^{184}W(α,t),(^{3}He,d) 1971Lu01

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	S. -c. Wu	NDS 106, 619 (2005)	1-Nov-2005

1971Lu01: Eα=30 MeV, FWHM≈11 keV; E(^{3}He)=28 MeV, FWHM≈15 keV. ^{184}W target enriched to 94.3 atomic percent; 50μg/cm^2 self-supported target and 20μg/cm^2 target evaporated on carbon foil; NTB nuclear emulsion detector with Enge spectrograph; 0.9 mm Al absorber for deuteron detections.

Q(^{3}He,d)=−98 *40* keV.

See 1971Lu01 for the theoretical spectroscopic factors including some Coriolis mixing.

^{185}Re Levels

Summary Of dσ/dΩ(45 °) For (^{3}He,d) And (α,t) In μb/sr And (^{3}He,d) Structure Factors (1971Lu01):

E(level)	$\sigma(\alpha,t)$	$\sigma(^3He,d)$	$\sigma(^3He,d)/\sigma(t,\alpha)$	$U^2C^2(A,T)$
0	80.7 15	61.2 25	1.32 6	0.74
546	22.5 8	5.9 19	3.8 5	0.30
647	15.1 6	29.9 19	0.43 3	0.20
717	2.0 2	7.0 9	0.29 5	0.04
770	1.5 2	6.2 8	0.24 4	0.03
876	9.3 5	16.4 13	0.57 5	0.17
917	111.7 18	45.2 22	2.47 13	2.26
932	30.0 10	37.2 22	0.81 3	0.56
1013	5.3 4	8.6 9	0.62 8	0.072
1220	6.9 5	32.7 18	0.21 2	
1303	27.9 9	14.3 12	1.95 18	0.47
1344	3.9 4	5.6 12	0.70 20	
1434	2.7 2	10.5 11	0.26 3	
1497	9.1 6	40.2 21	0.23 3	
1596	5.2 6	5.1 9	1.6 3	
1651	28.8 9	61.2 25	0.47 2	0.68
1700	4.8 4	71.6 27	0.07 1	0.25

E(level)†	Jπ‡	L#	S@	E(level)†	Jπ‡	L#	S@
0&	5/2$^+$	2	0.74	1045d	(1/2$^-$)		
124&i	7/2$^+$			1143d	(3/2$^-$)		
287&i	9/2$^+$			1189d	(7/2$^-$)		
546a	(11/2$^-$)	5	0.35	1220		0,1	
609?j				1278			
647b	1/2$^+$	0,1	0.19	1303f	(11/2$^-$)k	4	0.68
717b	3/2$^+$	0,1	0.07	1343		2,3	
770b	5/2$^+$k	0,1	0.05	1434		0,1	
826i				1496		0,2	
876c	1/2$^+$ & 3/2$^+$	2	0.13	1538			
917d	(5/2$^-$) & (9/2$^-$)	4,5	3.38	1596		4	
933e	(3/2$^+$)	2	0.36	1651g	(3/2$^+$)	2	0.45
1013e	(5/2$^+$)	2	0.08	1700h	(1/2$^+$)	0	0.29

† ΔE≈2 keV.

‡ Assignments were based on deduced L-values, comparison of measured cross sections with calculated ones, and previous works.

Continued on next page (footnotes at end of table)

^{184}W(α,t),(^{3}He,d) 1971Lu01 (continued)

^{185}Re Levels (continued)

Inferred from comparison of measured $\sigma(\alpha,t)/\sigma(^3He,d)$ with values obtained from DWBA calculations. See Adopted Levels for adopted J^π.

@ Structure factor $U^2C^2=d\sigma/d\Omega(60°)/(2\ d\sigma/d\Omega(60°)(DWBA))$ from 1971Lu01 for (^{3}He,d). see table above for structure factors obtained from the (α,t) data of 1971Lu01.

& 5/2[402] rotational band.

a Member of 9/2[514] band. Bandhead, predicted at 387 keV, was not seen.

b 1/2[400] rotational band. The observed strengths were about one third of the values expected for members of the 1/2[400] band. Mixing of this state with the (K-2) γ-vibration coupled to 5/2[402], as proposed by 1967Bi10, is consistent with the observed (^{3}He,d) and (α,t) strengths.

c 1/2[411] rotational band.

d 1/2[541] rotational band.

e 3/2[402] rotational band.

f Bandhead of 11/2[505].

g 3/2, 3/2[651] state.

h 1/2, 1/2[660] state.

i Seen in (α,t) only.

j This peak may be due to ^{182}W impurity in target material.

k The suggested L value does not agree with the proposed J^π value.