^{27}Al(^{27}Al,3n3pγ),^{40}Ca(^{14}N,2n4pγ) 1991Ca30

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 179, 1 (2022)	30-Nov-2021

1991Ca30 do not differentiate the data from the two reactions.

1991Ca30: E=90 MeV ^{27}Al and E=40 MeV ^{14}N beams were produced from the McMaster University FN Tandem accelerator on 1 mg/cm^2 elemental Ca and Al targets on ^{208}Pb backings, respectively. γ rays were detected with Ge detectors. Measured Eγ, $\gamma\gamma$-coin, $\gamma(\theta)$. Deduced levels, J, π, band structures. Comparisons with shell-model calculations.

2005Ma81: ^{40}Ca(^{14}N,2n4pγ) ^{14}N beam from Jyvaeskylae cyclotron. Measured $\gamma\gamma\gamma$(t) using Ge and BaF_2 detectors at ISOLDE, with four BaF_2 detectors coupled to pre-Jurosphere Ge array. Deduced $T_{1/2}$ for 420 and 627 levels.

^{48}V Levels

E(level)[†]	J$^\pi$[#]	$T_{1/2}$[‡]	E(level)[†]	J$^\pi$[#]	E(level)[†]	J$^\pi$[#]
0.0[@]	4$^+$		1685.0[&] *11*	5$^{(-)}$	4307.7[@] *16*	(11$^+$)
421.0 *10*	1$^+$	<135 ps	2231.5[@] *11*	8$^+$	4390.8[&] *13*	(9$^-$)
428.0[@] *8*	5$^+$		2397.0[&] *10*	6$^-$	4675?[@]	
627.0[@] *8*	6$^+$	77 ps *7*	2626.6[@] *12*	9$^+$	4967?[@]	(10$^+$)
1099.0[&] *9*	4$^-$		3172.0[&] *11*	(7$^-$)	6240.7[@] *19*	(13$^+$)
1254.7[@] *11*	7$^+$		3976.9[&] *13*	(8$^-$)		

[†] From a least-squares fit to γ-ray energies, assuming $\Delta E\gamma$=1 keV.
[‡] From $\gamma\gamma\gamma$(t) in 2005Ma81.
[#] From Adopted Levels.
[@] Seq.(B): Sequence based on g.s.
[&] Band(A): Band based on 4$^-$.

γ(^{48}V)

A_2 and A_4 under comments are from 1991Ca30.

E$_\gamma$[†]	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Comments
199	627.0	6$^+$	428.0	5$^+$	A_2=−0.48 *10*, A_4=+0.01 *10*.
395	2626.6	9$^+$	2231.5	8$^+$	Additional information 2. A_2=−1.3 *2*, A_4=+0.5 *1*.
414	4390.8	(9$^-$)	3976.9	(8$^-$)	
421	421.0	1$^+$	0.0	4$^+$	
428	428.0	5$^+$	0.0	4$^+$	A_2=−0.56 *10*, A_4=+0.15 *10*.
586	1685.0	5$^{(-)}$	1099.0	4$^-$	
627	627.0	6$^+$	0.0	4$^+$	
628	1254.7	7$^+$	627.0	6$^+$	
712	2397.0	6$^-$	1685.0	5$^{(-)}$	
775	3172.0	(7$^-$)	2397.0	6$^-$	
805	3976.9	(8$^-$)	3172.0	(7$^-$)	
977	2231.5	8$^+$	1254.7	7$^+$	Additional information 1. A_2=−0.81 *15*, A_4=+0.17 *14*.
1099	1099.0	4$^-$	0.0	4$^+$	
1372	2626.6	9$^+$	1254.7	7$^+$	A_2=−0.17 *12*, A_4=+0.15 *12*.
1604	2231.5	8$^+$	627.0	6$^+$	
1681	4307.7	(11$^+$)	2626.6	9$^+$	A_2=+0.38 *10*, A_4=−0.04 *12*.

Continued on next page (footnotes at end of table)

^{27}Al(^{27}Al,3n3pγ),^{40}Ca(^{14}N,2n4pγ) 1991Ca30 (continued)

γ(^{48}V) (continued)

E_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Comments
1764	4390.8	(9^-)	2626.6	9^+	E_γ: 1704 in FIG.3 of 1991Ca30 is a typo since level-energy difference gives 1764 from the level scheme in FIG.3.
1770	2397.0	6^-	627.0	6^+	
1933	6240.7	(13^+)	4307.7	(11^+)	A_2=+0.78 *18*, A_4=+0.04 *21*.
2048[‡]	4675?		2626.6	9^+	tentatively placed by 1991Ca30; this placement is confirmed by 2002Br42 for a 2046γ in ^{24}Mg(^{28}Si,n3pγ). A 2045γ placed from a 8290 level by 1994Ca04 (same authors as 1991Ca30) in ^{10}B(^{40}Ca,2pγ) should be the same transition.
2340[‡]	4967?	(10^+)	2626.6	9^+	tentatively placed by 1991Ca30; this placement is confirmed by 2002Br42 for a 2343γ in ^{24}Mg(^{28}Si,n3pγ). A 2344γ placed from a 8589 level by 1994Ca04 (same authors as 1991Ca30) in ^{10}B(^{40}Ca,2pγ) should be the same transition.
2545	3172.0	(7^-)	627.0	6^+	

[†] From 1991Ca30, unless otherwise noted.
[‡] Placement of transition in the level scheme is uncertain.

Legend

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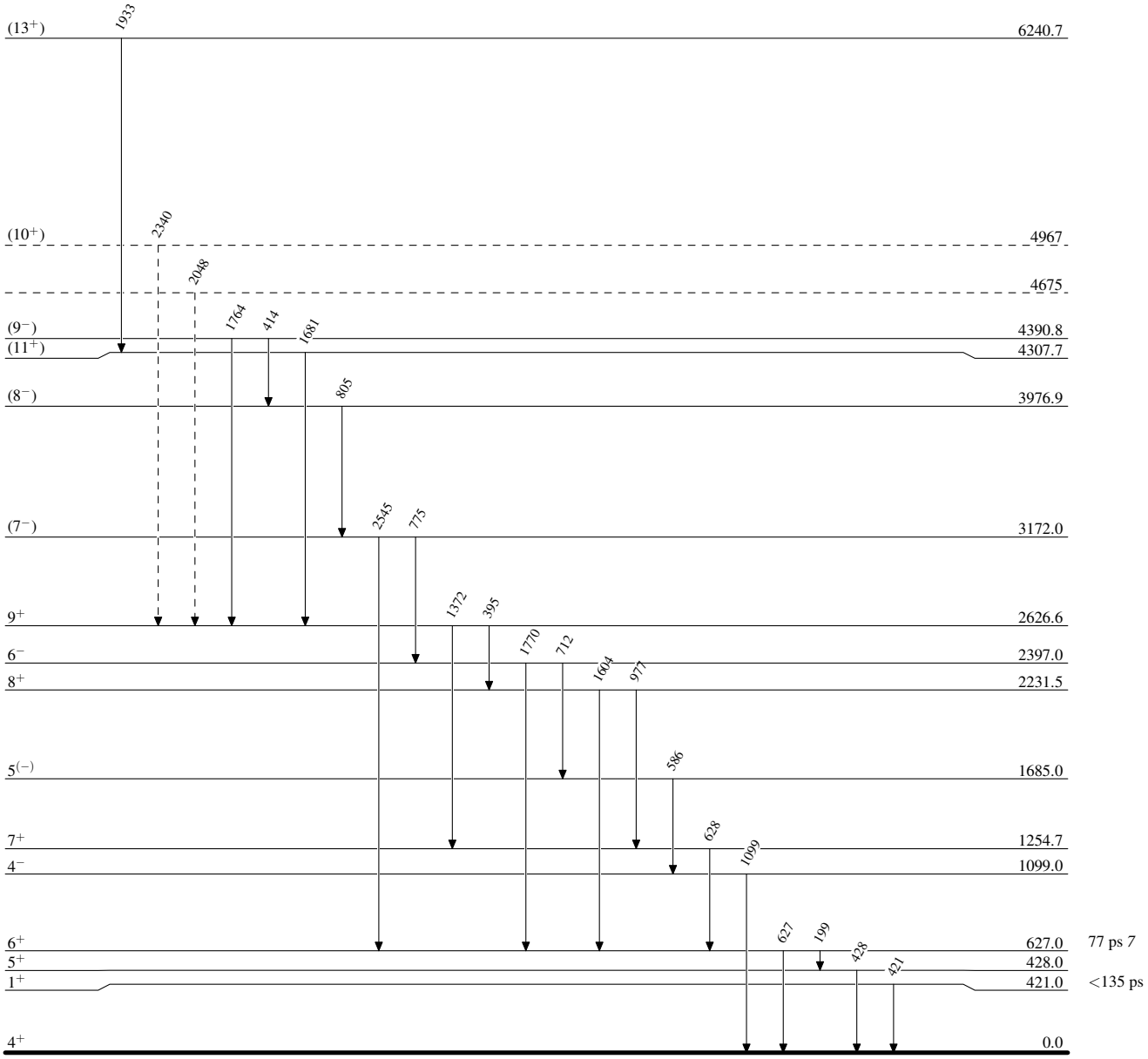
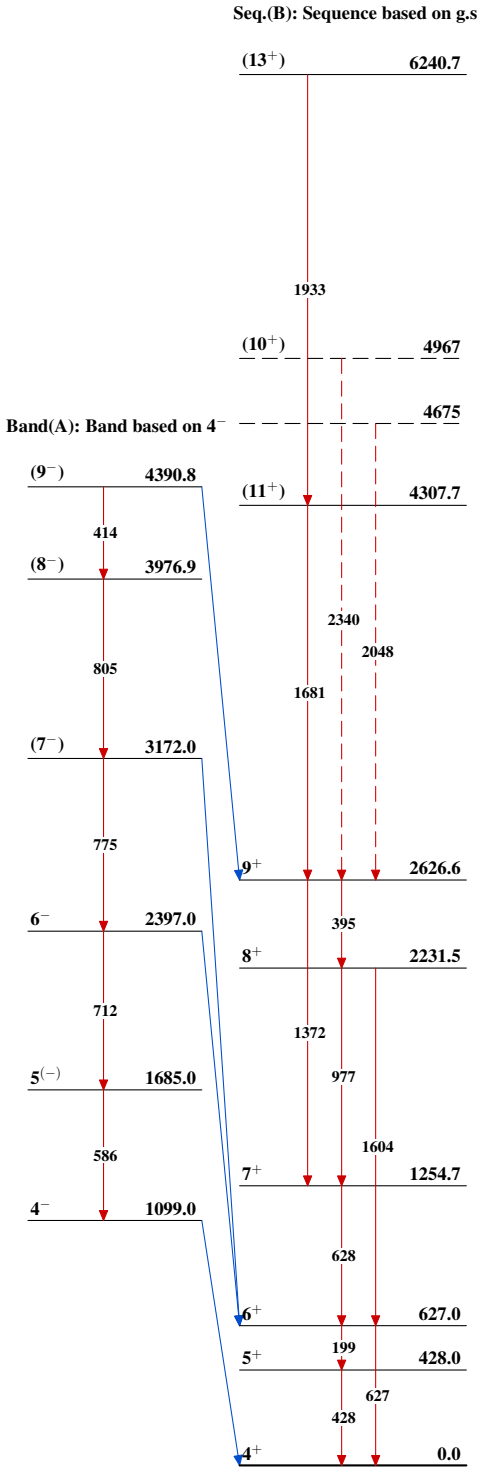
Level Scheme

γ Decay (Uncertain)



$^{48}_{23}V_{25}$

^{27}Al(^{27}Al,3n3pγ),^{40}Ca(^{14}N,2n4pγ) 1991Ca30



$^{48}_{23}V_{25}$