

$^{158}\text{Gd}(\text{d},\text{d}')$ 1967BI05

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

E=12 MeV. Magnetic spectrometer, resolution ≈ 8 keV. Measured $\sigma(\theta)$.

Other inelastic scattering measurements: (p,p') 1966Sh05 for 4 excited levels; (d,d') 1969Ch09 for the ground state; and (α,α') 1962Ha28.

 ^{158}Gd Levels

BE(L) values are deduced (1967BI05) from $d\sigma/d\Omega(90^\circ)$ assuming that $d\sigma/d\Omega(E=0)=1200 * B(E2)$ and $d\sigma/d\Omega(E=0)=1720 * B(E3)$.

E(level)	$J^\pi^\dagger$	$T_{1/2}^\ddagger$	$S^\#$	Comments
0@	0 ⁺	45500	9770	
79@	2 ⁺	5520	2330	
261@	4 ⁺	221	171	
539@	6 ⁺	10	23	
976 ^a	1 ⁻	4	7	
1042 ^a	3 ⁻	108	72	B(E3) $\uparrow$ =0.069
1172 ^a	5 ⁻	≈ 2	10	
1187&	2 ⁺	77	34	B(E2) $\uparrow$ = 0.068
1263		5	11	
1357&	4 ⁺	8	18	
1403	3 ⁻	33	29	B(E3) $\uparrow$ =0.023
1449 ^b	(0 ⁺)	≈ 2	4	
1518 ^b	(2 ⁺)	13	6	
1856	3 ⁻	69	57	B(E3) $\uparrow$ =0.052

[†] From authors (1967BI05), except those for the ground-state band which are from the ^{158}Gd Adopted Levels.

[‡] Label= $d\sigma/d\Omega(90^\circ)$ ($\mu\text{b}/\text{sr}$).

[#] Label= $d\sigma/d\Omega(125^\circ)$ ($\mu\text{b}/\text{sr}$).

@ Band(A): ground-state band.

& Band(B): γ -vibrational band.

^a Band(C): $K^\pi=1^-$ octupole band.

^b Band(D): $K^\pi=0^+$ band.

$^{158}\text{Gd(d,d')} \quad 1967\text{BI05}$ Band(D): $K^\pi=0^+$ band (2^+) 1518 (0^+) 1449Band(B): γ -vibrational
band 4^+ 1357Band(C): $K^\pi=1^-$
octupole band 2^+ 1187 5^- 1172 3^- 1042Band(A): Ground-state
band 1^- 976 6^+ 539 4^+ 261 2^+ 79 0^+ 0