

$^{238}\text{U}(\text{}^3\text{He,d}),(\alpha,\text{t})$ **1975Vo01**

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	E. Browne, J. K. Tuli	NDS	122, 293 (2014)	30-Jun-2013

 ^{239}Np Levels

($^3\text{He,d}$) measured at 3 angles (**1975Vo01**).

E(level) [†]	J ^π #	L [‡]	E(level) [†]	J ^π #	L [‡]	E(level) [†]	J ^π #	L [‡]
≈0 [@]	5/2 ⁺		346.8 ^c 14	(9/2 ⁺)	2,3,4,5,6	778.6 13		0,1,2,3,4
28 [@] 3	7/2 ⁺		420.6 22			823.4 17		0,1,2
70.0 [@] 12	9/2 ⁺	2,3,4	437? ^c 3	(11/2 ⁺)		864.9 ^e 12	(9/2 ⁺)	4,5,6
70.0 ^{&} 12	5/2 ⁻	2,3,4	449.8 ^d 11	3/2 ⁻	0,1	890.6 12		4,5,6
117.8 ^{&} 16	7/2 ⁻	0,1,2,3,4	482.6 ^d 11	5/2 ⁻	(3),4,5	917.1 11		3,4,5
117.8 [@] 16	11/2 ⁺	0,1,2,3,4	521.2 ^d 11	7/2 ⁻	3,4	951.5 13		4,5,6
173.7 ^{&} 12	9/2 ⁻	2,3,4,5,6	547.0? ^c 23	(13/2 ⁺)	5,6	992.9 ^f 12	(7/2 ⁻)	2,3,4
180.0 [@] 12	13/2 ⁺	5,6	581.0 ^d 22	9/2 ⁻	5,6	1019.9 ^e 12	(13/2 ⁺)	5,6
220.2 ^a 12	(1/2 ⁺)	0,1,2,3,4	600? 3			1049.0 ^f 12	(9/2 ⁻)	4,(5)
239.4 ^{&} 21	11/2 ⁻	4,5,6	616? 3		0,1,2,3	1077.2 14		3,4,5,6
258.3 ^b 13	(3/2 ⁻)	0,1,2,3	637.2 18		0,1,2	1117.8 ^f 13	(11/2 ⁻)	3,4,5
258.3? ^a 13	(3/2 ⁺)	0,1,2,3	657? ^d 3	(11/2 ⁻)		1141.1 17		0,1,2,3
270.9 ^b 14	1/2 ⁻	0,1,2	695.4 11		3,4	1155.3 19		2,3,4
315.5 ^b 11	7/2 ⁻	(3),4	723.7 22			1182.5 14		4,5,6
324? ^b 4	(5/2 ⁻)		741.6 21		2,3,4,5,6			

[†] Calibration is based on 10 known levels in ^{239}Np (**1975Vo01**).

[‡] From **1975Vo01** based on angular distribution in ($^3\text{He,d}$) and on the ratio of cross sections ($^3\text{He,d}$)/(α,t).

From **1975Vo01** based on L values and on comparison of cross sections with DWBA calculations.

@ Band(A): 5/2[642].

& Band(B): 5/2[523].

^a Band(C): 1/2[400]?

^b Band(D): 1/2[530].

^c Band(E): 3/2[651]?

^d Band(F): 3/2[521].

^e Band(G): 7/2[633]?

^f Band(H): 7/2[514].

<u>$^{238}\text{U}(\text{}^3\text{He,d}),(\alpha,\text{t})$ 1975Vo01</u>			
		Band(F): 3/2[521]	
		(11/2 ⁻)	<u>657</u>
		9/2 ⁻	<u>581.0</u>
		Band(E): 3/2[651]?	
		(13/2 ⁺)	<u>547.0</u>
		7/2 ⁻	<u>521.2</u>
		5/2 ⁻	<u>482.6</u>
		3/2 ⁻	<u>449.8</u>
		(11/2 ⁺)	<u>437</u>
		Band(D): 1/2[530]	
		(9/2 ⁺)	<u>346.8</u>
		(5/2 ⁻)	<u>324</u>
		7/2 ⁻	<u>315.5</u>
		Band(C): 1/2[400]?	
		1/2 ⁻	<u>270.9</u>
		(3/2 ⁺)	<u>258.3</u>
		(3/2 ⁻)	<u>258.3</u>
		(1/2 ⁺)	<u>220.2</u>
		Band(B): 5/2[523]	
		11/2 ⁻	<u>239.4</u>
		Band(A): 5/2[642]	
		13/2 ⁺	<u>180.0</u>
		9/2 ⁻	<u>173.7</u>
		11/2 ⁺	<u>117.8</u>
		7/2 ⁻	<u>117.8</u>
		9/2 ⁺	<u>70.0</u>
		5/2 ⁻	<u>70.0</u>
		7/2 ⁺	<u>28</u>
		5/2 ⁺	<u>≈0</u>

²³⁸U(³He,d),(α,t) **1975Vo01 (continued)**

Band(H): 7/2[514]

(11/2⁻) 1117.8

(9/2⁻) 1049.0

Band(G): 7/2[633]?

(13/2⁺) 1019.9

(7/2⁻) 992.9

(9/2⁺) 864.9

²³⁹Np₁₄₆