^{161}Dy(d,tγ) 1985Ra07

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	N. Nica	NDS 176, 1 (2021)	1-May-2021

Additional information 1.

E(d)=15 MeV. Self-supporting foil targets of thickness 1.0 mg/cm^2 enriched to 90% in ^{161}Dy. Emitted tritons detected in four particle telescopes placed at 50° with respect to the beam direction and having front and end Si detectors of 150 μm and 3000 μm, respectively. Nominal energy resolution of triton-detection system was 150 keV. γ rays detected in two 12.7-cm by 12.7-cm NaI(Tl) detectors and one Ge(Li) detector. Measured Eγ, Iγ, γ-triton coin, σ(E(t)).

See, also, 1986Re18.

J^π(^{161}Dy)=5/2$^+$, configuration=5/2$^+$[642].

^{160}Dy Levels

Gross properties of the triton spectra leading to ^{160}Dy

excit energy (MeV)	R(x1000)	excit energy (MeV)	R(x1000)
1.38	0.29	2.49	1.28
1.81	0.33	2.91	0.15
2.10	0.60	3.15	0.16
2.33	2.31	≈ 3.6	0.08

R is the ratio of the (d,t) cross section to the elastic deuteron scattering cross section (at θ=55°)

E(level)[†]	J$^\pi$[#]	Comments
0.0[@]	0$^+$	
87[@]	2$^+$	
284[@]	4$^+$	
581[@]	6$^+$	
966[&]	2$^+$	
1049[&]	3$^+$	
1156[&]	4$^+$	
1265[a]	2$^-$	
1286[b]	1$^-$	
1287[a]	3$^-$	
1359[b]	2$^-$	
1381[a]	4$^-$	
1399[b]	3$^-$	
1408[a]	5$^-$	
1535[b]	4$^-$	
1861[c] *1*	5$^-$	J$^\pi$: 1985Ra07 report J^π=(5)$^-$.
1958[c]	(6)$^-$	
2097 *1*	4$^+$	
2163 *1*		
2294		
2321		
2347		
2367		

Continued on next page (footnotes at end of table)

^{161}Dy(d,tγ) 1985Ra07 (continued)

^{160}Dy Levels (continued)

E(level)[†]	J$^\pi$[#]
2380	
2405	
2524[‡] *2*	3$^+$

[†] 1985Ra07 report a 1779 *1* level deexcited via a 730 γ and interpret it as the bandhead of a $K^\pi=4^-$ band. 1987Gr37, however, place the $K^\pi=4^-$ bandhead at 1786.5 keV and locate the 730 γ elsewhere in the level scheme. In this evaluation, we thus conclude that there is no evidence for a 4$^-$ level at 1779 keV.

[‡] The large (d,t) strength to the 2524 level indicates the presence of the ν 1/2$^+$[400] Nilsson orbital. Hence this level contains a significant component of the two-quasineutron state having configuration=(ν 5/2$^+$[642] + ν 1/2$^+$[400]).

[#] From adopted values, unless noted otherwise.

[@] Band(A): ground-state band.

[&] Band(B): γ-vibrational band.

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

[b] Band(D): K$^\pi$=1$^-$ band.

[c] Band(E): K$^\pi$=4$^-$ band.

γ(^{160}Dy)

Iγ values not reported by 1985Ra07.

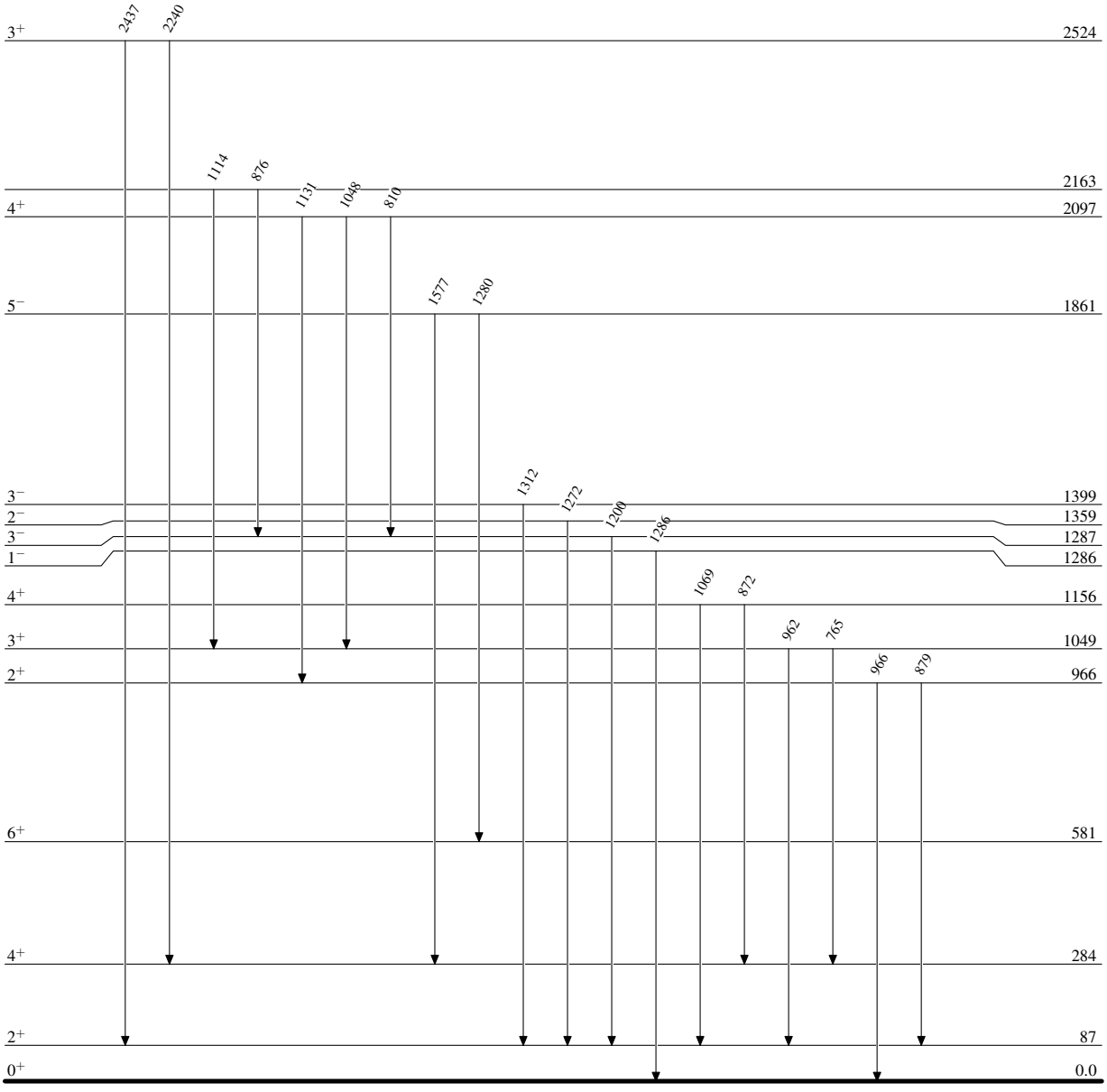
E$_\gamma$	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	E$_\gamma$	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	E$_\gamma$	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$
[x]537					966	966	2$^+$	0.0	0$^+$	1280[†]	1861	5$^-$	581	6$^+$
[x]647					1048	2097	4$^+$	1049	3$^+$	1286	1286	1$^-$	0.0	0$^+$
765	1049	3$^+$	284	4$^+$	1069	1156	4$^+$	87	2$^+$	1312	1399	3$^-$	87	2$^+$
810	2097	4$^+$	1287	3$^-$	1114	2163		1049	3$^+$	[x]1319				
872	1156	4$^+$	284	4$^+$	[x]1122					[x]1387				
876	2163		1287	3$^-$	1131	2097	4$^+$	966	2$^+$	1577[†]	1861	5$^-$	284	4$^+$
879	966	2$^+$	87	2$^+$	1200	1287	3$^-$	87	2$^+$	2240	2524	3$^+$	284	4$^+$
962	1049	3$^+$	87	2$^+$	1272	1359	2$^-$	87	2$^+$	2437	2524	3$^+$	87	2$^+$

[†] 1985Ra07 estimate that 90% *10* of the decay of the 1861 level takes place directly to the g.s. band.

[x] γ ray not placed in level scheme.

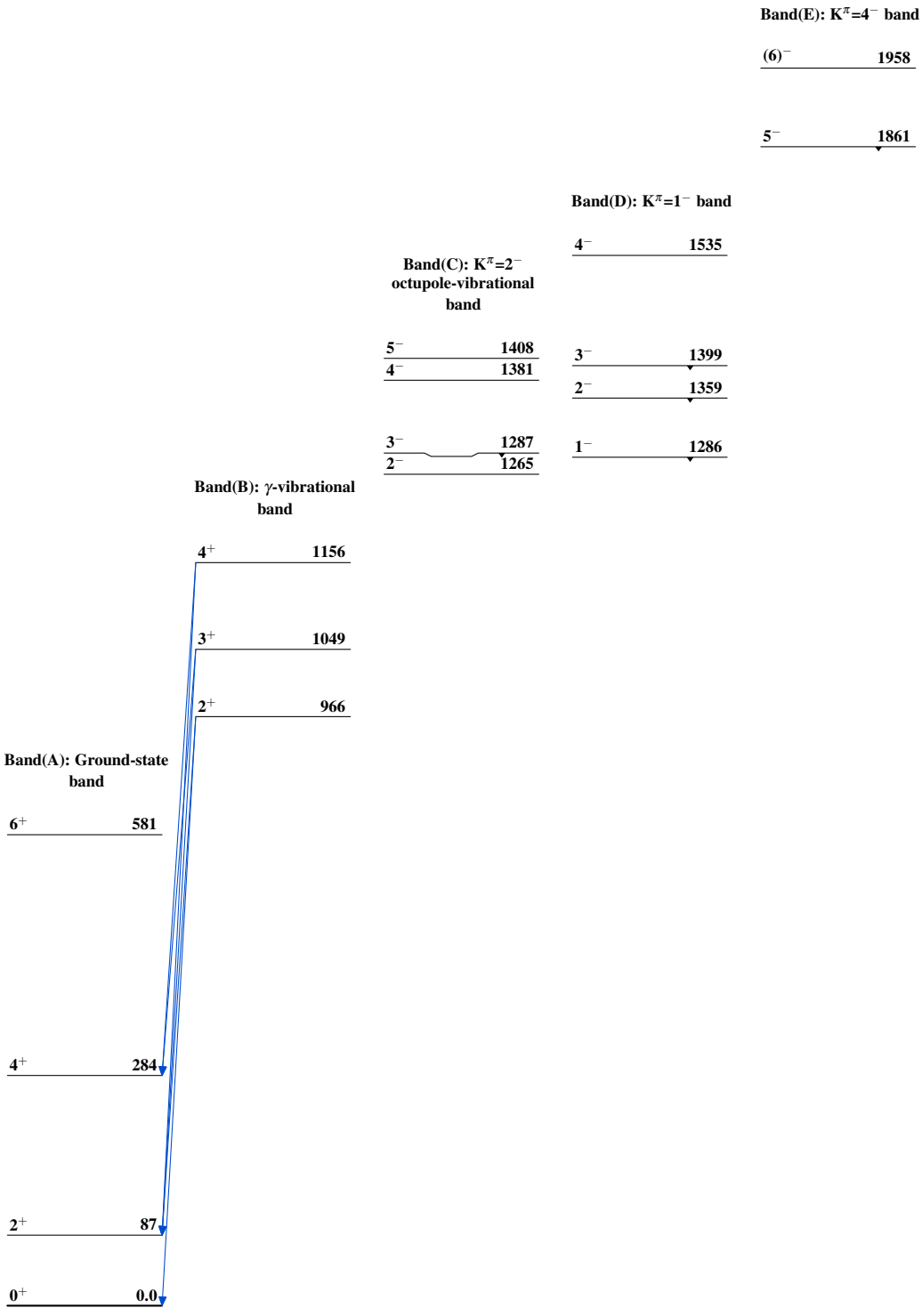
^{161}Dy(d,tγ) 1985Ra07

Level Scheme



$^{160}_{66}Dy_{94}$

^{161}Dy(d,tγ) 1985Ra07



$^{160}_{66}Dy_{94}$