^{27}Al(^{19}F,2pnγ) 1976Po03

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen[#]	NDS 126, 1 (2015)	31-Mar-2015

Includes ^{28}Si(^{18}O,n2pγ) from 1974Li06.

1976Po03 (also 1974Po10): E=40 MeV ^{19}F beam was produced at the Brookhaven National Laboratory. Target of aluminum evaporated onto a tungsten backing. γ-rays were detected by Ge(Li) detectors. Measured Eγ, Iγ, $\gamma\gamma$, $\gamma(\theta)$, γ(lin pol). Deduced levels, $T_{1/2}$ by recoil distance method. 1974Po10 also use ^{27}Al(^{18}O,pnγ) E=30 MeV reaction.

1974Li06: ^{28}Si(^{18}O,n2pγ). Measured $T_{1/2}$ by recoil-distance method for the level at 2755 keV.

^{43}Ca Levels

E(level)	J$^\pi$[†]	$T_{1/2}$[‡]	E(level)	J$^\pi$[†]	$T_{1/2}$[‡]	E(level)	J$^\pi$[†]	$T_{1/2}$[‡]
0	7/2$^-$		1677.80 *20*	11/2$^-$		2951.5[@] *3*	11/2$^+$	<14 ps
372.81 *5*	5/2$^-$		1901.80[@] *20*	7/2$^+$		3371.2[@] *4*	13/2$^+$	<14 ps
593.39 *8*	3/2$^-$		2093.90 *20*	9/2$^-$		3943.8[@] *5*	15/2$^+$	<3.5 ps
990.32[@] *7*	3/2$^+$	51 ps *8*	2409.80[@] *20*	9/2$^+$		4591.0[@] *6*	17/2$^+$	
1394.60[@] *9*	5/2$^+$		2753.96 *25*	15/2$^-$	23.6[#] ps *10*			

[†] From Adopted Levels.
[‡] Recoil-distance method in 1976Po03, unless otherwise noted.
[#] 27 ps *4* from 1974Li06.
[@] Band(A): 3/2$^+$ band.

γ(^{43}Ca)

When A_4=0, it indicates that the fit was not improved by the inclusion of P_4 term.

E$_\gamma$[†]	I$_\gamma$	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Comments
220.58	1.33	593.39	3/2$^-$	372.81	5/2$^-$	A_2=−0.11 *5*, A_4=0.
372.81	≈24.0	372.81	5/2$^-$	0	7/2$^-$	
396.93	1.70	990.32	3/2$^+$	593.39	3/2$^-$	
404.15	1.98	1394.60	5/2$^+$	990.32	3/2$^+$	A_2=−0.25 *5*, A_4=0.
419.7 *3*	2.50	3371.2	13/2$^+$	2951.5	11/2$^+$	A_2=−0.16 *12*, A_4=0. Pol=−0.41 *13*.
541.6 *3*	0.98	2951.5	11/2$^+$	2409.80	9/2$^+$	A_2=−0.46 *19*, A_4=0.
572.64 *20*	4.03	3943.8	15/2$^+$	3371.2	13/2$^+$	A_2=−0.25 *5*, A_4=0. Pol=−0.08 *5*.
617.23	≈1.3	3371.2	13/2$^+$	2753.96	15/2$^-$	
617.51	6.44	990.32	3/2$^+$	372.81	5/2$^-$	A_2=−0.21 *4*, A_4=0. Pol=+0.11 *9*.
647.2 *3*	1.35	4591.0	17/2$^+$	3943.8	15/2$^+$	A_2=−0.17 *7*, A_4=0.
857.65 *25*	3.30	2951.5	11/2$^+$	2093.90	9/2$^-$	A_2=−0.09 *10*, A_4=0.
911.49	≈0.63	1901.80	7/2$^+$	990.32	3/2$^+$	A_2=+0.28 *2*, A_4=−0.16 *2*. Pol=+0.53 *14*.
961.60 *20*	4.13	3371.2	13/2$^+$	2409.80	9/2$^+$	A_2=+0.23 *5*, A_4=−0.10 *5*.
1015.19	≈3.6	2409.80	9/2$^+$	1394.60	5/2$^+$	A_2=+0.35 *2*, A_4=−0.12 *2*. Pol=+0.19 *15*.
1021.78	4.15	1394.60	5/2$^+$	372.81	5/2$^-$	A_2=+0.08 *4*, A_4=0.
1049.1 *4*	≈1.0	2951.5	11/2$^+$	1901.80	7/2$^+$	
1076.15 *15*	27.0	2753.96	15/2$^-$	1677.80	11/2$^-$	A_2=+0.25 *2*, A_4=−0.11 *2*. Pol=+0.43 *7*.
1677.76	47 *16*	1677.80	11/2$^-$	0	7/2$^-$	A_2=+0.23 *2*, A_4=−0.08 *2* for unresolved γ. Pol=+0.30 *8*.
1693.36	≈1.0	3371.2	13/2$^+$	1677.80	11/2$^-$	
1901.75	3.40	1901.80	7/2$^+$	0	7/2$^-$	A_2=+0.17 *6*, A_4=−0.13 *6*.
2093.85	<8.5	2093.90	9/2$^-$	0	7/2$^-$	A_2=−0.11 *3*, A_4=+0.11 *3*. Pol=−0.05 *22*.
2409.73	3.71	2409.80	9/2$^+$	0	7/2$^-$	A_2=−0.23 *5*, A_4=0.

[†] From level-energy differences, when no uncertainty is quoted.

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Level Scheme

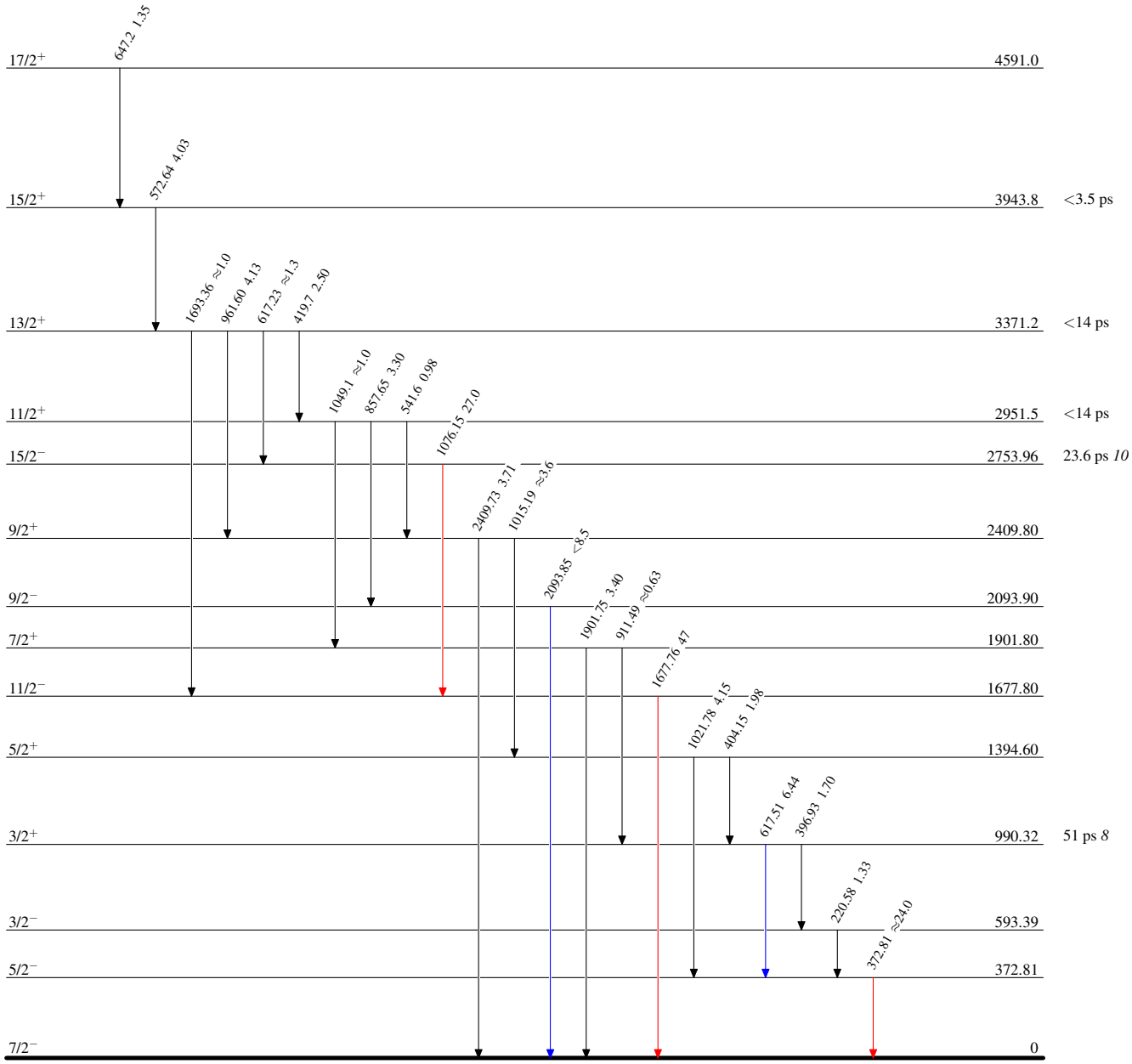
Intensities: Relative I_γ

Legend

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

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

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



$^{43}_{20}Ca_{23}$

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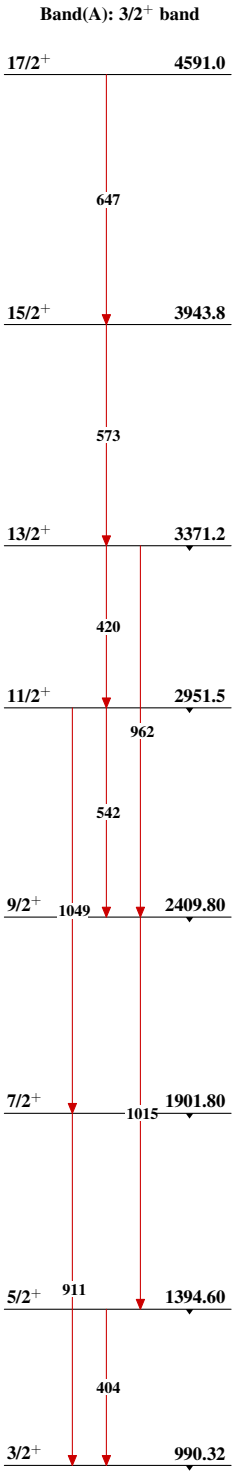

$^{43}_{20}Ca_{23}$