

$^{98}\text{Mo}(\text{t},\text{p}),(\text{t},\text{p}\gamma)$ 1981Fl06,1987Es01,1988Ch29

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen		NDS 172,1 (2021)	31-Jan-2021

1981Fl06: (t,p) E=17 MeV from the Van de Graaff accelerator at LANL. Enriched target. Measured $\sigma(\theta)$ data from 10° to 60° (c.m.), with a Q3D spectrometer (FWHM=15 keV). Deduced levels, J, π , L-transfers, spectroscopic factors from DWBA analysis.

1987Es01 (also **1984De17**): (t,p γ ce) E=17 MeV from the Van de Graaff at LANL. Enriched target. Measured γ with a HPGe detector, conversion electrons with a lens-type superconducting solenoid spectrometer, and protons with a proton detector. The (t, γ) and (t,pce) data (**1987Es01**) used pce and py coincidences to determine the half-life of 694 level and branching ratio of transitions from this level.

1988Ch29: (t,p) E=12 MeV from the Van de Graaff tandem at AWRE, Aldermaston. Enriched target. Measured $\sigma(\theta)$ data from 5° to 87.5° , using a multi-angle magnetic spectrograph (FWHM \approx 15 keV). DWBA calculations. Levels reported up to 2803 keV.

Other: **1973Ta06**, (t,p) at E=15.6 MeV.

Calculation of two-neutron transfer σ ratios (**1988Ca16**).

 ^{100}Mo Levels

E(level) ^a	T _{1/2}	L ^b	S ^b	Comments
0.0		0	1.41	
535.3 5		2	0.22	
694.4 5	3.0 ns I	0	0.20	T _{1/2} : from pce(t) (1987Es01). See also Adopted Levels.
1063.7 7		2	0.03	
1135.1 7		4	0.02	L: L=2 (1988Ch29) is probably incorrect.
1464 5		2	0.05	
1502 8		0	0.013	
1907 5		3		L: from 1988Ch29 . 1981Fl06 give L=3, 4. This group probably corresponds to the 1908, 3 ⁻ seen in Coul. ex.
2035 10		0	0.09	
2082 10		(0,1)	0.025	L: 1988Ch29 give L=0 and 1981Fl06 give L=1. The group may be a doublet (see 2082 and 2086 in the Adopted Levels).
2102 10		(4)	0.08	
2186 15		0		L: from 1988Ch29 .
2281 15		2	0.06	
2312 15		<i>a</i>		
2334@ 20		0		L: from 1988Ch29 .
2364 15		3	0.04	
2392@ 15		2	0.14	L: from 1988Ch29 .
2413 15		(2,3)		L: 1988Ch29 give L=2+4, assuming two components.
2518# 15		2		L: from 1988Ch29 .
2561# 15		<i>a</i>		
2602 15		(5,6,4)		L: L=4 (1988Ch29), L=5,6 (1981Fl06).
2652# 15		2	0.13	
2733 15		2	0.11	
2803 15		4	0.10	L: from 1988Ch29 .
2835 15		(4)	0.08	
2873 15				
2923 15		(4)	0.14	
2968& 15				
2994& 15				
3039 15		4,5		
3065 15		2	0.08	
3106 20				
3119& 20				
3148# 15				

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 ^{100}Mo Levels (continued)

E(level) [†]	L [‡]	S ^b	Comments
3235 15	<i>a</i>		
3263 [#] 15			
3282 20			
3306 [@] 20			
3354 15	2	0.08	
3409 15	<i>a</i>		
3445 15	<i>a</i>		
3475 15	<i>a</i>		E(level): seen only for θ between 25° and 55°.
3535 15	<i>a</i>		
3557 ^{&} 15	2	0.04	
3587 15	(3)		
3652 15	5,6		
3674 [@] 15			
3771 15	5,6		

[†] From 1981Fl06, except for the first four excited states which are from ce data of 1987Es01. Proton groups higher than 3771 have not been analyzed by 1981Fl06 because of a large number of overlapping states.

[‡] From comparison of $\sigma(\theta)$ data with DWBA calculations. Values are from 1981Fl06, unless otherwise stated.

Broad group of unresolved states.

@ Resolved only for $\theta \geq 45^\circ$.

& Partly resolved group.

^a DWBA analysis does not give a unique L-transfer (1981Fl06).

^b $(d\sigma/d\Omega)(\text{expt})/(9.7 \times N \times (d\sigma/d\Omega)(\text{DWBA}))$, where $N=22$ (1981Fl06).

 $\gamma(^{100}\text{Mo})$

E _γ [†]	E _i (level)	E _f	Mult.	α^{\ddagger}	Comments
159.1 5	694.4	535.3	E2	0.22	Mult.: from the Adopted Gammas.
528.4 5	1063.7	535.3			
535.3 5	535.3	0.0			
599.8 5	1135.1	535.3			
694.3 5	694.4	0.0	E0		ce(K)(E0)/I(γ +ce)(159+694)=0.071 4 (1987Es01). This ratio gives I(γ +ce)(694 γ)/I(γ +ce)(159 γ)=0.093 5 and I(ce(K)(695,E0))/I(ce(K)(159 γ ,E2))=0.50 3.

[†] From ce spectrum shown by 1987Es01. Uncertainty of 0.5 keV estimated by the evaluators.

[‡] Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with “Frozen Orbitals” approximation based on γ -ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

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Legend

● Coincidence

Level Scheme