^{161}Dy(t,p)   **1985Lo19**

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	C. W. Reich, Balraj Singh	NDS 111, 1211 (2010)	12-Apr-2010

$J^\pi(^{161}$Dy g.s.)=5/2$^+$.

1985Lo19: E= 17 MeV. Measured $\sigma(\theta)$ from 7.5° to 67.5° in 7.5° steps. FWHM≈ 15 keV. CCBA and DWBA calculations.

^{163}Dy Levels

Populations for L=0 states relative to 100 for 251 level and adjusted for Q value dependence are given under comments.

E(level)	$J^{\pi\ddagger}$	L†	$d\sigma/d\Omega$ (μb/sr) At 30°	Comments
251$^{\#}$ 5	5/2$^+$	0	174	Relative population=100.
281$^{\#}$ 5	7/2$^+$	^{b}	9	
335$^{\#}$ 5	9/2$^+$	^{b}	4	
415$^{\#}$ 5	11/2$^+$		4	L: $\sigma(\theta)$ compared with DWBA for L=4.
712 5	5/2$^+$	0	11	Relative population=7.
825 5	$^@$	2	2	
910 5	5/2$^+$	(2)	3	
1004 5		0	4	Relative population=2.
1071 5	$^@$	2	3	
1129 5	5/2$^+$	(0)	2	L: from figure 4 and consultation (in 1998) with one of the authors of 1985Lo19. L=(2) is less likely.
1200 5	$^@$	(2)	2^a	
1258 5	$^@$	(2)	2^a	
1463 5		4	4	
1831 5	5/2$^+$	0	26$^{\&}$	Relative population=23.
1937 5	5/2$^+$	0	33$^{\&}$	Relative population=30.
2053 5	5/2$^+$	0	40$^{\&}$	Relative population=37.
2083 5	$^@$	^{b}	9	
2095 5			7	$d\sigma/d\omega$ at 60°.
2190 5		4	16^a	

† From comparison to DWBA predictions.

‡ From Adopted Levels, unless otherwise stated.

$^{\#}$ Band(A): 5/2[642] band. DWBA reproduces $\sigma(\theta)$ data for 5/2$^+$ but not for the other members. From CCBA, the 7/2$^+$ member may be populated by the direct route, inelastic scattering and L=0 transitions; the 9/2$^+$ member, by the direct route, inelastic scattering paths, by L=2 and L=4 transitions. No CCBA calculations were performed for the 11/2$^+$ member.

$^@$ Level may belong to γ-vibrational bands. No evidence for 738, 1/2$^+$; 766, 3/2$^+$; and 781, 5/2$^+$, levels observed in (n,γ) and assigned by 1971Ka22 as members of the K=1/2$^+$ band (from 5/2[642]-Q$_{22}$).

$^{\&}$ Note the strength of these transitions. Such strength is usually observed for pairing vibrations near shell closures or in regions of nuclei with a rapid change of deformation. However, both ^{161}Dy and ^{163}Dy are already strongly deformed and the strongly excited 0$^+$ states in even Dy nuclei do not have a pairing vibrational nature. No satisfactory explanation is offered for this strongly populated L=0 state.

^{a} At 22.5°.

^{b} $\sigma(\theta)$ compared with DWBA for L=2.

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Band(A): 5/2[642] band

11/2$^+$ **415**

9/2$^+$ **335**

7/2$^+$ **281**

5/2$^+$ **251**

$^{163}_{66}$Dy$_{97}$