^{154}Gd(^{3}He,α) 1973Lo14

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	N. Nica	NDS 170, 1 (2020)	16-Aug-2020

E(α)=24 MeV, magnetic spectrograph with FWHM ≈ 30 keV.
See (d,t) for L values deduced from $\sigma(\theta)$. and ratio of (^{3}He,α) and (d,t) cross sections.

^{153}Gd Levels

E(level)[†]	J$^{\pi}$[‡#]	L[@]	dσ/dΩ(40°)	Comments
0[a]	3/2$^-$	1	≈0	E(level): Level not observed.
≈40[a]	5/2$^-$	3	≈1	
95[a] 5	7/2$^-$	3,4	45	L: Authors expect this peak to contain some contribution from the 9/2$^+$ level.
139 5	(13/2$^+$)	6	135	
171[b] 5	(11/2$^-$)	5	96	
217[c] 5	3/2$^+$	3	76	J$^{\pi}$: ^{153}Gd Adopted Levels has 7/2$^-$ at 215 and (9/2$^-$) at 219.
248	5/2$^-$	2,3	≈5	
300[c]	5/2$^+$	2	≈5	
328[d] 5	1/2$^+$	0	15	
367		1	≈8	E(level): Adopted level energy is 361 keV with J^{π}=3/2$^-$, also 7/2$^-$ at 368.
395			≈2	J$^{\pi}$: Assigned (7/2$^+$) in ^{153}Gd Adopted Levels.
417[d]	3/2$^+$[&]	2,(3)	≈5	
436		(1)	≈4	J$^{\pi}$: Assigned 1/2$^-$ in ^{153}Gd Adopted Levels.
512[e]	3/2$^+$[&]	2	7	
575 5		3,4	18	J$^{\pi}$: Assigned (15/2$^-$) in ^{153}Gd Adopted Levels.
632 5		5,6	19	
777		(3)	9	
856			3	J$^{\pi}$: Assigned 3/2$^-$ in ^{153}Gd Adopted Levels.
889		1	4	
931			≈1	J$^{\pi}$: Assigned 5/2$^-$ in ^{153}Gd Adopted Levels.
987			5	J$^{\pi}$: Assigned (3/2$^+$) in ^{153}Gd Adopted Levels.
1033			2	
1082			5	
1113 5		2	10	
1158 5		(2,3)	14	
1293			5	J$^{\pi}$: Assigned (1/2,3/2) in ^{153}Gd Adopted Levels.
1363			9	J$^{\pi}$: Assigned (1/,3/2)$^-$ in ^{153}Gd Adopted Levels.
1477[f] 5	11/2$^-$[&]	5	48	J$^{\pi}$: Authors suggest 11/2,9/2[514]; bandhead not identified.
1506[g] 5	(7/2$^+$)[&]	(4)	≈20	
1530 5			18	
1562 5			22	

[†] Uncertainties are from general statement of authors which applies to strongly populated levels.
[‡] From earlier charged-particle reactions (1967Tj01,1970Lo04,1974Lo08) and ^{153}Tb ε decay (1970Bo02) unless noted as from this study. Assignments that differ significantly from those in ^{153}Gd Adopted Levels are noted.
[#] The only band assignments given here are those included in the ^{153}Gd Adopted Levels for the 3/2[521] and 11/2[505] bands.
[@] Deduced from DWBA analysis of angular distributions and ratio of (^{3}He,α) and (d,t) cross sections.
[&] From this study.
[a] Band(A): 3/2[521] band.
[b] Band(B): 11/2[505] band.
[c] Band(C): 3/2[402] band.
[d] Band(D): 1/2[400] band.

Continued on next page (footnotes at end of table)

^{154}Gd(^{3}He,α) 1973Lo14 (continued)

^{153}Gd Levels (continued)

[e] Band(E): 3/2[651] band.
[f] Band(F): 9/2[514] band.
[g] Band(G): 7/2[404] band.

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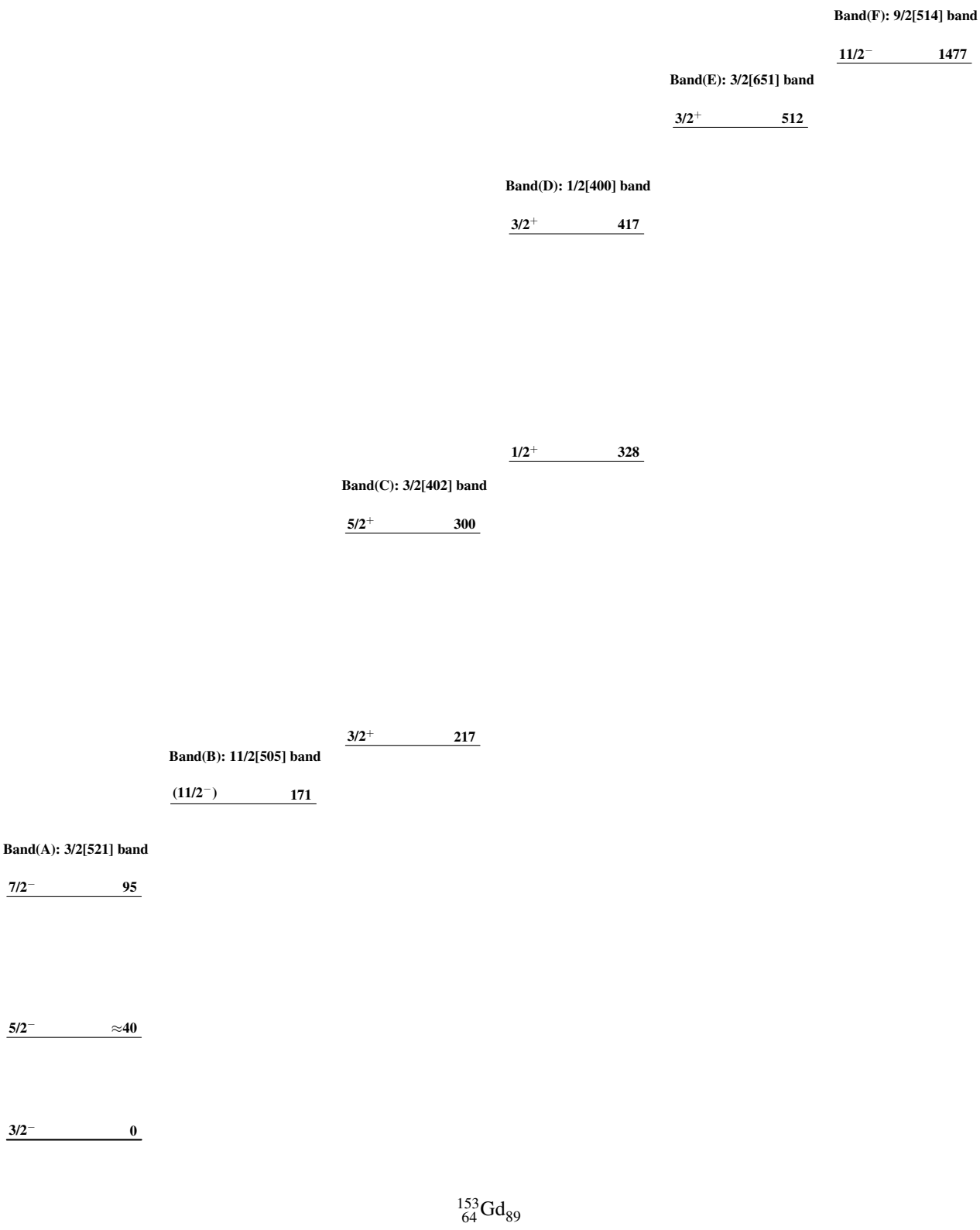

$^{153}_{64}Gd_{89}$

^{154}Gd(^{3}He,α) 1973Lo14 (continued)

Band(G): 7/2[404] band

($7/2^{+}$) 1506

$^{153}_{64}Gd_{89}$