

$^{27}\text{Na} \beta^-$ decay **1984Gu19,1979De02**

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	M. Shamsuzzoha Basunia		NDS 112, 1875 (2011)	30-Nov-2010

Parent: ^{27}Na : $E=0.0$; $J^\pi=5/2^+$; $T_{1/2}=301$ ms 6; $Q(\beta^-)=9010$ 40; $\% \beta^-$ decay=100.0

1984Gu19: ^{27}Na was produced in the fragmentation of iridium target by 10 GeV protons from the CERN synchrotron. Recoiled fragments were thermalized, ionized and mass-separated; Ge(Li) detector, Measured: E_γ , $\beta^- \gamma \gamma$ coin, absolute I_γ .

1979De02: ^{27}Na was produced in the fragmentation of uranium target by 24 GeV protons from the CERN synchrotron. Recoil fragments were thermalized, ionized and mass-separated; Ge(Li) detector, Measured: E_γ , absolute I_γ .

 ^{27}Mg Levels

E(level) [†]	J^π [‡]	$T_{1/2}$	Comments
0	$1/2^+$	9.458 min 12	$T_{1/2}$: From Adopted Levels.
984.69 8	$3/2^+$		
1698.06 10	$5/2^+$		
1940.06 9	$5/2^+$		
3109.5 3	$(7/2^+)$		
3427.1 4	$(5/2^+, 7/2^+)$		
3490.9 4	$3/2^+, 5/2^+$		
4150.0 5	$(3/2^+, 5/2^+)$		
4553.0 6	$(3/2^+, 5/2^+)$		
4776.3 7	$(3/2, 5/2, 7/2)^+$		
4992.6 9	$(5/2^+)$		

[†] From a least-squares fit to γ -ray energies.

[‡] From Adopted Levels.

 β^- radiations

E(decay)	E(level)	$I\beta^-$ [†]	Log ft	Comments
(4.02×10^3) 4)	4992.6	0.18 4	5.59 10	av $E\beta=1803$ 20
(4.23×10^3) 4)	4776.3	0.16 4	5.75 11	av $E\beta=1909$ 20
(4.46×10^3) 4)	4553.0	0.17 6	5.82 16	av $E\beta=2018$ 20
(4.86×10^3) 4)	4150.0	0.026 9	6.81 16	av $E\beta=2215$ 20
(5.52×10^3) 4)	3490.9	0.52 7	5.76 6	av $E\beta=2538$ 20
(5.58×10^3) 4)	3427.1	0.74 8	5.63 5	av $E\beta=2570$ 20
(5.90×10^3) 4)	3109.5	0.50 7	5.91 7	av $E\beta=2726$ 20
(7.07×10^3) 4)	1940.06	0.5 9	6.3 8	av $E\beta=3302$ 20
(7.31×10^3) 4)	1698.06	11.3 7	4.99 3	av $E\beta=3422$ 20
(8.03×10^3) 4)	984.69	85.8 11	4.300 15	av $E\beta=3774$ 20

[†] Absolute intensity per 100 decays.

 $\gamma(^{27}\text{Mg})$

I_γ normalization: Deduced by the evaluator from decay scheme.

Continued on next page (footnotes at end of table)

^{27}Na β^- decay [1984Gu19,1979De02](#) (continued) $\gamma(^{27}\text{Mg})$ (continued)

E_γ [†]	I_γ ^{†‡}	$E_i(\text{level})$	J_i^π	E_f	J_f^π
955.34 13	1.0 10	1940.06	5/2 ⁺	984.69	3/2 ⁺
984.66 8	100	984.69	3/2 ⁺	0	1/2 ⁺
1169.40 25	0.68 7	3109.5	(7/2 ⁺)	1940.06	5/2 ⁺
1666.7 9	0.11 4	4776.3	(3/2,5/2,7/2) ⁺	3109.5	(7/2 ⁺)
1698.0 1	13.6 7	1698.06	5/2 ⁺	0	1/2 ⁺
1728.9 5	0.37 5	3427.1	(5/2 ⁺ ,7/2 ⁺)	1698.06	5/2 ⁺
1792.7 7	0.17 4	3490.9	3/2 ⁺ ,5/2 ⁺	1698.06	5/2 ⁺
1940.0 1	0.53 6	1940.06	5/2 ⁺	0	1/2 ⁺
2442.3 5	0.48 7	3427.1	(5/2 ⁺ ,7/2 ⁺)	984.69	3/2 ⁺
2451.8 4	0.03 1	4150.0	(3/2 ⁺ ,5/2 ⁺)	1698.06	5/2 ⁺
2506.0 7	0.29 5	3490.9	3/2 ⁺ ,5/2 ⁺	984.69	3/2 ⁺
2612.8 6	0.20 6	4553.0	(3/2 ⁺ ,5/2 ⁺)	1940.06	5/2 ⁺
2836.1 8	0.073 15	4776.3	(3/2,5/2,7/2) ⁺	1940.06	5/2 ⁺
3490.7 7	0.14 5	3490.9	3/2 ⁺ ,5/2 ⁺	0	1/2 ⁺
4007.6 9	0.21 4	4992.6	(5/2 ⁺)	984.69	3/2 ⁺

[†] From [1984Gu19](#).[‡] For absolute intensity per 100 decays, multiply by 0.874 6.

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Decay Scheme

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

Legend

