^{154}Gd(t,p) 1989Lo07

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	C. W. Reich	NDS 113, 2537 (2012)	1-Mar-2012

Additional information 1.

^{154}Gd(t,p), E(t)=17 MeV. Enriched (66.53%) metallic self-supporting targets having thicknesses of≈150 μg/cm^2. Outgoing protons were detected at laboratory angles ranging from 6.5° to 70° using an Enge split-pole spectrograph with photographic emulsions. typical FWHM=25 keV. A Si surface-barrier detector was placed at 30° in the target chamber to record elastically scattered tritons to obtain absolute cross sections. Report L-transfer values and dσ/dΩ.

^{156}Gd Levels

E(level)[†]	J$^\pi$[‡]	L[#]	S[@&]	Comments
0[a]	0$^+$	0	290	
90[a] 7	2$^+$		11	
291[a] 7	4$^+$		6	
587[a] 7	6$^+$		3	
1050[b] 7	0$^+$	0	3	
1151[c] 7	2$^+$		3	S: Value at 60°.
1168[d] 7	0$^+$	0	50	
1257[d] 7	2$^+$		5	
1278[e] 7	3$^-$		12	
1301[b] 7	4$^+$		5	
1360[c] 7	4$^+$		6	
1403[e] 7	5$^-$		2	
1465[d] 7	4$^+$		7	
1595 7			1	S: Value at 60°.
1706 7	0$^+$	(0)	2	
1754 7	6$^+$		2	
1854 7	0$^+$,3$^-$		6	J$^\pi$: Values for the two possible levels which may be associated with this peak.
1923 7			3	
1963 7	1$^-$		2	
2027 7	3$^-$	(0)	5	J$^\pi$: From L=(0), J$^\pi$=0$^+$ is inferred.
2051 7	2$^+$		4	J$^\pi$: Can be associated with two levels, each of which has J$^\pi$=2$^+$.
2082 7	0$^+$		5	
2170 7		(0)	18	J$^\pi$: Can be associated with levels having J$^\pi$=1$^-$ or 2$^+$. From L=(0), J$^\pi$=(0$^+$) is inferred.
2261 7	1$^-$		6	
2305 7			5	
2377 7			7	
2441 7			3	S: Value at 60°.
2560 7			5	
2602 7	(1$^-$)		6	
2657 7			4	
2762 7			5	
2806 7	(2$^+$)		7	

[†] The uncertainties have been assigned by the evaluator on the basis of the authors′ general statement that they are ≈7 keV.

[‡] From adopted values. In associating the (t,p) levels with the Adopted Levels for the purpose of assigning J$^\pi$ values, where there is ambiguity in which adopted level corresponds to a given (t,p) level, the evaluator has been guided by the observation that "natural-parity" states are preferentially excited in this reaction. where an association cannot be reasonably made, no value is listed.

[#] Although many p(θ) curves are shown, the only assignments given by the authors are for L=0 transfers.

[@] Label=dσ/dΩ(μb/sr).

Continued on next page (footnotes at end of table)

^{154}Gd(t,p) 1989Lo07 (continued)

^{156}Gd Levels (continued)

& Values at θ=30°, unless noted otherwise. Relative cross sections have uncertainties of≈10% for strong peaks. The absolute cross sections are believed to have uncertainties of≈20%.

[a] Band(A): $K^\pi=0^+$, g.s. band.

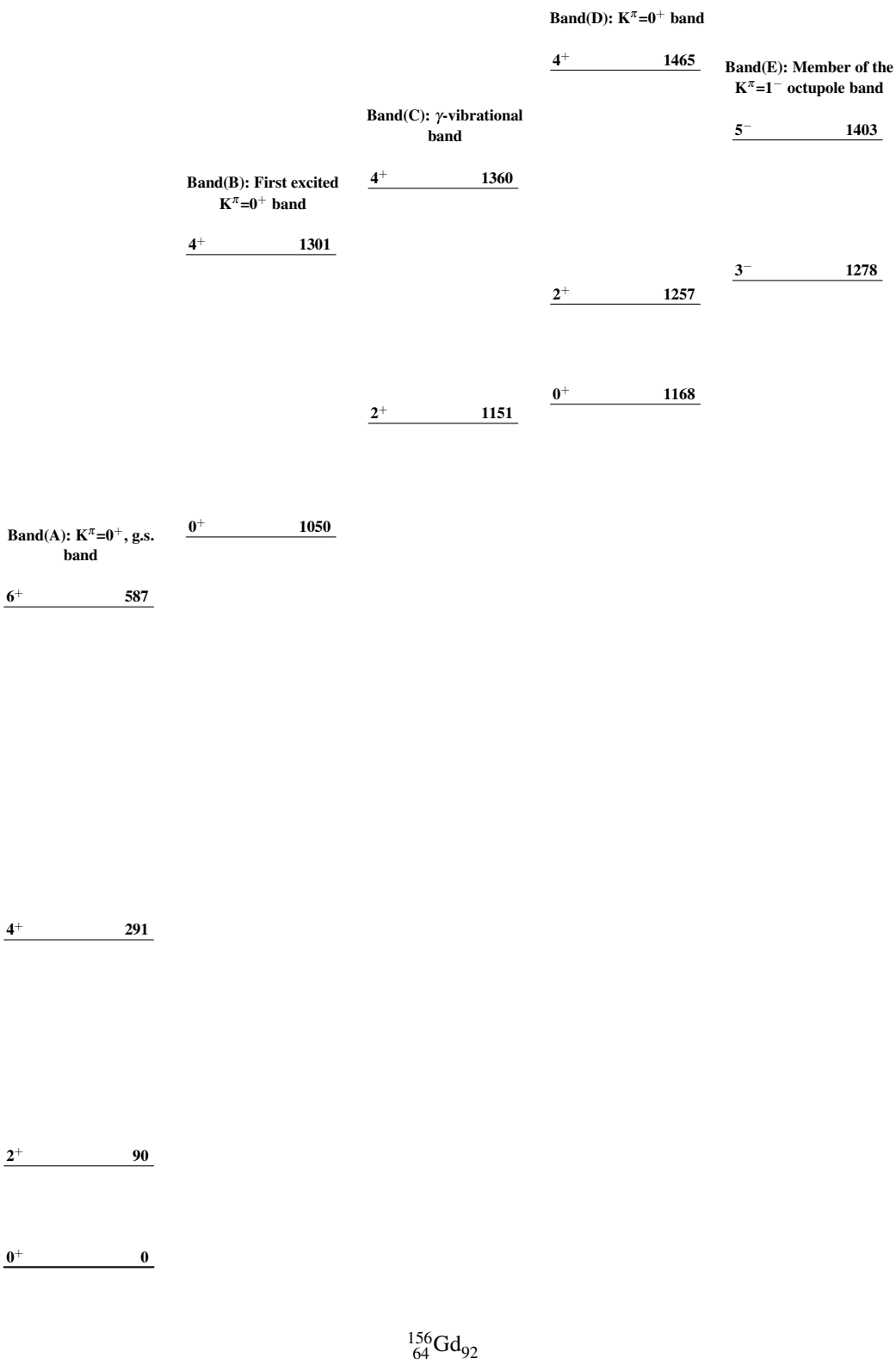
[b] Band(B): First excited $K^\pi=0^+$ band.

[c] Band(C): γ-vibrational band.

[d] Band(D): $K^\pi=0^+$ band.

[e] Band(E): Member of the $K^\pi=1^-$ octupole band.

^{154}Gd(t,p) 1989Lo07



$^{156}_{64}Gd_{92}$