^{89}Y(d,t),(^{3}He,α) 1973Da10,1971Co20

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	E. A. Mccutchan and A. A. Sonzogni	NDS 115, 135 (2014)	1-Nov-2013

J^π(target)=1/2$^-$.

1973Da10: (d,t), E(d)=14.0 MeV and 15.8 MeV. Measured $\sigma(\theta)$ using a magnetic spectrograph and four position-sensitive surface-barrier counters (FWHM=8 keV); DWBA analysis.

1971Co20: (^{3}He,α), E(^{3}He)=25 MeV. Measured $\sigma(\theta)$ using a magnetic spectrograph and photograph emulsions (FWHM=30 keV); DWBA analysis. Target thickness is not well determined, thus, $d\sigma/d\Omega_{max}$ values given in the comments are accurate to within a factor of 2.

Others: (d,t): 1973Ta05. (^{3}He,α): 1971Pa26, 1969Ba21, 1968Fo09.

^{88}Y Levels

E(level)[†]	L[‡]	C^{2}S[#]	Comments
0	4	3.85	$d\sigma/d\Omega_{max}$(d,t)=484 (1973Da10), $d\sigma/d\Omega_{max}$(^{3}He,α)=3600 (1971Co20).
233 *2*	4	5.0	$d\sigma/d\Omega_{max}$(d,t)=576 (1973Da10), $d\sigma/d\Omega_{max}$(^{3}He,α)=4500 (1971Co20).
393 *2*	1	0.99	$d\sigma/d\Omega_{max}$(d,t)=1315 (1973Da10), $d\sigma/d\Omega_{max}$(^{3}He,α)=200 (1971Co20).
678[@] *5*		&	
707[a] *3*	(1+3)	0.04+0.19[&]	C^{2}S: assuming $p_{3/2}$ transfer for the L=1 component. $d\sigma/d\Omega_{max}$(d,t)=40 (1973Da10), $d\sigma/d\Omega_{max}$(^{3}He,α)=38 (1971Co20).
763 *3*	1	0.33	$d\sigma/d\Omega_{max}$(d,t)=97 (1973Da10), $d\sigma/d\Omega_{max}$(^{3}He,α)=320 (1971Co20).
847[@] *5*			$d\sigma/d\Omega_{max}$(^{3}He,α)=10 (1971Co20).
989[@] *5*		&	
1092[@] *5*			$d\sigma/d\Omega_{max}$(^{3}He,α)=34 (1971Co20).
1127 *3*	4	0.10	$d\sigma/d\Omega_{max}$(d,t)=120 (1973Da10), $d\sigma/d\Omega_{max}$(^{3}He,α)=7.5 (1971Co20).
1215 *3*		&	$d\sigma/d\Omega$(d,t)=5 at 36° (1973Da10).
1225 *3*	1	0.56	C^{2}S: 0.49 for $p_{3/2}$ transfer. $d\sigma/d\Omega_{max}$(d,t)=360 (1973Da10), $d\sigma/d\Omega_{max}$(^{3}He,α)=280 (1971Co20).
1276 *3*	1	1.0	C^{2}S: 0.9 for $p_{3/2}$ transfer. $d\sigma/d\Omega_{max}$(d,t)=300 (1973Da10), $d\sigma/d\Omega_{max}$(^{3}He,α)=380 (1971Co20).
1315 *4*		&	$d\sigma/d\Omega_{max}$(d,t)=36 for combined 1315- and 1325-keV levels (1973Da10).
1325 *4*		&	$d\sigma/d\Omega_{max}$(d,t)=36 for combined 1315- and 1325-keV levels (1973Da10).
1475 *4*		&	$d\sigma/d\Omega_{max}$(d,t)<8 (1973Da10), $d\sigma/d\Omega_{max}$(^{3}He,α)=20 (1971Co20).
1562 *4*		&	
1573 *4*	1	0.9	C^{2}S: for $p_{3/2}$ transfer. $d\sigma/d\Omega_{max}$(d,t)=450 (1973Da10), $d\sigma/d\Omega_{max}$(^{3}He,α)=660 (1971Co20).
1598[@] *5*		&	
1705 *4*	(3)	1.8	$d\sigma/d\Omega_{max}$(d,t)>50 (1973Da10), $d\sigma/d\Omega_{max}$(^{3}He,α)=920 (1971Co20).
1732[@] *5*		&	
1762 *4*		&	$d\sigma/d\Omega_{max}$(d,t)=10 (1973Da10), $d\sigma/d\Omega_{max}$(^{3}He,α)=23 (1971Co20).
1832[@] *5*			$d\sigma/d\Omega_{max}$(^{3}He,α)=43 (1971Co20).
1881[@] *5*	(3,4)[b]		$d\sigma/d\Omega_{max}$(^{3}He,α)=53 (1971Co20).
1900 *4*		&	
1913[@] *5*	(3,4)[b]		$d\sigma/d\Omega_{max}$(^{3}He,α)=150 (1971Co20).
1951 *4*	(3,4)[b]	&	$d\sigma/d\Omega_{max}$(^{3}He,α)=290 (1971Co20).
2056[a] *4*	(3,4)[b]	&	$d\sigma/d\Omega_{max}$(^{3}He,α)=140 (1971Co20).
2136[@] *5*			$d\sigma/d\Omega_{max}$(^{3}He,α)=67 (1971Co20).
2210[@] *5*			$d\sigma/d\Omega_{max}$(^{3}He,α)=62 (1971Co20).

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^{89}Y(d,t),(^{3}He,α) 1973Da10,1971Co20 (continued)

^{88}Y Levels (continued)

E(level)[†]	Comments
2252[@] 5	$d\sigma/d\Omega_{max}$(^{3}He,α)=100 (1971Co20).
2305[@] 5	$d\sigma/d\Omega_{max}$(^{3}He,α)=72 (1971Co20).

[†] From (^{3}He,α) and (d,t) of 1973Da10, except where noted. ΔE reported to vary from 2 keV for the lowest to 4 keV for the highest energies. Individual uncertainties assigned by the evaluators.
[‡] From DWBA analysis of (d,t) (1973Da10). L values from (^{3}He,α) are in agreement with (d,t).
[#] Average of C^2S from (d,t) at 14.0 MeV and 15.8 MeV (1973Da10). Uncertainty in absolute cross sections is 15%. Calculations take $g_{9/2}$ neutron transfer for L=4, $p_{1/2}$ neutron transfer for L=1 and $f_{5/2}$ neutron transfer for L=3, except where noted.
[@] From (^{3}He,α) measurement of 1971Co20. Not observed by others.
[&] Weak.
[a] Broadened peak indicates unresolved doublet.
[b] From DWBA analysis of 1971Co20.