^{45}Sc(^{3}He,p),(^{3}He,pγ) 1974Ha55,1973Me04

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	T. W. Burrows	NDS 108, 923 (2007)	20-Feb-2007

Target $J^{\pi}=7/2^{-}$. E=17 MeV: measured $\sigma(\theta=7°-35°$, 9 angles). FWHM=26 keV. DWBA. E=12 and 17 MeV: measured pγ-coincidences.

^{47}Ti Levels

E(level)[†]	J^{π}[‡]	L[#]	Comments
0.0	$5/2^{-}$	(2)	
157 *4*	$7/2^{-}$	0+2	
1249 *4*	$9/2^{-}$		
1441 *4*	$11/2^{-}$		
1548 *2*	$3/2^{-}$	2	
1794 *2*	$1/2^{-}$	2	
2160 *2*	$3/2^{-}$	2	
2533?			
2614 *4*	$7/2^{-}$	0+2	
2835 *4*		0+2	E(level): reference value for spectrograph energy scale, established to ±10 keV by γ-decays.
3219 *15*	$7/2^{-}$	0	T=3/2 J^{π},T: antianalog state, T=3/2, since L=0 component in proton angular distribution. Strongly excited; however, only one weak transition seen; 1973Me04 suggest that decay goes by many branches.
3246 *15*		0+2	
3817 *15*			
3919 *15*	$3/2^{-}$	2	
4252 *15*		0+2	
4705 *15*		0+2	
4755 *15*			
5340?			
5372 *15*			
5458 *15*		0+2	
6530 *15*		0+2	
6864 *15*		0+2	
7346 *6*	$7/2^{-}$	0	T=5/2 E(level): spectrograph values 24 keV higher In this region. A similar effect was observed by 1971Kn04 In the ^{31}P(^{3}He,pγ) and ^{39}K(^{3}He,pγ) reactions. IAS(^{47}Sc,g.s.).
7480 *10*	$^{-}$	0+2	

[†] From Ge(Li) data (ΔE(level)≤10 keV) or spectrometer data (ΔE(level)=15 keV, relative to 2835-keV state).
[‡] From Adopted Levels, in agreement with assignments suggested by 1973Me04.
[#] From comparison of $\sigma(\theta)$ to DWBA calculations.

γ(^{47}Ti)

Transitions marked as uncertain were either weak or could not be fitted uniquely in the level scheme.
Transitions in coincidence with protons exciting the 2610-, 2835-, 3223-, and 7346-, and 7480-keV states are indicated on the drawing.

Continued on next page (footnotes at end of table)

^{45}Sc(^{3}He,p),(^{3}He,pγ) 1974Ha55,1973Me04 (continued)

γ(^{47}Ti) (continued)

E_i(level)	J_i^π	E_γ	I_γ[†]	E_f	J_f^π	E_i(level)	J_i^π	E_γ	I_γ[†]	E_f	J_f^π
157	7/2$^-$	(157[‡] *3*)		0.0	5/2$^-$	2614	7/2$^-$	2457		157	7/2$^-$
1249	9/2$^-$	1092[@] *2*	[#]	157	7/2$^-$	2835		1287[&]	WEAK	1548	3/2$^-$
1441	11/2$^-$	1284[@] *2*	[#]	157	7/2$^-$			1394[&]	WEAK	1441	11/2$^-$
1548	3/2$^-$	1391 *2*		157	7/2$^-$			2678		157	7/2$^-$
		1548[&] *2*		0.0	5/2$^-$			2835[&]	WEAK	0.0	5/2$^-$
1794	1/2$^-$	(246)		1548	3/2$^-$	3219	7/2$^-$	1974	WEAK	1249	9/2$^-$
		1794 *2*		0.0	5/2$^-$	5340?		2807[&]	WEAK	2533?	
2160	3/2$^-$	2003	WEAK	157	7/2$^-$	7346	7/2$^-$	4123	20	3219	7/2$^-$
		2160		0.0	5/2$^-$			7189	30	157	7/2$^-$
2533?		1092[@&]	[#]	1441	11/2$^-$			7346[&]	≤6	0.0	5/2$^-$
		1284[@&]	[#]	1249	9/2$^-$	7480	$^-$	7480		0.0	5/2$^-$

[†] % photon branching ratio from the 7346-keV state. The other approximately 50% of the decay were not identified.
[‡] Not directly observed; energy below 300-keV cutoff.
[#] Coincidences and Iγ's led 1973Me04 to suggest that these are doublets. Suggestion has not been confirmed by other γ studies.
[@] Multiply placed.
[&] Placement of transition in the level scheme is uncertain.

Legend

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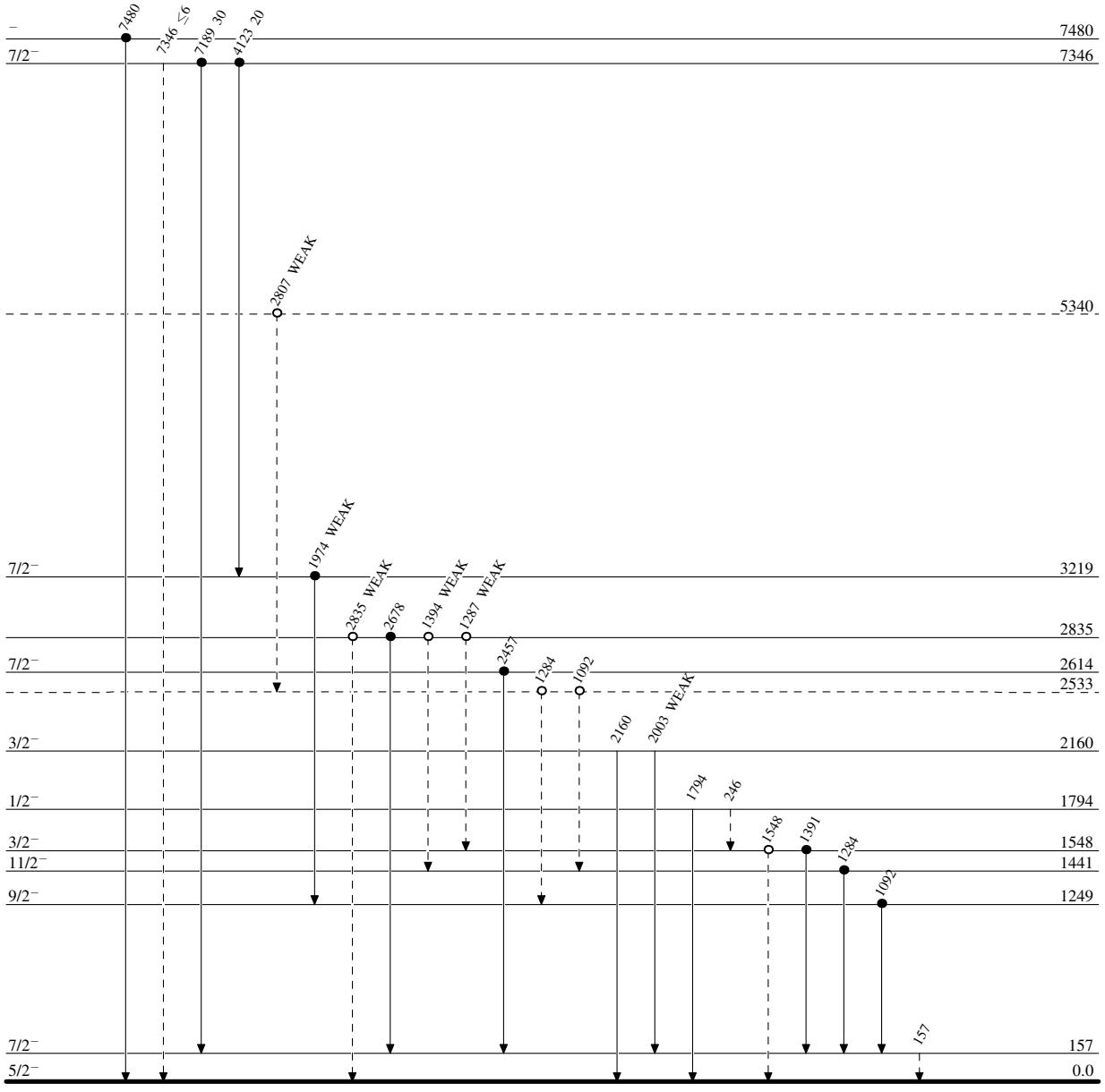
Level Scheme

Intensities: % photon branching from each level

γ Decay (Uncertain)
Coincidence
Coincidence (Uncertain)



$^{47}_{22}Ti_{25}$