^{80}Rb ε decay (34 s)   1973Br32

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

Parent: ^{80}Rb: E=0; J^π=1$^+$; $T_{1/2}$=34 s 4; Q(ε)=5720 7; %ε+%β^+ decay=100.0

1973Br22: Measured γ, $\gamma\gamma$. Source obtained from ^{71}Ga(^{12}C,3nγ) reaction and from successive ε decay of ^{80}Y formed in ^{65}Cu(^{20}Ne,5nγ) reaction.

1993Gi01: Measured Eγ, Iγ, ce. Deduced electric monopole strength ρ^2. See also (p,p$'$g), where lifetime of the first excited 0$^+$ state was measured.

1993Al03: Measured Q value by total absorption γ (TAGS) spectrum.

Others:

β^+, $\beta^+\gamma$ data (Q value): 1980DeZB, 1975We23, 1976ReZU, 1961Ho13.

γ, $\gamma\gamma$, T$_{1/2}$: 1961Ho13, 1972JaYZ.

Yield and production of ^{80}Rb: Ir(p,X) reaction (1986Be43), (^{32}S,X) reaction (1985Hu06).

1993Gi01 made an attempt to identify third 0$^+$ state around 2 MeV from their ce data. From the absence of any conversion electron line in the range 1900-2100 keV, 1993Gi01 deduced Ice(K)(third 0$^+$ to g.s)/Ice(K)(second 0$^+$ to g.s.)<0.05 (95% confidence limit).

^{80}Kr Levels

E(level)	$J^{\pi\dagger}$
0.0	0$^+$
616.8 5	2$^+$
1256.5 7	2$^+$
1321.1 7	0$^+$

† From 'Adopted Levels'.

ε,β^+ radiations

E(decay)	E(level)	I$\beta^{+\,\dagger}$	I$\varepsilon^\dagger$	Log ft	I($\varepsilon+\beta^+$)†	Comments
(4399 7)	1321.1	1.8 3	0.068 11	5.88 9	1.9 3	av Eβ=1533.6 34; εK=0.03121 19; εL=0.003607 22; εM+=0.000740 5
(4464 7)	1256.5	2.0 3	0.071 10	5.87 8	2.1 3	av Eβ=1564.3 34; εK=0.02954 18; εL=0.003415 21; εM+=0.000701 5
4.88×10^3 35	616.8	21.2 25	0.44 5	5.19 8	21.6 26	av Eβ=1870.5 34; εK=0.01801 9; εL=0.002080 11; εM+=0.0004268 2 E(decay): from $\beta^+\gamma$, Eβ+=3.86 MeV 35 (1975We23).
5.63×10^3 16	0.0	73 3	1.01 4	4.93 6	74.4 30	av Eβ=2167.9 34; εK=0.01194 6; εL=0.001378 6; εM+=0.0002828 1 E(decay): from 1980DeZB. Others: 5720 (1975We23), 5.12E3 50.

† Absolute intensity per 100 decays.

$\gamma(^{80}$Kr)

Iγ normalization: 1973Br32 deduced this from Iγ($\gamma^\pm$)/Iγ(617γ)=7.95 80 (1973Br32) and total expected ε branch of 1.5%. 1973Br32 assumed that all the intensity of annihilation radiation was from ^{80}Rb decay. Since the authors studied ^{80}Sr and ^{80}Rb in equilibrium, part of $\gamma^\pm$ radiation may be from ^{80}Sr ε decay. It is estimated (evaluator) that $\approx$8% may arise from ^{80}Sr ε decay but the normalization factor has not been corrected for this contribution.

^{80}Rb ε decay (34 s)   **1973Br32** (continued)

$\gamma(^{80}$Kr) (continued)

E_γ	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	Comments
616.7 *5*	100	616.8	2^+	0.0	0^+		
639.6 *5*	6.0 *6*	1256.5	2^+	616.8	2^+		α(K)exp=0.00131 *7* (1993Gi01)
							Mult.: I(E0)/I(E2)<0.07 (from ce data with 95% confidence limit,1993Gi01).
							ρ^2(E0: to 617,2^+)<0.05; X(E0/E2)<0.028 (1993Gi01,95% confidence limit).
704.3 *5*	7.5 *8*	1321.1	0^+	616.8	2^+		ce(K) and ce(L) lines seen by 1993Gi01.
1257.1 *15*	2.3 *3*	1256.5	2^+	0.0	0^+		
1320.5		1321.1	0^+	0.0	0^+	E0	E_γ: ce(K) and ce(L) from 1993Gi01.
							ρ^2(E0: to g.s.)=0.021 *9*; X(B(E0):E0 to g.s.)/(BE2:E2 to 617,2^+)=0.022 *2* (1993Gi01).
[x]1343.09 *6*						M1,E2	α(K)exp=0.000209 *25* (1993Gi01)
							E_γ,Mult.: from ce line At 1328.76 *20* and strong γ line (1993Gi01); γ not from the decay of other Kr isotopes.

[†] For absolute intensity per 100 decays, multiply by 0.25 *3*.

[x] γ ray not placed in level scheme.

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Decay Scheme

Intensities: I_γ per 100 parent decays

Legend

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