^{47}Ti(^{3}He,t) 2013Ga04,1971Be29

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	S. Ota and E. A. Mccutchan	NDS 203,1 (2025)	1-Apr-2025

Target $J^{\pi}=5/2^{-}$.

2013Ga04: E(^{3}He)=140 MeV/nucleon beam incident on 0.50 mg/cm^{2} ^{47}Ti (94% enriched) target. Measured $\sigma(\theta)$ (FWHM=20 keV) for tritons at $\theta\leq0.5°$ with the Grand Raiden magnetic spectrometer. For determination of L values, angle bins were considered at θ=0-0.5°, 0.5-0.8°, 1.2-1.6° and 1.6-2.0°. Comparison to DWBA calculations and determination of Gamow-Teller (GT) strength. Earlier report of measurement in 2011GaZX.

1971Be29: E(^{3}He)=24.6 MeV. Measure triton energy at θ=18° using Enge split-pole spectrometer and high position-sensitive detector (FWHM=8 keV).

1967Ro09: E(^{3}He)=24.6 MeV. Measured triton energy using dE/dx-E surface barrier telescope. Measured 7846 *18* for Coulomb displacement energy.

^{47}V Levels

E(level)[†]	L	B(GT)	Comments
0	0		
86 *10*	0	0.027 *2*	
143 *10*	0	‡	
1141 *10*	≥1		
2078 *10*	≥1		
2175 *10*	0	0.026 *2*	
2551 *10*	0	‡	
2723 *10*	(0)	‡	
2749 *10*	≥1		
2984 *10*	0	0.016 *2*	
3002 *10*	0	#	
3051 *10*	≥1		
3246 *10*	0	#	
3372[@] *10*	0	‡	
3517 *10*	0	0.015 *1*	
3590 *10*	0	0.035 *2*	
3628 *10*	0	0.012 *1*	
3715 *10*	0	0.010 *1*	
3762 *10*	0	0.010 *1*	
3828 *10*	0	0.012 *1*	
3876 *10*	0	0.112 *5*	
4032 *10*	0	0.013 *1*	
4102[@] *10*	0	0.019 *3*	
4150 *10*	0	0.073 *21*	T=3/2 E(level): other: 4168 *9* (1971Be29). IAS(^{47}Ti,g.s.) (T=3/2,J=5/2^{-}). Coulomb displacement energy=7867 *4* (1971Be29), 7846 *1* if 7835 *5* for ^{46}Ti-^{46}V (1967Ro09).
4198 *10*	0	0.043 *3*	
4222 *10*	0	0.152 *7*	E(level): other: 4230, weakly excited state shown in Fig. 3 of 1971Be29.
4266 *10*	0	0.030 *2*	E(level): other: 4270, weakly excited state shown in Fig. 3 of 1971Be29.
4300 *10*	0	0.029 *2*	E(level): other: 4306, weakly excited state shown in Fig. 3 of 1971Be29.
4401 *10*	0	0.046 *2*	
4511 *10*	≥1		
4568 *10*	0	‡	
4613 *10*	≥1		
4654 *10*	0	‡	
4717 *10*	(0)	‡	

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^{47}Ti(^{3}He,t) 2013Ga04,1971Be29 (continued)

^{47}V Levels (continued)

E(level)[†]	L	B(GT)	Comments
4796 *10*	0	‡	
4848 *10*	≥1		
4878 *10*	0	0.011 *1*	
4998 *10*	≥1		
5094 *10*	0	0.020 *1*	
5137 *10*	0	0.011 *1*	
5206 *10*	0	0.017 *2*	
5228[&] *10*	0	0.071 *5*	B(GT),L: for 5228+5244.
5244[&] *10*	0	0.071 *5*	B(GT),L: for 5228+5244.
5373 *10*	≥1		
5428 *10*	0	0.014 *2*	
5544[@] *10*	0	#	
5587 *10*	(≥1)		
5634[@] *10*	0	‡	
5703 *10*	(≥1)		
5739 *10*	(0)	#	
5770[@] *10*	(0)	‡	
5803[&] *10*	0	0.084 *5*	B(GT),L: for 5803+5817.
5817[&] *10*	0	0.084 *5*	B(GT),L: for 5803+5817.
5881[&] *10*	0	0.041 *4*	B(GT),L: for 5881+5890.
5890[&] *10*	0	0.041 *4*	B(GT),L: for 5881+5890.
5933 *10*	0	0.022 *3*	
5982 *10*	0	0.010 *1*	
6046 *10*	0	0.015 *1*	
6136 *10*	0	0.038 *2*	
6164 *10*	0	0.032 *2*	
6241 *10*	(0)	‡	
6266 *10*	0	0.027 *3*	
6290 *10*	0	0.038 *3*	
6322 *10*	0	0.017 *1*	
6362 *10*	0	0.022 *2*	
6428 *10*	0	0.057 *3*	
6500 *10*	0	0.041 *4*	
6567 *10*	0	0.010 *1*	
6600 *10*	(0)	‡	
6632 *10*	0	0.016 *1*	
6672[&] *10*	(0)	0.022 *2*	L,B(GT): for 6672+6693.
6693[&] *10*	(0)	0.022 *2*	L,B(GT): for 6672+6693.
6744 *10*	0	0.024 *2*	
6787 *10*	0	0.032 *2*	
6834[@] *10*	0	‡	
6898[@] *10*	0	0.012 *1*	
6941 *10*	0	#	
6979 *10*	0	0.013 *1*	
7000[&] *10*	≥1		L: for 7000+7018.
7018[&] *10*	≥1		L: for 7000+7018.
7040[@] *10*	0	‡	
7101 *10*	0	0.013 *1*	
7128 *10*	≥1		
7172 *10*	0	0.012 *1*	

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^{47}Ti(^{3}He,t) 2013Ga04,1971Be29 (continued)

^{47}V Levels (continued)

E(level)†	L	B(GT)	Comments
7212 *10*	≥1		
7231 *10*	0	‡	
7272@ *10*		#	
7294@ *10*		#	
7345@ *10*	0	0.032 *2*	
7424 *10*	(0)	‡	
7471& *10*	0	0.020 *2*	B(GT),L: for 7471+7491.
7491& *10*	0	0.020 *2*	B(GT),L: for 7471+7491.
7523 *10*	0	‡	
7552 *10*	0	0.019 *2*	
7623 *10*	0	0.013 *1*	
7668 *10*	0	0.014 *1*	
7701 *10*	0	0.020 *2*	
7738 *10*	0	0.011 *1*	
7799 *10*	0	0.015 *2*	
7828 *10*	0	0.031 *2*	
7863 *10*	0	0.015 *1*	
7906@ *10*	(0)	#	
7933 *10*	0	#	
7970 *10*	0	0.045 *4*	
8007 *10*	0	‡	
8071 *10*	0	‡	
8106 *10*	0	‡	
8128 *10*	0	‡	
8168 *10*	0	‡	
8204 *10*	0	0.010 *1*	
8231 *10*	0	‡	
8251 *10*	0	0.012 *2*	
8313@ *10*	(0)	#	
8366 *10*	0	0.020 *2*	
8399@ *10*	0	0.016 *2*	
8426 *10*	(0)	0.010 *2*	
8467 *10*	0	0.043 *3*	
8520@ *10*	0	0.010 *2*	
8542@ *10*	0	0.019 *2*	
8577 *10*	(0)	‡	
8600 *10*	0	‡	
8628 *10*	0	0.023 *2*	
8695 *10*	0	0.010 *2*	
8728 *10*	(0)	0.015 *2*	
8755 *10*	0	‡	
8783 *10*	0	0.011 *1*	
8829 *10*	0	#	
8850& *10*	0	0.021 *3*	B(GT),L: for 8850+8871.
8871& *10*	0	0.021 *3*	B(GT),L: for 8850+8871.
8913@ *10*	0	0.028 *4*	
8948@ *10*	(0)	#	
8979 *10*	0	0.020 *2*	

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^{47}Ti(^{3}He,t) 2013Ga04,1971Be29 (continued)

^{47}V Levels (continued)

E(level)[†]	L	B(GT)	Comments
9001[@] *10*	(0)	[‡]	
9030 *10*	0	0.012 *2*	
9055 *10*	0	0.011 *1*	
9130 *10*	0	0.015 *1*	
9175 *10*	0	0.015 *2*	
9199 *10*	0	0.025 *2*	
9259 *10*	(0)	[‡]	
9286 *10*	0	0.017 *2*	
9311 *10*	(0)	[‡]	
9357 *10*	0	0.016 *2*	
9389 *10*	0	0.021 *2*	
9412 *10*	(0)	0.013 *2*	
9444 *10*	(0)	[‡]	
9497 *10*	0	[‡]	
9522[&] *10*	0	0.045 *3*	L,B(GT): for 9522+9576.
9543[&] *10*	0	0.045 *3*	L,B(GT): for 9522+9576.
9576 *10*	(0)	0.017 *2*	
9601 *10*	(0)	[‡]	
9634 *10*	0	[‡]	
9663 *10*	(0)	0.016 *2*	
9693 *10*	0	0.018 *2*	
9723 *10*	≥1		
9752 *10*	≥1		
9776 *10*	0	0.019 *3*	
9797 *10*	(≥1)		
9852 *10*	0	0.016 *2*	
9909 *10*	≥1		
9937 *10*	(≥1)		
9960 *10*	0	0.015 *2*	
9984[&] *10*	(0)	0.025 *2*	L,B(GT): for 9984+10007.
10007[&] *10*	(0)	0.025 *2*	L,B(GT): for 9984+10007.
10036 *10*	(0)	[‡]	
10060 *10*	(≥1)		
10111 *10*	0	[‡]	
10156 *10*	0	0.012 *1*	
10207 *10*	≥1		
10241 *10*	0	0.018 *2*	
10271[&] *10*	(0)	0.022 *2*	L,B(GT): for 10271+10291.
10291[&] *10*	(0)	0.022 *2*	L,B(GT): for 10271+10291.
10351 *10*	(≥1)		
10371 *10*	(0)	0.016 *3*	
10397 *10*	(≥1)		
10421[&] *10*	(0)	0.049 *5*	L,B(GT): for 10421+10436.
10436[&] *10*	(0)	0.049 *5*	L,B(GT): for 10421+10436.
10460 *10*	(0)	0.015 *3*	
10489[&] *10*	(0)	0.021 *2*	L,B(GT): for 10489+10508.
10508[&] *10*	(0)	0.021 *2*	L,B(GT): for 10489+10508.
10541[&] *10*	(0)	0.020 *3*	L,B(GT): for 10541+10561.
10561[&] *10*	(0)	0.020 *3*	L,B(GT): for 10541+10561.
10590 *10*	(0)	[‡]	

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^{47}Ti(^{3}He,t) 2013Ga04,1971Be29 (continued)

^{47}V Levels (continued)

E(level)[†]	L	B(GT)	Comments
10611 *10*	(≥1)		
10634 *10*			
10667 *10*	(0)	[‡]	
10725 *10*	(0)	[‡]	
10750[&] *10*	(0)	0.025 *3*	L,B(GT): for 10750+10769.
10769[&] *10*	(0)	0.025 *3*	L,B(GT): for 10750+10769.
10807 *10*	0	0.010 *2*	
10830 *10*	0	0.011 *3*	
10853[&] *10*	(0)	0.020 *3*	L,B(GT): for 10853+10873.
10873[&] *10*	(0)	0.020 *3*	L,B(GT): for 10853+10873.
10925 *10*	0	0.019 *2*	
10960 *10*	0	0.016 *2*	
10986 *10*	0	0.022 *4*	
11005 *10*	(≥1)		
11083 *10*	0	0.015 *3*	
11102[&] *10*	(0)	0.022 *4*	L,B(GT): for 11102+11121.
11121[&] *10*	(0)	0.022 *4*	L,B(GT): for 11102+11121.
11157 *10*	(≥1)		
11196[&] *10*	(0)	0.017 *2*	L,B(GT): for 11196+11216.
11216[&] *10*	(0)	0.017 *2*	L,B(GT): for 11196+11216.
11247 *10*	(0)	0.011 *1*	
11280 *10*	(≥1)		
11302 *10*	(0)	0.013 *2*	
11330 *10*	(0)	0.013 *2*	
11360 *10*	0	0.021 *2*	
11387 *10*			
11409 *10*			
11433 *10*			
11456 *10*			
11501 *10*			
11538 *10*	(0)	0.010 *1*	
11600 *10*	0	0.016 *2*	
11624 *10*	(0)	[‡]	
11653 *10*	(≥1)		
11669 *10*	(0)	[#]	
11691 *10*			
11715 *10*	≥1		
11746 *10*	(≥1)		
11778 *10*	≥1		
11800 *10*	(0)	[‡]	
11824 *10*	(0)	0.010 *3*	
11852[&] *10*	(0)	0.022 *3*	L,B(GT): for 11852+11872.
11872[&] *10*	(0)	0.022 *3*	L,B(GT): for 11852+11872.
11896[a] *10*	(0)	0.030 *5*	L,B(GT): for 11896+11914+11934.
11914[a] *10*	(0)	0.030 *5*	L,B(GT): for 11896+11914+11934.
11934[a] *10*	(0)	0.030 *5*	L,B(GT): for 11896+11914+11934.
11959 *10*	(0)	0.017 *3*	
11983 *10*	≥1		
12103 *10*	(0)	0.014 *3*	
12158 *10*	(0)	0.011 *2*	
12186 *10*	(0)	[‡]	
12229[a] *10*	(0)	0.026 *3*	L,B(GT): for 12229+12251+12273.

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^{47}Ti(^{3}He,t) 2013Ga04,1971Be29 (continued)

^{47}V Levels (continued)

E(level)[†]	L	B(GT)	Comments
12251[a] *10*	(0)	0.026 *3*	L,B(GT): for 12229+12251+12273.
12273[a] *10*	(0)	0.026 *3*	L,B(GT): for 12229+12251+12273.
12304 *10*	0	0.014 *2*	
12387 *10*	(0)	[‡]	
12415[&] *10*	(0)	0.018 *3*	L,B(GT): for 12415+12433.
12433[&] *10*	(0)	0.018 *3*	L,B(GT): for 12415+12433.
12460[a] *10*	(0)	0.026 *3*	L,B(GT): for 12460+12476+12497.
12476[a] *10*	(0)	0.026 *3*	L,B(GT): for 12460+12476+12497.
12497[a] *10*	(0)	0.026 *3*	L,B(GT): for 12460+12476+12497.

[†] From 2013Ga04. By comparison to known energy levels, an accuracy of better than 10 keV is estimated for all levels. Evaluators assign a general uncertainty of 10 keV.
[‡] 0.005<B(GT)<0.01.
[#] B(GT)≤0.005.
[@] Contribution from ^{48}V was subtracted.
[&] Unresolved doublet. L-value and B(GT) values are for doublet.
[a] Unresolved triplet. L-value and B(GT) values are for triplet.