^{76}Sr ε decay (8.9 s)   1993Ad12,1992Gr09

	Type	Author	History Citation	Literature Cutoff Date
	Full Evaluation	Balraj Singh	NDS 74,63 (1995)	22-Dec-1994

Parent: ^{76}Sr: E=0.0; J$^{\pi}$=0^{+}; T$_{1/2}$=8.9 s 3; Q(ε)=6090 SY; %ε+%β^{+} decay=100.0

1993Ad12: measured γ, $\gamma\gamma$.

1992Gr09: measured G.

Source of ^{76}Sr produced by Nb(p,x) E=600 MeV followed by mass separation (1993Ad12,1992Gr09).

^{76}Rb Levels

E(level)†	J$^{\pi ‡}$
0.0	1$^{(-)}$
101.40 13	(2^{-})
246.63 16	(3^{-})
317.0? 3	(4^{+})
476.81 14	(1^{+})
516.0 2	(1^{+})
982.87 14	(1^{+})
1275? 1	(1^{+})

† From least squares fit to Eγ's.

‡ From Adopted Levels.

ε,β^{+} radiations

The ε,β^{+} feedings are given as upper limits only since it is possible that additional higher energy levels are populated in this decay which would reduce the feedings given here.

E(decay)	E(level)	Iβ^{+} †	I$\varepsilon^{†}$	Log ft	I($\varepsilon+\beta^{+}$)†	Comments
(4815‡ SY)	1275?	<11	<0.3	>4.8	<11	av Eβ=1732 144; εK=0.025 7; εL=0.0029 8; εM+=0.00061 17
(5107 SY)	982.87	<25	<1	>4.5	<26	av Eβ=1872 145; εK=0.020 5; εL=0.0023 6; εM+=0.00049 13
(5574‡ SY)	516.0	<4.5	<0.1	>5.5	<4.6	av Eβ=2097 145; εK=0.015 4; εL=0.0017 4; εM+=0.00036 8
(5613 SY)	476.81	<67	<1	>4.3	<68	av Eβ=2116 145; εK=0.014 4; εL=0.0017 4; εM+=0.00035 8

† Absolute intensity per 100 decays.

‡ Existence of this branch is questionable.

$\gamma(^{76}$Rb)

Iγ normalization: Σ ((I(γ+ce) of γ's to g.s. (except 101γ and to 101 level))=100, assuming no ε,β^{+} to g.s. The ε,β^{+} feeding to 101 level is expected to be<0.5% from log $f^{1u}t$>8.5. The normalization is, however, considered approximate since levels are reported only up to about 1300 keV, much below the Q(ε) value of$\approx$6100. Also there is no information for feeding to g.s..

Eγ†	E$_i$(level)	J$^{\pi}_i$	E$_f$	J$^{\pi}_f$	Mult.	α^{a}	Comments
(70.55)	317.0?	(4^{+})	246.63	(3^{-})	[E1]	0.27	Eγ: from (HI,xnγ).
							Iγ: 2.2 12 deduced from intensity balance at 317 level. But it must be noted that the population of the 317 level in ^{76}Sr ε decay is uncertain. Also, there is no evidence of 317γ in (HI,xnγ).

^{76}Sr ε **decay (8.9 s)**   **1993Ad12,1992Gr09 (continued)**

γ(^{76}Rb) (continued)

E_γ[†]	I_γ[†&]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	α^a	Comments
101.4 2	56 14	101.40	(2^-)	0.0	$1^{(-)}$	(M1)[@]	0.139	
145.2 2	6.0 20	246.63	(3^-)	101.40	(2^-)	[M1]	0.053	
159.8[b] 4	1.2 5	476.81	(1^+)	317.0?	(4^+)	[M3]	1.95	
230.2 2	4.7 12	476.81	(1^+)	246.63	(3^-)	[M2]	0.086	
246.6 3	1.5 5	246.63	(3^-)	0.0	$1^{(-)}$	[E2]	0.037	
317.0[b] 3	1.3 4	317.0?	(4^+)	0.0	$1^{(-)}$	[E3]	0.059	
375.4 2	28 5	476.81	(1^+)	101.40	(2^-)			
414.6 2	12.9 20	516.0	(1^+)	101.40	(2^-)			
466.9[b] 2	3.7 9	982.87	(1^+)	516.0	(1^+)			
476.8 2	100	476.81	(1^+)	0.0	$1^{(-)}$			
506.1[‡b] 5		982.87	(1^+)	476.81	(1^+)			
516.0[‡b] 5		516.0	(1^+)	0.0	$1^{(-)}$			
665.7[b] 4	0.6 3	982.87	(1^+)	317.0?	(4^+)			
735.8[b] 4	1.1 4	982.87	(1^+)	246.63	(3^-)			
881.5 2	16.7 20	982.87	(1^+)	101.40	(2^-)			
982.9 2	30 5	982.87	(1^+)	0.0	$1^{(-)}$			
1174[#b]	22[#] 6	1275?	(1^+)	101.40	(2^-)			

[†] From 1993Ad12 unless otherwise stated. 1992Gr09 report 5 γ's at 102, 375, 414, 477, and 1174.

[‡] Unresolved from strong $\gamma^\pm$ line.

[#] γ reported by 1992Gr09 only. 1993Ad12 point out that 1174γ from ^{76}Sr ε decay could not be confirmed due to the presence of a 1174.0γ from ^{76}Rb ε decay and a background 1173.2γ from ^{60}Co. The $\gamma\gamma$ data of 1993Ad12 were limited to energy range of 1100.

[@] Intensity balance at 101 level gives α<0.6 which implies δ(E2/M1)<1. However, $\gamma(\theta)$ and intensity balance in (HI,xnγ) are consistent with mult=dipole.

[&] For absolute intensity per 100 decays, multiply by $\approx$0.50.

[a] 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.

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

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Decay Scheme

Intensities: I$_{(\gamma+ce)}$ per 100 parent decays

Legend

I$_\gamma < $ 2%$\times$I$_\gamma^{max}$
I$_\gamma < $ 10%$\times$I$_\gamma^{max}$
I$_\gamma > $ 10%$\times$I$_\gamma^{max}$
γ Decay (Uncertain)
● Coincidence
○ Coincidence (Uncertain)