^{158}Dy(α,t) 1977Pa23

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

Additional information 1.
(α,t) with E(α)=30 MeV, magnetic spectrograph with FWHM≈12 keV at 35° and 60°.

^{159}Ho Levels

E(level)†	Jπ‡	L#	S@	Comments
0[b]	7/2⁻		1	L: Cross-section ratio (fig. 10 of 1977Pa23) suggests L=1,2, but L=(3) from (p,α) (1982Ha17).
97[b]	9/2⁻	5	4	
166[c]	7/2⁺	4	64	
218[b]	11/2⁻	(5)&	135	
253[e]	5/2⁺	2	93	S: Value is larger than expected for 5/2[402] Nilsson state. This may reflect contributions from the L=2 members of the π3/2[411] and/or 1/2[411] bands.
315[d]	5/2⁺	2	6	
340			2	
365		(3)	6	
383	3/2⁺,5/2⁺	2	2	
426[f]	1/2⁻	1	1	
464[f]	5/2⁻	3	17	
482		2,3	4	L: Adopted L=4 from (p,α) (1982Ha17).
520[f]	3/2⁻	1	1	
535[b]	15/2⁻		3	
590[f]	9/2⁻	5	38	L: The angular-distribution graphs (fig. 6) of 1977Pa23 indicate a level at 539 keV, which evaluator assumes is actually this level (590 keV).
679[f]	7/2⁻	3	10	
692			3	
718	3/2⁺,5/2⁺	2	2	
780		(4)	3	
814[h]	3/2⁺	2	8	Jπ: L=2 indicates 3/2⁺,5/2⁺. Vibrational assignment gives 3/2⁺.
876[i]	1/2⁺	0	2	
906		1,2	3	
934	7/2⁺,9/2⁺	4	10	Jπ: 9/2⁺ in Adopted Levels.
1040				
1156[g]	11/2⁻	5	21	Jπ: L=5 indicates 9/2⁻,11/2⁻. Band assignment and population in this reaction gives preference to 11/2⁻.
1268		>3	16	
1295		a		
1312		a		
1330	1/2⁻,3/2⁻	1	<1	
1403			7	L: Cross-section ratio (fig. 10 of 1977Pa23) suggests L=4,(3).
1428	3/2⁺,5/2⁺	2	2	
1452			2	L: Cross-section ratio (fig. 10 of 1977Pa23) suggests L=3.
1480		≤2	1	
≈1496		2,3	≈2	
≈1516		2,3	≈3	
1588	1/2,3/2⁻	0,1	1	
1688		≤2		
1752	1/2⁺	0	2	
1804	(7/2⁺,9/2⁺)	(4)	7	
1823		(3)	2	L: From the cross-section ratio (fig. 10 of 1977Pa23).

Continued on next page (footnotes at end of table)

^{158}Dy(α,t) 1977Pa23 (continued)

^{159}Ho Levels (continued)

E(level)[†]	S[@]
1839	3
1863	5

† Uncertainty is 2 keV for strongly populated levels from general statement.
‡ From the list of populated levels (table 3) in 1977Pa23. Based on L value, intensity patterns, and band assignment. These assignments agree with those in the ^{159}Ho Adopted Levels, unless otherwise noted.
# Deduced by 1977Pa23 from comparison of measured angular distributions with DWBA calculations and ratio of (^{3}He,d) and (α,t) cross sections.
@ Cross section (μb/sr) at 35°.
& From analysis of doublet 212+218 peak (see fig. 6 of 1977Pa23).
a L=(2) for combined 1292+1310 levels.
b Band(A): π7/2[523] band.
c Band(B): π7/2[404] bandhead.
d Band(C): π1/2[411].
e Band(D): π5/2[402] bandhead.
f Band(E): π1/2[541] band.
g Band(F): π9/2[514] band member.
h Band(G): $K^\pi=3/2^+$ bandhead. probable bandhead of the K-2 γ vibration built on π7/2[404], with an admixture of π3/2[402].
i Band(H): $K^\pi=1/2^+$ bandhead. probable bandhead of the K-2 γ vibration built on π5/2[402], with an admixture of π1/2[400].

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Band(F): π9/2[514] band member

11/2$^-$ 1156

Band(E): π1/2[541] band

7/2$^-$ 679

9/2$^-$ 590

Band(A): π7/2[523] band

15/2$^-$ 535

3/2$^-$ 520

5/2$^-$ 464

1/2$^-$ 426

Band(C): π1/2[411]

5/2$^+$ 315

Band(D): π5/2[402] bandhead

5/2$^+$ 253

11/2$^-$ 218

Band(B): π7/2[404] bandhead

7/2$^+$ 166

9/2$^-$ 97

7/2$^-$ 0

$^{159}_{67}Ho_{92}$

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Band(G): $K^{\pi}=3/2^{+}$ bandhead		Band(H): $K^{\pi}=1/2^{+}$ bandhead	
$3/2^{+}$	814	$1/2^{+}$	876

$^{159}_{67}Ho_{92}$