

$^{33}\text{Al} \beta^-$ decay (41.7 ms) 2002Mo29

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Jun Chen and Balraj Singh		NDS 112, 1393 (2011)	31-Mar-2011

Parent: ^{33}Al : $E=0$; $J^\pi=(5/2)^+$; $T_{1/2}=41.7$ ms 2; $Q(\beta^-)=11960$ 70; $\% \beta^-$ decay=100.0

^{33}Al - $T_{1/2}$: from timing of β particles correlated with ^{33}Al fragments (2002Mo29). Other: 41 ms 3 from timing of delayed neutrons (1995ReZZ).

^{33}Al - $\% \beta^-$ decay: $\% \beta^- n=8.5$ 7 (1995ReZZ).

2002Mo29: ^{33}Al produced by projectile fragmentation of 140-MeV ^{40}Ar beam with a ^9Be target followed by fragment separation by A1900 fragment analyzer at NSCL facility. Detector system: Double-sided silicon strip detector (DSSD) for fragments and β particles, three silicon PIN diodes, parallel-plate avalanche counter (PPAC) for position information, two HPGe detectors for γ rays. Measured E_γ , I_γ , $\gamma\gamma$, $\beta\gamma$ coin, (particle) γ coin.

 ^{33}Si Levels

E(level)	J^π^\dagger	Comments
0	$3/2^+$	
1010.2 5	$1/2^+$	This state is probably populated by γ rays from higher levels, since β feeding involving $\Delta J=2$, $\Delta\pi=\text{no}$ is expected to be negligible.
4341 11	$3/2^+, 5/2^+$	

† From Adopted Levels.

 β^- radiations

E(decay)	E(level)	$I\beta^-^\dagger$	Log ft	Comments
(7.62×10^3 7)	4341	1.3 7	5.2	av $E\beta=3569$ 35
(1.196×10^4 7)	0	88 2	4.3	av $E\beta=5711$ 35

$I\beta^-$: 89 +1-3, 2002Mo29 obtained this feeding from 100-(β feeding of 2.3 8 to 4341 level and higher levels + $\% \beta^- n$ of 8.5 7).

† Absolute intensity per 100 decays.

 $\gamma(^{33}\text{Si})$

I_γ normalization: Absolute intensities measured by 2002Mo29.

E_γ	I_γ^\dagger	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Comments
1010.2 5	1.0 3	1010.2	$1/2^+$	0	$3/2^+$	
$^{x}1780.8$ 18						
4341 11	1.3 7	4341	$3/2^+, 5/2^+$	0	$3/2^+$	E_γ : from 1984Gu19 only, decaying with $T_{1/2} \approx 200$ ms. I_γ : 1.3 +7-6.

† Absolute intensity per 100 decays.

x γ ray not placed in level scheme.

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Decay Scheme

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

Legend

