

¹⁶²Dy(d,d') 1973St07,1968Gr08

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	N. Nica	NDS 195,1 (2024)	19-Sep-2023

Data are from (d,d') studies of 1973St07 on enriched (~90%) target with E(d)=12 MeV and scattered d analyzed in magnetic spectrograph at 15 angles with FWHM~15 keV and from 1968Gr08 on enriched (>99%) target with E(d)=12 MeV and scattered d analyzed in magnetic spectrograph at two angles.

Other nuclear structure studies by inelastic scattering:

1967Ba34: ¹⁶²Dy(d,d') and (p,p') on enriched (87.2%) target with 12-MeV p and d. Scattered particles measured in magnetic spectrograph at one or two angles.

1969Ch09: ¹⁶²Dy(d,d) deduced optical model parameters.

1973BaWJ: ¹⁶²Dy(³He,³He) for ground state.

1974Le27: ¹⁶²Dy(³He,³He) cross section for 0⁺ and 2⁺ states.

1984Gu22: ¹⁶²Dy(¹⁶O,¹⁶O') and (⁴⁰Ar,⁴⁰Ar') reactions and see levels to 10⁺, but no data given.

1985AIZI: ¹⁶²Dy(n,n') on enriched target with E(n)=0.5-3.5 MeV with FWHM=200 keV. Abstract only and no structure data.

¹⁶²Dy Levels

E(level) [†]	J ^π [‡]	Comments
0&	0 ⁺	
81& 1	2 ⁺	
266& 1	4 ⁺	
550& 2	6 ⁺	
890 ^a 1	2 ⁺	
1061 ^a 2	4 ⁺	
1131 3		E(level): Reported only by 1973St07. Level is not reported in other studies and is not included in the ¹⁶² Dy Adopted Levels.
1211 ^b 1	3 ⁻	
1279 3		J ^π : not 2 ⁺ (1973St07); J ^π =1 ⁻ for 1276 level in ¹⁶² Dy Adopted Levels.
1329 ^a 3	(6 ⁺)	
1358 ^c 2	3 ⁻	
1391 3	6 ⁺	J ^π : Assigned (5 ⁻) (1968Gr08), (4 ⁺) (1967Ba34), and (5 ⁻) in ¹⁶² Dy Adopted Levels.
1527 ^d 3	4 ⁺	E(level): 1533 (1968Gr08).
1577 3	(3 ⁻)	
1723 3		E(level): 1729 (1968Gr08). J ^π : not 2 ⁺ (1973St07); J ^π =2 ⁺ for 1728 level in ¹⁶² Dy Adopted Levels.
1737 3	(3 ⁻)	
1745 3	(3 ⁻)	J ^π : 1 ⁺ in ¹⁶² Dy Adopted Levels.
1755 4		J ^π : not 2 ⁺ (1973St07).
1777 [#] 3		
1868 [#] 3		J ^π : not 2 ⁺ (1973St07).
1903 [#] 3		J ^π : not 2 ⁺ (1973St07).
1998 3		J ^π : not 2 ⁺ (1973St07).
2047 [#] 3		
2076 3	(3 ⁻ ,4 ⁺)	J ^π : 1,2 ⁺ in ¹⁶² Dy Adopted Levels.
2101 3	(3 ⁻)	J ^π : J ^π (2100)=6 ⁺ , J ^π (2101)=(9 ⁻), J ^π (2104)=2 ⁺ ,3 ⁺ ,(4 ⁺) in Adopted Levels. (d,d') may be exciting a separate level.
2269@		
2318@	(3 ⁻)	

[†] Values are from 1973St07 and level is reported by both 1973St07 and 1968Gr08, unless otherwise noted. Uncertainties were

$^{162}\text{Dy}(\text{d,d}')$ **1973St07,1968Gr08** (continued)

^{162}Dy Levels (continued)

assigned by the evaluator based on the authors' statement ([1973St07](#)) that energy uncertainties are <1 keV for strong levels and <3 keV for the others.

‡ Assignments are from [1973St07](#) based on $d'(\theta)$ and band assignments. Any significant differences with the assignments of [1968Gr08](#) or in ^{162}Dy Adopted Levels are noted.

Level reported only by [1973St07](#).

@ Level reported only by [1968Gr08](#).

& Band(A): $K^\pi=0^+$ ground-state band.

^a Band(B): $K^\pi=2^+$ γ -vibrational band.

^b Band(C): $K^\pi=2^-$ octupole-vibrational band.

^c Band(D): $K^\pi=0^-$ octupole-vibrational band.

^d Band(E): Bandhead of $K^\pi=4^+$ band; Configuration= $(\nu 3/2[521])+(\nu 5/2[523])$.

$^{162}\text{Dy}(\text{d,d}') \quad 1973\text{St07,1968Gr08}$

			Band(E): Bandhead of $K^\pi=4^+$ band; Configuration=(v 3/2[521])+(v 5/2[523])
		Band(D): $K^\pi=0^-$ octupole-vibrational band	<u>4⁺ 1527</u>
	Band(B): $K^\pi=2^+$ γ-vibrational band		<u>3⁻ 1358</u>
	<u>(6⁺) 1329</u>	Band(C): $K^\pi=2^-$ octupole-vibrational band	
		<u>3⁻ 1211</u>	
	<u>4⁺ 1061</u>		
	<u>2⁺ 890</u>		
Band(A): $K^\pi=0^+$ ground-state band			
<u>6⁺ 550</u>			
<u>4⁺ 266</u>			
<u>2⁺ 81</u>			
<u>0⁺ 0</u>			