

¹⁷⁴Yb(³He,d) 1971On02

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	M. Shamsuzzoha Basunia		NDS 102, 719 (2004)	1-Jun-2004

¹⁷⁴Yb 96% enriched targets. E(³He)=28 MeV. Magnetic spectrograph (FWHM=15-20 keV). Measured deuteron spectra at eight different angles between 10° and 90°. DWBA analysis of angular distributions. Assignments of L values are based on DWBA calculations and on a comparison between cross sections for the (³He,d) and (α,t) reactions. These cross sections show a strong L-transfer dependence. Band assignments are given on the bases of the the Nilsson model and on the energy systematics of Nilsson orbitals in the neighboring ¹⁷³Lu and ¹⁷⁵Lu isotopes.

¹⁷⁵Lu Levels

E(level) [†]	Jπ [‡]	L	S [#]	Comments
0 [@]	7/2 ⁺	4	0.78	
347	5/2 ⁺ & 1/2 ⁻ , 5/2 ⁻	1,2,3		Multiplet, J ^π =5/2 ⁺ member of 5/2[402] and J ^π =1/2 ⁻ and 5/2 ⁻ members of 1/2[541]. S: 0.71 for L=1, 1.2 for L=2 and 1.51 for L=3 provided the entire cross section for this multiplet corresponds to the respective L value.
417 ^{&}	(9/2) ⁻	5	1.14	
518	3/2 ⁻ & 11/2 ⁻	1,5		Multiplet, J ^π =3/2 ⁻ member of 1/2[541] and J ^π =11/2 ⁻ member of 9/2[541]. S: 0.17 for L=1, 2.6 for L=5, provided the entire cross section for this multiplet corresponds to the respective L value.
634				
674				
762				
≈881				
≈960				
1001 ^a	(3/2) ⁻	(1)	0.02	
1066 ^a	(5/2) ⁻	3	0.14	
1168 ^a	(7/2) ⁻	3	0.006	
1223				
1273 ^a	(9/2) ⁻	5	0.42	
1320 ^b	(3/2) ⁻	1	0.45	
1349	(3/2) ⁺	(2)	0.32	
1418 ^b	(7/2) ⁻	3	0.57	
1516				
1563				
1611				
1642 ^b	(11/2) ⁻	(5)	0.32	
≈1769				
≈1803				
≈1902				
1977				

[†] ΔE≈2 keV for strongly populated states.

[‡] From Adopted Levels. Given only for states where an L assignment has been made.

[#] S=dσ(exp)/2dσ(DWBA) normalized to the theoretical value for the 5/2⁺,5/2[402] state in ¹⁷³Lu and ¹⁷⁷Lu.

[@] 7/2(404) band.

[&] 1/2(541) band.

^a 3/2(532) band.

^b 1/2(530) band.