^{90}Br β^-n decay (1.911 s) 1981Ho17

	History		
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	ENSDF	30-Nov-2021

Parent: ^{90}Br: E=0.0; $T_{1/2}$=1.911 s *10*; Q(β^-n)=4464 *4*; %β^-n decay=25.6 *15*

^{90}Br-$T_{1/2}$: From 2020Li32 evaluation, where value is from weighted average of 1.910 s *10* (1993Ru01), 2.0 s *1* (1987PfZX), 1.92 s *6* (1984Ew01), and 1.80 s *15* (1975As04). Others: 2.09 s *23* and 1.85 s *18* (2012Qu01, first value from maximum-likelihood fit, second from least-squares fit), 1.92 s *2* (1980Al15), 1.96 s *5* (1976Ru01), 1.71 s *14* (1974Kr21), 1.63 s *14* and 1.71 s *11* (1975Kr17), 1.3 s *2* (1972Sc48) and 1.4 s *8* (1971Ch38), 1.6 s *6* (1971ShZD), 1.63 s *14* (1970HeZX).

^{90}Br-Q(β^-n): From 2021Wa16.

^{90}Br-%β^-n decay: %β^-n=25.6 *15* for the decay of ^{90}Br, value from 2020Li32 evaluation where the value is weighted average of 29.0% *21* (1993Ru01), 24.3% *30* (1987PfZX), 24.8% *15* (1984Ew01), 22.6% *31* (1975As04). Others: 24.6% *17* (1980Al15), 18.9% *39* (1978Kr15), 7.8% *18* (1974Kr21) and 30% *7* (1972Sc48). 2002Pf04 compilation gives %β^-n=24.9 *10*.

1981Ho17: ^{235}U(n,F), chem, AlBr+, measured Eγ, Iγ, I(n), $\gamma\gamma$, nγ coin.

1997Gr20: delayed neutron spectrum measured in the range 48-1200 keV and relative intensities reported in different energy bins.

Other β^-n measurements: 1993Ru01, 1987PfZX, 1984Ew01, 1980Al15, 1978Kr15, 1977Sh01, 1976Ru01, 1975As04, 1974Kr21, 1974Cr06, 1972Sc48, 1971Ch38, 1959Pe28.

Additional information 1.

^{89}Kr Levels

E(level)	J^π	$T_{1/2}$	Comments
0.0	3/2$^{(+)}$	3.15 min *4*	$T_{1/2}$: from Adopted Levels.
28.53 *9*	(5/2$^+$)		
411.48 *8*			
991.30 *10*			
1026.47 *15*			
1097.86 *10*			

γ(^{89}Kr)

E_γ	I_γ [†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	δ	α [‡]	Comments
28.51 *10*		28.53	(5/2$^+$)	0.0	3/2$^{(+)}$	[M1+E2]	<0.24	6.9 *22*	α(K)=5.4 *13*; α(L)=1.2 *8*; α(M)=0.20 *13*; α(N+..)=0.017 *10* α(N)=0.017 *10* δ: from RUL(E2)=300. I_γ: not given by 1981Ho17 since in this region accurate efficiency calibration was not possible.
411.48 *8*	102 *5*	411.48		0.0	3/2$^{(+)}$				
962.74 *9*	33 *2*	991.30		28.53	(5/2$^+$)				
991.35 *15*	7.0 *8*	991.30		0.0	3/2$^{(+)}$				
997.93 *12*	8.6 *8*	1026.47		28.53	(5/2$^+$)				
1097.85 *10*	24 *2*	1097.86		0.0	3/2$^{(+)}$				

[†] For absolute intensity per 100 decays, multiply by 0.042 *5*.

[‡] 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.

^{90}Br β^-n decay (1.911 s)   **1981Ho17** (continued)

Delayed Neutrons (^{89}Kr)

E(^{89}Kr)	I(n)[†]
0.0	<69.7
28.53	<69.7
411.48	17.1
991.30	7.6
1026.47	1.9
1097.86	3.7

[†] For absolute intensity per 100 decays, multiply by 0.256 *15*.

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Decay Scheme

Intensities: I$_\gamma$ per 100 parent decays

Legend

I$_\gamma$ < 2%×I$_\gamma^{max}$
I$_\gamma$ < 10%×I$_\gamma^{max}$
I$_\gamma$ > 10%×I$_\gamma^{max}$

0.0   1.911 s *10*

%β^-n=25.6   Q=4464 *4*

$^{90}_{35}$Br$_{55}$

1097.85 1.01
997.93 0.36
991.35 0.30
962.74 1.39

1097.86
1026.47
991.30

411.48 4.3

411.48

28.51 [M1+E2]

(5/2$^+$)   28.53
3/2$^{(+)}$ 0.0   3.15 min *4*

$^{89}_{36}$Kr$_{53}$