^{28}Si(n,γ) E=thermal 1992Ra19,1990Is02

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	M. Shamsuzzoha Basunia	NDS 113, 909 (2012)	1-Jan-2012

Others: 2007ChZX, 1970Sp02.

1992Ra19: 99.84% enriched ^{28}Si in target SiO_2; Projectile: thermal neutron; Ge detector inside a NaI(Tl) annulus, operated in Compton-suppressed mode or in pair spectrometer mode; Measured Eγ, Iγ, reported Iγ in units of mb, deduced capture cross section.

1990Is02: Target: High purity quartz (SiO_2) rod; Projectile: thermal neutron; pair spectrometer; Measured: Eγ, Iγ%, deduced capture cross section.

^{29}Si Levels

E(level)†	Jπ‡	$T_{1/2}$	Comments
0	$1/2^+$	stable	
1273.375 *22*	$3/2^+$		
2028.05 *7*	$5/2^+$		
2425.86 *3*	$3/2^+$		
3066.98 *4*	$5/2^+$		
4840.34 *7*	$1/2^+$		
4934.388 *22*	$3/2^-$		
6380.575 *24*	$1/2^-$		
6712.9 *5*			
6908.52 *6*			
7058.00 *9*	$1/2^+$		
7523.19 *13*			
7996.8 *3*			
8473.56 *3*	$1/2^+$		E(level),Jπ: 8473.57 (2) keV from 2003Au03, 2011AuZZ. Jπ=$1/2^+$ from 2003Au02.

† From a least-squares fit to γ-ray energies, except otherwise noted.
‡ From Adopted Levels.

γ(^{29}Si)

Iγ normalization: normalized assuming ΣIγ(g.s.)=100.

E_γ†	I_γ†‡	E_i(level)	J_i^π	E_f	J_f^π
397.7 *4*	0.03 *1*	2425.86	$3/2^+$	2028.05	$5/2^+$
476.6 *3*	0.10 *2*	8473.56	$1/2^+$	7996.8	
754.2 *4*	0.05 *2*	2028.05	$5/2^+$	1273.375	$3/2^+$
950.33 *13*	0.12 *2*	8473.56	$1/2^+$	7523.19	
1038.89 *10*	0.23 *3*	3066.98	$5/2^+$	2028.05	$5/2^+$
x1071.0 *5*	0.08 *2*				
1152.46 *6*	0.89 *4*	2425.86	$3/2^+$	1273.375	$3/2^+$
1273.33 *3*	28.5 *14*	1273.375	$3/2^+$	0	$1/2^+$
1415.54 *9*	0.36 *4*	8473.56	$1/2^+$	7058.00	$1/2^+$
1446.14 *4*	1.34 *5*	6380.575	$1/2^-$	4934.388	$3/2^-$
1540.18 *6*	0.59 *5*	6380.575	$1/2^-$	4840.34	$1/2^+$
1564.99 *5*	0.87 *6*	8473.56	$1/2^+$	6908.52	
1760.4 *5*	0.07 *2*	8473.56	$1/2^+$	6712.9	
1793.51 *4*	1.12 *6*	3066.98	$5/2^+$	1273.375	$3/2^+$
1867.29 *5*	1.30 *6*	4934.388	$3/2^-$	3066.98	$5/2^+$
2027.98 *9*	0.74 *7*	2028.05	$5/2^+$	0	$1/2^+$

Continued on next page (footnotes at end of table)

^{28}Si(n,γ) E=thermal 1992Ra19,1990Is02 (continued)

$\gamma(^{29}Si)$ (continued)

E_γ [†]	I_γ [†‡]	E_i(level)	J_i^π	E_f	J_f^π
2092.89 *3*	33.0 *12*	8473.56	$1/2^+$	6380.575	$1/2^-$
2123.8 *6*	0.04 *1*	7058.00	$1/2^+$	4934.388	$3/2^-$
2425.73 *4*	5.06 *20*	2425.86	$3/2^+$	0	$1/2^+$
2508.24 *13*	0.42 *5*	4934.388	$3/2^-$	2425.86	$3/2^+$
2906.2 *5*	0.07 *2*	4934.388	$3/2^-$	2028.05	$5/2^+$
3538.98 *4*	119 *4*	8473.56	$1/2^+$	4934.388	$3/2^-$
3566.5 *5*	0.06 *2*	4840.34	$1/2^+$	1273.375	$3/2^+$
3633.0[#]	<0.12	8473.56	$1/2^+$	4840.34	$1/2^+$
3660.80 *6*	6.9 *3*	4934.388	$3/2^-$	1273.375	$3/2^+$
3841.4 *6*	0.07 *2*	6908.52		3066.98	$5/2^+$
3954.44 *5*	4.4 *3*	6380.575	$1/2^-$	2425.86	$3/2^+$
4482.1 *4*	0.18 *5*	6908.52		2425.86	$3/2^+$
4632.3 *7*	0.04 *2*	7058.00	$1/2^+$	2425.86	$3/2^+$
4839.6 *4*	0.40 *5*	4840.34	$1/2^+$	0	$1/2^+$
4880.2 *5*	0.30 *5*	6908.52		2028.05	$5/2^+$
4933.98 *3*	111 *3*	4934.388	$3/2^-$	0	$1/2^+$
5096.4 *7*	0.07 *2*	7523.19		2425.86	$3/2^+$
5106.74 *6*	6.2 *3*	6380.575	$1/2^-$	1273.375	$3/2^+$
5405.4 *9*	0.06 *2*	8473.56	$1/2^+$	3066.98	$5/2^+$
5634.4 *4*	0.21 *3*	6908.52		1273.375	$3/2^+$
5784.7 *7*	0.03 *1*	7058.00	$1/2^+$	1273.375	$3/2^+$
6046.91 *16*	0.55 *6*	8473.56	$1/2^+$	2425.86	$3/2^+$
6379.80 *4*	19.0 *10*	6380.575	$1/2^-$	0	$1/2^+$
6444.9 *5*	0.20 *4*	8473.56	$1/2^+$	2028.05	$5/2^+$
6711.4 *9*	0.05 *2*	6712.9		0	$1/2^+$
6907.6 *7*	0.10 *3*	6908.52		0	$1/2^+$
7056.9 *4*	0.27 *5*	7058.00	$1/2^+$	0	$1/2^+$
7199.20 *5*	11.9 *5*	8473.56	$1/2^+$	1273.375	$3/2^+$
7521.8 *9*	0.02 *1*	7523.19		0	$1/2^+$
7993.9 *9*	0.03 *1*	7996.8		0	$1/2^+$
8472.22 *7*	3.66 *20*	8473.56	$1/2^+$	0	$1/2^+$

[†] From 1992Ra19. The Iγ% data in 1990Is02 are in good agreement with the data in 1992Ra19.
[‡] For intensity per 100 neutron captures, multiply by 0.593 *14*.
[#] Placement of transition in the level scheme is uncertain.
[x] γ ray not placed in level scheme.

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Level Scheme

Intensities: Relative I_γ

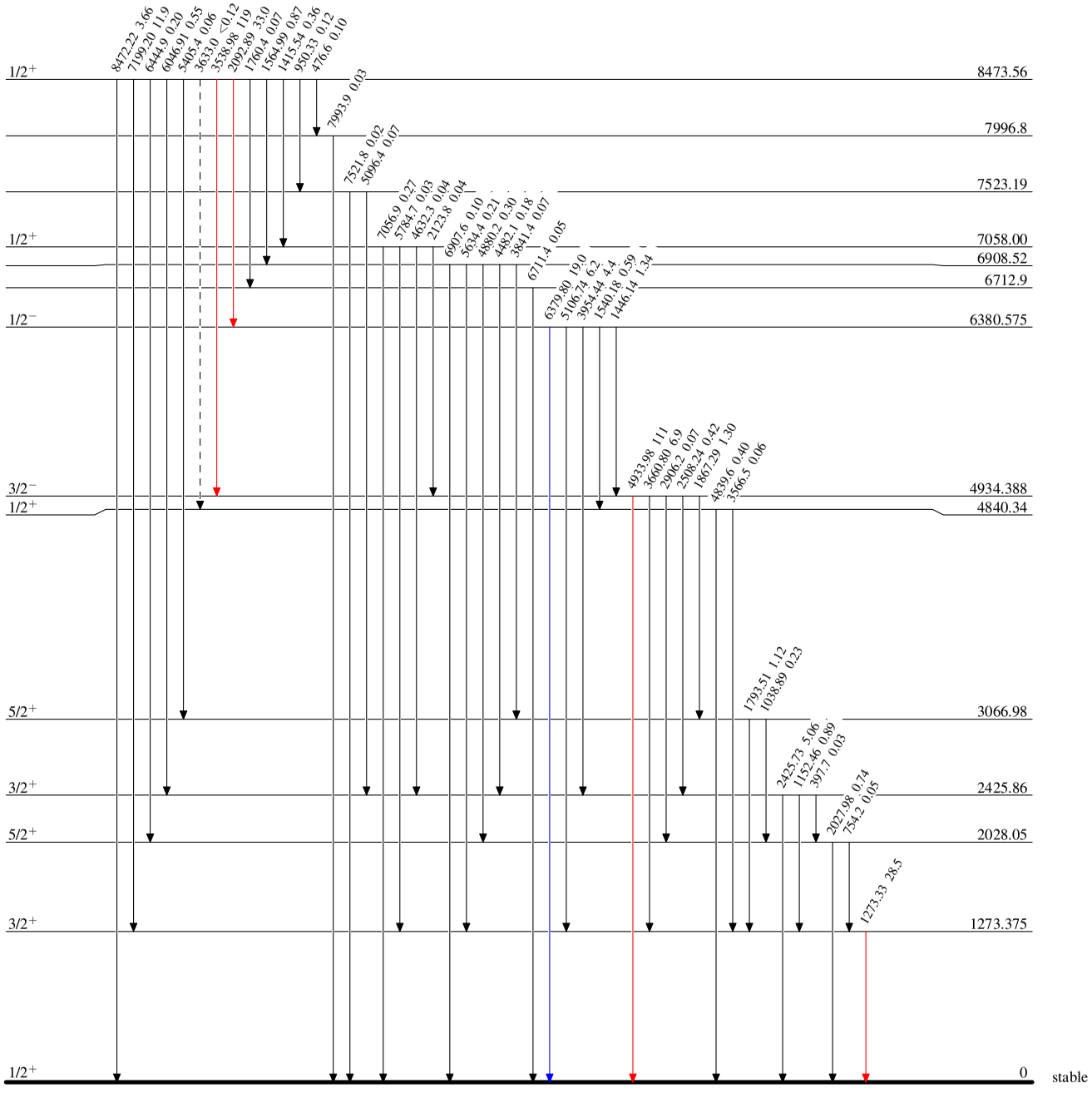
Legend

$I_\gamma < 2\% \times I_\gamma^{max}$

$I_\gamma < 10\% \times I_\gamma^{max}$

$I_\gamma > 10\% \times I_\gamma^{max}$

γ Decay (Uncertain)



$^{29}_{14}Si_{15}$