

$^{98}\text{Mo}(\text{}^3\text{He,t})$ 1977Ha05

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Jun Chen, Balraj Singh		NDS 164, 1 (2020)	15-Feb-2020

1977Ha05: E=24 MeV ^3He beam was produced from the McMaster FN tandem Van de Graaff accelerator. Target was enriched (>95%) ^{98}Mo in metal form with a thickness of 71 to 82 $\mu\text{g}/\text{cm}^2$. Tritons were momentum analyzed with a split-pole spectrograph (FWHM=18-24 keV) and detected with nuclear emulsions. Measured $\sigma(\theta)$ from 11 ° to 54 °. Deduced levels, J, π , L-transfers. Comparisons with Single-step distorted-wave calculations.

All data are from 1977Ha05.

 ^{98}Tc Levels

E(level)	J^π [†]	L	Comments
0&	(6 ⁺)	6	
24& 3	(5 ⁺)	6	
61#& 3	(2 ⁺)	2	
80#& 3	(3 ⁺ ,4 ⁺)	4	
106& 3	(7 ⁺)	6	
139 ^a 3		(3,1) [‡]	
202 3	(2 ⁺)	2	
313 4	(≤ 2)		Weak group.
331 4	(4 ⁺ ,3 ⁺)	4	
353 ^a 4		(3,1) [‡]	
395 4	(≤ 2)		
426 4	(≥ 5)		J^π : from comparison with a 442 level in ^{94}Tc (1977Ha05).
649@ 6			
720@ 10			
877@ 8			

[†] From comparison with $\sigma(\theta)$ data for $^{96}\text{Zr}(\text{}^3\text{He,t})^{96}\text{Nb}$ (1970Co19), for example, observation of the shift in the maximum σ for increasing J. Single-step distorted-wave calculations assuming these J^π values are in fair agreement with experimental data. There is a distinct J=L dependence for triton angular distributions leading to natural parity states. Position of maxima shift monotonically towards higher angles with increasing J values. The shapes of $\sigma(\theta)$ leading to unnatural parity states bear a stronger resemblance to those leading to states with the next higher even J than to those with the next lower even J.

[‡] $\sigma(\theta)$ not well described by single-step distorted-wave calculations for either L=3 or L=1.

61 and 80 are unresolved.

@ Broad group, two or more states are possible.

& Member of configuration= $\pi g_{9/2}^3 \otimes \nu d_{5/2}^{-1}$.

^a Member of configuration= $\pi p_{1/2} \otimes \nu d_{5/2}^{-1}$.