^{27}Al(d,nγ),(d,n) 1969Bo18,1985Sa19,1977Mi01

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	M. Shamsuzzoha Basunia	NDS 114, 1189 (2013)	1-Apr-2013

Others: 1995Br16, 1976Ly01.

$J^\pi(^{27}Al)=5/2^+$.

1969Bo18: ^{27}Al(d,n) E=6 MeV; neutrons were detected using NE213 liquid scintillator; Measured $\sigma(E,\theta)$.

1985Sa19: ^{27}Al(d,n) E=2.5 to 8 MeV; neutrons were detected using seven NE213 scintillators, FWHM between 7 to 123 keV; deduced level energy in ^{28}Si.

1977Mi01: ^{27}Al(d,nγ) E=5.8 MeV; two Ge(Li) and NE213 liquid scintillator; Measured Eγ, N-γ coin; deduced excited level energy, upper limit of mean-lifetime using the Doppler Shift Attenuation method.

^{28}Si Levels

E(level)†	Jπ†	$T_{1/2}$@	L#	S&	E(level)†
0.0	0^+		2	2.9	13612.5 *21*
1779.030 *11*	2^+		0+2	1.8,0.8	13626.0 *15*
4617.86 *4*	4^+		2	3.8	13633.0 *20*
4979.92 *8*	0^+		2	0.6	13639.0 *16*
6276.20 *7*	3^+		0+2	1.6,0.9	13667 *4*
6878.79 *8*	3^-		(1)+3	(0.06)	13686.0 *20*
6887.65 *10*	4^+		2	2.8	13703.0 *15*
7416.26 *9*	2^+		2	1.3	13712.4 *15*
7799.01 *9*	3^+		0+2	0.6,0.5	13736 *3*
7933.45 *10*	2^+		0+2	0.6,0.8	13744.6 *15*
8328.38 *12*	1^+		(0+2)	(1.2)	13789.0 *22*
8413.33 *10*	4^-			2.6	13797.5 *22*
8588.71 *10*	3^+		0+2	2.4,2.7	13810.6 *22*
8819‡ *9*					13821.0 *15*
8904.8 *4*	1^-			0.12	13831.0 *20*
8945.20 *13*	5^+		2	(0.4)	13864 *3*
9315.92 *10*	3^+	≤21 fs	0+2	3.1,1.6	13875.5 *15*
9381.55 *12*	2^+	14 fs *+21−12*			13890.0 *15*
9417.17 *14*	4^+			1.5,1.2	13939.0 *20*
9764.52 *11*	(3^-)			0.6	13970.3 *25*
9929.2 *17*	1^-			0.3	13982 *3*
10181.60 *12*	(3^-)			0.3	14151.8 *25*
10272.3 *8*	0^+			0.3	14272 *3*
10418.25 *22*	(5^+)			0.2,3.2	14287.6 *25*
10778‡ *2*					14300.0 *15*
10915.6 *7*	(3^-)				14318 *4*
11242‡ *6*					14331 *4*
11432.63 *18*	(2^+)	≤21 fs			14349.0 *15*
11434.50 *22*	(4^-)	87 fs *+90−42*		1.0,7.9	14361.0 *15*
11576 *2*					14377 *3*
12265.8 *23*					14398.0 *20*
13411 *3*					14417.3 *20*
13422 *3*					14433.0 *20*
13467 *3*					14478.0 *20*
13482.8 *20*					14498.0 *20*
13500 *2*					14519.0 *20*
13510.0 *20*					14537 *4*
13545.3 *25*					14561 *3*
13558 *4*					14625 *4*
13567 *3*					14642 *3*
13604 *4*					14709 *4*

Continued on next page (footnotes at end of table)

^{27}Al(d,nγ),(d,n) 1969Bo18,1985Sa19,1977Mi01 (continued)

^{28}Si Levels (continued)

E(level)[†]
14756 *3*
14785 *3*
14852 *2*

† From Adopted Levels, except otherwise noted. Level energies 12265.8 keV and above are from 1985Sa19.
‡ From 1985Sa19.
# From 1969Bo18, except otherwise noted.
@ From 1977Mi01.
& From 1969Bo18, (2J+1)S.

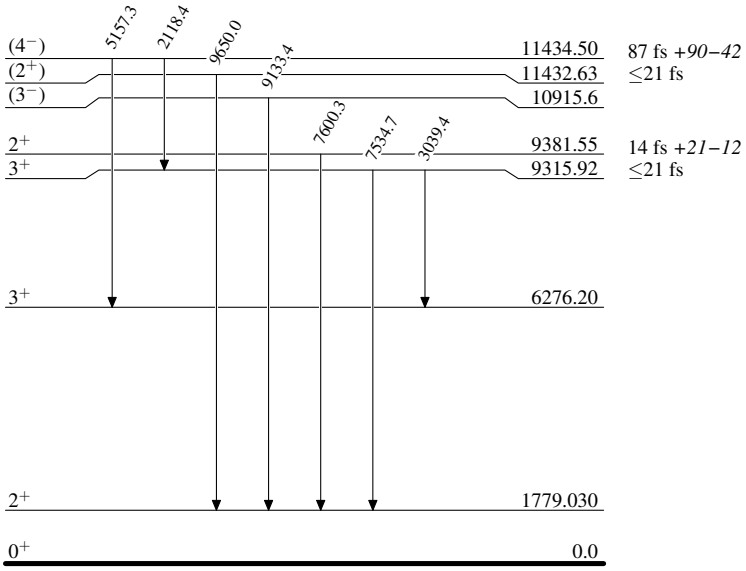
γ(^{28}Si)

E_γ[†]	E_i(level)	J_i^π	E_f	J_f^π
2118.4	11434.50	(4$^-$)	9315.92	3$^+$
3039.4	9315.92	3$^+$	6276.20	3$^+$
5157.3	11434.50	(4$^-$)	6276.20	3$^+$
7534.7	9315.92	3$^+$	1779.030	2$^+$
7600.3	9381.55	2$^+$	1779.030	2$^+$
9133.4	10915.6	(3$^-$)	1779.030	2$^+$
9650.0	11432.63	(2$^+$)	1779.030	2$^+$

† Calculated from level energy differences. Recoil energy subtracted.

^{27}Al(d,nγ),(d,n) 1969Bo18,1985Sa19,1977Mi01

Level Scheme



$^{28}_{14}Si_{14}$