^{48}Ti(^{3}He,p),(^{3}He,pγ) 1973Sm02,1972Ca32,1971De10

History

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

1973Sm02: E=13, 22 MeV beams from Argonne tandem Van de Graaff. Measured $\sigma(E_p,\theta)$ with a split-pole magnetic spectrometer (FWHM=75 keV) and measured pγ-coincidences with a Si detector and a Ge(Li). Deduced levels, J, π, L-transfers from DWBA analysis.

1972Ca32: E=15 MeV beam from the University of Pittsburgh tandem. Measured $\sigma(\theta$=3.75°−86.25°, 7.5° steps) with a multi-angle magnetic spectrograph (FWHM=25 keV) and photographic plates. Deduced levels, J, π, L-transfers from DWBA analysis.

1971De10: E=18 MeV beam from the three-stage Van de Graaff accelerator at University of Pittsburgh. Measured excitation energies at 12° with a split-pole magnetic spectrograph and photographic plates.

1969Sh03: E(^{3}He)=15 MeV. Measured proton spectra, $\sigma(\theta)$. FWHM=35 keV. Emphasis on the study of 0^+ analog states.

See 1980Dr02 for comparison of experimental $\sigma(^{3}He,p)/\sigma(^{3}He,n)$ to theory.

^{50}V Levels

E(level)[†]	L[a]	dσ/dΩ (μb/sr).[c]	Comments
0			
144?[‡] *10*			
227?[‡] *10*			
358[‡] *5*			
389[‡] *5*			
449?[‡] *10*			
911 *5*		5	
1300 *10*		6	
1331[#] *5*	0+2	145	
1402[#] *5*	2	63	
1497[#] *6*	0+2	104	
1519 *6*	2	35	
1564[#] *6*	(2)	21	
1677[‡] *10*			
1703 *6*	4	18	
1729 *10*		8	E(level): from 1972Ca32; unresolved in 1971De10 and 1973Sm02.
1934 *8*		2	E(level): unresolved from 1950 in 1972Ca32 with E=1942.
1950[#] *10*			E(level): unresolved from 1934 in 1972Ca32.
2037[‡] *8*			
2103[‡] *10*			
2131[#] *8*	4	20	
2168[‡] *10*			
2350[#] *8*	4	11	L: from 1973Sm02, 1972Ca32 give (2).
2425[#] *8*	0+2	105	
2453 *10*		7	
2478 *10*		4	E(level): only from 1972Ca32.
2513[‡] *10*			
2532[#] *10*	2[b]	6	
2735?[‡] *12*			
2782 *10*		5	
2816[#] *8*	0+2	260	
2876[‡] *10*			
2922 *10*			
2989 *10*	2[b]	17	E(level): not detected by 1972Ca32.

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^{48}Ti(^{3}He,p),(^{3}He,pγ) 1973Sm02,1972Ca32,1971De10 (continued)

^{50}V Levels (continued)

E(level)[†]	L[a]	dσ/dΩ (μb/sr).[c]	Comments
3022 *15*		10	E(level): from 1972Ca32; indicated as weak in 1971De10.
3090 *10*		22	
3140[#] *8*	2+4	39	L: 2 (1973Sm02).
3171 *15*	2	25	E(level): only from 1972Ca32.
3200			E(level): only from 1971De10; indicated as weak.
3216[#] *8*	0+2	358	L: 0 (1973Sm02).
3275	4[b]		E(level): from 1973Sm02 by charged particle spectroscopy.
3292 *15*	(4)	13	
3402 *15*		8	
3466[#] *15*	0+2	548	
3536 *15*		6	
3562[#] *15*	0(+2)	244	
3606 *15*		18	
3658[#] *15*	2	40	
3705 *15*	2	19	
3769 *15*		21	
3792[#] *15*	2[b]	38	
3858[#] *15*	2[b]	50	
3943[#] *15*	2	44	
4067[#] *15*		22	
4130 *15*		18	
4148[#] *15*	2	90	
4252[#&] *15*	2[b]	138	
4334[#] *15*		22	
4431[#] *15*	0+2	173	
4507 *15*		12	
4541 *15*		15	
4569[#] *15*		24	
4602 *15*	(2)	28	
4652 *15*		15	
4704 *15*		18	
4722[#] *15*	0+2	133	
4816[#] *15*	0	353	
4864 *15*		27	
4909 *15*	2	31	
4943[#] *15*	2[b]	54	
5034[#] *15*		37	
5062 *15*		16	
5123 *15*		22	
5172 *15*	0+2	55	
5264 *15*		31	
5288 *15*		39	
5313 *15*		49	
5352 *15*		109	
5401 *15*		22	
5491 *15*	0+2	161	
5554 *15*	2	37	
5682 *15*		29	
5750 *15*	0+2	117	
5778 *15*	2	30	
5838 *15*		29	
5871 *15*		24	

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^{48}Ti(^{3}He,p),(^{3}He,pγ) 1973Sm02,1972Ca32,1971De10 (continued)

^{50}V Levels (continued)

E(level)[†]	L[a]	dσ/dΩ (μb/sr).[c]	E(level)[†]	dσ/dΩ (μb/sr).[c]	E(level)[†]	L[a]	dσ/dΩ (μb/sr).[c]
5899 *15*		59	6601 *15*	42	7106 *15*		70
5945 *15*	2	39	6652 *15*	41	7173 *15*		65
6080 *15*		24	6685 *15*	22	7206 *15*		79
6124 *15*		87	6744 *15*	30	7321 *15*		72
6179 *15*	(2)	66	6804 *15*	27	7386 *15*		58
6222 *15*		50	6833 *15*	92	7442 *15*		151
6267 *15*	(2)	43	6883 *15*	77	8583[#] *15*	0	573
6341 *15*		83	6929 *15*	28	9115[@]		
6395 *15*		103	6969 *15*	25	9164[@]		
6464 *15*		97	6989 *15*	153			
6558[#] *15*		53	7092 *15*	63			

[†] States detected by 1971De10 (below 3250) and 1972Ca32; agreement is good, except as noted. E from 1971De10 below 3250 and from 1972Ca32 above 3250, except as noted.
[‡] From 1971De10 only.
[#] Also from 1973Sm02 by charged particle spectroscopy.
[@] Only from 1973Sm02 by charged particle spectroscopy.
[&] Probable doublet (1972Ca32).
[a] From 1972Ca32, agrees with 1973Sm02, except as noted.
[b] Only from 1973Sm02.
[c] From 1972Ca32, at an angle where the cross section is maximum. Values are also given in 1973Sm02.

γ(^{50}V)

E_i(level)	E_γ[†]	I_γ[‡]	E_f	E_i(level)	E_γ[†]	I_γ[‡]	E_f	E_i(level)	E_γ[†]	I_γ[‡]	E_f
1300	919 *10*	100	389	2816	1509 *10*	60	1300	3466	3074 *10*	15	389
1331	947 *10*	100	389	3200	1690 *10*	100	1519	3562	2063 *10*	50	1497
1497	1104 *10*	100	389	3216	1735 *10*	100	1497		2220 *10*	50	1331
1519	1129 *10*	100	389	3466	1945 *10*	25	1519	4252	2743 *10*	100	1519
2425	2025 *10*	100	389		1970 *10*	30	1497	4816	3483 *10*	100	1331
2816	1481 *10*	40	1331		2155 *10*	30	1300	8583	7097 *25*	100	1497

[†] From 1973Sm02 only; converted from the center-of-mass system to laboratory system by the evaluators. Due to the large errors and the closely spaced levels, placement of gammas uncertain in some cases.
[‡] Percent photon branching from each level.

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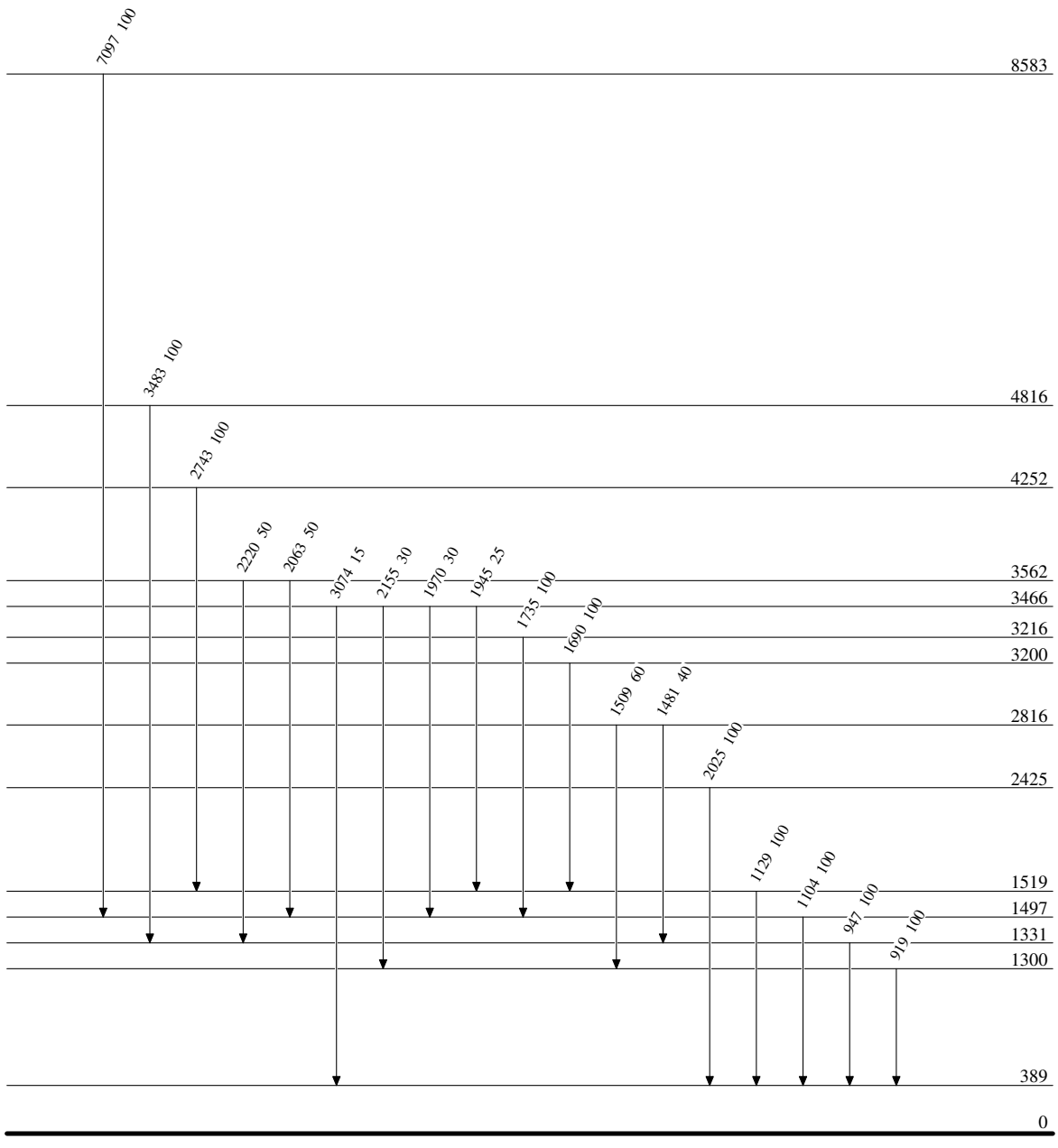
Level Scheme

Intensities: % photon branching from each level



$^{50}_{23}V_{27}$