^{160}Dy(d,t),(^{3}He,α) 1970Gr46,1975Gr37

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	C. W. Reich	NDS 113, 157 (2012)	31-Dec-2010

Additional information 1.

(d,t) reaction at E_d=12.1 MeV (1970Gr46) with FWHM≈15 keV as estimated by evaluator from spectra and (^{3}He,α) at E(^{3}He)=25.5 MeV, with FWHM=45 keV (1975Gr37). t and α detected in magnetic spectrograph, with t detected at 60°, 90°, and 125° and α at 40°.

1970Gr46 also report data from the (d,p) reaction leading to levels in ^{159}Dy.

^{159}Dy Levels

In (^{3}He,α), the ground state was not populated sufficiently to be identified, and due to the poor resolution, the observed peaks usually contain more than one level.

E(level)[†]	J$^{\pi}$[‡]	S[#@]	Comments
0[b]	3/2$^-$	91	
136[b]	7/2$^-$	132	E(level): Lowest energy peak reported in (^{3}He,α) and assigned energy of 137 keV. S: dσ/dΩ=45 μb/sr at θ=40° in (^{3}He,α).
239[ab]	9/2$^-$	68[&]	E(level): Peak reported in (^{3}He,α) at 242, could include both 239 levels. S: dσ/dΩ=26 μb/sr at θ=40° in (^{3}He,α) for the composite peak.
239[ac]	9/2$^+$	68[&]	S: dσ/dΩ=26 μb/sr at θ=40° in (^{3}He,α) for the composite peak.
309[d]	5/2$^-$	13	
352[e]	11/2$^-$	50	E(level): Peak reported in (^{3}He,α) at 359, could include 352 and two 365 levels. S: dσ/dΩ=241 μb/sr at θ=40° in (^{3}He,α) for the 359 peak.
365[ac]	13/2$^+$	65[&]	S: dσ/dΩ=241 μb/sr at θ=40° in (^{3}He,α) for the 359 peak.
365[ab]	11/2$^-$	65[&]	S: dσ/dΩ=241 μb/sr at θ=40° in (^{3}He,α) for the 359 peak.
395[d]	7/2$^-$	31	
418[f]	3/2$^+$	290	
471			S: No value listed at θ=90° by 1970Gr46. Values of 5 μb/sr and 13 μb/sr at θ=60° and 125°, respectively, are listed by these authors.
506[d]	9/2$^-$	4	E(level): Peak reported in (^{3}He,α) at 515, could include 534 level. S: dσ/dΩ=14 μb/sr at θ=40° in (^{3}He,α).
534[g]	1/2$^-$	36	
549[k]	3/2$^+$	83	
564[h]	1/2$^+$	399	
607		23	
627[i]	3/2$^-$	13	
690[i]	5/2$^-$	55	
749[ag]	7/2$^-$	92[&]	
749[aj]	3/2$^-$	92[&]	
774[aj]	5/2$^-$	26[&]	
774[ai]	7/2$^-$	26[&]	
795		63	E(level): Peak reported in (^{3}He,α) at 799, could include 774 and 828 levels. J$^{\pi}$: Assigned as 9/2,1/2[521] by 1974Ny01. S: dσ/dΩ=43 μb/sr at θ=40° in (^{3}He,α).
828[j]	7/2$^-$	31	
857		8	
990			E(level): From (^{3}He,α). May correspond to a peak reported at 983 in (d,p). This peak is not reported in (d,t).

Continued on next page (footnotes at end of table)

^{160}Dy(d,t),(^{3}He,α) 1970Gr46,1975Gr37 (continued)

^{159}Dy Levels (continued)

E(level)[†]	Comments
	S: dσ/dΩ=47 μb/sr at θ=40° in (^{3}He,α).
1898	E(level): From (^{3}He,α). May correspond to a peak reported at 1891 in (d,p). S: dσ/dΩ=43 μb/sr at θ=40° in (^{3}He,α).

[†] From the (d,t) reaction, unless noted otherwise. Levels reported in (^{3}He,α) are noted in comments.
[‡] J^{π}, band, and Nilsson-orbital assignments are those of the authors and are based on the angular distributions and on comparison of measured and theoretical cross sections. These assignments have been discussed by 1974Ny01 and 1975Gr38 and agree with those in the ^{159}Dy Adopted Levels.
[#] Label=dσ/dΩ(d,t).
[@] Values in μb/sr, measured at 90°.
[&] Value is for both components in the composite peak.
[a] Peak interpreted as a doublet.
[b] Band(A): $K^{\pi}=3/2^{-}$, ν3/2[521] band.
[c] Band(B): $K^{\pi}=5/2^{+}$, ν5/2[642] band.
[d] Band(C): $K^{\pi}=5/2^{-}$, ν5/2[523] band.
[e] Band(D): $K^{\pi}=11/2^{-}$, ν11/2[505] bandhead.
[f] Band(E): $K^{\pi}=3/2^{+}$, ν3/2[402] bandhead. Contains an admixture of ν3/2[651].
[g] Band(F): $K^{\pi}=1/2^{-}$, ν1/2[521] band.
[h] Band(G): $K^{\pi}=1/2^{+}$, ν1/2[400] bandhead.
[i] Band(H): $K^{\pi}=3/2^{-}$, ν3/2[532] band.
[j] Band(I): $K^{\pi}=1/2^{-}$, ν1/2[530] band.
[k] Band(J): $K^{\pi}=3/2^{+}$, ν3/2[651] bandhead. Contains an admixture of ν3/2[402].

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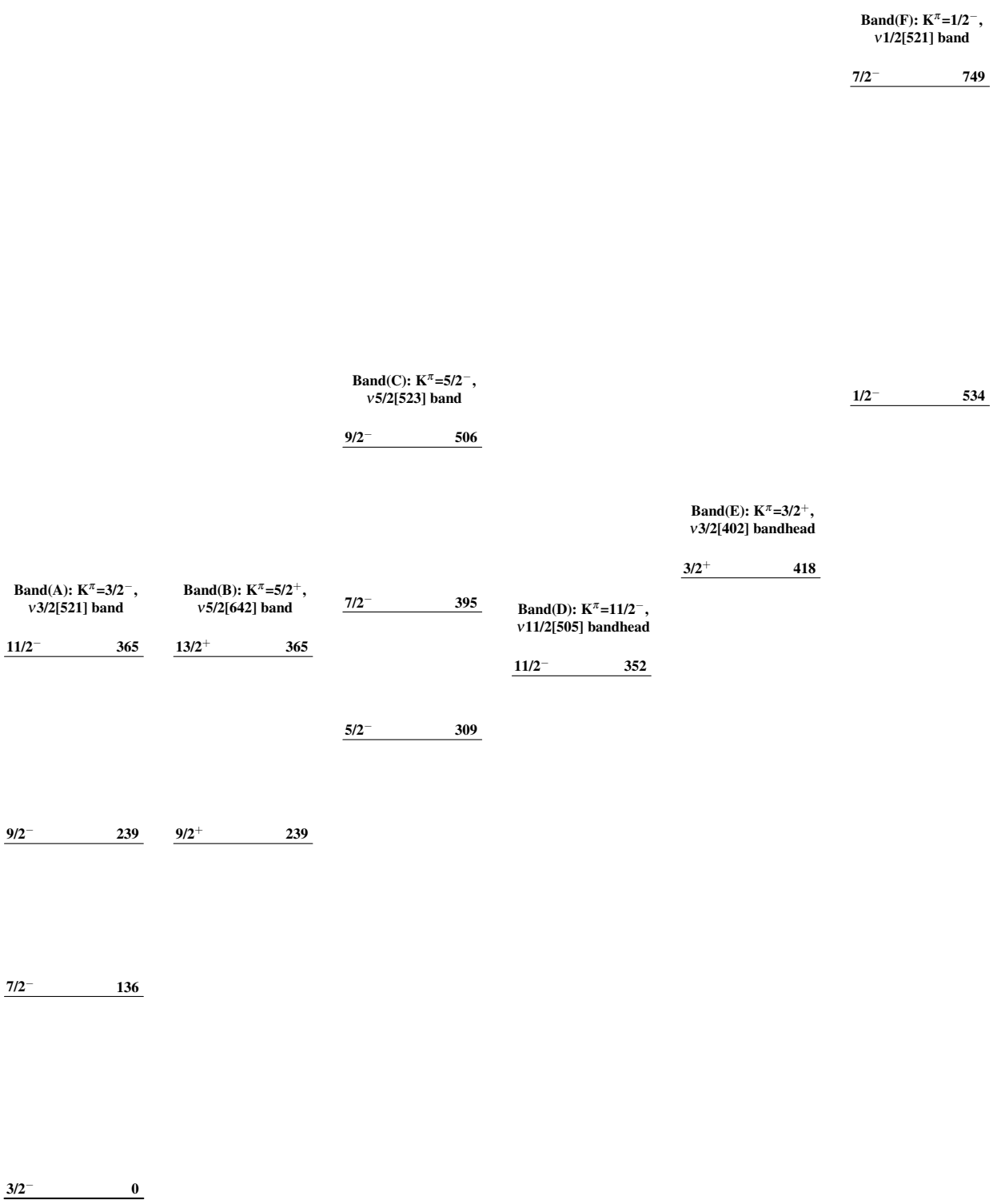

$^{159}_{66}Dy_{93}$

^{160}Dy(d,t),(^{3}He,α) 1970Gr46,1975Gr37 (continued)

Band(I): $K^{\pi}=1/2^{-}$, ν1/2[530] band

$7/2^{-}$ 828

Band(H): $K^{\pi}=3/2^{-}$, ν3/2[532] band

$7/2^{-}$ 774

$5/2^{-}$ 774

$3/2^{-}$ 749

$5/2^{-}$ 690

$3/2^{-}$ 627

Band(G): $K^{\pi}=1/2^{+}$, ν1/2[400] bandhead

$1/2^{+}$ 564

Band(J): $K^{\pi}=3/2^{+}$, ν3/2[651] bandhead

$3/2^{+}$ 549

$^{159}_{66}Dy_{93}$