^{162}Er(p,α)   **1982Ha17**

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

Additional information 1.

(p,α) with E(p)=17 MeV, measured angular distributions in an Enge split-pole spectrograph at 5° intervals from≈6.5° to 40°.
   Enriched (>99%) target with thickness≈100 μg/cm^2. Measured excitation energies, cross sections. DWBA calculations. Data
   analyzed using the Nilsson model with pairing and Coriolis mixing. Deduce Nilsson-orbital assignments and nuclear-structure
   factors. For a discussion of the nuclear-structure factor, see 1982Ha17.

^{159}Ho Levels

E(level)[†]	J$^{\pi}$[‡]	L[#]	S[@&]	Comments
0[a]	7/2$^-$	(3)	1.4	Nuclear-structure factor=0.04.
				L: Measured angular distributions do not agree with DWBA calculations.
96[a]	9/2$^-$	(5)	3.7	Nuclear-structure factor=0.10.
				L: Measured angular distributions do not agree with DWBA calculations.
166[i]	7/2$^+$	4	2.9	Nuclear-structure factor=1.0.
216[a]	11/2$^-$	5	28	Nuclear-structure factor=1.6. Peak obscured by that for another state (1982Ha17).
253[c]	5/2$^+$	2	29	Nuclear-structure factor=1.07.
314[b]	5/2$^+$	2	11	Nuclear-structure factor=0.42.
364[c]	(7/2$^+$)		4.8	Nuclear-structure factor≤0.43.
380[d]	(3/2$^+$,5/2$^+$)	(2)	1.0	Nuclear-structure factor=0.04. Value deduced for J$^{\pi}$=5/2$^+$.
≈460[e]	5/2$^-$		≈0.9	
482[d]	7/2$^+$,9/2$^+$	4	8.0	Nuclear-structure factor=0.67. Value deduced for 7/2$^+$. 9/2$^+$ band member is assigned to level at 630 keV.
536[a]	15/2$^-$		7.4	
562			1.0	
592[e]	9/2$^-$		0.5	
630[d]	(9/2$^+$)		0.6	
673[g]	5/2$^+$	2	4.6	Nuclear-structure factor=0.13.
≈692				
717[h]	(5/2$^-$,7/2$^-$)	(3)	2.3	Nuclear-structure factor=0.19. Value deduced for 7/2.
				L: Measured angular distributions do not agree with DWBA calculations.
				J$^{\pi}$: Assigned (3/2$^+$,5/2$^+$), from L=2 in (^{3}He,d). Assigned as the 7/2$^-$ band member in (p,α). (7/2$^-$) is given in the adopted values.
781[g]	7/2$^+$	4	8.6	Nuclear-structure factor=1.7.
815[h]	(9/2$^-$)	(5)	1.9	Nuclear-structure factor=0.34.
874	1/2$^+$		1.6	
899[h]	(11/2)$^-$	5	9.5	Nuclear-structure factor=1.3.
935[g]	(9/2)$^+$		3.6	Nuclear-structure factor=0.36.
966			1.0	
1074			2.6	
1178	1/2$^+$	0	6.8	
1201[f]	1/2$^+$	0	9.6	Nuclear-structure factor=(0.27). Value assumes band and spin assignments are correct.
				J$^{\pi}$: Tentative band assignment.
1249	(7/2$^+$,9/2$^+$)	(4)	3.6	
1272			2.7	
1319[f]	(3/2$^+$,5/2$^+$)	(2)	3.8	Nuclear-structure factor=(0.23). Value assumes band and 5/2 spin assignments are correct.
				J$^{\pi}$: Tentative band assignment.
1333[f]	(3/2$^+$)		≈1.0	J$^{\pi}$: Tentative band assignment. Assigned (1/2$^-$,3/2) in Adopted Levels.
1552		(4,5)	4.4	

<center>${}^{162}\text{Er}(\text{p},\alpha)$ **1982Ha17 (continued)**</center>

<center><u>${}^{159}\text{Ho}$ Levels (continued)</u></center>

[†] Uncertainties in the excitation energies are of the order of 3 keV for the large well resolved peaks.

[‡] From 1982Ha17; based on L value, intensity patterns, and band assignments. These assignments agree with those in ${}^{159}\text{Ho}$ Adopted Levels, except as noted.

[#] Values as listed on graphs showing the measured angular distributions (figs. 2-7 of 1982Ha17).

[@] Label=$d\sigma/d\Omega(\mu\text{b/st})$.

[&] Measured at 30°. Relative values for large well resolved peaks have probable errors of 10%. Absolute values have uncertainties of≈20%.

[a] Band(A): $\pi 7/2[523]$ band.

[b] Band(B): $\pi 1/2[411]$ bandhead.

[c] Band(C): $\pi 5/2[402]$ band.

[d] Band(D): $\pi 3/2[411]$ band.

[e] Band(E): $\pi 1/2[541]$ band.

[f] Band(F): $\pi 1/2[420]$ band.

[g] Band(G): $\pi 5/2[413]$ band.

[h] Band(H): $\pi 5/2[532]$ band.

[i] Band(I): $\pi 7/2[404]$ bandhead.

<center>${}^{162}\text{Er}(\text{p},\alpha)$ **1982Ha17 (continued)**</center>

^{162}Er(p,α)   1982Ha17

Band(F): π1/2[420] band

(3/2$^+$)   1333
(3/2$^+$,5/2$^+$)   1319

1/2$^+$ 1201

Band(D): π3/2[411] band

(9/2$^+$)   630

Band(E): π1/2[541] band

9/2$^-$ 592

Band(A): π7/2[523] band

15/2$^-$ 536

7/2$^+$,9/2$^+$ 482

5/2$^-$ $\approx$460

Band(C): π5/2[402] band

(3/2$^+$,5/2$^+$)   380

(7/2$^+$)   364

Band(B): π1/2[411] bandhead

5/2$^+$ 314

5/2$^+$ 253

11/2$^-$ 216

9/2$^-$ 96

7/2$^-$ 0

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

^{162}**Er(p,α)**   **1982Ha17 (continued)**

Band(G): π5/2[413] band

(9/2)$^+$ 935

Band(H): π5/2[532] band

(11/2)$^-$ 899

(9/2$^-$)   815

7/2$^+$ 781

(5/2$^-$,7/2$^-$)   717

5/2$^+$ 673

Band(I): π7/2[404]
bandhead

7/2$^+$ 166

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