^{157}Gd(d,p) 1971Sh04

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	N. Nica	NDS 141, 1 (2017)	1-Feb-2017

E_d=12.0 MeV, protons observed in magnetic spectrograph at lab angles of 25°, 45°, and 65° with FWHM ≈ 17 keV (estimated by evaluator from spectrum); other measurements: 1966Sh14 (same first author as 1971Sh04).

^{158}Gd Levels

Model calculation that may be of interest: 1967Ke14.

E(level)†	Jπ‡	$T_{1/2}$#&	S@&	E(level)†	Jπ‡	$T_{1/2}$#&	S@&
0.0[f]	0+[a]	11.4	7.5	2210		14.8	13.3
79[f]	2+[a]	18.4	9.18	2225		26.3	16.8
262[f]	4+[a]	23.6	26.6	2252		11.6	6.6
543[f]	6+[a]	5.4	5.3	2273		29.9	43.9
977[bh]	1−			2287[d]		19.8	
1025		≈1.8		2334[i]	2+[a]	67.7	67.9
1043[h]	3−	6.3	9.5	2366		14.1	18.0
1163[ch]	4−,5−	4.4	4.4	2400[i]	(3+)[a]	13.6	17.4
1190[g]	2+[a]	56.6	40.9	2450		15.4	13.6
1265[g]	3+[a]	25.4	19.9	2494[j]	(1+)[a]	148.7	121.9
1358[g]	4+[a]	5.1	5.3	2540[j]	(2+)[a]	79.4	46.1
1378		5.0	10.5	2572		31.8	25.8
1413		39.1	27.4	2589		18.4	63.2[e]
1440[g]	5+[a]	≈1.9	≈1.6	2600[j]	(3+)[a]	48.5	
1503		11.3	13.3	2634		35.9	39.9
1745		25.1	6.0	2658		18.7	17.8
1819		12.3	24.1	2683		16.9	23.7
1854		7.0	7.7	2701		31.3	29.2
1900		33.6	22.4	2741		14.5	22.8
1926		17.4	19.2	2770		45.2	24.4
1948		18.0	27.6	2803		20.3	20.1
1997		5.4	4.6	2830		20.3	24.3
2025		16.6	19.8	2861		12.0	14.4
2041		22.5	33.0	2886		16.1	16.9
2063		5.3	10.8	2915		14.7	16.0
2096		33.1	24.0	2940		11.8	20.8
2154		16.1	13.1	2966		18.5	19.9

† Average of values measured at 45° and 65°. Evaluator estimates uncertainties of ≈ 5 keV.
‡ From ^{158}Gd Adopted Levels, except where noted otherwise.
# Label=dσ/dΩ(45°) (mb/sr).
@ Label=dσ/dΩ(65°) (mb/sr).
& From 1971Sh04.
[a] From comparison of experimental and theoretical cross sections (based on a characteristic pattern or "fingerprint" that allow to assign a set of levels as specific J^π members of a band).
[b] From Adopted Levels.
[c] Compatible with both 115, 4− and 1175, 5− levels (see Adopted Levels).
[d] Not observed at 65°.
[e] dσ/dΩ(65°) for 2589+2600 (1971Sh04).

Continued on next page (footnotes at end of table)

^{157}Gd(d,p) 1971Sh04 (continued)

^{158}Gd Levels (continued)

[f] Band(A): ground-state band.
[g] Band(B): $K^{\pi}=2^{+}$ γ-vibrational band.
[h] Band(C): $K^{\pi}=1^{-}$ octupole band.
[i] Band(D): $K^{\pi}=2^{+}$ two-quasineutron band 3/2(521) + 1/2(521).
[j] Band(E): $K^{\pi}=1^{+}$ two-quasineutron band 3/2(521) − 1/2(521).

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Band(E): $K^{\pi}=1^{+}$ two-quasineutron band 3/2(521) − 1/2(521)

(3^{+})	2600
(2^{+})	2540
(1^{+})	2494

Band(D): $K^{\pi}=2^{+}$ two-quasineutron band 3/2(521) + 1/2(521)

(3^{+})	2400
2^{+}	2334

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

5^{+}	1440
4^{+}	1358
3^{+}	1265
2^{+}	1190

Band(C): $K^{\pi}=1^{-}$ octupole band

$4^{-},5^{-}$	1163
3^{-}	1043
1^{-}	977

Band(A): Ground-state band

6^{+}	543
4^{+}	262
2^{+}	79
0^{+}	0.0

$^{158}_{64}Gd_{94}$