^{9}Be(^{36}Si,^{35}Siγ) 2014St18

History

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

One-neutron knockout reaction.

2014St18: E=97.7 *5* MeV/nucleon ^{36}Si secondary beam was produced in fragmentation of 140 MeV/nucleon ^{48}Ca primary beam with a ^{9}Be production target, followed by purification in A1900 fragment separator at NSCL-MSU facility. Secondary ^{9}Be target was 287 mg/cm^2 thick. Reaction residues were identified by an ionization chamber in the focal plane of S800 spectrograph; time-of-flight was measured by a plastic scintillator. Measured Eγ, Iγ, $\gamma\gamma$-coin, (^{35}Si)γ-coin using GRETINA array of Ge detectors. Deduced levels, J, π, l-transfer from parallel momentum distributions. Comparison with large-scale shell calculations. See also 2015St06.

2015St06: from the same group as 2014St18; analyzed parallel momentum distribution for g.s., possibly mixed with (3/2$^+$) isomer at 973 keV. Neutron knockout cross sections measured for g.s. and (3/2$^-$) state at 908 keV. For experimental details, see 2014St18.

All data are from 2014St18, unless otherwise stated.

^{35}Si Levels

E(level)[†]	J$^\pi$[‡]	T$_{1/2}$	L[#]	Comments
0	(7/2$^-$)			Total knockout σ=81 mb *2*. Partial knockout σ=52 mb *4*. One-neutron knockout σ=23 mb *6* (2015St06).
908 *4*	(3/2$^-$)	55 ps *14*		T$_{1/2}$: from analysis of broadened lineshape (2014St18). Partial knockout σ=8 mb *3* (2014St18,2015St06).
973 *7*	(3/2$^+$)			Partial knockout σ=29 mb *6* (2015St06).
1688 *6*	1/2$^+$		0	Partial knockout σ=13 mb *1* (2014St18,2015St06).
1970 *6*				Partial knockout σ=1.1 mb *2*.
2042 *7*	(1/2$^-$)		0,1	Partial knockout σ=1.3 mb *2*.
2164 *6*	(5/2$^+$)		2,3	Partial knockout σ=1.1 mb *2*.
2275 *6*				Partial knockout σ=1.6 mb *2*.
2377 *7*				Partial knockout σ=2.1 mb *2*.
3611? *8*				Partial knockout σ=0.8 mb *2*.

[†] From a least-squares fit to γ-ray energies.

[‡] From shell-model predictions and L-transfers in a few cases (2014St18).

[#] From parallel momentum distribution (2014St18) and Eikonal model analysis (2014St18). For g.s., parallel momentum distribution is also studied by 2015St06.

γ(^{35}Si)

E$_\gamma$	I$_\gamma$	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Comments
715 *4*	1.9 *2*	1688	1/2$^+$	973	(3/2$^+$)	
780 *4*	13 *1*	1688	1/2$^+$	908	(3/2$^-$)	
908 *4*	25 *2*	908	(3/2$^-$)	0	(7/2$^-$)	B(E2)↓=0.0017 *+4−5* (2014St18)
1134 *5*	1.5 *2*	2042	(1/2$^-$)	908	(3/2$^-$)	
1970 *6*	1.4 *2*	1970		0	(7/2$^-$)	
2164 *6*	1.4 *2*	2164	(5/2$^+$)	0	(7/2$^-$)	
2275 *6*	2.0 *3*	2275		0	(7/2$^-$)	
2377 *7*	2.5 *3*	2377		0	(7/2$^-$)	
3611 *8*	1.0 *2*	3611?		0	(7/2$^-$)	

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Level Scheme

Intensities: Yield/100 ions

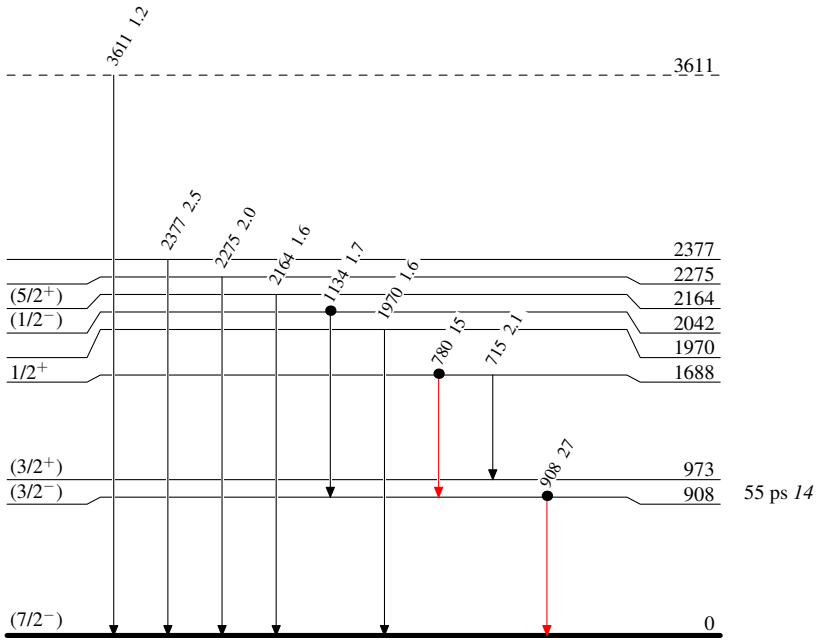
Legend

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

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

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

Coincidence



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