^{176}Yb(^{3}He,d),(α,t) 1971On02

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	F. G. Kondev	NDS 159, 1 (2019)	30-Aug-2019

^{176}Yb(^{3}He,d): 96.43% enriched target. E=28 MeV. Measured scattered deuteron. Detector: magnetic spectrograph, FWHM=18-21 MeV.
^{176}Yb(α,t): 96.43% enriched target. E=30 MeV. Measured scattered triton. Detector: magnetic spectrograph, FWHM=14-17 MeV. Other: 1975Bu02.
$J^{\pi}(^{176}Yb)=0^{+}$.

^{177}Lu Levels

E(level)[†]	J$^{\pi}$[#]	L[@]	Comments
0.0[&]	7/2^{+}	4	J$^{\pi}$: $\sigma(^{3}He,d)/\sigma(\alpha,t)(exp)=0.16$; $\sigma(^{3}He,d)/\sigma(\alpha,t)(th)=0.17$.
123[&]	9/2^{+}	4	J$^{\pi}$: $\sigma(^{3}He,d)/\sigma(\alpha,t)(exp)=0.15$; $\sigma(^{3}He,d)/\sigma(\alpha,t)(th)=0.18$.
153[a]	9/2^{-}	5	J$^{\pi}$: $\sigma(^{3}He,d)/\sigma(\alpha,t)(exp)=0.2$; $\sigma(^{3}He,d)/\sigma(\alpha,t)(th)=0.12$.
291[a]	11/2^{-}	5	J$^{\pi}$: $\sigma(^{3}He,d)/\sigma(\alpha,t)(exp)=0.14$; $\sigma(^{3}He,d)/\sigma(\alpha,t)(th)=0.13$.
460[b]	5/2^{+}	2	J$^{\pi}$: $\sigma(^{3}He,d)/\sigma(\alpha,t)(exp)=0.45$; $\sigma(^{3}He,d)/\sigma(\alpha,t)(th)=0.48$.
≈554[h]			
576[c]	1/2^{+},3/2^{+}	0+2	J$^{\pi}$: $\sigma(^{3}He,d)/\sigma(\alpha,t)(exp)=0.45$; $\sigma(^{3}He,d)/\sigma(\alpha,t)(th,L=0)=1.04$, $\sigma(^{3}He,d)/\sigma(\alpha,t)(th,L=2)=0.52$.
765[d]	5/2^{-}	3	J$^{\pi}$: $\sigma(^{3}He,d)/\sigma(\alpha,t)(exp)=0.66$; $\sigma(^{3}He,d)/\sigma(\alpha,t)(th)=0.35$.
798[‡g]			
814[d]	9/2^{-}	5	J$^{\pi}$: $\sigma(^{3}He,d)/\sigma(\alpha,t)(exp)=0.16$; $\sigma(^{3}He,d)/\sigma(\alpha,t)(th)=0.16$.
832[h]			
959[d]	3/2^{-}	1	J$^{\pi}$: $\sigma(^{3}He,d)/\sigma(\alpha,t)(exp)=2.12$; $\sigma(^{3}He,d)/\sigma(\alpha,t)(th)=1.1$.
1100	(3/2^{+})	(2)	J$^{\pi}$: $\sigma(^{3}He,d)/\sigma(\alpha,t)(exp)=0.47$; $\sigma(^{3}He,d)/\sigma(\alpha,t)(th)=0.76$.
1126	(3/2^{+})	(2)	J$^{\pi}$: $\sigma(^{3}He,d)/\sigma(\alpha,t)(exp)=0.97$; $\sigma(^{3}He,d)/\sigma(\alpha,t)(th)=0.76$.
1193[‡]			
1294			
≈1333			
1390[f]	(5/2^{-})	3	J$^{\pi}$: $\sigma(^{3}He,d)/\sigma(\alpha,t)(exp)=1.05$; $\sigma(^{3}He,d)/\sigma(\alpha,t)(th)=0.51$.
1431			
≈1481[‡g]			
1513[‡g]			
1541[‡g]			
1602			
1629[f]	(9/2^{-})	5	J$^{\pi}$: $\sigma(^{3}He,d)/\sigma(\alpha,t)(exp)=1.1$; $\sigma(^{3}He,d)/\sigma(\alpha,t)(th)=0.21$.
1647[e]	(3/2^{-})	1	J$^{\pi}$: $\sigma(^{3}He,d)/\sigma(\alpha,t)(exp)=2.98$; $\sigma(^{3}He,d)/\sigma(\alpha,t)(th)=0.21$.
≈1668[‡g]			
1733[e]	(7/2^{-})	3	J$^{\pi}$: $\sigma(^{3}He,d)/\sigma(\alpha,t)(exp)=0.64$; $\sigma(^{3}He,d)/\sigma(\alpha,t)(th)=0.65$.
1761			
1859	(9/2^{-})	(5)	J$^{\pi}$: $\sigma(^{3}He,d)/\sigma(\alpha,t)(exp)=0.22$; $\sigma(^{3}He,d)/\sigma(\alpha,t)(th)=0.22$.
1883[h]			
1964[‡g]			
1995[‡g]			
2047			
2164[‡g]			
≈2184[‡g]			
2427[‡g]			

[†] From ^{176}Yb(α,t), unless otherwise stated.

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^{176}Yb(^{3}He,d),(α,t) 1971On02 (continued)

^{177}Lu Levels (continued)

‡ From ^{176}Yb(^{3}He,d).
# From 1971On02, based on the deduced L transfer values and comparison of the spectroscopic factors with Nilsson model predictions.
@ From a comparison of measured (^{3}He,d) and (α,t) cross-section ratios with calculated DWBA values.
& $K^{\pi}=7/2^{+}$, $\pi 7/2[404]$.
a $K^{\pi}=9/2^{-}$, $\pi 9/2[514]$.
b $K^{\pi}=5/2^{+}$, $\pi 5/2[402]$.
c $K^{\pi}=1/2^{+}$, $\pi 1/2[411]$.
d $K^{\pi}=1/2^{-}$, $\pi 1/2[541]$.
e $K^{\pi}=1/2^{-}$, $\pi 1/2[530]$. The assignment is tentative.
f $K^{\pi}=3/2^{-}$, $\pi 3/2[532]$. The assignment is tentative.
g Populated only in ^{176}Yb(^{3}He,d).
h Populated only in ^{176}Yb(α,t).