approximate values deduced from $I\beta$.

Absolute intensity per 100 decays.

 $\gamma(^{88}\text{Br})$

I_γ normalization: From $\Sigma(I(\gamma+\text{ce})=62$ to g.s. (1980Ze04).

E_γ [†]	I_γ ^{‡b}	$E_i(\text{level})$	J^π_i	E_f	J^π_f	Mult. ^a	δ^a	α	Comments
113.5# 5	8.8 9	272.7	(1)	159.20	$(1^-, 2^-, 3^-)$				
159.2 3	100 10	159.20	$(1^-, 2^-, 3^-)$	0	(2^-)	M1+E2	0.24 2	0.0396 13	$\alpha(\text{K})=0.0350$ 11; $\alpha(\text{L})=0.00394$ 14;

Continued on next page (footnotes at end of table)

$^{88}\text{Se} \beta^-$ decay (1.53 s) **1980Ze04** (continued) $\gamma(^{88}\text{Br})$ (continued)

$E_\gamma^\dagger$	$I_\gamma^{\ddagger b}$	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Comments
$\alpha(\text{M})=0.000626 \ 22; \ \alpha(\text{N})=5.74 \times 10^{-5} \ 19$						
249.5 [#] 5	29 3	408.7	(1)	159.20	(1 ⁻ , 2 ⁻ , 3 ⁻)	
259.2 3	82 8	259.2	(1, 2, 3 ⁺)	0	(2 ⁻)	
272.7 4	41 4	272.7	(1)	0	(2 ⁻)	
293.3 [#] 5	16.7 17	566.0	(1)	272.7	(1)	
408.7 [#] 5	34 3	408.7	(1)	0	(2 ⁻)	
566.0 5	16.2 16	566.0	(1)	0	(2 ⁻)	
1495.0 5	33 3	1903.72	(1 ⁺)	408.7	(1)	
1644.5 4	58 [@] 6	1903.72	(1 ⁺)	259.2	(1, 2, 3 ⁺)	
1744.5 4	62 6	1903.72	(1 ⁺)	159.20	(1 ⁻ , 2 ⁻ , 3 ⁻)	
1903.7 4	64 ^{&} 6	1903.72	(1 ⁺)	0	(2 ⁻)	
2894.8 5	37 4	3154.1	(1 ⁺)	259.2	(1, 2, 3 ⁺)	

[†] From **1980Ze04**. ΔE reported by the authors to 0.3 keV for the strongest and 0.5 keV for the weakest lines. Individual uncertainties assigned by the evaluators.

[‡] From **1980Ze04**. $\Delta I_\gamma=10\%$ reported by **1978ZeZZ**.

[#] Only seen in coincidence spectra.

[@] Contribution from 1643.9 γ (^{88}Kr) subtracted.

[&] Contribution from double-escape of 2925.2 γ (^{86}Kr) subtracted.

^a From the Adopted Gammas.

^b For absolute intensity per 100 decays, multiply by 0.184 8.

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Decay Scheme

Intensities: I_γ per 100 parent decays

Legend

- $I_\gamma < 2\% \times I_\gamma^{\max}$
- $I_\gamma < 10\% \times I_\gamma^{\max}$
- $I_\gamma > 10\% \times I_\gamma^{\max}$

