

$^{165}\text{Dy}(n,\gamma)$ E=thermal **1990Ka21,1988Ka44**

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 109, 1103 (2008)	1-Mar-2008

Other: 1965Sc09.

1990Ka21: ^{164}Dy target; bent-crystal diffraction spectrometer. See also 1988Ka44, 1984KeZV, 1983KeZS. ^{166}Dy Levels

E(level) [†]	J ^π [‡]	E(level) [†]	J ^π [‡]	E(level) [†]	J ^π [‡]
0 [#]	0 ⁺	857.156 [@] 4	(2) ⁺	1095.213 ^{&} 4	(3) ⁻
76.587 [#] 1	2 ⁺	928.736 [@] 4	(3) ⁺	1141.266 [@] 13	(5) ⁺
253.5280 [#] 14	4 ⁺	1023.437 [@] 4	(4) ⁺	1180.858 ^{&} 4	(4) ⁻
526.9672 [#] 25	6 ⁺	1029.894 ^{&} 4	(2) ⁻	1189.390 4	(2 ⁺ ,3,4 ⁻)
				(7043.5 4)	3 ⁺ ,4 ⁺ ^a

[†] From least-squares fit to E_γ.[‡] From Adopted Levels.[#] Band(A): K^π=0⁺ g.s. band.[@] Band(B): K^π=2⁺ γ-vibrational band (1988Ka44).[&] Band(C): K^π=(2⁻) band.^a s-wave capture by 7/2⁺ ^{165}Dy . $\gamma(^{166}\text{Dy})$

E _γ [†]	I _γ [‡]	E _i (level)	J _i ^π	E _f	J _f ^π	Mult. [#]	α ^d	Comments
76.587 1	113 25	76.587	2 ⁺	0	0 ⁺	E2	7.51	Mult.: L1/L2=0.095 12, L1/L3=0.080 12 (1983KeZS).
85.644 [@] 2	2 1	1180.858	(4) ⁻	1095.213	(3) ⁻			
94.178 [@] 1	3 2	1189.390	(2 ⁺ ,3,4 ⁻)	1095.213	(3) ⁻			
101.175 ^{&e} 1	6 1	1029.894	(2) ⁻	928.736	(3) ⁺	[E1]	0.299	
157.421 [@] 3	15 1	1180.858	(4) ⁻	1023.437	(4) ⁺			
159.492 [@] 4	6 1	1189.390	(2 ⁺ ,3,4 ⁻)	1029.894	(2) ⁻			
165.950 10	19 2	1189.390	(2 ⁺ ,3,4 ⁻)	1023.437	(4) ⁺			
166.479 3	73 8	1095.213	(3) ⁻	928.736	(3) ⁺	[E1]	0.0789	
172.738 1	137 13	1029.894	(2) ⁻	857.156	(2) ⁺	[E1]	0.0716	
176.941 1	801 86	253.5280	4 ⁺	76.587	2 ⁺	E2	0.357	Mult.: L1/L2=0.56 2 (1984KeZV); α(K)exp=0.26 12 (1983KeZS).
238.062 4	100 10	1095.213	(3) ⁻	857.156	(2) ⁺	[E1]	0.0309	
252.124 3	122 12	1180.858	(4) ⁻	928.736	(3) ⁺			
260.652 2	109 10	1189.390	(2 ⁺ ,3,4 ⁻)	928.736	(3) ⁺			
273.439 2	208 20	526.9672	6 ⁺	253.5280	4 ⁺	E2	0.0859	Mult.: L1/L2=1.04 8 (1984KeZV).
614.302 [@] 26	11 2	1141.266	(5) ⁺	526.9672	6 ⁺			
*662.455 11	72 14							
675.218 9	71 14	928.736	(3) ⁺	253.5280	4 ⁺	E2(+M1)	0.011 4	Mult.: α(K)exp=0.0064 11 (1984KeZV).
769.907 6	189 39	1023.437	(4) ⁺	253.5280	4 ⁺	M1+E2	0.0077 24	Mult.: α(K)exp=0.0050 5 (1984KeZV).
780.571 6	203 40	857.156	(2) ⁺	76.587	2 ⁺	M1(+E2)	0.0074 23	Mult.: α(K)exp=0.0043 5 (1984KeZV).

Continued on next page (footnotes at end of table)

$^{165}\text{Dy}(\text{n},\gamma)$ E=thermal **1990Ka21,1988Ka44** (continued) $\gamma(^{166}\text{Dy})$ (continued)

E_γ [†]	I_γ [‡]	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. [#]	α ^d	Comments
852.128 8	5.2×10^2 10	928.736	(3) ⁺	76.587	2 ⁺	E2(+M1)	0.0061 8	Mult.: $\alpha(\text{K})_{\text{exp}}=0.0037$ 4 (1984KeZV).
857.156 ^a 11	231 50	857.156	(2) ⁺	0	0 ⁺	[E2]	0.00422	
887.734 15	115 24	1141.266	(5 ⁺)	253.5280	4 ⁺			
946.850 15	122 24	1023.437	(4) ⁺	76.587	2 ⁺	E2	0.00341	Mult.: $\alpha(\text{K})_{\text{exp}}=0.0024$ 4 (1984KeZV).
^x 953.810 ^b 26	77 16							
^x 1225.25 ^b 4	187 39							
^x 1256.62 ^b 15	261 77							E_γ : 1988Ka44 show $E_\gamma=1256.10$ 9 (assigned to ^{165}Dy by 1990Ka21) but give an I_γ value that matches that for the 1256.6 γ In 1990Ka21. The evaluator assumes that the wrong E_γ was listed In 1988Ka44.
^x 1570.60 ^b 13	77 18							
6789.6 ^c 4		(7043.5)	3 ⁺ ,4 ⁺	253.5280	4 ⁺			
6968.0 ^c 10		(7043.5)	3 ⁺ ,4 ⁺	76.587	2 ⁺			

[†] From 1990Ka21, except As noted.[‡] Photon intensity per 1×10^5 neutron captures in ^{164}Dy . From table 2 of 1990Ka21. values from 1988Ka44 differ slightly, but evaluator presumes that the data In 1990Ka21 supersede those In 1988Ka44.[#] From ce data In 1983KeZS and 1984KeZV; authors normalized their $\alpha(\text{K})_{\text{exp}}$ data assuming $\alpha(\text{K})(\text{E2 theory})=0.0035$ for the 857 γ .[@] From list of unassigned and unplaced γ 's from $^{164}\text{Dy}(\text{n},\gamma)$ E=thermal (1990Ka21, table 2).[&] 1990Ka21 place this γ from a 1482 level In ^{165}Dy ; however, a γ of this energy is expected In ^{166}Dy accompanying the 173 γ from the 1030 level, As In ^{166}Tb β^- decay. the evaluator, therefore, tentatively places it from the 1030 level of ^{166}Dy .^a $E_\gamma=857.146$ 11 In 1988Ka44 is presumed to Be a misprint.^b Unplaced and unassigned In table 2 of 1990Ka21 but attributed to ^{166}Dy In 1988Ka44.^c From 1983KeZS. only two primary gammas are reported; $I(6968)/I(6790)=0.4$.^d Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ -ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.^e Placement of transition in the level scheme is uncertain.^x γ ray not placed in level scheme.

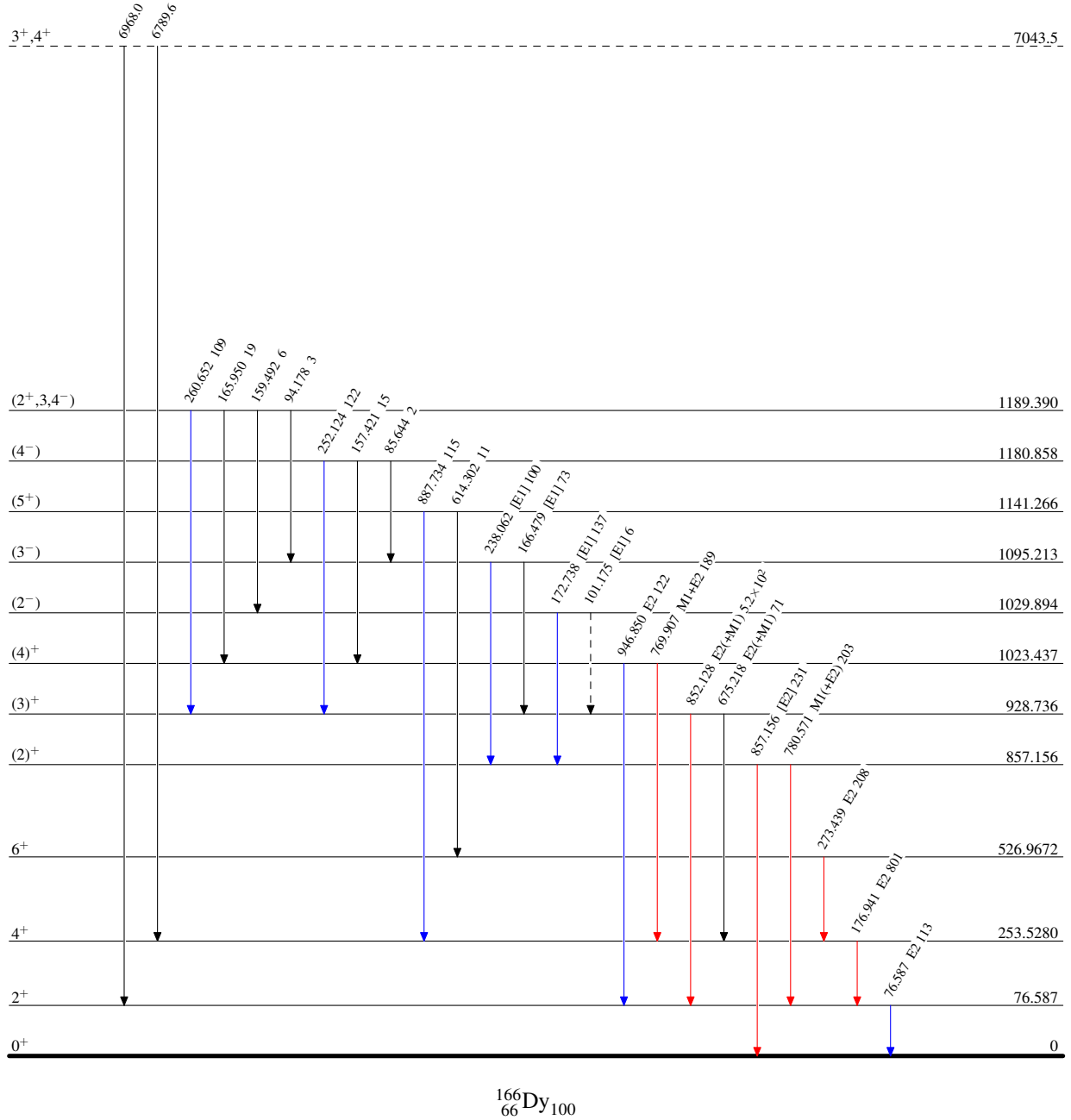
$^{165}\text{Dy}(n,\gamma) \text{E=thermal}$ 1990Ka21,1988Ka44

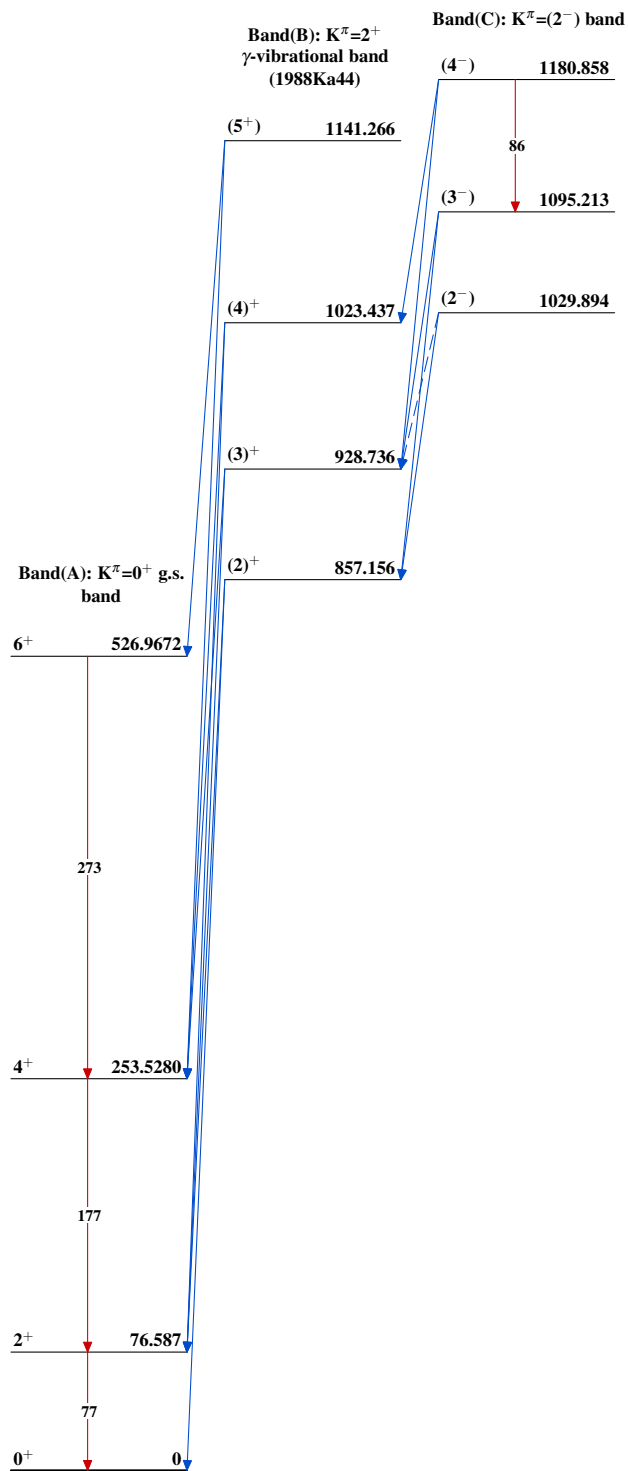
Legend

Level Scheme

Intensities: I_γ per 100 neutron captures in ^{164}Dy .

- $\longrightarrow$ $I_\gamma < 2\% \times I_\gamma^{\max}$
 $\longrightarrow$ $I_\gamma < 10\% \times I_\gamma^{\max}$
 $\longrightarrow$ $I_\gamma > 10\% \times I_\gamma^{\max}$
 $-----\longrightarrow$ γ Decay (Uncertain)



$^{165}\text{Dy}(n,\gamma)$ E=thermal 1990Ka21,1988Ka44

 $^{166}_{66}\text{Dy}_{100}$