^{160}Dy(^{3}He,d),^{160}Dy(α,t) 1977Pa23

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	C. W. Reich	NDS 112,2497 (2011)	1-Jun-2011

Additional information 1.

These data are from (^{3}He,d) and (α,t) reactions on enriched (78.9%) ^{160}Dy with E(^{3}He)=24 MeV and E(α)=27 MeV. Outgoing particles measured in magnetic spectrograph with FWHM ≈ 12 and 14 keV at eight or nine angles for (^{3}He,d) and two angles for (α,t).

Authors give (^{3}He,d) and (α,t) cross sections at 45° and 60°.

1977Pa23 define a "nuclear-structure factor" (denoted here as 'S′) as the ratio of the measured (^{3}He,d) cross sections to the results of a DWBA calculation (appropriately normalized). These S values are given for a number of levels and are listed here.

^{161}Ho Levels

Additional information 2.

E(level)[†]	Jπ[‡]	L[#]	dσ/dΩ(μb/sr)[@]	Comments
0[a]	7/2−		7.8	S=0.07.
100[a]	(9/2−)			
212 *2*				Jπ: see comment for 222 level. L: see comment for 222 level.
222 *2*		2+5	90	Jπ: this level and the 211 levels are assigned as the 11/2−,7/2[523], 1/2+,1/2[411], and 3/2+,1/2[411] states. L: value applies to 212 and 222 levels. Cross-section value includes 211, 221, and 222 levels.
253[c] *2*	7/2+	4	26	S=1.03.
282				
298[d] *2*	3/2+	2	24	S=0.19.
316[b] *2*	5/2+	2	116	S=0.81.
353[b]	7/2+		5.7	S=0.27.
372[d] *2*	5/2+	2	31	S=0.21.
424[e] *2*	1/2−	1	29	S=0.09.
446[f] *2*	5/2+	2	102	S=0.67.
459 *2*		2[&]	44	S=0.41. Jπ: assigned as a doublet, 5/2−,1/2[541] and 7/2+,3/2[411]. dσ/dΩ(μb/sr): value is for the 459,463 doublet.
526[e] *2*	3/2−	1	56	S=0.17.
578[e] *2*	9/2−	5	14	S=0.86.
646				
694[e] *2*	7/2−	3,4[&]	13	S=0.11.
725		≥2[&]	6.1	
824[g]	5/2−			
904		≥2[&]	6.1	
933				
940			8.6	
955[h] *2*	3/2+	2[&]	32	S=0.23.
1100[i] *2*	1/2+	0	74	S=0.23.
1177 *2*			10	
1214 *2*			8.0	
1280[j] *2*	11/2−	5[&]	13	S=0.73.
1392 *2*			32	
1438		3[&]	7.2	

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^{161}Ho Levels (continued)

E(level)[†]	L[#]	dσ/dΩ(μb/sr)[@]	Comments
1462 *2*	≥2[&]	19	
1487		9.5	
1519 *2*		11	
1592 *2*		14	
1635		32	Value includes 1635 and 1644 levels.
1644			
1665		30	Value includes 1644 and 1665 levels.
1674			
1725 *2*		41	

[†] Average of values from the two reactions; uncertainties are from authors′ general statement of 2 keV for "strongly populated levels".
[‡] J^{π} for excited levels and band assignments are based on L values, energy spacings within bands, and agreement of measured and calculated cross sections. These are in agreement with those in the ^{161}Ho Adopted Levels.
[#] L values were determined from ratios of (^{3}He,d) and (α,t) cross sections and comparison of (^{3}He,d) angular distributions at 8 or 9 angles with calculated values. Some L values are given explicitly by authors in their angular distribution plots (fig. 7). Others that are assigned from the cross-section-ratio data shown in their fig. 11 are so identified.
[@] Measured for (^{3}He,d) at 45°.
[&] From the plot of the ratio of the (^{3}He,d) and (α,t) cross sections at 45° (fig. 11 in 1977Pa23).
[a] Band(A): 7/2[523] band.
[b] Band(B): 1/2[411] band.
[c] Band(C): 7/2[404] bandhead.
[d] Band(D): 3/2[411] band.
[e] Band(E): 1/2[541] band.
[f] Band(F): 5/2[402] bandhead.
[g] Band(G): 5/2[532] bandhead.
[h] Band(H): bandhead of the K-2 γ-vibration based on 7/2[404], mixed with 3/2[402].
[i] Band(I): bandhead of the K-2 γ-vibrational based on 5/2[402], mixed with 1/2[400].
[j] Band(J): 9/2[514] band member.

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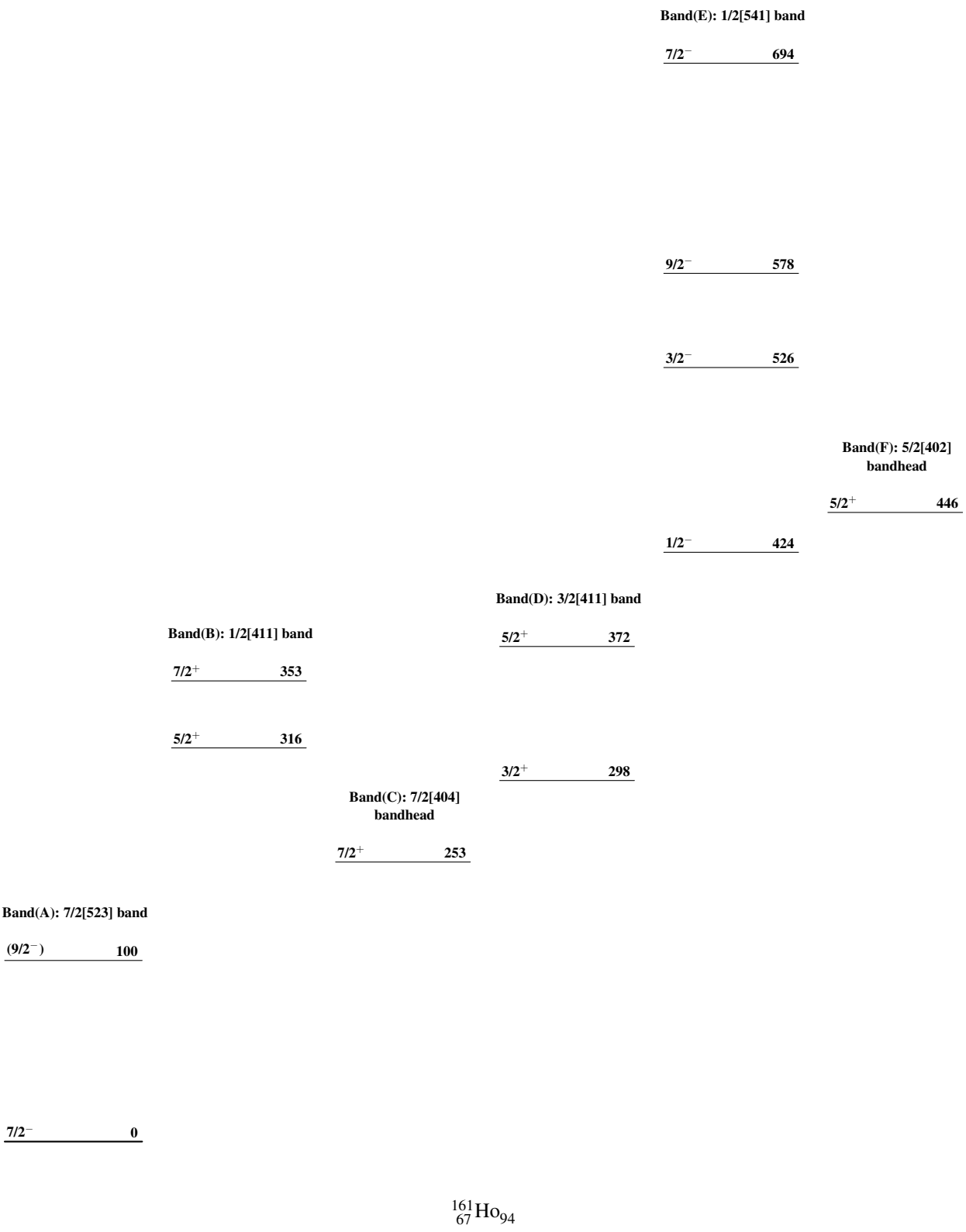

$^{161}_{67}Ho_{94}$

^{160}Dy(^{3}He,d),^{160}Dy(α,t) 1977Pa23 (continued)

Band(J): 9/2[514] band member

11/2$^-$	**1280**

Band(I): Bandhead of the K-2 γ-vibrational based on 5/2[402], mixed with 1/2[400]

1/2$^+$	**1100**

Band(H): Bandhead of the K-2 γ-vibration based on 7/2[404], mixed with 3/2[402]

3/2$^+$	**955**

Band(G): 5/2[532] bandhead

5/2$^-$	**824**

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