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

History

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

Target $J^{\pi}=7/2^{-}$.

1973Me04: E(^{3}He)=17 MeV. Measured $\sigma(\theta)$ using Argonne split-pole magnetic spectrograph and Kodak NTB emulsions (FWHM=26 keV). Results from 1973Me04 are also given in the ^{45}Sc(^{3}He,pγ) dataset.

1974Ha55: same experiment as 1973Me04 with a focus on L=0 and L=0+2 cross sections.

^{47}Ti Levels

E(level)[†]	J$^{\pi}$[‡]	L[#]	Comments
0.0	$5/2^{-}$	(2)	
150 *5*	$7/2^{-}$	0+2	dσ/dΩ(7°)=8 μb/sr *2* (1974Ha55).
1245 *5*	$9/2^{-}$,$11/2^{-}$		
1455 *5*	$11/2^{-}$,$9/2^{-}$		
1545 *5*	$3/2^{-}$	2	
1788 *5*	$1/2^{-}$	2	
2162 *5*	$1/2^{-}$,$3/2^{-}$	2	
2530? *5*			
2613 *5*	$7/2^{-}$	0+2	dσ/dΩ(7°)=15 μb/sr *2* (1974Ha55).
2835 *5*	($5/2^{-}$)	0+2	E(level): reference value for spectrograph energy scale (1973Me04). dσ/dΩ(7°)=47 μb/sr *8* (1974Ha55).
3219 *5*	$7/2^{-}$	0	T=3/2 J$^{\pi}$,T: antianalog state, T=3/2, since L=0 component in proton angular distribution. E(level): strongly excited. dσ/dΩ(7°)=17 μb/sr *2* (1974Ha55).
3246 *15*		0+2	dσ/dΩ(7°)=14 μb/sr *2* (1974Ha55).
3817 *15*			
3919 *15*	1/2,$3/2^{-}$	2	
4252 *15*		0+2	dσ/dΩ(7°)=10 μb/sr *2* (1974Ha55).
4705 *15*		0+2	dσ/dΩ(7°)=18 μb/sr *3* (1974Ha55).
4755 *15*			
5372 *15*			
5458 *15*		0+2	dσ/dΩ(7°)=23 μb/sr *4* (1974Ha55).
6530 *15*		0+2	dσ/dΩ(7°)=40 μb/sr *7* (1974Ha55).
6864 *15*		0+2	dσ/dΩ(7°)=34 μb/sr *8* (1974Ha55).
7370 *15*	$7/2^{-}$	0	T=5/2 E(level): spectrograph values ≈25 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.). dσ/dΩ(7°)=280 μb/sr *35* (1974Ha55).
7540 *15*		0+2	dσ/dΩ(7°)=50 μb/sr *8* (1974Ha55).

[†] From 1973Me04, determined relative to the 2835-keV state.
[‡] As suggested by 1973Me04 based on their present study and prior literature.
[#] From comparison of $\sigma(\theta)$ to DWBA calculations (1973Me04).