

²⁸Si(d,α),(pol d,α) 1981Ta04,1986Bo02

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	M. S. Basunia and A. M. Hurst	NDS 134,1 (2016)	1-Feb-2016

J^π(²⁸Si)=0⁺.

Other: 1978Ik01,1986Da09 – (pol d,α).

1981Ta04: (d,α): target: ²⁸Si self-supporting foil (estimated thickness 67 μg/cm²), Projectile: deuteron beam, E=33.0 MeV; Alpha particles were analyzed with a magnetic spectrograph; FWHM ≈ 30 keV; Deduced excitation energy, L values. Also studied ²⁴Mg(³He,p) reaction.

1986Bo02: (pol d,α): Natural silicon (thickness 30 to 50 μg/cm²) evaporated on 99.9% enriched ¹²C; 60 μm thick annular Si surface barrier detector, α particles detected between 174.1° to 176.5°; Measured α spectra; FWHM 35 to 40 keV; Assigned natural and unnatural parity.

²⁶Al Levels

E(level) [†]	J ^π	L ^c	Comments
0.0	5+#	4	J ^π : From Cross-section and vector analyzing-power angular distribution for the (pol d,α) (1978Ik01).
230 6	&		
418 6	#	2	
1058 6	#	0+2	
1762 6	‡	2	
1850 6	#	0+2	
2065 6		4 ^d	
2069.47 3	‡&		
2071.64 4	#		
2369 6	#	4	
2542 6	#	2(+4)	
2661 6	‡	2	
2735 6	#	0+2	
2914 6	‡	2	
3075 6	#	2(+4)	
3159.889 13	‡		
3403 6	#	4	
3506 6	‡	6	
3600 6	#	2	
3674.92 5	‡		
3681 6	#	2	
3723.81 4	#		
3750 6	‡&	2 ^e	
3753.63 13			
3920 6	#		
3962.83 5	#	1 ^e	
3977.91 9	0 ^{-b}	e	
4191.92 6	#		
4205.86 5	‡		
4349.34 7	#		
4430.72 6	#	1	

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$^{28}\text{Si}(\text{d},\alpha),(\text{pol d},\alpha)$ **1981Ta04,1986Bo02** (continued) ^{26}Al Levels (continued)

<u>E(level)[†]</u>	<u>J^π</u>	<u>L^c</u>	<u>E(level)[†]</u>	<u>J^π</u>	<u>E(level)[†]</u>	<u>J^π</u>
4480.48 9	0 ⁻ <i>b</i>		5131.93 5	‡&	5584.99 6	# <i>a</i>
4547.92 6	‡@		5141.68 6		5598.30 6	
4599.17 5	#		5195.11 12	(0 ⁺) <i>b</i>	5671.04 7	# <i>a</i>
4622.38 5	#		5245.28 4	‡	5676.07 5	
4705.37 4	‡@		5395.53 7	#	5692.15 5	‡@
4769 6	‡	4	5431.23 10	‡@	5726.38 5	
4939.64 9	# <i>a</i>		5487.93 6	# <i>a</i>	5849.21 8	‡@
4940.79 5		2+4	5494.51 5		5882.65 9	‡
4952.30 4	#		5513.48 4	‡	5916.10 6	# <i>a</i>
5006.66 16	# <i>a</i>		5544.56 7	#@ <i>a</i>	5924.19 7	
5010.24 7			5569.16 19		5949.93 8	‡@

[†] From Adopted Levels. Excited levels with 6 keV uncertainty are from **1981Ta04**.

‡ Natural parity (**1986Bo02**).

Unnatural parity (**1986Bo02**).

@ Considered as a possibility (**1986Bo02**).

& One of the doublet components has natural parity and the other has natural parity or 0⁺.

a One of the doublet components has unnatural parity, other undetermined.

b From **1986Bo02** (pol d,α).

c From **1981Ta04**.

d For triplet.

e For doublet.