

^{164}Hf ε decay (111 s) [1989Hi04](#)

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen [#]		NDS 147, 1 (2018)	30-Nov-2017

Parent: ^{164}Hf : $E=0.0$; $J^\pi=0^+$; $T_{1/2}=111$ s 8; $Q(\varepsilon)=2820$ 30; $\% \varepsilon + \% \beta^+$ decay=100.0

^{164}Hf - $T_{1/2}$: From ^{164}Hf Adopted Levels.

^{164}Hf - $Q(\varepsilon)$: From [2017Wa10](#).

[1989Hi04](#): Measured E_γ , I_γ , $\gamma\gamma$ coin, $T_{1/2}$.

Others:

[1981Br30](#), [1989Br19](#): $T_{1/2}$.

[1992Ha10](#): Measured E_γ , I_γ of three γ rays.

[Additional information 1](#).

Available data are insufficient to deduce ε branchings and $\log ft$ values.

 ^{164}Lu Levels

$E(\text{level})^\dagger$	J^π	Comments
0.0	$1^{(-)}$	
31.4 4		
126.3? 4		$E(\text{level})$: tentative level based on observation of 126.3 and 157.3 γ rays in coin with 314 γ . Relative ordering of the 126-157 cascade is not known.
153.3 3		
199.4 4		
283.4 3		
597.2 4		
807.6 5		
827.4 5		

[†] From least-squares fit to E_γ data.

 $\gamma(^{164}\text{Lu})$

Coincidences with Lu K x ray and 511 keV annihilation quanta occur in all cases.

E_γ	I_γ	$E_i(\text{level})$	E_f	J_f^π	Comments
31.4 4	25 6	31.4	0.0	$1^{(-)}$	
46.2 4	3.4 9	199.4	153.3		
$^{x48.5^\dagger}$ 5	≈ 1				
84.3 4	<1.0	283.4	199.4		
$^{x107^\dagger}$	≈ 1				
122.1 3	211 20	153.3	31.4		Additional information 2 .
					I_γ : corrected for contribution from ^{164}Lu decay.
126.3 4	5.5 5	126.3?	0.0	$1^{(-)}$	
130.0 3	10.4 9	283.4	153.3		
153.3 3	100 8	153.3	0.0	$1^{(-)}$	Additional information 3 .
$^{157.3^\ddagger}$ 3	2.1 10	283.4	126.3?		
252.0 3	5.7 7	283.4	31.4		
313.7 4	53 9	597.2	283.4		I_γ : average of 46 9 (1989Hi04) and 61 9 (1992Ha10).
					Additional information 4 .
397.9 4	3.6 6	597.2	199.4		
444.0 4	1.8 3	597.2	153.3		
608.2 5	2.9 6	807.6	199.4		

Continued on next page (footnotes at end of table)

 ^{164}Hf ε decay (111 s) **1989Hi04** (continued)

 $\gamma(^{164}\text{Lu})$ (continued)

E_γ	I_γ	$E_i(\text{level})$	E_f
627.9 5	1.4 4	827.4	199.4
654.3 5	2.6 6	807.6	153.3
674.2 5	1.8 5	827.4	153.3

[†] Observed in coincidence with 126.3 γ . Assignment to ^{164}Hf decay is uncertain.

[‡] Placement of transition in the level scheme is uncertain.

^x γ ray not placed in level scheme.

