Adopted Levels, Gammas

Q(β^-)=10470 *40*; S(n)=2470 *40*; S(p)=18680 *40*; Q(α)=−13690 *40*   2021Wa16
S(2n)=10020 *40*, S(2p)=33930 *40*, Q(β^-n)=2090 *40* (2021Wa16).
Isotope discovery (2012Th10): ^{232}Th(^{40}Ar,X) at Dubna (1971Ar32).
^{35}Si production:

2015Mo17: ^{9}Be(^{40}Ar,X) at E(^{40}Ar)=95 MeV/nucleon at RIKEN. Measured angular distributions and transverse momentum distributions of fragments. Deduced formulation for the width of transverse momentum distribution as a function of fragment velocity.

2012Kw02: ^{9}Be,^{nat}Ni,^{181}Ta(^{40}Ar,X) at E(^{40}Ar)=140 MeV/nucleon at NSCL. Measured fragmentation cross sections, parallel momentum transfers, and widths. Compared with empirical formula EPAX, and predictions from internuclear cascade and deep inelastic models using Monte Carlo ISABEL-GEMINI and DIT-GEMINI codes.

2012Zh06: ^{9}Be,^{181}Ta(^{40}Ar,X) at E(^{40}Ar)=57 MeV/nucleon at HIRFL. Measured momentum distributions and production cross sections of fragments. Observed competition between projectile fragmentation and other mechanisms. Compared with EPAX, abrasion- ablation, and HIPSE models. Studied target dependence of fragment cross sections.

2007No13: ^{9}Be(^{40}Ar,X) at E(^{40}Ar)=100 MeV/nucleon at RIKEN. Measured fragment momentum distributions and production cross sections.

2006Ro34: ^{2}H(^{42}S,X) at E(^{42}S)=99.8 MeV/nucleon at NSCL. Measured production cross sections.

1997Fo01: ^{208}Pb(^{37}Cl,X) at E(^{37}Cl)=230 MeV at Legnaro. Measured yields.
^{35}Si decay measurements:

1986Du07,1986HuZW,1987DuZU,1988DuZS,1988DuZT: ^{9}Be(^{40}Ar,X) at GANIL. Measured T$_{1/2}$ and β^--delayed γ rays.

2007Ne14: Polarized ^{35}Si from ^{9}Be(^{36}S,X) 1n pickup at GANIL. ^{35}Si g.s. magnetic moment and g-factor using β-NMR.
^{35}Si radius measurements:

2006Kh08: ^{35}Si produced by ^{181}Ta(^{48}Ca,X) fragmentation at E(^{48}Ca)=60.3 MeV/nucleon at GANIL. Measured energy-integrated reaction cross sections at 30-65 MeV/nucleon using a silicon telescope as both active target and detector. Deduced reduced strong absorption radii, isospin dependence, and possible halo structure or large deformation.

1999Ai02: Si(^{35}Si,X) at NSCL. Measured energy-integrated reaction cross sections at E=38-80 MeV/ nucleon. Deduced strong absorption radii.
^{35}Si mass measurements: 1986Fi06, 1986Sm05, 1984Ma49.
Theoretical calculations (binding energies, deformation, quadrupole moments, radii, levels, J^π, etc.): 2011Ka03, 2009No01, 2008Wi11, 2007Ch82, 2004Kh16, 1999Du05, 1994Mo37, 1994Po05, 1987Wa10, 1986Wo02.

^{35}Si Levels

Cross Reference (XREF) Flags

A	^{35}Al β^- decay (38.1 ms)	D	^{2}H(^{34}Si,pγ)
B	^{36}Al β^-n decay (12.0 ms)	E	^{9}Be(^{36}Si,^{35}Siγ)
C	^{37}Al β^-2n decay (11.4 ms)		

E(level)†	J^π	T$_{1/2}$	XREF	Comments
0	$(7/2)^-$	0.78 s *12*	ABCDE	%β^-=100; %β^-n<5 (1995ReZZ,2008ReZZ) μ=(−)1.639 *4* (2007Ne14,2019StZV) μ: From original (−)1.638 *4* using β-NMR (2007Ne14) with corrections by 2019StZV. J^π: L(^{2}H(^{34}Si,p))=L(^{36}Si,^{35}Si)=3 from 0^+ and νf$_{7/2}$ configuration from shell model. T$_{1/2}$: From $\beta\gamma$(t) (1988DuZS,1988DuZT). Other: 0.87 s *17* by the same group (1986Du07). Reduced strong absorption radius r$_0^2$=1.261 fm^2 *35* from the energy-integrated σ of Si(^{35}Si,X) (2006Kh08) and r$_0^2$=1.258 fm^2 *92* from the energy-integrated σ of Si(^{35}Si,X) (1999Ai02).
909.95 *23*	$(3/2)^-$	55 ps *14*	ABCDE	J^π: L(^{2}H(^{34}Si,p))=L(^{36}Si,^{35}Si)=1 from 0^+ and νp$_{3/2}$ configuration from shell model. T$_{1/2}$: From analysis of broadened line shapes in (^{36}Si,^{35}Siγ).

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{35}Si Levels (continued)

E(level)[†]	J^π	$T_{1/2}$	XREF	Comments
973.88 18	(3/2$^+$)	5.9 ns 6	A E	J^π: νd$_{3/2}$ configuration from shell model and 715γ from 1688, 1/2$^+$. $T_{1/2}$: From $\beta\gamma$(t) in ^{35}Al β^- decay.
1689.4 28	1/2$^+$		E	J^π: L(^{36}Si,^{35}Si)=0 from 0$^+$.
1970 6			E	
2044 5	(1/2)$^-$		DE	J^π: L(^{2}H(^{34}Si,p))=1 from 0$^+$ and νp$_{1/2}$ configuration from shell model.
2168.2 4	(5/2$^+$)		A E	J^π: From shell model and its possible isobaric analog state in ^{35}P with L(^{1}H(^{34}Si,p))=2 from R-matrix analysis in 2012Im01. L(^{36}Si,^{35}Si)=2,3 from 0$^+$.
2275 6			E	
2377 7			E	
3140	(3/2$^+$,5/2$^+$,7/2$^+$)[‡]		A	
3450	(3/2$^+$,5/2$^+$,7/2$^+$)[‡]		A	
3611? 8			E	XREF: E(?)
3770	(3/2$^+$,5/2$^+$,7/2$^+$)[‡]		A	
5190	(3/2$^+$,5/2$^+$,7/2$^+$)[‡]		A	
≈5500	(5/2)$^-$		D	E(level): A broad level at ≈5500 deduced from E$_p$ in ^{2}H(^{34}Si,p). J^π: L(^{2}H(^{34}Si,p))=3 from 0$^+$ and νf$_{5/2}$ configuration from shell model.
5760	(3/2$^+$,5/2$^+$,7/2$^+$)[‡]		A	
6330	(3/2$^+$,5/2$^+$,7/2$^+$)[‡]		A	
7360	(3/2$^+$,5/2$^+$,7/2$^+$)[‡]		A	
7690	(3/2$^+$,5/2$^+$,7/2$^+$)[‡]		A	

[†] From a least-squares fit to γ-ray energies for levels connected with γ transitions; from ^{35}Al β^--delayed neutron decays for other levels, unless otherwise noted.
[‡] Allowed β^- feeding from (5/2)$^+$ ^{35}Al g.s.

γ(^{35}Si)

E$_i$(level)	J_i^π	E$_\gamma$[†]	I$_\gamma$[†]	E$_f$	J_f^π	Mult.	α[#]	Comments
909.95	(3/2)$^-$	910.11 30	100	0	(7/2)$^-$	[E2]	4.13×10^{-5} 6	B(E2)(W.u.)=2.4 +8−5 E$_\gamma$: Others: 910 3 from ^{2}H(^{34}Si,γ) and 908 4 from (^{36}Si,^{35}Siγ).
973.88	(3/2$^+$)	64.1 3	100	909.95	(3/2)$^-$	[E1]	0.0368 8	B(E1)(W.u.)=3.52×10^{-4} +41−34
		973.78 20	11.8 24	0	(7/2)$^-$	[M2]	5.05×10^{-5} 7	B(M2)(W.u.)=0.057 +13−12
1689.4	1/2$^+$	715[‡] 4	14.6[‡] 16	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)$^-$			E$_\gamma$: Other: 1134 6 from ^{2}H(^{34}Si,pγ).
2168.2	(5/2$^+$)	1194.2 4	35 8	973.88	(3/2$^+$)			
		2168.2 6	100 20	0	(7/2)$^-$			E$_\gamma$: Other: 2164 6 from (^{36}Si,^{35}Siγ).
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).

Adopted Levels, Gammas (continued)

$\gamma(^{35}\text{Si})$ (continued)

\# Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with "Frozen Orbitals" approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level

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