^{160}Gd(d,p)   1967Tj01

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

Additional information 1.

All results are from the ^{160}Gd(d,p) study of 1967Tj01. Enriched target, E(d)=12.1 MeV. Protons measured in magnetic spectrograph at 60°, 90°, and 125° with FWHM≥13 keV.

Measured Q(d,p)=3411 keV *10* and S(n)=5636 *10* keV. The latter is in agreement with the adopted value of 5635.4 *10*.

^{161}Gd Levels

Additional information 2.

E(level)[†]	J^{π}[‡]	dσ/dΩ(μb/sr)[#]	E(level)[†]	J^{π}[‡]	dσ/dΩ(μb/sr)[#]
0[@][j]	5/2⁻	20	994[cn] *3*	9/2⁻	16
73[@][j] *3*	7/2⁻	≈20	1049 *5*		16
163[@][j] *3*	9/2⁻	22	1097 *5*		9
276[@][j] *3*	11/2⁻	7	1123[cn] *5*	11/2⁻	11
313[&][k] *3*	3/2⁻	52	1177 *5*		35
356[al] *3*	1/2⁻	168	1309[do] *5*	1/2⁻	5
397[al] *3*	3/2⁻	15	1339[do] *5*	3/2⁻	300
438 *3*	[ef]	195	1378 *5*		79
510[bm] *3*	9/2⁺[f]	24	1403[do] *5*	5/2⁻	98
529[al] *3*	7/2⁻[g]	67	1413 *5*		93
≈585[bm]	11/2⁺		1466[do] *5*	7/2⁻	46
604[al] *3*	9/2⁻	13	1489[p] *5*	1/2⁺	157
645[&][k] *3*	11/2⁻	15	1501[p] *5*	3/2⁺	137
681[bm] *3*	13/2⁺	51	1520 *5*		33
≈753[al]	11/2⁻	≈2	1556[p] *5*	5/2⁺	309
≈809[cn]	5/2⁻	≈3	1591[p] *5*	7/2⁺	37
834 *3*	(1/2,3/2)⁻[i]	82	1615 *5*		50
889[cn] *3*	7/2⁻		1643 *5*		19
925 *3*		28	1664 *5*		27
972 *3*	13/2⁺[h]	64			

[†] Uncertainties are 3 keV below 1000 keV and 5 keV otherwise, from a general statement of the authors.

[‡] J^{π} and band assignments are those of 1967Tj01, unless otherwise noted. They are based on agreement of measured and calculated dσ/dΩ values, angular distributions, and energy separations within bands. The authors′ comments on the degree to which the data support these band assignments are summarized in footnotes for each band. These assignments agree with those in the ^{161}Gd Adopted Levels.

[#] Measured at 90°.

[@] (d,p) data for all four band members suggest these J^{π} and band assignments.

[&] (d,p) data for bandhead (313 keV) suggest this J^{π} and band; data for other members (438 and 645) are consistent with assignments.

[a] (d,p) data for five members (356, 397, 438, 529, 604 keV) suggest the J^{π} and band; data for 753-keV level are consistent.

[b] (d,p) data for two members (510, 681 keV) suggest the J^{π} and band; data for 585 level are consistent.

[c] (d,p) data for 889-keV level are consistent with J^{π} and band assignments; energies for three levels (809, 994, 1123 keV) agree, but dσ/dΩ values are not as expected.

[d] (d,p) data for all four members suggest the J^{π} and band assignments.

[e] Doublet consisting of 7/2, 3/2[521] and 5/2, 1/2[521].

^{161}Gd Levels (continued)

[f] The 7/2[633] bandhead was not observed. Based on the energies of other band members, the bandhead is calculated (1971Bu16) to be at 446 keV; therefore, it is probably mixed with the 438 level.

[g] 9/2, 3/2[521] state is probably a minor component of this line.

[h] Tentative band assignment is 9/2[624] (1967Tj01).

[i] From ^{161}Gd Adopted Levels.

[j] Band(A): 5/2[523] band.

[k] Band(B): 3/2[521] band.

[l] Band(C): 1/2[521] band.

[m] Band(D): 7/2[633] band.

[n] Band(E): 5/2[512] band.

[o] Band(F): 1/2[510] band.

[p] Band(G): 1/2[651] band.

^{160}**Gd(d,p)**   **1967Tj01**

Band(F): 1/2[510] band

7/2$^-$ 1466

5/2$^-$ 1403

3/2$^-$ 1339
1/2$^-$ 1309

Band(E): 5/2[512] band

11/2$^-$ 1123

9/2$^-$ 994

7/2$^-$ 889

5/2$^-$ ≈809

Band(C): 1/2[521] band

11/2$^-$ ≈753

Band(D): 7/2[633] band

13/2$^+$ 681

Band(B): 3/2[521] band

11/2$^-$ 645

9/2$^-$ 604

11/2$^+$ ≈585

7/2$^-$ 529

9/2$^+$ 510

3/2$^-$ 397

1/2$^-$ 356

Band(A): 5/2[523] band

3/2$^-$ 313

11/2$^-$ 276

9/2$^-$ 163

7/2$^-$ 73

5/2$^-$ 0

$^{161}_{64}$Gd$_{97}$

^{160}Gd(d,p)   1967Tj01 (continued)

Band(G): 1/2[651] band

7/2$^+$ **1591**

5/2$^+$ **1556**

3/2$^+$ **1501**

1/2$^+$ **1489**

$^{161}_{64}$Gd$_{97}$