^{172}**Re** ε **decay (15 s)**   **1977Be66,1975St02,1986Sz06**

	Type	Author	History Citation	Literature Cutoff Date
	Full Evaluation	Balraj Singh	NDS 75,199 (1995)	31-May-1995

Parent: ^{172}Re: E=0.0+x; J^{π}=(5); $T_{1/2}$=15 s 3; $Q(\varepsilon)$=7.29×10^3 46; %ε+%β^+ decay=100.0

1977Be66: ^{172}Re produced by Tl(p,X) E=1 GeV, spallation reactions. Measured E, $\gamma\gamma$. Two activities in ^{172}Re identified, based on measurement of intensity ratios (of 123 and 254γ) as a function of time. One activity (15 s) populated states with J≥4 while the other populated states with J≤4. No isomeric transition was reported.

1975St02: ^{172}Re produced by ^{159}Tb(^{20}Ne,7n) E=180 MeV. Measured γ, $\gamma\gamma$. Three γ rays reported at 122.9, 254.0 and 350.3.

1986Sz06: ^{172}Re produced by ^{165}Ho(^{16}O,9n) E=177 MeV. Measured γ, absolute (per 100 decays of the parent) Iγ. Activity studied by 1986Sz06 is probably mixed but Iγ(254γ)/Iγ(123γ)=2 (1986Sz06) suggests predominantly 55-s activity.

^{172}W Levels

E(level)	J^{π}[†]
0.0	0^+
123.3 1	2^+
377.1 2	4^+
727.5 5	6^+
1146.9 6	8^+

[†] From Adopted Levels.

$\gamma(^{172}$W)

The following γ rays with Eγ(Iγ) tentatively assigned (1974Be59) to ^{172}Re ε decay were not listed in the authors' later publication (1977Be66): 434 (11), 715 (3), 744 (5), 786 (1), 930 (6), 961 (1), 969 (1), 1041 (2), 1053 (1).
The decay scheme cannot be normalized due to insufficient information.

E_{γ}[†]	I_{γ}[‡]	E_i(level)	J_i^{π}	E_f	J_f^{π}	Mult.[#]	α[@]	Comments
123.3 1	45 5	123.3	2^+	0.0	0^+	E2	1.78	
253.8 2	100	377.1	4^+	123.3	2^+	E2	0.143	
350.4 4	55 13	727.5	6^+	377.1	4^+	E2	0.054	
419.4 3	≈10	1146.9	8^+	727.5	6^+	E2	0.045	E_{γ}: from 1977Be66.

[†] Weighted average of 1977Be66 and 1975St02, unless otherwise stated.

[‡] From 1977Be66.

[#] From adopted gammas.

[@] Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

^{172}Re ε decay (15 s)　　　1977Be66,1975St02,1986Sz06

Decay Scheme

Intensities: Relative $I_{(\gamma+ce)}$

Legend

→ $I_\gamma <\ \ 2\% \times I_\gamma^{max}$
→ $I_\gamma < 10\% \times I_\gamma^{max}$
→ $I_\gamma > 10\% \times I_\gamma^{max}$
● Coincidence

(5)　　　0.0+x　　15 s *3*

$\%\varepsilon + \%\beta^+ = 100$　　$Q_\varepsilon = 7.29\times10^3$ *46*

$^{172}_{75}Re_{97}$

419.4 E2 ≈11
350.4 E2 58
253.8 E2 114
123.3 E2 125

8⁺ ... 1146.9
6⁺ ... 727.5
4⁺ ... 377.1
2⁺ ... 123.3
0⁺ ... 0.0

$^{172}_{74}W_{98}$