^{18}O(d,t) 1977Ma10

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	C. G. Sheu, J. H. Kelley, J. Purcell	ENSDF	5-Aug-2021

1961Ar06: ^{18}O(d,t), E=15 MeV; angular distributions of triton groups corresponding to the ^{17}O*(0,0.871,3.846,4.555,5.083, and 5.378-MeV) states are obtained.

1963Ro12: The distorted wave Born approximation is used to analyse the reactions ^{18}O(d,t) and ^{18}O(d,p)^{19}O. Assignments of L values obtained from Butler theory are confirmed.

1977Ma10: A beam of deuterons at E=52 MeV from the Karlsruhe isochronous cyclotron impinged on a 98% enriched $^{18}O_2$ gas target. The tritons were detected with ΔE-E counter telescopes with an energy resolution of 90 keV FWHM and were measured between θ=8° and 50°. Spectroscopic factors were obtained by a DWBA analysis. Energy levels of ^{17}O up to 25 MeV, J^π, L and T values were also deduced.

1978Fo05: An E=17 MeV deuteron beam from the University of Pennsylvania FN tandem Van de Graaff accelerator bombarded once a solid target WO_3 and once a gaseous O_2 target. In both experiments elastic and inelastic deuterons were detected at θ=45° relative to the beam. The absolute cross sections were measured. Spectroscopic factors deduced by DWBA analysis for ^{17}O ground state ($5/2^+$) and the first excited state ($1/2^+$) are 1.48 and 0.29, respectively.

1981Ma14: ^{18}O(pol. d,^{3}He); E=52 MeV; measured $iT_{11}(E(^3He),\theta)$. ^{17}O deduced levels, J, π, S. Enriched targets. DWBA, Nilsson model analyses.

See also (1961Vl02,1977FoZZ,1979KnZQ) and (1975Hs01,1976La13: theory).

^{17}O Levels

E(level)[†]	J^π[†]	L[‡]	C^2S[‡]	Comments
0[#@&]	$5/2^+$	2	1.53	L: See also (1961Ar06,1963Ro12). Spectroscopic factor (DWBA) S($5/2^+$)=1.48 *27* (1978Fo05).
871[#@&]	$1/2^+$	0	0.21	L: See also (1961Ar06,1963Ro12). Spectroscopic factor (DWBA) S($1/2^+$)=0.29 *5* (1978Fo05). The ratio of S($1/2^+$)/S($5/2^+$)=0.195 *15* which is in disagreement with the theoretical value of 0.267 (1976La13).
3055[#&]	$1/2^-$	1	1.08	
3841[#@&]	$5/2^-$	3		L: from (1961Ar06,1963Ro12); see also (1977Ma10: >2).
4554[#@&]	$3/2^-$	1	0.12	L: See also (1961Ar06,1963Ro12).
5083[#@&]	$3/2^+$	2	0.10	L: See also (1961Ar06,1963Ro12).
5377[#@&]	$3/2^-$	1	0.53	L: See also (1961Ar06,1963Ro12).
5935[&]	$1/2^-$	1	0.06	
6859				L: L≠1 (1977Ma10).
7380	($5/2^-$,$5/2^+$)			E(level),J^π: unresolved doublet (1977Ma10). L: L≠2 (1977Ma10).
8213[&]	$3/2^-$	1	0.15	
8703[&]	$3/2^-$	1	0.10	
9160[&]	$1/2^-$	1	0.10	
11082[&]	$1/2^-$[a]	1	0.96	T=3/2 (1981Ma14)
11410[&] *10*		(1)	0.04	T=1/2 (1977Ma10)
12120[&] *10*		(1)	0.24	T=1/2 (1977Ma10)
12471[&]	$3/2^-$[a]	1	0.24	T=3/2 (1981Ma14)
12760[&] *10*		(1)	0.17	T=1/2 (1977Ma10)
12950[&]	$1/2^+$[a]	0	0.19 *5*	T=3/2 (1981Ma14)
13640[&]	$5/2^+$[a]	2	0.29 *12*	T=3/2 (1981Ma14) J^π: See also ($5/2^+$) (1977Ma10).
16580[&] *10*	$3/2^-$[a]	1	0.93	T=3/2 (1977Ma10,1981Ma14) J^π: See also ($1/2^-$,$3/2^-$) (1977Ma10).

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^{18}O(d,t) 1977Ma10 (continued)

^{17}O Levels (continued)

E(level)[†]	Jπ[†]	L[‡]	C^{2}S[‡]	Comments
18140[&] *10*	3/2^{-} *a*	1	0.17	T=3/2 (1977Ma10,1981Ma14) Jπ: See also (1/2^{-},3/2^{-}) (1977Ma10).

[†] See nominal level energy values listed in, for example, (1977Ma10) except where noted. J is consistent with DWBA analysis in (1977Ma10).

[‡] From (1977Ma10) except where noted.

[#] Observed in (1961Ar06). However, the triton group corresponding to the 3.06-MeV state was not observed at $8° < \theta_{lab} < 37°$.

[@] Observed in (1963Ro12).

[&] Observed/measured(with uncertainty) in (1977Ma10). The authors find agreement with (1971Aj) within ≈10 keV and use this as the basis for their uncertainty; this may be an underestimate?

[a] From (1981Ma14: ^{18}O(pol. d,^{3}He)); deduced from combining with the results of a parallel ^{18}O(d,^{3}He)^{17}N and ^{18}O(d,t)^{17}O measurement (1977Ma10).