^{36}S(^{14}C,2nγ) 1986Wa19

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

Also includes data from measurements with following reactions: ^{34}S(^{16}O,2pγ), ^{51}V(^{13}C,Xγ),^{48}Ti(^{16}O,Xγ).

1986Wa19: E=18-38 MeV ^{14}C beam was produced from the Brookhaven National Laboratory (BNL) tandem Van de Graaff facility. Target was 300 μg/cm^2 Ag_2S (81.1% ^{36}S). γ rays were detected with four Ge detectors. Measured Eγ, Iγ, $\gamma\gamma$-coin, $\gamma(\theta)$, Doppler-shift attenuation. Deduced levels, J, π, $T_{1/2}$, γ-branching, mixing ratios.

Other measurements:

2001Le37: ^{51}V(^{13}C,Xγ) E=30 MeV/nucleon ^{13}C beam was produced at LBNL. γ rays were detected with the Gammasphere array. Measured Eγ, Iγ. Study of yields of high-spin states in nuclei produced in a fragmentation reaction.

1974Ta15: ^{34}S(^{16}O,2pγ) E=30-36 MeV ^{16}O beams were produced from the Universite de Montreal EN Tandem accelerator. γ rays were detected with Ge(Li) detectors; neutrons were detected with a liquid scintillator. Measured Eγ, Iγ, $\gamma\gamma$-coin, $\gamma(\theta)$, excitation functions. Deduced levels, J, π, band structures, γ-ray branching ratios, multipolarities, mixing ratios, transition strengths. Comparisons with shell-model calculations.

1979Da07: ^{48}Ti(^{16}O,Xγ) E=120 MeV ^{16}O beam was produced from the cyclotron at Grenoble. γ rays were detected with a Ge(Li) detector. Measured Eγ, Iγ. Report 983γ and 1312γ.

Level scheme including placements of γ transitions is from that of 1979Gl07 in (α,pγ) and confirmed by 1986Wa19, unless otherwise noted.

^{48}Ti Levels

E(level)†	J$^\pi$@	E(level)†	J$^\pi$@	$T_{1/2}$&
0.0	0$^+$	5196.8# *11*	8$^+$#	
983.4 *3*	2$^+$	(5301‡)	(4$^+$,5,6)	
2295.5 *7*	4$^+$	6033.9 *12*	7$^+$,9$^+$	
3332.5 *8*	6$^+$	6101.9 *13*	10$^{(+)}$,8	
(3371‡)	2$^+$	6905.9 *14*	10,8,6	
3507.8 *9*	6$^+$	7373.9 *14*	11,9,7	28 fs *+42−28*
(4047‡)	5$^{(-)}$	8090.9 *18*	12,10,8,6	0.21 ps *7*
4563.9 *10*	8$^{(+)}$			

† From a least-squares fit to γ-ray energies, assuming $\Delta E\gamma$=1 keV where not given.

‡ Rounded value from Adopted Levels; not reported in 1986Wa19.

From (α,pγ) data of 1979Gl07. Existence of state and spin and parity assignment confirmed by selective nature of ^{35}S+^{14}C reaction (1986Wa19).

@ From Adopted Levels. Assignments quoted in 1986Wa19 are taken from 1979Gl07 in (α,pγ).

& From DSAM in 1986Wa19.

γ(^{48}Ti)

E$_\gamma$†	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	E$_\gamma$†	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$
175.3‡# *3*	3507.8	6$^+$	3332.5	6$^+$	1037.0‡# *5*	3332.5	6$^+$	2295.5	4$^+$
x423.2‡ *4*					1056#	4563.9	8$^{(+)}$	3507.8	6$^+$
468#	7373.9	11,9,7	6905.9	10,8,6	1212#	3507.8	6$^+$	2295.5	4$^+$
633#@	5196.8	8$^+$	4563.9	8$^{(+)}$	1231.4‡# *6*	4563.9	8$^{(+)}$	3332.5	6$^+$
717#	8090.9	12,10,8,6	7373.9	11,9,7	1272#	7373.9	11,9,7	6101.9	10$^{(+)}$,8
837	6033.9	7$^+$,9$^+$	5196.8	8$^+$	1312.1‡# *6*	2295.5	4$^+$	983.4	2$^+$
872#	6905.9	10,8,6	6033.9	7$^+$,9$^+$	1470	6033.9	7$^+$,9$^+$	4563.9	8$^{(+)}$
983.4‡ *3*	983.4	2$^+$	0.0	0$^+$	1538#	6101.9	10$^{(+)}$,8	4563.9	8$^{(+)}$

Continued on next page (footnotes at end of table)

^{36}S(^{14}C,2nγ) 1986Wa19 (continued)

γ(^{48}Ti) (continued)

E_γ †	E_i(level)	J_i^π	E_f	J_f^π
1689	5196.8	8^+	3507.8	6^+
1752&a	(4047)	$5^{(-)}$	2295.5	4^+
1793&a	(5301)	$(4^+,5,6)$	3507.8	6^+
2388&a	(3371)	2^+	983.4	2^+

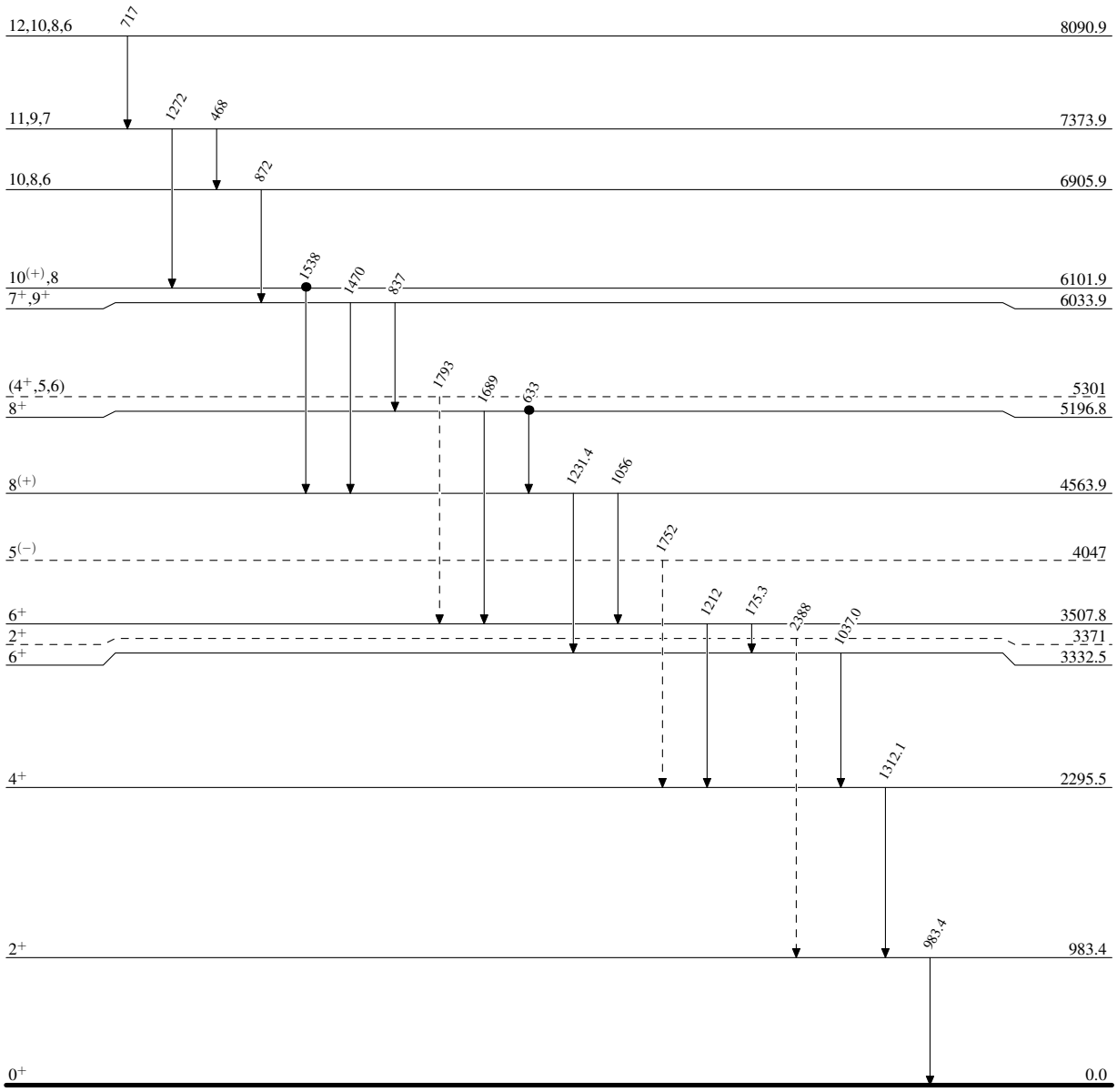
† From 1986Wa19, unless otherwise noted.
‡ From 1974Ta15.
# Also reported by 2001Le37.
@ Originally placed as deexciting a 6737, $(11^+,12^+)$, state by 1976Fo22 in ^{44}Ca(^{7}Li,p2nγ). 1986Wa19 confirm placement from 5197 suggested by 1979Gl07 in (α,pγ).
& From level energy differences. Reported by 2001Le37 in ^{51}V(^{13}C,Xγ) but only in a figure and placement from Adopted Gammas.
a Placement of transition in the level scheme is uncertain.
x γ ray not placed in level scheme.

Legend

^{36}S(^{14}C,2nγ) 1986Wa19

Level Scheme

γ Decay (Uncertain)
Coincidence



$^{48}_{22}Ti_{26}$