

$^{48}\text{Ti}(\text{t,p}),(\text{t,p}\gamma)$  1974Pr11,1967Hi03

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

**1974Pr11:** E=2.9 MeV beam from the Lockheed 3.0-MV Van de Graaff accelerator. Measured  $\text{py}$ -coincidences (annular Si, Ge(Li))  $\text{p}\gamma(\theta=5^\circ,35^\circ,45^\circ,60^\circ,90^\circ)$  (annular Si, NaI) and  $\text{T}_{1/2}$  (DSAM).

**1967Hi03:** E=11.14 MeV beam from the Aldermaston tandem. Measured  $\sigma(\theta(\text{c.m.})\approx 10^\circ-160^\circ)$ ; magnetic spectrograph. Plane-wave two-nucleon stripping theory.

 $^{50}\text{Ti}$  Levels

All data are from **1967Hi03**, except as noted. Other: see **1971Ca19**.

E(level) <sup>†</sup>	$J^\pi$ <sup>@</sup>	$\text{T}_{1/2}$ <sup>#</sup>	$L$ <sup>‡</sup>	Comments
0.0	0 <sup>+</sup>		0	
1555.1 & 8	2 <sup>+</sup>			
2677.4 & 17				
3869.6 22	0 <sup>+</sup> <sup>c</sup>	0.50 ps 23	0	
4150 7	<sup>a</sup>		(4)	
4179 4	<sup>a</sup>	≤0.2 ps	(2)	
4310 3	2 <sup>+</sup> <sup>b</sup>	≤0.06 ps	2	
4424 15				Additional information 1.
4798 15				
4911 15				
5125 15				
5198 15				
5395 15				
5447 15				
5633 15			0	
5697 15			2	
6045 15			0	
6068 15			2	
6207 15				
6491 15			2	
6548 15				
6624 15				
6724 15				
6756 15				
6945 15				
6992 15				
7041 15			2	
7091 15			3	
7230 15				
7387 15				
7438 15				
7494 15			2	
7579 15				
7670 15			2	
7701 15				
7734 15				
7808 15			0	
7871 15				
7921 15				
7941 15				
8031 15				

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${}^{48}\text{Ti}(\text{t,p}),(\text{t,p}\gamma)$  1974Pr11,1967Hi03 (continued) ${}^{50}\text{Ti}$  Levels (continued)E(level)<sup>†</sup>

8089 *15*  
 8156 *15*  
 8200 *15*  
 8247 *15*  
 8292 *15*

<sup>†</sup> From least-squares fit to  $E_\gamma$  data for  $E(\text{level}) < 4400$  and from 1967Hi03 for  $E(\text{level}) > 4400$ .

<sup>‡</sup> From comparison of  $\sigma(\theta)$  to plane-wave two-nucleon stripping theory.

# From DSAM (1974Pr11).

@ From Adopted Levels.

& Not observed by 1967Hi03.

<sup>a</sup>  $p\gamma(\theta)$  for the composite 4.15→2.68 MeV and 1.56→0.0 MeV transitions suggests that one or both of these states have  $J \geq 2$  and decays with some quadrupole strength.

<sup>b</sup> From  $p\gamma(\theta)$  and M1+E2  $\gamma$  to  $2^+$ .

<sup>c</sup> 0,1,2 from  $p\gamma(\theta)$ , but  $0^+$  from L(t,p).

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

All data are from 1974Pr11, except as noted.

<u><math>E_i(\text{level})</math></u>	<u><math>J_i^\pi</math></u>	<u><math>E_\gamma</math></u>	<u><math>I_\gamma^\dagger</math></u>	<u><math>E_f</math></u>	<u><math>J_f^\pi</math></u>	<u>Mult.<sup>‡</sup></u>	<u><math>\delta^{\ddagger}</math></u>
1555.1	$2^+$	1555.4 <i>12</i>		0.0	$0^+$		
2677.4		1122.3 <i>15</i>		1555.1	$2^+$		
3869.6	$0^+$	2314.4 <i>20</i>		1555.1	$2^+$		
4150		1473 <i>6</i>	100	2677.4			
4179		2624 <i>4</i>	100	1555.1	$2^+$		
4310	$2^+$	2755 <i>3</i>	75 <i>6</i>	1555.1	$2^+$	M1+E2	-0.26 <i>17</i>
		4311 <i>6</i>	25 <i>6</i>	0.0	$0^+$		
4424		2869 <sup>#</sup>	>90	1555.1	$2^+$		

<sup>†</sup> % photon branching from each level.

<sup>‡</sup> From  $p\gamma(\theta)$  and comparison to RUL (evaluator), except as noted.

# Observed only in NaI spectra;  $E_\gamma$  from level scheme. 4.42-MeV  $\gamma$  tentatively placed with 4424 state by 1974Pr11 with  $I_\gamma < 10\%$ ; however, this would imply an E3 transition in competition with an E1 transition.

<sup>x</sup>  $\gamma$  ray not placed in level scheme.

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## Level Scheme

Intensities: % photon branching from each level

