

⁴⁶Ti(³He,p) 1968Do03,1973Sm12,1974Ha55

Type	Author	History Citation	Literature Cutoff Date
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1968Do03: E=12.0 MeV deuteron beam was produced at MIT. Target was 16.5 μg/cm² ⁴⁶Ti (84.5% enriched) in the form of TiO₂ on a carbon backing. Reaction products were momentum-analyzed with a multiple-gap spectrograph (FWHM=20 keV). Measured σ(θ), θ=7.5° to 60°. Deduced levels, L transfers from DWBA analysis. **1968Do03** also report data on ⁴⁸V from ⁵⁰Cr(d,α).

1973Sm12: E=17 MeV ³He beam was produced from the Argonne tandem Van de Graaff. Target was 210 μg/cm² ⁴⁶Ti metal (83.6% enriched). Reaction products were momentum-analyzed with a split-pole magnetic spectrograph (FWHM=40 keV) and detected with nuclear emulsions. Measured σ(θ), at 7° to 64°. Deduced levels, J, π, L-transfers from DWBA analysis. Comparisons with available data.

1974Ha55: E=17 MeV ³He beam was produced from the Argonne FN tandem Van de Graaff. Target was 232 46 μg/cm² ⁴⁶Ti (84.4% enriched). Reaction products were momentum-analyzed with the Argonne split-pole magnetic spectrograph and detected with nuclear emulsions. Deduced levels, L-transfers from DWBA analysis.

1969Sh03: E=15 MeV ³He beam was produced from the Universitat Heidelber's Model EN tandem Van de Graaff. Target was 100-250 μg/cm² ⁴⁶Ti on a gold backing. Reaction products were momentum-analyzed with a broad-range magnetic spectrograph (FWHM=35 keV). Measured σ(θ), at 5°, 10°, 20°, 40°. Deduced levels. Emphasis on L=0 transitions to analog states.

⁴⁸V Levels

dσ/dΩ_{c.m.} quoted under comments are for θ_{lab}=7° in **1974Ha55** and for θ_{lab}=7° for L=0 and 0+2, and 18.5° for others in **1973Sm12**.

E(level) [†]	L [‡]	Comments
0.0		dσ/dΩ _{c.m.} <2.5 μb/sr (1973Sm12).
312 15	2	dσ/dΩ _{c.m.} =16 3 μb/sr (1973Sm12).
422 15	0+2	E(level): weighted average of 424 keV 15 (1968Do03) and 421 keV 15 (1974Ha55). dσ/dΩ _{c.m.} =54 8 μb/sr (1974Ha55), 67 8 (1973Sm12).
622 15		dσ/dΩ _{c.m.} =43 5 μb/sr (1973Sm12).
1124 15		
1252 15		dσ/dΩ _{c.m.} =14 3 μb/sr (1973Sm12).
1687 15		
1736 15		
2112 15		dσ/dΩ _{c.m.} =23 6 μb/sr (1973Sm12).
2292 15	0+2	E(level): weighted average of 2296 15 keV (1968Do03) and 2289 keV 15 (1974Ha55). dσ/dΩ _{c.m.} =182 27 μb/sr (1974Ha55), 163 30 (1973Sm12).
2409 15	0+2	E(level): weighted average of 2410 15 keV (1968Do03) and 2408 keV 15 (1974Ha55). dσ/dΩ _{c.m.} =69 14 μb/sr (1974Ha55), 87 15 (1973Sm12).
2464 15	2	dσ/dΩ _{c.m.} =48 6 μb/sr (1973Sm12).
2578 15		dσ/dΩ _{c.m.} =30 6 μb/sr for a doublet at 2611 (1973Sm12).
2694 15		
2783 15		
2828 15		
3018 15	0	T=2 E(level): weighted average of 3018 15 keV (1968Do03) and 3019 keV 15 (1974Ha55). IAS of ⁴⁸ Ti g.s. dσ/dΩ _{c.m.} =409 47 μb/sr (1974Ha55), 350 50 (1973Sm12).
3085 15		
3702 15	0+2	E(level): weighted average of 3701 15 keV (1968Do03) and 3702 keV 15 (1974Ha55). dσ/dΩ _{c.m.} =268 36 μb/sr (1974Ha55), 290 30 (1973Sm12).
3819		E(level): from 1973Sm12 . dσ/dΩ _{c.m.} =50 25 μb/sr (1973Sm12).
3866 15	0+2	dσ/dΩ _{c.m.} =416 47 μb/sr (1974Ha55), 380 40 (1973Sm12).

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 ${}^{46}\text{Ti}({}^3\text{He,p})$ [1968Do03](#),[1973Sm12](#),[1974Ha55](#) (continued)

 ${}^{48}\text{V}$ Levels (continued)

<u>E(level)[†]</u>	<u>L[‡]</u>	<u>Comments</u>
4698 15	0+2	$d\sigma/d\Omega_{c.m.}=210\ 30\ \mu\text{b/sr}$ (1974Ha55), 180 25 (1973Sm12).
4798 15	0+2	$d\sigma/d\Omega_{c.m.}=98\ 18\ \mu\text{b/sr}$ (1974Ha55), 97 20 (1973Sm12).

[†] From [1968Do03](#) for levels up to 3085 and from [1974Ha55](#) above 3085, unless otherwise noted.

[‡] From DWBA fit to measured $\sigma(\theta)$ ([1973Sm12](#),[1974Ha55](#)).