Adopted Levels, Gammas

History Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Jun Chen and Balraj Singh	ENSDF	31-May-2015

Q(β^-)=10500 *40*; S(n)=2470 *40*; S(p)=18580 *80*; Q(α)=−13660 *40* 2012Wa38
Q(β^-n)=2120 *40*, S(2n)=9990 *40*, S(2p)=33900 *40* (2012Wa38).
First isotope identification by 1971Ar32.
1971Ar32: ^{232}Th(^{40}Ar,X)^{35}Si, E=290 MeV on the 310 cm heavy-ion cyclotron in Dubna. Measured fragments isotopic yields. Deduced evidence for fragments.
1986Du07, 1988DuZT: ^{9}Be(^{40}Ar,X)^{35}Si, E=60 MeV/nucleon at GANIL. Measured $\beta\gamma$-coin, $T_{1/2}$.
Additional information 1.
1999Ai02: Cross section measurement in Si(^{35}Si,X) E=38-80 MeV/ nucleon at the NSCL facility. Deduced strong absorption radius.
1997Fo01: ^{208}Pb(^{37}Cl,X)^{35}Si, E=230 MeV at the Legnaro superconducting linear accelerator ALPI. Measured $\gamma\gamma$-coin, yield.
1999YoZW: Fragmentation of ^{48}Ca beam at 70 MeV/nucleon by ^{9}Be and ^{181}Ta targets at RIKEN. Measured half-life and delayed-neutron branches.
2006Kh08: Secondary beams produced by fragmentation of ^{48}Ca beam at 60.3 MeV/nucleon by ^{181}Ta targets at GANIL. Used a silicon telescope as both reaction target and detection system. Measured energy-integrated reaction cross-sections. Deduced radii, isospin dependence.
2006Ro34: ^{2}H(^{42}S,X)^{35}Si at E=99.8 MeV/nucleon, at the NSCL facility. Measured production cross section.
2007No13: Fragmentation of ^{40}Ar beam at 100 MeV/nucleon on ^{9}Be and ^{181}Ta targets at GANIL. Measured momentum distribution and cross sections.
Mass measurements: 1986Fi06, 1986Sm05, 1984Ma49.
Structure calculations (binding energies, deformation, quadrupole moments, radii, levels, J^π, etc.): 2011Ka03, 2009No01, 2008Wi11, 2007Ch82.
This nuclide is of possible relevance to "island of inversion" near N=20.

^{35}Si Levels

Cross Reference (XREF) Flags

- A ^{35}Al β^- decay (37.2 ms)
- B ^{1}H(^{34}Si,P):from IAR
- C ^{2}H(^{34}Si,pγ)
- D ^{9}Be(^{36}Si,^{35}Siγ)

E(level)†	J$^\pi$‡	$T_{1/2}$	XREF	Comments
0	(7/2)$^-$	0.78 s *12*	ABCD	%β^-=100; %β^-n<5 (1995ReZZ) μ=(−)1.638 *4* (2007Ne14,2014StZZ) μ: using β-NMR on a polarized fragment beam (2007Ne14). J$^\pi$: (d,p)=3 in ^{2}H(^{34}Si,pγ), 7/2$^-$ from shell-model predictions, and systematic trends in Si isotopes. $T_{1/2}$: from β-decay measurement (1988DuZT). In an earlier paper by the same group (1986Du07) value given is 0.87 s *17*. The evaluators adopt the more recent value. Mean square absorption radius=1.261 fm^2 *35* from 2006Kh08 in Si(^{35}Mg,X) reaction at E=33.79 and 38.79 MeV/nucleon, also measured energy-integrated cross sections, σ_R=2.53 b *8*. Other: r_0^2=1.26 fm^2 *9*, σ_R=2.46 b *18* at E=68.81 MeV/nucleon (1999Ai02). Configuration=$\nu f_{7/2}$.
909.95 *23*	(3/2)$^-$	55 ps *14*	ABCD	J$^\pi$: L(d,p)=1 in ^{2}H(^{34}Si,pγ), 3/2$^-$ from shell-model predictions, and systematic trends in Si isotopes. $T_{1/2}$: from analysis of broadened lineshape in ^{9}Be(^{36}Si,^{35}Siγ) (2014St18). Configuration=$\nu p_{3/2}$.
973.88 *18*	(3/2$^+$)	5.9 ns *6*	AB D	$T_{1/2}$: from the time spectrum of delayed coincidences in ^{35}Al β^- decay (2001Nu01).

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{35}Si Levels (continued)

E(level)†	Jπ‡	XREF	Comments
1444?	(1/2+)	B	E(level),Jπ: corresponding to a possible IAR in ^{35}P with L(p)=0 from R-Matrix analysis in ^{1}H(^{34}Si,p):From IAR (2012Im01).
1689 *3*	1/2+	D	Jπ: L(n)=0 in ^{9}Be(^{36}Si,^{35}Siγ).
1970 *6*		D	
2044 *5*	(1/2)−	CD	Jπ: L(d,p)=1 in ^{2}H(^{34}Si,pγ), 1/2− from shell-model predictions. Configuration=$\nu p_{1/2}$.
2168.2 *4*	5/2+	AB D	Jπ: corresponding to an IAR in ^{35}P with L(p)=2 and J=5/2+ from R-Matrix analysis in ^{1}H(^{34}Si,p):From IAR (2012Im01).
2194?	(1/2−,3/2−)	B	E(level),Jπ: corresponding to a possible IAR in ^{35}P with L(p)=1 from R-Matrix analysis in ^{1}H(^{34}Si,p):From IAR (2012Im01).
2275 *6*		D	
2377 *7*		D	
3140		A	
3450		A	
3611? *8*		D	
3770		A	
5190		A	
≈5500	(5/2)−	C	Jπ: L(d,p)=3 in ^{2}H(^{34}Si,pγ). Configuration=$\nu f_{5/2}$.
5760		A	
6330		A	
7360		A	
7690		A	

† From a least-squares fit to γ-ray energies if applicable. Values without uncertainties are from ^{35}Al β− decay, unless otherwise noted.
‡ From shell mode predictions and systematic trends on Si isotopes.

γ(^{35}Si)

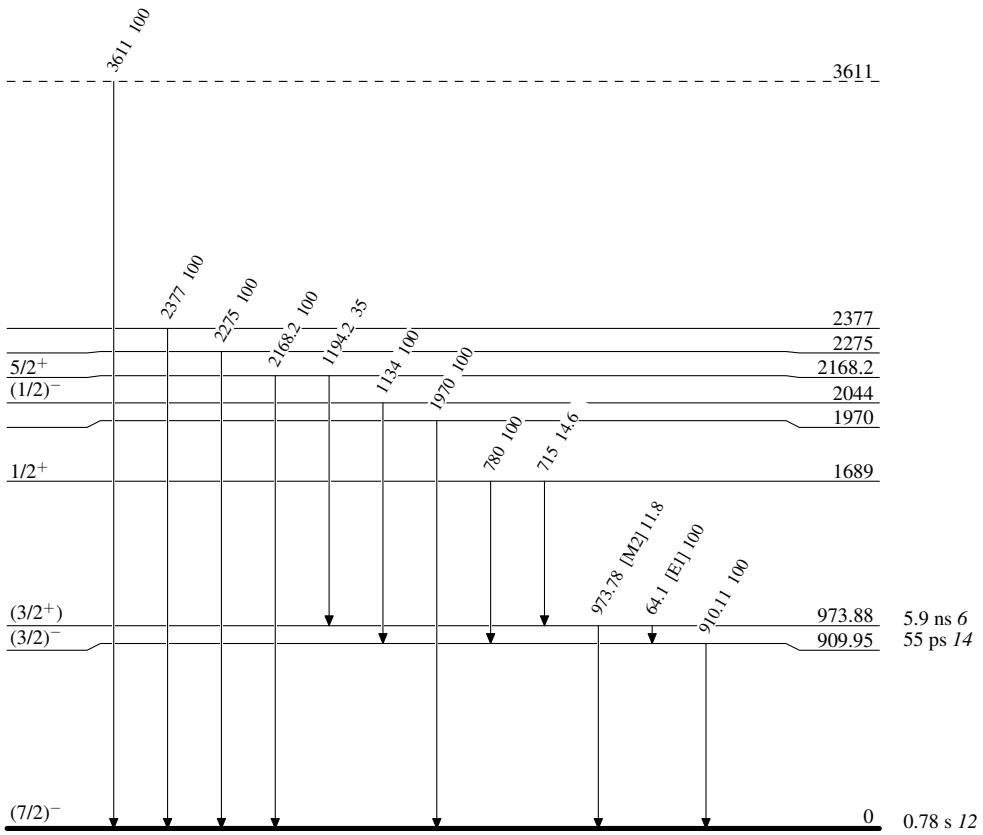
E_i(level)	J_i^π	E_γ†	I_γ†	E_f	J_f^π	Mult.	α#	Comments
909.95	(3/2)−	910.11 *30*	100	0	(7/2)−			
973.88	(3/2+)	64.1 *3*	100	909.95	(3/2)−	[E1]	0.0368 *8*	B(E1)(W.u.)=0.00036 *4* α(K)=0.0342 *7*; α(L)=0.00244 *5*; α(M)=0.000158 *4*
		973.78 *20*	11.8 *24*	0	(7/2)−	[M2]		B(M2)(W.u.)=0.059 *14*
1689	1/2+	715‡ *4*	14.6‡ *15*	973.88	(3/2+)			
		780‡ *4*	100‡ *8*	909.95	(3/2)−			
1970		1970‡ *6*	100	0	(7/2)−			
2044	(1/2)−	1134‡ *5*	100	909.95	(3/2)−			
2168.2	5/2+	1194.2 *4*	35 *8*	973.88	(3/2+)			
		2168.2 *6*	100 *20*	0	(7/2)−			
2275		2275‡ *6*	100	0	(7/2)−			
2377		2377‡ *7*	100	0	(7/2)−			
3611?		3611‡ *8*	100	0	(7/2)−			

† From ^{35}Al β− decay, unless otherwise noted.
‡ From ^{9}Be(^{36}Si,^{35}Siγ).
# From BrIcc v2.3a (10-Sep-2014) 2008Ki07, "Frozen Orbitals" appr.

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level



$^{35}_{14}Si_{21}$