^{35}Al β^- decay (37.2 ms) 2005Ti11,2001Nu01

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Jun Chen and Balraj Singh	ENSDF	31-May-2015

Parent: ^{35}Al: E=0; J^π=(5/2$^+$); $T_{1/2}$=37.2 ms *8*; Q(β^-)=14141 *80*; %β^- decay=100.0
^{35}Al-Q(β^-): From 2012Wa38.
^{35}Al-J^π,$T_{1/2}$: From Adopted Levels of ^{35}Al.
Additional information 1.
2005Ti11, 2006AnZW: Fragmentation of ^{36}S beam at 78 MeV/nucleon at GANIL facility. A detector telescope for detecting betas, two EXOGAM clover modules and a LEPS detector for detecting gammas and 19 plastic scintillator modules of the TONNERRE for detecting neutrons. Measured β-delayed Eγ, $T_{1/2}$ and delayed neutron emission probability. Deduced levels, J, π, log *ft*. (2006AnZW: Conference paper).
2001Nu01: ^{35}Al produced at the ISOLDE facility at CERN in fragmentation with 1 GeV proton beam on a uranium carbide target. A plastic scintillator for detecting betas, two Ge counters or a small BaF_2 counter for detecting gammas. Neutron energies measured by time of flight. Measured Eγ, Eγ, $\gamma\gamma$, $\beta\gamma$-coin, $T_{1/2}$ and delayed-neutron branches. Deduced levels, J, π, log *ft*.
Others: 1988Mu08, 1989Le16, 1995ReZZ, 1999YoZW.
^{35}Al also decays to ^{34}Si by β^-n (38% *2*) (2005Ti11).

^{35}Si Levels

E(level)†	$J^{\pi\#}$	$T_{1/2}$	Comments
0	(7/2)$^-$		
909.95 *23*	(3/2)$^-$		
973.88 *18*	(3/2$^+$)	5.9 ns *6*	$T_{1/2}$: from the time spectrum of delayed coincidences in 2001Nu01.
2168.2 *4*	5/2$^+$		
3140‡			
3450‡			
3770‡			
5190‡			
5760‡			
6330‡			
7360‡			
7690‡			

† From a least-squares fit to γ-ray energies if applicable.
‡ From measured delayed neutron spectrum in 2005Ti11.
$^{\#}$ From Adopted Levels.

β^- radiations

E(decay)	E(level)	$I\beta^{-\dagger @}$	Log *ft*	Comments
(6.45×10^3 *8*)	7690	2.7‡ *2*	4.47 *5*	av Eβ=2993 *40*
(6.78×10^3 *8*)	7360	2.6‡ *2*	4.59 *5*	av Eβ=3156 *40*
(7.81×10^3 *8*)	6330	6.8‡ *3*	4.46 *3*	av Eβ=3663 *40*
(8.38×10^3 *8*)	5760	4.5‡ *2*	4.78 *3*	av Eβ=3944 *40*
(8.95×10^3 *8*)	5190	8.9‡ *3*	4.62 *3*	av Eβ=4226 *40*
(1.037×10^4 *8*)	3770	3.2‡ *2*	5.37 *4*	av Eβ=4927 *40*
(1.069×10^4 *8*)	3450	6.0‡ *3*	5.16 *3*	av Eβ=5084 *40*
(1.100×10^4 *8*)	3140	3.3‡ *2*	5.48 *4*	av Eβ=5237 *40*

Continued on next page (footnotes at end of table)

^{35}Al β^- decay (37.2 ms) 2005Ti11,2001Nu01 (continued)

β^- radiations (continued)

E(decay)	E(level)	$I\beta^{-}$ [†@]	Log *ft*	Comments
(1.197×10^4 *8*)	2168.2	9.2 *19*	5.2 *1*	av Eβ=5717 *40* $I\beta^-$: from 2001Nu01. Other: 6.7 *9* in 2005Ti11 (only 2168γ transition is observed).
(1.317×10^4 *8*)	973.88	50 *3*	4.67 *3*	av Eβ=6306 *40* $I\beta^-$: weighted average of 48 *9* in 2001Nu01 and 50 *3* in 2005Ti11.
(1.323×10^4 *8*)	909.95	<0.9[#]	>6.4	av Eβ=6337 *40*
(1.414×10^4 *8*)	0	3.0[#] *1*	6.04 *2*	av Eβ=6786 *40*

† From absolute measurements in 2001Nu01 and/or 2005Ti11 using absolute γ-ray intensities for levels below neutron separation energy and using delayed neutron intensities for levels above.
‡ From 2005Ti11 only.
# From 2001Nu01 only.
@ Absolute intensity per 100 decays.

γ(^{35}Si)

Iγ normalization: From 2001Nu01.

E_γ [†]	I_γ [†#]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	α [‡]	Comments
64.1 *3*	100	973.88	$(3/2^+)$	909.95	$(3/2)^-$	[E1]	0.0368 *8*	α(K)=0.0342 *7*; α(L)=0.00244 *5*; α(M)=0.000158 *4* B(E1)(W.u.)=3.5×10^{-4} *4* (2001Nu01).
910.11 *30*	99.7 *19*	909.95	$(3/2)^-$	0	$(7/2)^-$			
973.78 *20*	11.8 *24*	973.88	$(3/2^+)$	0	$(7/2)^-$	[M2]		B(M2)(W.u.)=0.061 *7* (2001Nu01).
[x]1130.4 *4*	3.2 *9*							
1194.2 *4*	5.3 *12*	2168.2	$5/2^+$	973.88	$(3/2^+)$			
2168.2 *6*	15 *3*	2168.2	$5/2^+$	0	$(7/2)^-$			
[x]5629 *3*	2.4 *12*							

† From 2001Nu01.
‡ From BrIcc v2.3a (10-Sep-2014) 2008Ki07, "Frozen Orbitals" appr.
# For absolute intensity per 100 decays, multiply by 0.45.
x γ ray not placed in level scheme.

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Decay Scheme

Intensities: Relative I_γ