^{29}S β^+ decay 1979Vi01,1985Zh05

History

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

Parent: ^{29}S: E=0.0; J^π=(5/2$^+$); $T_{1/2}$=188 ms *4*; Q(β^+)=13795 *50*; %β^+ decay=100.0

1979Vi01: ^{29}S was produced from ^{28}Si(^{3}He,2n), E=31.3 MeV on target; recoiled ^{29}S was thermalized in the helium gas and transported to a counting chamber and was deposited on aluminum foil; several ΔE-E counter telescopes were used to measure all different proton decays; measured beta-delayed proton spectra; deduced ^{29}P excited states and I(ε+β+).

1985Zh05: ^{29}S was produced from ^{28}Si(^{3}He,2n), E=31.5 MeV (Same research group as of 1979Vi01); deduced I(ε+β+).

^{29}P Levels

E(level)†	J^π#	$T_{1/2}$#	E(level)†	J^π#
0	1/2$^+$	4.142 s *15*	7361 *10*	
1383.55 *7*	3/2$^+$		7523 *5*	(3/2$^+$)
1953.91 *17*	5/2$^+$		7755 *5*	(5/2$^+$)
2422.7 *3*	3/2$^+$		8106 *11*	(5/2$^+$)
3105.9 *3*	5/2$^+$		8234 *9*	(3/2$^+$)
4080.5 *3*	7/2$^+$		8379 *3*	(5/2$^+$)
4954.1 *5*	(5/2$^+$)		8432 *15*	(5/2$^+$)
5293.0 *5*	(7/2$^+$)		8532 *10*	(3/2$^+$,5/2$^+$)
5826 *4*			8810 *30*	
5968 *3*	3/2$^+$		8865 *12*	(1/2$^+$,3/2$^+$)
6328 *5*	(1/2,3/2)		9389 *12*	(3/2$^+$)
6505 *15*			9715‡ *50*	(3/2$^+$,5/2$^+$)
6828 *5*	(3/2$^+$,5/2$^+$)		9855‡ *30*	(3/2$^+$,5/2$^+$)
7148 *10*			10095‡ *30*	
7272 *5*	(5/2$^+$)		10535‡ *30*	(3/2$^+$)

† From Adopted Levels, except otherwise noted.
‡ From 1985Zh05.
# From Adopted Levels.

ε,β^+ radiations

E(decay)	E(level)	Iβ^+@	Iε@	Log *ft*	I(ε+β^+)†@	Comments
(3.26×10^3 *6*)	10535	0.18 *1*	0.00090 *9*	3.98 *6*	0.18# *1*	av Eβ=980 *28*; εK=0.0045 *4*; εL=0.00042 *4*; εM+=4.7×10^{-5} *4*
(3.70×10^3 *6*)	10095	0.12 *1*	0.00035 *4*	4.50 *6*	0.12# *1*	av Eβ=1188 *28*; εK=0.00266 *18*; εL=0.000245 *17*; εM+=2.74×10^{-5} *19*
(3.94×10^3 *6*)	9855	0.21 *2*	0.00048 *5*	4.42 *6*	0.21# *2*	av Eβ=1302 *28*; εK=0.00206 *13*; εL=0.000190 *12*; εM+=2.12×10^{-5} *14*
(4.08×10^3 *7*)	9715	0.100 *20*	0.00021 *4*	4.80 *10*	0.10# *2*	av Eβ=1347 *24*; εK=0.00187 *10*; εL=0.000173 *9*; εM+=1.93×10^{-5} *10*
(4.41×10^3 *5*)	9389	0.43 *5*	0.00063 *8*	4.40 *6*	0.43 *5*	av Eβ=1525 *25*; εK=0.00132 *7*; εL=0.000122 *6*; εM+=1.36×10^{-5} *7*
(4.93×10^3 *5*)	8865	0.26 *3*		4.90 *6*	0.26 *3*	av Eβ=1779 *25*
(4.99×10^3 *6*)	8810	0.14 *3*		5.20 *10*	0.14 *3*	av Eβ=1805 *29*
(5.26×10^3 *5*)	8532	1.14 *10*		4.42 *5*	1.14 *10*	av Eβ=1940 *25*
(5.36×10^3 *5*)	8432	<0.7		>4.7	<0.7	av Eβ=1989 *26*
(5.42×10^3 *5*)	8379	18.3 *6*	0.0123 *6*	3.28 *3*	18.3 *6*	av Eβ=2015 *25*; εK=0.000608 *21*; εL=5.62×10^{-5} *20*; εM+=6.28×10^{-6} *22*

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^{29}S β^+ decay 1979Vi01,1985Zh05 (continued)

ϵ,β^+ radiations (continued)

E(decay)	E(level)	Iβ^+[@]	Iε[@]	Log *ft*	I($\varepsilon+\beta^+$)[†@]	Comments
(5.56×10^3 *5*)	8234	1.01 *14*		4.61 *7*	1.01 *14*	av Eβ=2085 *25*
(5.69×10^3 *5*)	8106	1.49 *9*		4.49 *4*	1.49 *9*	av Eβ=2148 *25*
(6.04×10^3 *5*)	7755	0.23 *4*		5.45 *8*	0.23 *4*	av Eβ=2319 *25*
(6.27×10^3 *5*)	7523	0.082 *15*		5.99 *9*	0.082 *15*	av Eβ=2433 *25*
(6.43×10^3 *5*)	7361	0.25 *4*		5.57 *8*	0.25 *4*	av Eβ=2513 *26*
(6.52×10^3 *5*)	7272	0.33 *4*		5.48 *6*	0.33 *4*	av Eβ=2557 *25*
(6.65×10^3 *5*)	7148	1.08 *7*		5.01 *4*	1.08 *7*	av Eβ=2617 *25*
(6.97×10^3 *5*)	6828	<0.3		>5.7	<0.3	av Eβ=2775 *25*
(7.29×10^3 *5*)	6505	0.30 *4*		5.79 *7*	0.30 *4*	av Eβ=2934 *26*
(7.47×10^3 *5*)	6328	0.38 *5*		5.74 *6*	0.38 *5*	av Eβ=3020 *25*
(7.83×10^3 *5*)	5968	0.18 *2*		6.17 *6*	0.18 *2*	av Eβ=3198 *25*
(7.97×10^3 *5*)	5826	4.0 *4*		4.87 *5*	4.0 *4*	av Eβ=3268 *25*
(8.50×10^3 *5*)	5293.0	3.9 *3*		5.03 *4*	3.9 *3*	av Eβ=3531 *25*
(8.84×10^3 *5*)	4954.1	11.9 *4*	0.00145 *6*	4.639 *22*	11.9 *4*	av Eβ=3699 *25*; εK=0.0001102 *2*; εL=1.017×10^{-5} *20*; εM+=1.136×10^{-6} *22*
(9.71×10^3 *5*)	4080.5	<0.5		>6.2	<0.5	av Eβ=4132 *25*
(1.069×10^4 *5*)	3105.9	0.9 *3*		6.20 *15*	0.9[‡] *3*	av Eβ=4615 *25*
(1.137×10^4 *5*)	2422.7	20.7 *19*	0.00109 *10*	4.98 *5*	20.7[‡] *19*	av Eβ=4955 *25*; εK=4.79×10^{-5} *7*; εL=4.43×10^{-6} *7*; εM+=4.94×10^{-7} *8*
(1.184×10^4 *5*)	1953.91	4.5 *4*		5.73 *4*	4.5[‡] *4*	av Eβ=5188 *25*
(1.241×10^4 *5*)	1383.55	27 *2*	0.0011 *1*	5.06 *4*	27[‡] *2*	av Eβ=5472 *25*; εK=3.61×10^{-5} *5*; εL=3.33×10^{-6} *5*; εM+=3.72×10^{-7} *5*

† From 1979Vi01, except otherwise noted.
‡ Calculated in 1979Vi01 from the ^{29}Al(β^-)^{29}Si mirror decay.
# From 1985Zh05.
@ Absolute intensity per 100 decays.

$\gamma(^{29}P)$

E$_\gamma$[†]	I$_\gamma$[‡#]	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$
468.79 *3*	1.08 *55*	2422.7	3/2$^+$	1953.91	5/2$^+$
570.36 *17*	1.56 *31*	1953.91	5/2$^+$	1383.55	3/2$^+$
1039.15 *3*	3.22 *60*	2422.7	3/2$^+$	1383.55	3/2$^+$
1151.99 *3*	0.53 *11*	3105.9	5/2$^+$	1953.91	5/2$^+$
1383.55 *7*	45.0 *25*	1383.55	3/2$^+$	0	1/2$^+$
1657.80 *3*	<0.02	4080.5	7/2$^+$	2422.7	3/2$^+$
1722.35 *3*	1.67 *33*	3105.9	5/2$^+$	1383.55	3/2$^+$
1848.20 *5*	0.46 *17*	4954.1	(5/2$^+$)	3105.9	5/2$^+$
1953.91 *17*	17.9 *28*	1953.91	5/2$^+$	0	1/2$^+$
2126.59 *3*	<0.26	4080.5	7/2$^+$	1953.91	5/2$^+$
2187.10	0.86 *21*	5293.0	(7/2$^+$)	3105.9	5/2$^+$
2422.7 *3*	22.6 *20*	2422.7	3/2$^+$	0	1/2$^+$
2531.40 *5*	1.70 *50*	4954.1	(5/2$^+$)	2422.7	3/2$^+$
2696.95 *3*	<0.22	4080.5	7/2$^+$	1383.55	3/2$^+$
3000.19 *5*	2.48 *54*	4954.1	(5/2$^+$)	1953.91	5/2$^+$
3105.9 *3*	<0.07	3105.9	5/2$^+$	0	1/2$^+$
3339.09	3.04 *31*	5293.0	(7/2$^+$)	1953.91	5/2$^+$
3424.90 *3*	3.6 *17*	8379	(5/2$^+$)	4954.1	(5/2$^+$)
3570.55 *5*	9.1 *11*	4954.1	(5/2$^+$)	1383.55	3/2$^+$

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^{29}S β^+ decay 1979Vi01,1985Zh05 (continued)

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

E_γ[†]	I_γ[‡#]	E_i(level)	J_i^π	E_f	J_f^π
3909.45	<0.23	5293.0	$(7/2^+)$	1383.55	$3/2^+$
4954.1 *5*	1.70 *50*	4954.1	$(5/2^+)$	0	$1/2^+$
5956.30 *3*	4.5 *6*	8379	$(5/2^+)$	2422.7	$3/2^+$
6425.09 *3*	7.9 *28*	8379	$(5/2^+)$	1953.91	$5/2^+$
6995.45 *3*	2.2 *4*	8379	$(5/2^+)$	1383.55	$3/2^+$

† From Adopted Gammas.
‡ From Adopted branching ratios and level feedings.
# Absolute intensity per 100 decays.

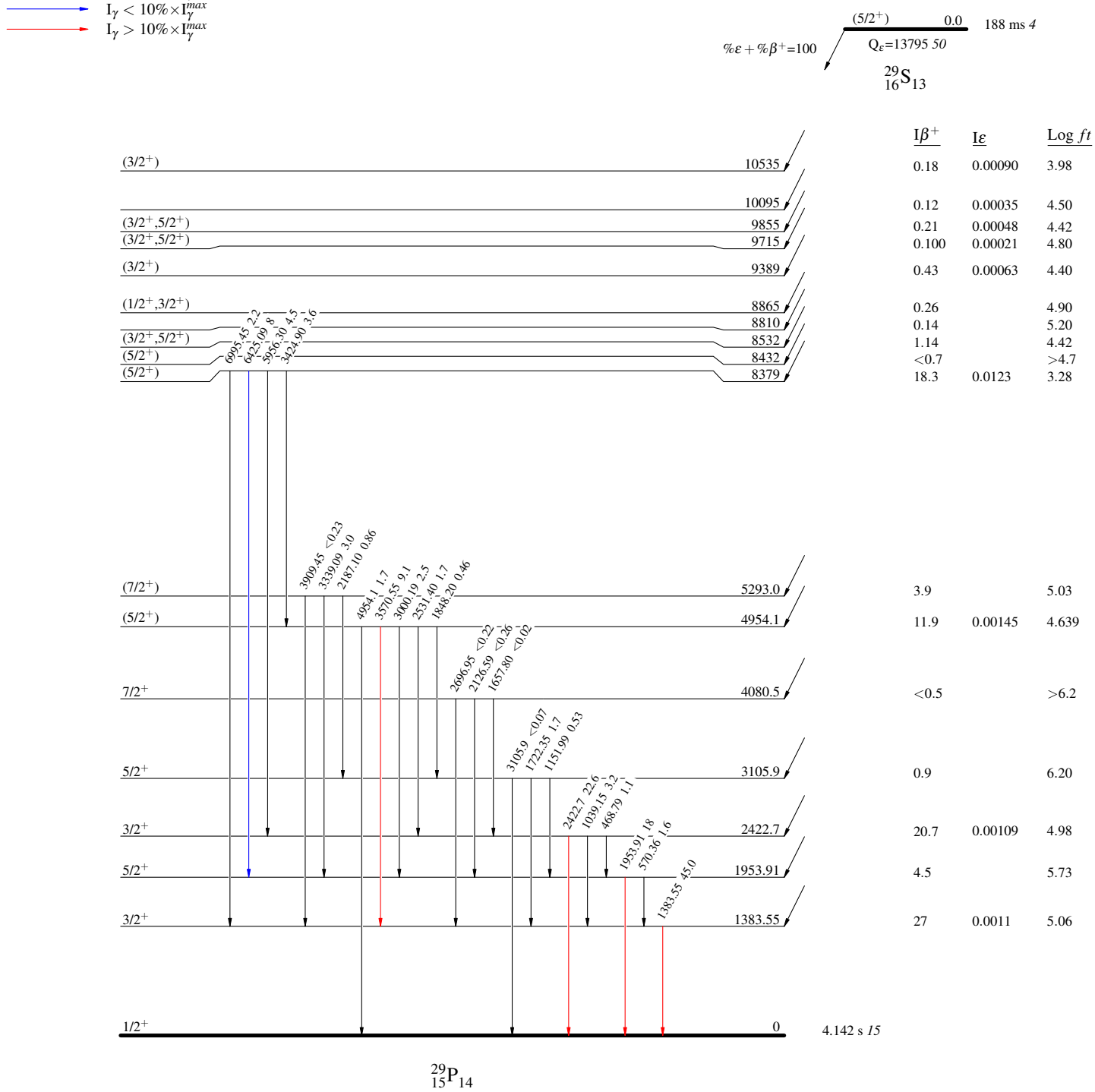
^{29}S β^+ decay 1979Vi01,1985Zh05

Decay Scheme

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays

Legend

$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$



	Iβ+	Iε	Log *ft*
10535	0.18	0.00090	3.98
10095	0.12	0.00035	4.50
9855	0.21	0.00048	4.42
9715	0.100	0.00021	4.80
9389	0.43	0.00063	4.40
8865	0.26		4.90
8810	0.14		5.20
8532	1.14		4.42
8432	<0.7		>4.7
8379	18.3	0.0123	3.28
5293.0	3.9		5.03
4954.1	11.9	0.00145	4.639
4080.5	<0.5		>6.2
3105.9	0.9		6.20
2422.7	20.7	0.00109	4.98
1953.91	4.5		5.73
1383.55	27	0.0011	5.06