^{49}Ti(d,pγ) 1984So08

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Jun Chen and Balraj Singh	NDS 157, 1 (2019)	15-Apr-2019

$J^\pi(^{49}\text{Ti g.s.})=7/2^-$.

1984So08: E(d)=6 MeV beam from the CN van de Graaff accelerator of the Laboratori Nazionali di Legnaro. Measured pγ-coincidences and $T_{1/2}$ (DSAM); Si(θ=±45°) for p, Ge(HP)(θ=90°) for γ. See also comment on excitation energies in (d,p).

^{50}Ti Levels

E(level)†	J$^\pi$@	$T_{1/2}$‡	E(level)†	$T_{1/2}$‡	E(level)†	$T_{1/2}$‡
0.0	0$^+$		4309.7? *12*	<2.8 ns	5946.1 *7*	19 fs *5*
1553.7 *5*	2$^+$	<2.8 ns	4409.9 *7*	<2.8 ns	6122.9 *6*	38 fs *+12−9*
2674.8 *5*		<2.8 ns	4788.8 *11*	<13.9 fs	6379.3 *7*	<19 fs
3198.1 *6*		<2.8 ns	4880.4 *6*	215 fs *+45−35*	6481.0 *7*	<17 fs
4146.9 *6*		33 fs *+7−5*	5185.7 *6*	<6.9 fs	6520.5 *7*	7.6 fs *+35−28*
4171.8 *5*	#	>832 fs	5379.6 *6*	33 fs *+9−7*	6710.0 *6*	11 fs *5*
4172.3 *6*	#	<11.1 fs	5836.9 *8*	26 fs *+19−14*		

† From a least-squares fit to Eγ data.

‡ From DSAM, except for $T_{1/2}$<2.8 ns which are from time distributions of prompt pγ-coincidences.

1984So08 suggest that L=1 for the unresolved 4180 doublet in (d,p) may be assigned to both these states since in their work the population of both states is similar (the lower one is populated about twice as much as the upper one) and the presence of a sizeable contribution from a different L value would probably have been observed.

@ From Adopted Levels.

γ(^{50}Ti)

E_i(level)	J_i^π	Eγ	Iγ†	E_f	J_f^π	Mult.‡	E_i(level)	Eγ	Iγ†	E_f	Mult.‡
1553.7	2$^+$	1553.7 *5*	100	0.0	0$^+$		5946.1	760.5 *4*	≈10	5185.7	D
2674.8		1121.1 *5*	100	1553.7	2$^+$			1636# *1*	≈10	4309.7?	D,E2
3198.1		523.5 *5*	100	2674.8		D,E2		1799# *1*	≈10	4146.9	D,E2
4146.9		1472.1 *2*	100	2674.8		D,E2		3270.5 *10*	≈70	2674.8	D,E2
4171.8		1497.1 *2*	50	2674.8			6122.9	1242.4 *2*	>70	4880.4	D,E2
		2618.0 *3*	50	1553.7	2$^+$			1975.8 *6*	<15	4146.9	
4172.3		2618.6 *4*	100	1553.7	2$^+$	D,E2		2925 *1*	<10	3198.1	
4309.7?		2756# *1*		1553.7	2$^+$			3448# *1*	<10	2674.8	
4409.9		2856.0 *10*	100	1553.7	2$^+$		6379.3	1498.8 *4*	35	4880.4	D,E2
4788.8		3235 *1*	100	1553.7	2$^+$	D,E2		2232.3 *7*	35	4146.9	D,E2
4880.4		1682.3 *4*	12	3198.1		D,E2		3181 *1*	30	3198.1	D,E2
		2205.6 *3*	88	2674.8		D,E2	6481.0	2309.1 *4*	100	4171.8	D,Q
5185.7		1039# *1*	<5	4146.9		D,E2	6520.5	2348.5 *7*	15	4172.3	D,E2
		2510.8 *3*	80	2674.8		D,E2		2373.3 *6*	15	4146.9	D,E2
		3631 *1*	20	1553.7	2$^+$	D,E2		3845.5 *10*	70	2674.8	D,E2
5379.6		1207.7 *3*	40	4171.8		D,E2	6710.0	1524.2 *2*	30	5185.7	D,E2
		2704.8 *4*	60	2674.8		D,E2		2300.0 *4*	35	4409.9	D,E2
5836.9		1690.0 *7*	55	4146.9		D,Q		2538.5 *4*	35	4171.8	D,E2
		3162 *1*	45	2674.8		D,Q					

† % photon branching ratios from each level. Possible angular correlation effects on Iγ were not taken into account.

‡ From comparison to RUL, except as noted. These assignments differ from those of 1984So08 for the 1207.7, 1242.4, 1472.1,

Continued on next page (footnotes at end of table)

^{49}Ti(d,pγ) 1984So08 (continued)

$\gamma(^{50}Ti)$ (continued)

1498.8, and 1524.2 γ rays since 1984So08 used the RUL of 1979En04 where RUL(E2)=100 compared to RUL(E2)=300 from the introduction to Nuclear Data Sheets. These differences do not affect the J^{π} values deduced from the multipolarities.

[#] Placement of transition in the level scheme is uncertain.

Legend

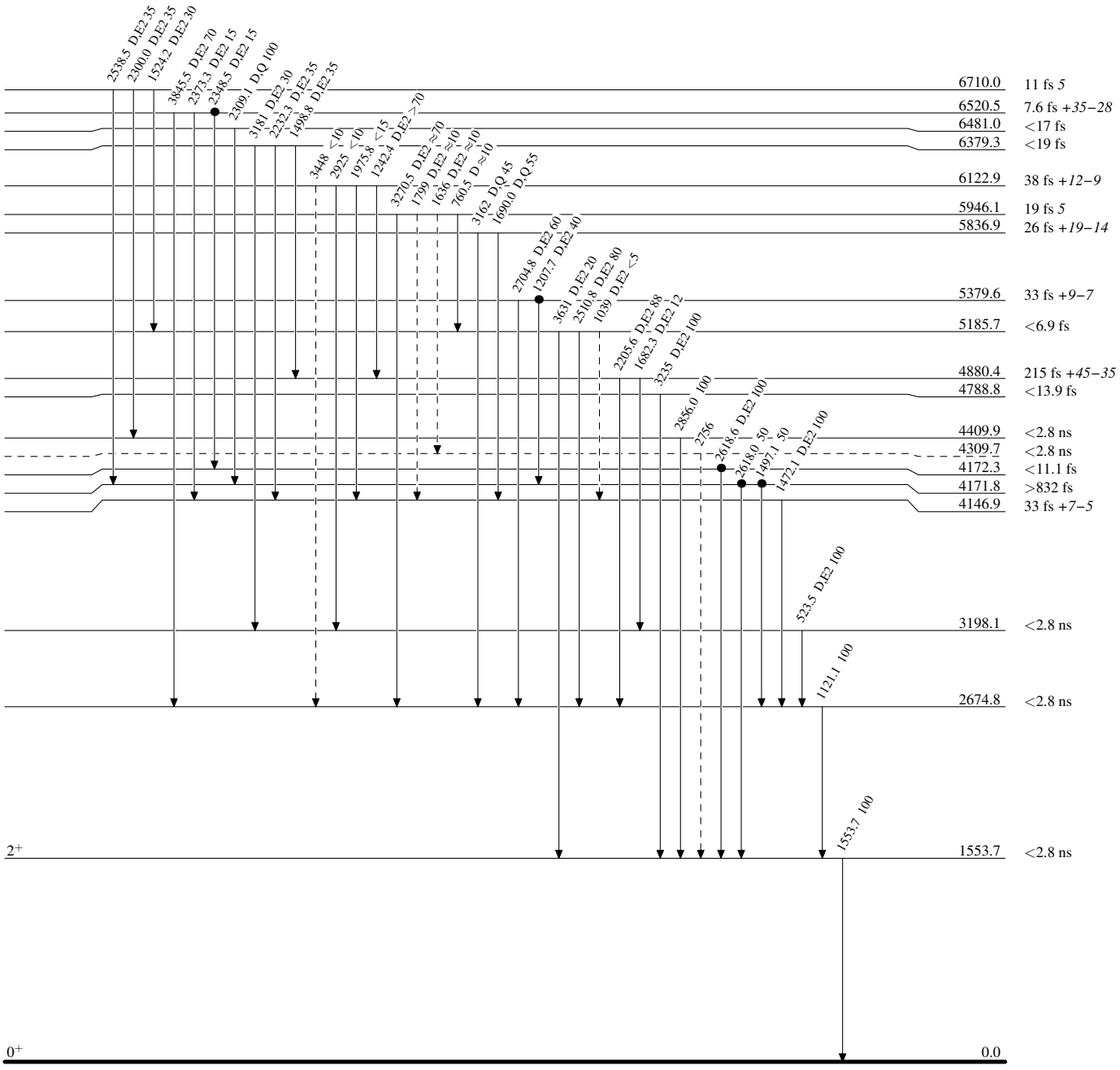
^{49}Ti(d,pγ) 1984So08

Level Scheme

Intensities: %photon branching ratios from each level.

γ Decay (Uncertain)

Coincidence



$^{50}_{22}Ti_{28}$