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: ^{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 (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/2008ReZZ) 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=$\nu f_{7/2}$.

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Adopted Levels, Gammas (continued)

^{35}Si Levels (continued)

E(level)†	Jπ‡	$T_{1/2}$	XREF	Comments
909.95 *23*	$(3/2)^-$ 55	PS 14	ABCD	Jπ: 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).
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	$(3/2)^-$ 55	910.11 *30*	100	0	$(7/2)^-$	[E2]		
973.88	$(3/2^+)$	64.1 *3*	100	909.95	$(3/2)^-$ 55	[E1]	0.0368 *8*	B(E1)(W.u.)=0.00036 *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	$(3/2)^-$ 55			
1970		1970‡ *6*	100	0	$(7/2)^-$			
2044	$(1/2)^-$	1134‡ *5*	100	909.95	$(3/2)^-$ 55			
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	$(7/2)^-$			

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Adopted Levels, Gammas (continued)

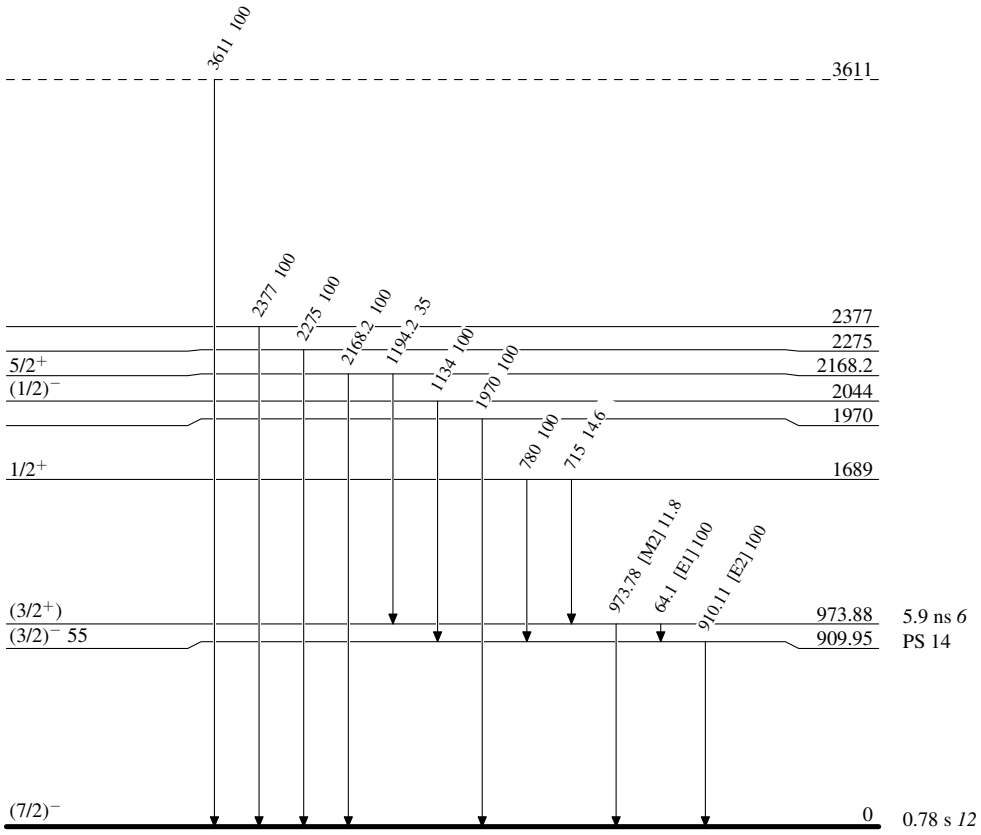
$\gamma(^{35}Si)$ (continued)

† From ^{35}Al β^- decay, unless otherwise noted.
‡ From $^{9}Be(^{36}Si,^{35}Si\gamma)$.
# 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



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