

$^{156}\text{Dy}(\text{d},\text{d}')$  1968Gr08

Type	Author	History Citation	Literature Cutoff Date
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## Additional information 1.

$^{156}\text{Dy}(\text{d},\text{d}')$ ,  $E(\text{d})=12$  MeV. Isotope-separated target (enrichment $>99\%$ ), thickness $\approx 40$   $\mu\text{g}/\text{cm}^2$ , on thin C backings;  $\text{d}'$  analyzed in a broad-range magnetic spectrograph (FWHM $\approx 8$  keV) and recorded in photographic emulsions. Spectra recorded at  $\theta=60, 90$ , and  $125^\circ$ .

From the ratio of  $(\text{d},\text{d}')$  cross sections at  $90^\circ$  to those at  $125^\circ$ , 1968Gr08 distinguish between E2 and E3 excitations.

 $^{156}\text{Dy}$  Levels

The B(E2) and B(E3) values (1968Gr08) are based on a linear relation between these values and the  $(\text{d},\text{d}')$  cross sections.

E(level)	$J^\pi$ <sup>‡</sup>	S# <sup>@</sup>	Comments
0&	0 <sup>+</sup>	11500	
138&	2 <sup>+</sup>	2030	
403&	4 <sup>+</sup>	104	
674 <sup>a</sup>	0 <sup>+</sup>	7	
768&	6 <sup>+</sup>	6	
828 <sup>a</sup>	2 <sup>+</sup>	5	
890 <sup>b</sup>	2 <sup>+</sup>	98	B(E2) $\uparrow=0.225$
1087 <sup>a</sup>	4 <sup>+</sup>	5	
1165 <sup>b</sup>	4 <sup>+</sup>	8	
1367	3 <sup>-</sup>	193	B(E3) $\uparrow=0.194$
1404	(3 <sup>-</sup> ) <sup>†</sup>	12	
1523	5 <sup>-</sup> ,6 <sup>+</sup>	13	$J^\pi$ : 1968Gr08 report $J^\pi=(5^-)$ . If this peak corresponds to the 1526.1 level, then $J^\pi=5^-$ . However, it may also contain a contribution from the 1525.2, 6 <sup>+</sup> , level.
1609	(3 <sup>-</sup> ) <sup>†</sup>	14	
1794	4 <sup>+</sup> <sup>†</sup>	19	
1927	(3 <sup>-</sup> ) <sup>†</sup>	3	
1948	(3 <sup>-</sup> ) <sup>†</sup>	4	
2071		3	
2086	2 <sup>+</sup> <sup>†</sup>	9	
2135		4	
2179	(3 <sup>-</sup> ) <sup>†</sup>	13	L: Angular distribution in $(\text{p},\text{t})$ is well described by $L=3$ . If this is the same as the 2169 level in $^{156}\text{Ho}$ $\varepsilon$ decay (56 min), then band-structure arguments indicate $J^\pi=3^+$ .
2187		14	

<sup>†</sup> Value not reported by 1968Gr08. Assigned by the evaluator from the Adopted Values.

<sup>‡</sup> Values as reported by 1968Gr08. Assignment of E2, E3, or multiple excitation is based on the ratio of  $90^\circ$  and  $125^\circ$  cross sections. These values are in agreement with the Adopted Values.

# Label= $(\text{d}\sigma/\text{d}\Omega)(\mu\text{b}/\text{sr})$ .

@ Values at  $\theta=125^\circ$ .

& Band(A):  $K^\pi=0^+$  g.s. band.

<sup>a</sup> Band(B): First excited  $K^\pi=0^+$  band.

<sup>b</sup> Band(C):  $K^\pi=2^+$   $\gamma$ -vibrational band.

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		Band(C): $K^\pi=2^+$ $\gamma$ -vibrational band	
		<u>4<sup>+</sup></u>	<u>1165</u>
Band(B): First excited $K^\pi=0^+$ band			
		<u>4<sup>+</sup></u>	<u>1087</u>
		<u>2<sup>+</sup></u>	<u>890</u>
Band(A): $K^\pi=0^+$ g.s. band		<u>2<sup>+</sup></u>	<u>828</u>
		<u>6<sup>+</sup></u>	<u>768</u>
		<u>0<sup>+</sup></u>	<u>674</u>
		<u>4<sup>+</sup></u>	<u>403</u>
		<u>2<sup>+</sup></u>	<u>138</u>
		<u>0<sup>+</sup></u>	<u>0</u>