

$^{160}\text{Gd}(^{37}\text{Cl}, \text{xn}\gamma)$ 2001Li13

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

Deep-inelastic reaction. $E(^{37}\text{Cl})=234$ MeV. Isotopically enriched (98.2% ^{160}Gd) target, 12 mg/cm² thick, backed with 40 mg/cm² ^{208}Pb , which stopped the recoiling products. Measured $E\gamma$, $\gamma\gamma\gamma$, $\gamma\gamma$. Report only $E\gamma$ and level scheme consisting of two proposed bands.

2001Li13 propose the negative-parity band as a positive-parity band, the lowest reported level in which they assign as (10^+) .

However, 2002Ju08, from $^{158}\text{Gd}(^7\text{Li}, \text{p}4\text{n}\gamma)$, have shown that this is incorrect and propose the J^π values and configuration assignment given here.

 ^{160}Dy Levels

$E(\text{level})^\ddagger$	$J^\pi^\dagger$	$E(\text{level})^\ddagger$	$J^\pi^\dagger$	$E(\text{level})^\ddagger$	$J^\pi^\dagger$	$E(\text{level})^\ddagger$	$J^\pi^\dagger$
0 [#]	0 ⁺	1429 [#]	10 ⁺	3093 [#]	16 ⁺	4350 [@]	19 ⁻
87 [#]	2 ⁺	1952 [#]	12 ⁺	3195 [@]	15 ⁻	4940 [#]	22 ⁺
284 [#]	4 ⁺	2265 [@]	11 ⁻	3674 [#]	18 ⁺	5652 [#]	24 ⁺
581 [#]	6 ⁺	2516 [#]	14 ⁺	3747 [@]	17 ⁻	6419 [#]	26 ⁺
967 [#]	8 ⁺	2698 [@]	13 ⁻	4283 [#]	20 ⁺	7237 [#]	28 ⁺

[†] Adopted by 2001Li13 based on band assignments.

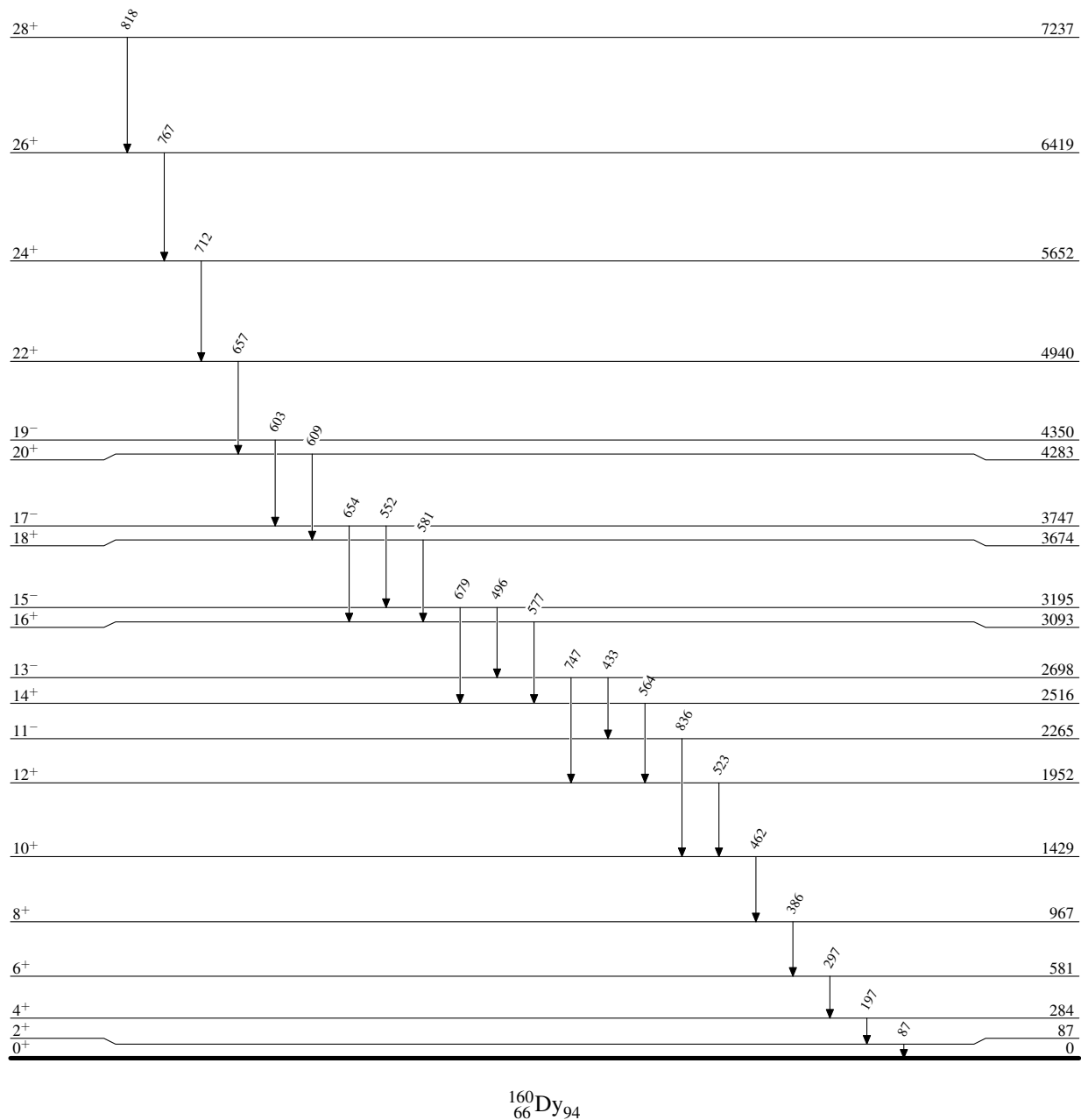
[‡] Computed from the listed $E\gamma$ values.

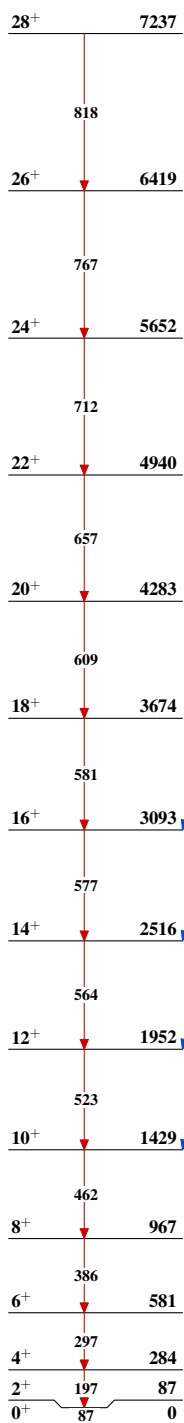
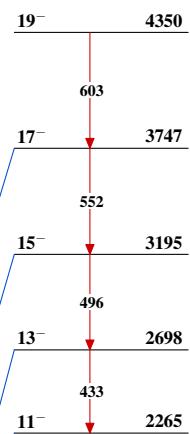
[#] Band(A): Yrast band. At the lower spins, this is the g.s. band.

[@] Band(B): portion of the $K^\pi=2^-$ octupole band.

 $\gamma(^{160}\text{Dy})$

E_γ	$E_i(\text{level})$	J^π_i	E_f	J^π_f	E_γ	$E_i(\text{level})$	J^π_i	E_f	J^π_f	E_γ	$E_i(\text{level})$	J^π_i	E_f	J^π_f
87	87	2 ⁺	0	0 ⁺	552	3747	17 ⁻	3195	15 ⁻	679	3195	15 ⁻	2516	14 ⁺
197	284	4 ⁺	87	2 ⁺	564	2516	14 ⁺	1952	12 ⁺	712	5652	24 ⁺	4940	22 ⁺
297	581	6 ⁺	284	4 ⁺	577	3093	16 ⁺	2516	14 ⁺	747	2698	13 ⁻	1952	12 ⁺
386	967	8 ⁺	581	6 ⁺	581	3674	18 ⁺	3093	16 ⁺	767	6419	26 ⁺	5652	24 ⁺
433	2698	13 ⁻	2265	11 ⁻	603	4350	19 ⁻	3747	17 ⁻	818	7237	28 ⁺	6419	26 ⁺
462	1429	10 ⁺	967	8 ⁺	609	4283	20 ⁺	3674	18 ⁺	836	2265	11 ⁻	1429	10 ⁺
496	3195	15 ⁻	2698	13 ⁻	654	3747	17 ⁻	3093	16 ⁺					
523	1952	12 ⁺	1429	10 ⁺	657	4940	22 ⁺	4283	20 ⁺					

$^{160}\text{Gd}(^{37}\text{Cl},\text{xn}\gamma)$ 2001Li13Level Scheme

$^{160}\text{Gd}(^{37}\text{Cl}, \text{xn}\gamma)$ 2001Li13**Band(A): Yrast band****Band(B): Portion of the $K^\pi=2^-$ octupole band** $^{160}_{66}\text{Dy}_{94}$