^{27}Al(^{14}N,p$\alpha\gamma$) 1976Wa11,1975Ol01

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Ninel Nica, John Cameron and Balraj Singh	NDS 113, 1 (2012)	31-Dec-2011

Also includes ^{24}Mg(^{18}O,pn$\alpha\gamma$), ^{25}Mg(^{16}O,p$\alpha\gamma$), ^{26}Mg(^{14}N,$\alpha\gamma$), ^{27}Al(^{12}C,p2nγ), and ^{27}Al(^{18}O,N2AG) reactions.
1976Wa11: ^{27}Al(^{14}N,p$\alpha\gamma$) E=40 MeV, measured γ-γ coincidence, $\gamma(\theta)$, linear polarization pol(γ), $T_{1/2}$ (RDM).
1975Ol01: ^{26}Mg(^{14}N,$\alpha\gamma$), ^{24}Mg(^{18}O,pn$\alpha\gamma$), ^{27}Al(^{18}O,N2AG), all At E=40 MeV, measured Eγ, Iγ, $\gamma(\theta)$, pol(γ).
1976Ke02: ^{25}Mg(^{16}O,p$\alpha\gamma$) E=43,50 MeV, measured $T_{1/2}$ (RDM).
1976Me03: ^{27}Al(^{12}C,p2nγ) E=31 MeV, measured $T_{1/2}$ (RDM).

^{36}Cl Levels

E(level)[†]	J^{π}[‡]	$T_{1/2}$	Comments
0.0	2^+		
788.45 *10*	3^+	22.4 ps *17*	$T_{1/2}$: mean lifetime τ In ps: 32.3 *25* (1976Me03).
1164.98 *19*	1^+		
1951.12 *16*	2^-		
2468.22 *19*	3^-		
2518.40 *15*	5^-	1594 ps *111*	$T_{1/2}$: mean lifetime τ In ps: 2300 *160* (1976Ke02).
2810.55 *15*	4^-		
3100.7 *3*	4^-		
4294.52 *18*	(6^-)	<7 ps	$T_{1/2}$: mean lifetime τ In ps:<10 (1976Wa11),<20 (1976Ke02).
5313.55 *20*	$(7)^+$	19.7 ps *15*	$T_{1/2}$: mean lifetime τ In ps: 32 *3* (1976Wa11), 27.2 *17* (1976Ke02); weighted average: 28.4 *21*.
5780.12? *25*	(8)		$T_{1/2}$: mean lifetime τ In ps: 0.5 to 1000 (1976Wa11).

† From least-squares fit to Eγ data.
‡ Below E(level)<4000 cited by 1976Wa11 from literature − same As later adopted by 1990En08; for E(level)>4000 determined by 1976Wa11.

γ(^{36}Cl)

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	δ	Comments
292.13 *10*	635 *67*	2810.55	4^-	2518.40	5^-			
466.57 *15*	179 *83*	5780.12?	(8)	5313.55	$(7)^+$	D[#]		A_2=−0.19 *11* (1976Wa11).
517.10 *10*	203 *71*	2468.22	3^-	1951.12	2^-			E_γ: doublet with ^{35}Cl 517.26 *10* γ (1976Wa11).
632.5 *3*	197 *69*	3100.7	4^-	2468.22	3^-	D(+Q)[#]		A_2=−0.21 *10* (1976Wa11).
[x]756.9[&] *3*	224 *62*							
786.0 *5*	224 *62*	1951.12	2^-	1164.98	1^+			E_γ: unresolved from 788γ (1976Wa11).
788.44 *10*	10000 *90*	788.45	3^+	0.0	2^+	M1+E2[#]	+1.1[#] *3*	A_2=+0.29 *2*, A_4=−0.03 *3*, P=−0.28 *5* (1976Wa11).
859.4 *3*	207 *69*	2810.55	4^-	1951.12	2^-	(Q)[#]		A_2=+0.16 *9* (1976Wa11).
1019.01 *10*	2287 *99*	5313.55	$(7)^+$	4294.52	(6^-)	E1[#]	[@]	A_2=−0.25 *3*, pol=+0.31 *26* (1976Wa11).
1164.94 *20*	449 *87*	1164.98	1^+	0.0	2^+	D[#]		A_2=−0.17 *5* (1976Wa11).
1484.1 *5*	250 *56*	4294.52	(6^-)	2810.55	4^-			A_2=+0.21 *17* (1976Wa11).
1729.80 *20*	8811 *94*	2518.40	5^-	788.45	3^+	M2+E3[#]	−0.19[#] *10*	A_2=+0.21 *2*, A_4=−0.11 *2*, P=−0.49 *11* (1976Wa11).
1776.06 *10*	2346 *52*	4294.52	(6^-)	2518.40	5^-			A_2=+0.21 *2* (1976Wa11).
1951.08 *20*	434 *84*	1951.12	2^-	0.0	2^+			A_2=+0.22 *10* (1976Wa11).
2022.15 *20*	831 *66*	2810.55	4^-	788.45	3^+	E1[#]	[@]	A_2=−0.25 *5*, P=+0.55 *33* (1976Wa11).
2312.1 *5*	150 *70*	3100.7	4^-	788.45	3^+			

Continued on next page (footnotes at end of table)

^{27}Al(^{14}N,p$\alpha\gamma$) 1976Wa11,1975Ol01 (continued)

γ(^{36}Cl) (continued)

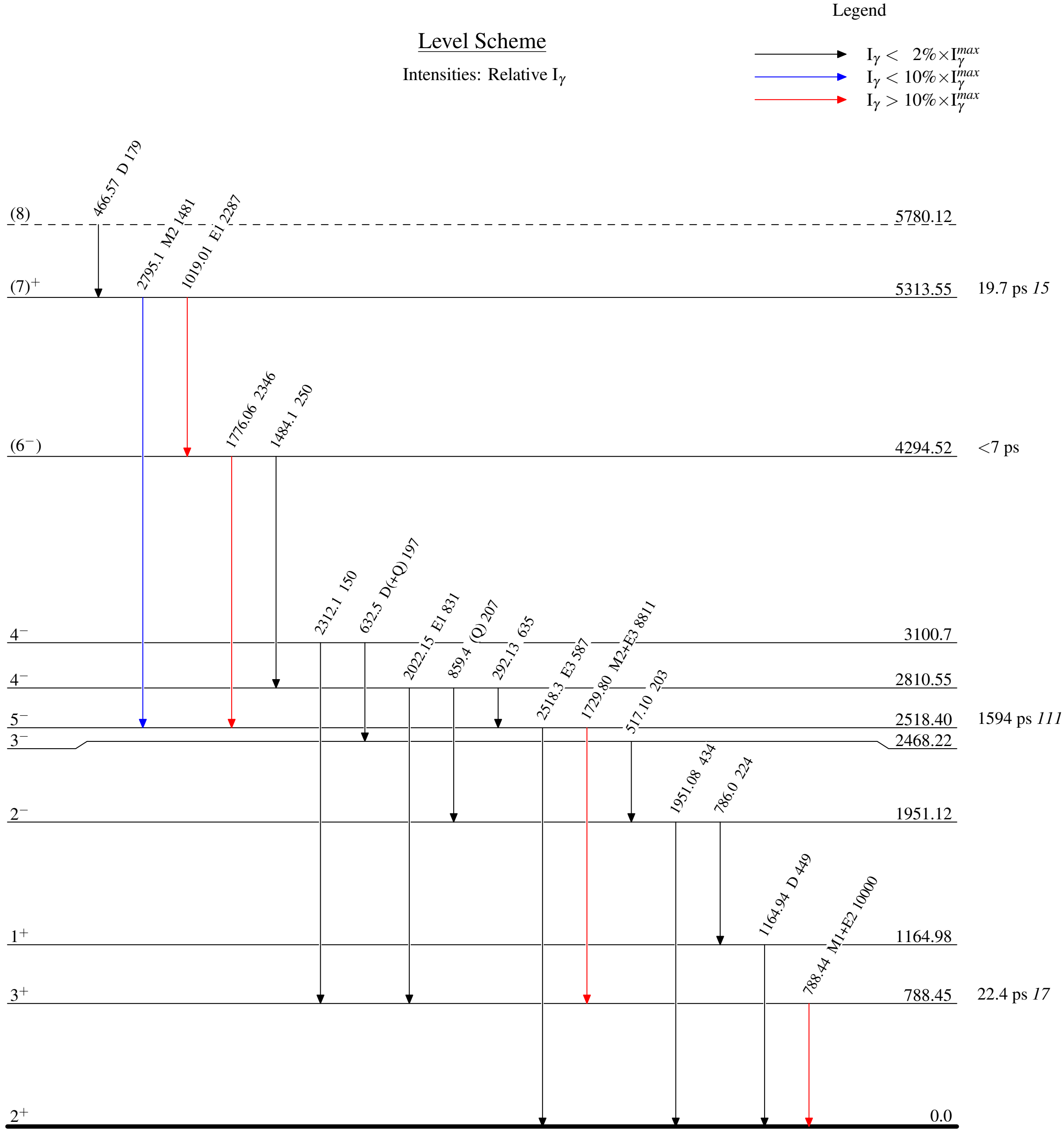
E_γ†	I_γ‡	E_i(level)	J^π_i	E_f	J^π_f	Mult.	Comments
2518.3 *3*	587 *98*	2518.40	5^-	0.0	2^+	E3#	A_2=+0.52 *7*, A_4=−0.09 *8*, P=+0.9 *9* (1976Wa11).
2795.1 *3*	1481 *99*	5313.55	$(7)^+$	2518.40	5^-	M2#	A_2=+0.37 *5*, A_4=−0.13 *5*, pol=−1.5 *10* (1976Wa11).
x3842.2& *10*	156 *73*						

† From 1976Wa11.
‡ Intensities relative to 788γ (renormalized to 10000 by evaluators) from 1976Wa11. The uncertainties are recalculated by evaluators from those listed by 1976Wa11 with the γ-ray intensity branching ratios from levels, and estimated by evaluators for the unbranched intensities from the close-lying Iγ,ΔIγ values of branched γ-ray intensities (1976Wa11 give separate relative Iγ's without ΔIγ, and level branching ratios with ΔIγ).
# From 1976Wa11 based on $\gamma(\theta)$ and pol(γ).
@ 1976Wa11 list δ=0 for this transition.
& According to 1976Wa11 the assignment to ^{36}Cl is uncertain.
x γ ray not placed in level scheme.

$^{27}Al(^{14}N,p\alpha\gamma)$ 1976Wa11,1975Ol01

Level Scheme

Intensities: Relative I_γ



$^{36}_{17}Cl_{19}$