

$^{28}\text{Si}(\text{t,p}),(\text{t,p}\gamma)$ 1986Al06,1973Ba50

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	M. S. Basunia, A. Chakraborty		NDS 197,1 (2024)	31-May-2024

Others: 1964Mi06, 1977He12 ((t,p γ) – also in 1975He25), 1979Me12 ($^{18}\text{O}, ^{16}\text{O}$).

1986Al06: (t,p) – natural Si target; $E_t=18$ MeV; Enge spectrograph; measured $\sigma(\theta)$, deduced level energies, L values. FWHM=40 keV.

1973Ba50: (t,p) – 95% enriched SiO_2 target; $E_t=6$ MeV; Magnetic spectrograph; measured $\sigma(\theta)$, deduced level energies, L values.

In 1973Ba50, the $^{29}\text{Si}(\text{d,p})$ reaction was also used to study the ^{30}Si levels.

 ^{30}Si Levels

E(level) [†]	J π ^{&}	T _{1/2}	L [@]	Comments
0 [#]	0 ⁺		0	
2233 [#] 10	2 ⁺	0.243 ps 13	2	T _{1/2} : from $\tau=0.351$ ps 19 (1975He25 – DSAM).
3510 [#] 10	2 ⁺	58.9 fs 55	2	T _{1/2} : from $\tau=85$ fs 8 (1977He12 reanalyzed their previous data $\tau=89$ fs 8 (1975He25 – DSAM)).
3769 10				
3788 [#] 10				
4813 [#] 10				
4825 10				
5225 10				E(level): other: 5220 10 (1973Ba50).
5274 10	4 ⁺		4	
5367 10				
5483 [#] 10	3 ⁻		3	
5612 10	2 ⁺		2	
5948 [#] 10				
6502 10				
6528 10	2 ⁺		2	
6632 10	0 ⁺		0	
6739 [#] 10	1 ⁻		1	
6860 10				
6908 10	(2 ⁺)		(2)	
6993 10				E(level): other: 6990 10 (1973Ba50).
7039 [#] 10	5 ⁻		5	
7070 10	3 ⁺			E(level): same in 1973Ba50.
7216 10				
7248 10	2 ⁺		2	
7441 10	0 ⁺		0	E(level): weighted average of 7446 10 (1986Al06) and 7435 10 (1973Ba50).
7500 10				
7612 10	2 ⁺		2	E(level): weighted average of 7613 10 (1986Al06) and 7610 10 (1973Ba50).
7660 10				
7800 10	4 ⁺		4	
7897 10	2 ⁺		2	E(level): weighted average of 7894 10 (1986Al06) and 7899 10 (1973Ba50).
8096 10	(0 ⁺)		(0)	E(level): weighted average of 8097 10 (1986Al06) and 8094 10 (1973Ba50).
8145 10				
8163 [‡] 10	1 ⁻		1	
8177 10				
8204 10	5 ⁻		5	
8279 10				
8319 10				
8442 10	3 ⁻		3	E(level): weighted average of 8453 10 (1986Al06) and 8430 10 (1973Ba50).
8539 10				
8564 [‡] 10	3 ⁻		3	

Continued on next page (footnotes at end of table)

$^{28}\text{Si}(\text{t,p}),(\text{t,p}\gamma)$ [1986Al06](#),[1973Ba50](#) (continued) ^{30}Si Levels (continued)

E(level) [†]	J ^π &	L [@]	Comments
8584 <i>10</i>			
8632 <i>10</i>			
8661 <i>10</i>			
8681 [‡] <i>10</i>	2 ⁺	2	
8720 <i>20</i>			
8785 <i>10</i>			
8887 <i>10</i>	(2 ⁺ ,3 ⁻)	(2,3)	E(level): weighted average of 8893 <i>10</i> (1986Al06) and 8881 <i>10</i> (1973Ba50).
8933 <i>10</i>	(2 ⁺ ,3 ⁻)	(2,3)	E(level): weighted average of 8938 <i>10</i> (1986Al06) and 8927 <i>10</i> (1973Ba50).
8962 [‡] <i>10</i>	(5 ⁻)	(5)	E(level): other: 8950 <i>20</i> (1973Ba50). L: for this state the back angle behavior was consistent with L=5, but the rise at forward angles is not. Possibly two or more unresolved groups were contributed to the cross section, noted in 1986Al06 .
9021 <i>10</i>			
9092 <i>10</i>			
9120 <i>20</i>			
9160 <i>10</i>	(3 ⁻)	3	E(level): weighted average of 9168 <i>10</i> (1986Al06) and 9152 <i>10</i> (1973Ba50). J ^π : (1 ⁺ ,2,3 ⁺) in the Adopted Levels and the 3 ⁻ from L=3 is inconsistent with the adopted J ^π .
9241 <i>10</i>			
9296 <i>10</i>			
9338 <i>10</i>			
9404 <i>10</i>	4 ⁺	4	E(level): weighted average of 9411 <i>10</i> (1986Al06) and 9396 <i>10</i> (1973Ba50).
9418 <i>20</i>			
9457 <i>10</i>			
9881 <i>10</i>	4 ⁺	4	
10052 <i>10</i>	4 ⁺	4	
10680 <i>10</i>	6 ⁺	6	
10728 <i>10</i>	(5 ⁻)	5	
10909 <i>10</i>	(2 ⁺)	(2)	
11003 <i>10</i>	2 ⁺	2	

[†] From [1973Ba50](#), except where otherwise noted. In [1986Al06](#), level energies up to 7256 keV (7248 in this dataset) were quoted from literature.

[‡] From [1986Al06](#).

Also reported in [1979Me12](#) (^{18}O , ^{16}O).

@ From [1986Al06](#), except otherwise noted.

& From L values.