^{161}Dy(γ,γ') 1995Ma69

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	C. W. Reich	NDS 112,2497 (2011)	1-Jun-2011

Additional information 1.

Enriched (92.1% ^{161}Dy) Dy_2O_3 target of mass 1834 mg, irradiated in a bremsstrahlung beam of maximum energy 4.3 MeV. Scattered γ radiation was measured, using carefully shielded HPGe detectors at angles of 90°, 127° and 150° with respect to the incident beam. γ-ray polarization was measured using a sectored HPGe Compton polarimeter. However, since ^{161}Dy has a half-integer spin, the angular distribution and polarization data do not provide definite multipolarities for the scattered gammas and, hence, specific J^π assignments for the levels can not be made.

^{161}Dy Levels

E(level)[†]	J^π[‡]	$g_J\Gamma_{\gamma 0}$ (meV)	Comments
0[#]	$5/2^+$		
25.6[@]	$5/2^-$		
43.8[#]	$7/2^+$		
74.6[&]	$3/2^-$		
100.4[#]	$9/2^+$		
131.8[&]	$5/2^-$		
2237	3/2,5/2,7/2	4.1 *5*	If the exciting γ is M1, B(M1)=0.032 *4* (1995Ma69).
2250	3/2,5/2,7/2	13.3 *24*	If the exciting γ is M1, B(M1)=0.101 *18* (1995Ma69).
2346	3/2,5/2,7/2	5.6 *8*	If the exciting γ is M1, B(M1)=0.038 *5* (1995Ma69).
2740	3/2,5/2,7/2	3.3 *5*	If the exciting γ is M1, B(M1)=0.014 *2* (1995Ma69).
2748	3/2,5/2,7/2	5.8 *9*	If the exciting γ is M1, B(M1)=0.024 *4* (1995Ma69).
2753	3/2,5/2,7/2	12.3 *17*	If the exciting γ is M1, B(M1)=0.051 *7* (1995Ma69).
2775	$3/2,5/2,7/2^-$	19 *3*	If the exciting γ is M1, B(M1)=0.077 *12* (1995Ma69).
2812	$3/2,5/2,7/2^-$	13.2 *21*	If the exciting γ is M1, B(M1)=0.051 *8* (1995Ma69).
2820	$3/2^+$,5/2,7/2	34 *4*	If the exciting γ is M1, B(M1)=0.131 *15* (1995Ma69).
2838	$3/2,5/2,7/2^-$	25 *4*	If the exciting γ is M1, B(M1)=0.094 *14* (1995Ma69).
2849	3/2,5/2,7/2	6.6 *14*	If the exciting γ is M1, B(M1)=0.025 *5* (1995Ma69).
2864	$3/2,5/2,7/2^-$	32 *4*	If the exciting γ is M1, B(M1)=0.116 *16* (1995Ma69).
2905	$5/2^+$,$7/2^-$	14.0 *18*	If the exciting γ is M1, B(M1)=0.049 *9* (1995Ma69).
2994	3/2,5/2,7/2	5.1 *7*	If the exciting γ is M1, B(M1)=0.016 *3* (1995Ma69).
3113	3/2,5/2,7/2	9.6 *16*	If the exciting γ is M1, B(M1)=0.027 *5* (1995Ma69).
3155	3/2,5/2,7/2	4.9 *5*	If the exciting γ is M1, B(M1)=0.013 *1* (1995Ma69).
3644	3/2,5/2,7/2	9.9 *12*	If the exciting γ is M1, B(M1)=0.018 *2* (1995Ma69).

[†] Energies quoted to the nearest 0.1 keV are taken from the Adopted Values and rounded to the nearest 0.1 keV. Others are those reported by 1995Ma69. These authors quote no uncertainties for their level energies.

[‡] From adopted values. In arriving at the values for those levels excited in (γ,γ'), it is assumed by the evaluator that the multipolarity of the exciting γ is dipole.

[#] Band(A): g.s. band, $K^\pi=5/2^+$. Configuration=(ν 5/2(642)).

[@] Band(B): $K^\pi=5/2^-$ band. Configuration=(ν 5/2(523)).

[&] Band(C): $K^\pi=3/2^-$ band. Configuration=(ν 3/2(521)).

^{161}Dy(γ,γ') 1995Ma69 (continued)

$\gamma(^{161}Dy)$

In their analysis, 1995Ma69 treat the multipolarities of the gammas as though they were M1, but these multipolarities are in fact not determined in their study.

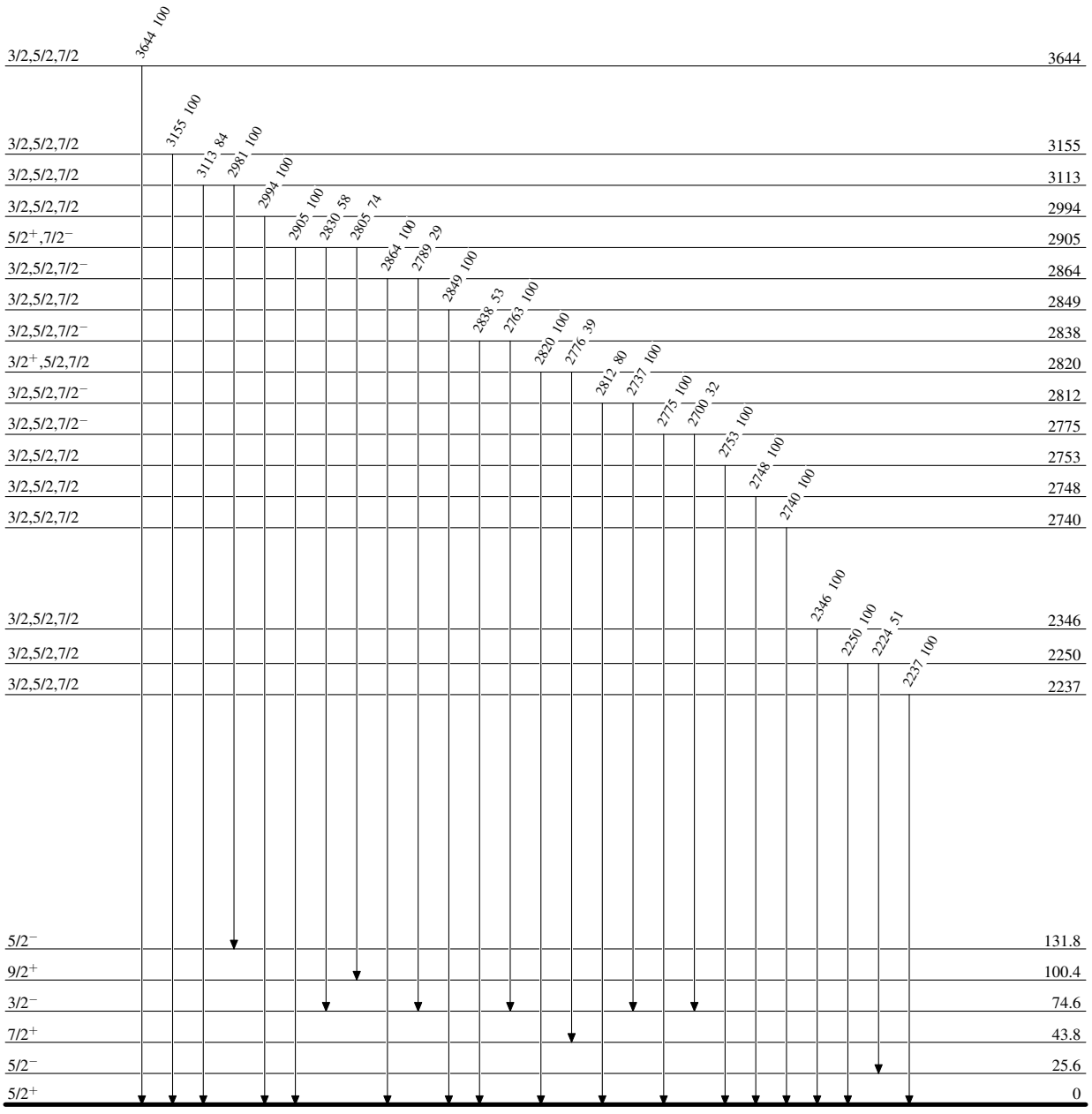
E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π
2237	3/2,5/2,7/2	2237	100	0	$5/2^+$	2838	$3/2,5/2,7/2^-$	2763	100	74.6	$3/2^-$
2250	3/2,5/2,7/2	2224	51 *13*	25.6	$5/2^-$			2838	53 *11*	0	$5/2^+$
		2250	100	0	$5/2^+$	2849	3/2,5/2,7/2	2849	100	0	$5/2^+$
2346	3/2,5/2,7/2	2346	100	0	$5/2^+$	2864	$3/2,5/2,7/2^-$	2789	29 *7*	74.6	$3/2^-$
2740	3/2,5/2,7/2	2740	100	0	$5/2^+$			2864	100	0	$5/2^+$
2748	3/2,5/2,7/2	2748	100	0	$5/2^+$	2905	$5/2^+,7/2^-$	2805	74 *21*	100.4	$9/2^+$
2753	3/2,5/2,7/2	2753	100	0	$5/2^+$			2830	58 *16*	74.6	$3/2^-$
2775	$3/2,5/2,7/2^-$	2700	32 *9*	74.6	$3/2^-$			2905	100	0	$5/2^+$
		2775	100	0	$5/2^+$	2994	3/2,5/2,7/2	2994	100	0	$5/2^+$
2812	$3/2,5/2,7/2^-$	2737	100	74.6	$3/2^-$	3113	3/2,5/2,7/2	2981	100	131.8	$5/2^-$
		2812	80 *20*	0	$5/2^+$			3113	84 *20*	0	$5/2^+$
2820	$3/2^+,5/2,7/2$	2776	39 *7*	43.8	$7/2^+$	3155	3/2,5/2,7/2	3155	100	0	$5/2^+$
		2820	100	0	$5/2^+$	3644	3/2,5/2,7/2	3644	100	0	$5/2^+$

[†] Deduced by the evaluator from the level energies given by 1995Ma69. These authors do not report energy values for the γ rays.
[‡] Relative branchings from each level. Where only one γ is observed from a level, that Iγ is listed as 100.

^{161}Dy(γ,γ′) 1995Ma69

Level Scheme

Intensities: Relative photon branching from each level



$^{161}_{66}Dy_{95}$

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Band(C): $K^{\pi}=3/2^{-}$ band

$5/2^{-}$ 131.8

Band(A): g.s. band, $K^{\pi}=5/2^{+}$

$9/2^{+}$ 100.4

$3/2^{-}$ 74.6

$7/2^{+}$ 43.8

Band(B): $K^{\pi}=5/2^{-}$ band

$5/2^{-}$ 25.6

$5/2^{+}$ 0

$^{161}_{66}Dy_{95}$