^{80}Br ε decay (17.68 min) 1969Ka06,1967Ra12,1970Do02

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	NDS 105, 223 (2005)	22-Jun-2005

Parent: ^{80}Br: E=0; $J^\pi=1^+$; $T_{1/2}$=17.68 min *2*; Q(ε)=1870.5 *3*; %ε+%$β^+$ decay=8.3 *2*
1969Ka06: measured γ, γγ, $β^+$, $β^-$, βγ, $T_{1/2}$.
1967Ra12: measured γ, γγ, γγ(θ).
1970Do02: measured γ.
Others:
γ, γγ: 1962Tr03, 1968Da24, 1956La24, 1953Sc71.
$β^+$ data: 1956La24, 1954Li19, 1954La34, 1954La39, 1953La36, 1952La20, 1951La08, 1949Dz19.
$β^+/β^-$ ratio: 1950Re51, 1947Ba08.
$T_{1/2}$(^{80}Br isotope): 1972Co26, 1968Re04, 1957Ki21, 1948Wa13, 1939Se03, 1937Sn02, 1935Am01. 1984Ke14 deals with methodology of $T_{1/2}$ measurement.
Production of ^{80}Br (in addition to above references): 1947Se33, 1936Al01.

^{80}Se Levels

E(level)	J^π†	Comments
0.0	0^+	
665.8 *2*	2^+	
1450?	2^+	
1478.0 *16*	0^+	J^π: from (812γ)(665γ)(θ) (1967Ra12).

† From 'Adopted Levels'.

ε,$β^+$ radiations

Feedings to ^{80}Kr g.s. and ^{80}Se g.s. determined from decay scheme and from I$β^+$/I$β^-$=0.028 *2* (1951La08), I(ε+$β^+$)/I$β^-$=0.090 *2* (1950Re51), and Iγ(616γ)/I$β^+$=2.58 *10* (1962Tr03). 1969Ka06 also deduce these feedings from I$β^-$/I$β^+$ and Iγ(616γ)/I$β^+$ ratios but give no uncertainties.

E(decay)	E(level)	I$β^+$ †	Iε†	Log *ft*	I(ε+$β^+$)†	Comments
(392.5 *16*)	1478.0		0.05 *2*	5.3 *3*	0.05 *2*	εK= 0.8747; εL= 0.10468; εM+=0.020607
(420.5 *3*)	1450?		≤0.02	>5.7	≤0.02	εK= 0.8751; εL= 0.10432; εM+=0.020527
(1204.7 *4*)	665.8		1.1 *1*	4.94 *5*	1.1 *1*	av Eβ= 84.3 *9*; εK= 0.8778; εL= 0.10106; εM+=0.019798
1882 *6*	0.0	2.2 *2*	4.9 *2*	4.67 *5*	7.1 *2*	av Eβ= 368.2 *10*; εK= 0.6106 *16*; εL= 0.06983 *18*; εM+= 0.01367 *4*
						E(decay): from weighted average of Eβ+=868 *7* (1951La08), 862 *10* (1954Li19), 850 *7* (1969Ka06).

† Absolute intensity per 100 decays.

γ(^{80}Se)

Iγ normalization: ^{80}Br decays by $β^-$ and by ε,$β^+$. Normalization factors have been deduced from the following observations: I(ε+$β^+$)/I$β^-$=0.090 *2* (1950Re51,mag spectrometer measurement); I$β^+$/I$β^-$=0.028 *2* (1951La08); Iγ(616γ)/I$β^+$=2.58 *10* (1962Tr03). In ε decay $β^+$ feeding to excited levels in ^{80}Se is negligible.
^{80}Br decays by $β^-$ and by ε,$β^+$. The following experimental ratios aid in normalization of decay schemes: I(ε+$β^+$)/I$β^-$=0.090 *2* (1950Re51, mass spectrometer data); I$β^+$/I$β^-$=0.028 *2* (1951La08, scin). Others: 0.037 (1951Mi16), 0.040 *5* (1954Li19), 0.031

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γ(^{80}Se) (continued)

(1969Ka06); Iγ(616γ)/Iβ$^+$=2.58 *10* (1962Tr03 scin). Other: 3.0 *7* (1953Sc71).
γγ data obtained by 1969Ka06 and 1967Ra12 (scin).

E_γ [#]	I_γ [@&]	E_i(level)	J_i^π	E_f	J_f^π	Comments
665.8 *2*	16.1 *13*	665.8	2^+	0.0	0^+	
[x]677.0[†a] *10*	0.12 *4*					
[x]687.4[†a] *10*	0.18 *5*					
788[a] *3*	≤0.2	1450?	2^+	665.8	2^+	
812.2 *15*	0.6 *2*	1478.0	0^+	665.8	2^+	(812γ)(665γ)(θ): A_2=0.29 *13*, A_4=1.32 *37* (1967Ra12).
[x]1338.5[‡a] *8*						

† Reported by 1967Ra12 only. Assignment to ^{80}Se uncertain.
‡ Reported by 1970Do02 only. Assignment to ^{80}Se uncertain.
# Weighted average of 1969Ka06, 1967Ra12, 1970Do02.
@ Average of 1969Ka06 and 1967Ra12. Relative to Iγ(616γ in ^{80}Kr)=100.
& For absolute intensity per 100 decays, multiply by 0.067 *6*.
a Placement of transition in the level scheme is uncertain.
x γ ray not placed in level scheme.

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