¹⁵⁴Gd(d,t) **1973Lo14,1967Tj01**

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

E=15 MeV, magnetic spectrograph, FWHM \approx 8 keV (1973Lo14). E=12.1 MeV, magnetic spectrograph, FWHM \approx 9 keV (1967Tj01).

¹⁵³Gd Levels

0 ⁰ /4 3/2"/4 1 207 43 ^a /2 2 5/2" - 3 3 7 109 2 5/2"- 5/2" - 3 3 72 129 2 3/2" - 1 9 18 2 17 2 18 2 17 2 18 2 17 2 19 3 7 2 19 3 7 2 19 2 3/2" - 1 9 18 2 11 9 18 2 11 9 18 2 11 9 18 2 11 9 18 2 12 2 2 2 2 2 2 2 2 2 2 2 3 2 2 27 3 3 2 2 2 7 3 3 2 2 2 7 3 3 2 2 1 3 4 4 3 3 1 3 3 3 3	E(level)	Jπ‡#	L@	$d\sigma/d\Omega$ (45°)(μ b/sr)	Comments	
43 ^a 2 5/2 ⁻ 3,4 335 L: Authors expect this peak to contain some contribution from the (9/2) ⁺ level with L=4.	${0^a}$	3/2-	1	207		
level with L=4.			3	7		
	94 ^a 2	•	3,4	335	* *	
138 2 (13/2*) 6 45 172 ^b 2 (11/2*) 5 63 183 2 5/2* 2 29 212 ^c 2 3/2* 2 646 250 2 5/2* 2,3 46 303 ^c 2 5/2* 2 27 315 2 1 840 338 2 1/2* 0 1063 362 2 1 361 J ^π : Assigned 1/2* in 153 Gd Adopted Levels. 395 2 2 9 J ^π : Assigned 1/2* in 153 Gd Adopted Levels. 413 ^d 2 3/2* & 2,(3) 71 8436 (1) 865 J ^π : Assigned 1/2* in 153 Gd Adopted Levels. 436 (1) 865 J ^π : Assigned 1/2* in 153 Gd Adopted Levels. 437 2 1/2* 0 23 504 2 (3/2)* & 2 112 530 2 3/2* 1 21 549 2 (5/2*,7/2*) 5 578 2 3,4 26 J ^π : Assigned 5/2* in 153 Gd Adopted Levels. 530 2 3/2* 1 21 549 2 (5/2*,7/2*) 5 578 2 3,4 26 J ^π : Assigned 5/2* in 153 Gd Adopted Levels. 530 2 3/2* 1 21 540 2 (5/2*,7/2*) 5 578 2 3,4 26 J ^π : Assigned 5/2* in 153 Gd Adopted Levels. 530 2 3/2* 1 21 540 2 (5/2*,7/2*) 5 578 2 3,4 26 J ^π : Assigned 5/2* in 153 Gd Adopted Levels. 530 2 3/2* 1 21 540 2 (5/2*,7/2*) 5 578 2 3,4 26 J ^π : Assigned 3/2* in 153 Gd Adopted Levels. 530 2 3/2* 1 21 540 2 (5/2*,7/2*) 5 578 2 10 57°: Assigned 3/2* in 153 Gd Adopted Levels. 530 2 3/2* 1 35 590 2 12 590 2 12 598 2 13 596 2 24 598 2 24 598 2 24 598 2 24 598 2 24 598 2 24 598 2 24 598 2 24 598 2 25 515 5100 2 8 516 2 24 517 : Assigned (3/2*) in 153 Gd Adopted Levels. 598 2 25 518 2 10 519 2 4 519 2 2 3 5116 2 2 53 5116 2 2 53 5116 2 2 53 5116 2 2 53 5116 2 2 53 5116 2 2 53 5120 2 4 513 2 50 60 50°: Assigned (3/2*) in 153 Gd Adopted Levels. 50°: Assigned (3/2*) in 153 Gd Adopted Levels. 517 : Assigned (3/2*) in 153 Gd Adopted Levels. 518 2 2 2,3 113 519 2 2 3 113 519 2 3 4 4 50 dσ/dΩ value is for angle of 40°. 518 2 4 4 519 2 4 4 519 2 4 4 519 2 5 4 5 519 2 5			3	72		
172						
183 2 5/2 ⁺ 2 2 29 212 ^c 2 3/2 ⁺ 2 646 250 2 5/2 ⁻ 2,3 46 303 ^c 2 5/2 ⁺ 2 2 77 315 2 1 ≈ 40 362 2 1 2 ⁺ 0 1063 362 2 1 3 361 37: Assigned 3/2 ⁻ in ¹⁵³ Gd Adopted Levels. 395 2 29 J ^π : Assigned 7/2 ⁺ in ¹⁵³ Gd Adopted Levels. 395 2 29 J ^π : Assigned 7/2 ⁺ in ¹⁵³ Gd Adopted Levels. 413 ^d 2 3/2 ⁺ & 2,(3) 71 ≈436 (1) ≈65 J ^π : Assigned 1/2 ⁻ in ¹⁵³ Gd Adopted Levels. 342 5/2 ⁺ & (2) ≈40 483 ^e 2 1/2 ⁺ & 0 23 504 2 (3/2) ⁺ & 2 112 530 2 3/2 ⁻ 1 21 549 2 (5/2 ⁻ ,7/2 ⁻) 5 578 2 3,4 26 J ^π : Assigned 5/2 ⁺ in ¹⁵³ Gd Adopted Levels. 31 3 J ^π : Assigned 5/2 ⁺ in ¹⁵³ Gd Adopted Levels. 32 47 2 10 482 2 12 J ^π : Assigned 3/2 ⁻ in ¹⁵³ Gd Adopted Levels. 33 2 5,6 3 J ^π : Assigned 5/2 ⁻ in ¹⁵³ Gd Adopted Levels. 36 2 12 J ^π : Assigned 3/2 ⁻ in ¹⁵³ Gd Adopted Levels. 37 3 2 (3) 35 857 2 10 J ^π : Assigned 3/2 ⁻ in ¹⁵³ Gd Adopted Levels. 37 3 2 (3) 35 857 2 10 J ^π : Assigned 3/2 ⁻ in ¹⁵³ Gd Adopted Levels. 36 2 12 J ^π : Assigned 3/2 ⁻ in ¹⁵³ Gd Adopted Levels. 37 3 2 (3) 35 857 2 10 J ^π : Assigned 3/2 ⁻ in ¹⁵³ Gd Adopted Levels. 38 42 1 35 904 2 8 J ^π : Assigned 5/2 ⁺ in ¹⁵³ Gd Adopted Levels. 38 42 1 35 904 2 8 J ^π : Assigned 5/2 ⁺ in ¹⁵³ Gd Adopted Levels. 37 3 4 3 5 J ^π : Assigned 3/2 ⁻ in ¹⁵³ Gd Adopted Levels. 38 5 2 10 J ^π : Assigned 5/2 ⁺ in ¹⁵³ Gd Adopted Levels. 39 5 2 10 J ^π : Assigned 5/2 ⁺ in ¹⁵³ Gd Adopted Levels. 39 5 2 10 J ^π : Assigned 5/2 ⁺ in ¹⁵³ Gd Adopted Levels. 39 6 2 24 J ^π : Assigned 3/2 ⁻ in ¹⁵³ Gd Adopted Levels. 39 6 2 24 J ^π : Assigned 3/2 ⁻ in ¹⁵³ Gd Adopted Levels. 39 6 2 24 J ^π : Assigned 3/2 ⁻ in ¹⁵³ Gd Adopted Levels. 39 6 2 24 J ^π : Assigned 5/2 ⁺ in ¹⁵³ Gd Adopted Levels. 39 6 2 24 J ^π : Assigned 5/2 ⁺ in ¹⁵³ Gd Adopted Levels. 39 6 2 24 J ^π : Assigned 5/2 ⁺ in ¹⁵³ Gd Adopted Levels. 39 6 2 2 3 3 113 1250 2 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4				45		
212°C 2 3/2°+ 2 646 250 2 5/2° 2,3 46 303°C 5/2°+ 2 2 27 315 2			5			
250 2 5/2" 2,3 46 303° 2 5/2" 2 27 315 2 1 ×40 315 2 1 ×40 362 2 1/2" 0 1063 362 2 1 361 395 2 29 J*: Assigned J/2" in ¹⁵³ Gd Adopted Levels. 395 2 29 J*: Assigned (7/2") in ¹⁵³ Gd Adopted Levels. 413d 2 3/2*& 2,(3) 71 ×436 (1) ×65 J*: Assigned 1/2" in ¹⁵³ Gd Adopted Levels. 413d 2 3/2*& 2,(3) 71 ×436 (2) ×40 483° 2 1/2*& 0 23 504f 2 (3/2)*& 2 112 530 2 3/2" 1 21 549 2 (5/2",7/2") 5 578 2 3,4 26 J*: Assigned 5/2* in ¹⁵³ Gd Adopted Levels. 606 2 3 J*: Assigned 5/2" in ¹⁵³ Gd Adopted Levels. 633 2 5,6 3 647 2 10 682 2 12 J*: Assigned 5/2" in ¹⁵³ Gd Adopted Levels. 637 3 2 3/2" 1 3/4 682 2 12 J*: Assigned 5/2" in ¹⁵³ Gd Adopted Levels. 638 2 12 J*: Assigned 5/2" in ¹⁵³ Gd Adopted Levels. 639 2 12 J*: Assigned 3/2" in ¹⁵³ Gd Adopted Levels. 630 2 5,6 3 647 2 10 682 2 12 J*: Assigned 3/2" in ¹⁵³ Gd Adopted Levels. 682 1 1 35 884 2 1 1 35 904 2 8 J*: Assigned 5/2* in ¹⁵³ Gd Adopted Levels. 884 2 1 35 904 2 8 J*: Assigned 5/2* in ¹⁵³ Gd Adopted Levels. 986 2 2 10 J*: Assigned 5/2* in ¹⁵³ Gd Adopted Levels. 986 2 2 4 J*: Assigned 5/2* in ¹⁵³ Gd Adopted Levels. 986 2 2 4 J*: Assigned 5/2* in ¹⁵³ Gd Adopted Levels. 986 2 2 4 J*: Assigned 5/2* in ¹⁵³ Gd Adopted Levels. 1035 2 6 1082 2 15 1096 2 8 J*: Assigned 3/2" in ¹⁵³ Gd Adopted Levels. 116 2 2 5 53 117 2 2 2,3 113 1250 2 4 dσ/dΩ value is for angle of 40°. 1298 2 4 dσ/dΩ value is for angle of 40°. 1298 2 4 dσ/dΩ value is for angle of 50°. 15': Assigned (1/2,3/2)" in ¹⁵³ Gd Adopted Levels.	183 2					
3036 2 5/2+ 2 27 315 2 1 ≈40 315 2 1 1 ≈40 328 d 2 1/2+ 0 1063 362 2 1 361 395 2 29 J²: Assigned 1/2⁻ in 153 Gd Adopted Levels. 395 2 29 J²: Assigned 1/2⁻ in 153 Gd Adopted Levels. 413 d 2 3/2+ & 2,(3) 71 ≈436 (1) ≈65 J²: Assigned 1/2⁻ in 153 Gd Adopted Levels. 442 5/2+ & (2) ≈40 483 e 2 1/2+ & 0 23 504 f 2 (3/2)+ & 2 112 549 2 (5/2⁻,7/2⁻) 5 578 2 3,4 26 J²: Assigned 5/2⁺ in 153 Gd Adopted Levels. 606 2 J²: Assigned 5/2⁺ in 153 Gd Adopted Levels. 606 2 J²: Assigned 5/2⁻ in 153 Gd Adopted Levels. 606 2 J²: Assigned 5/2⁻ in 153 Gd Adopted Levels. 608 2 J²: Assigned 5/2⁻ in 153 Gd Adopted Levels. 608 2 J²: Assigned 3/2⁻ in 153 Gd Adopted Levels. 608 2 J²: Assigned 3/2⁻ in 153 Gd Adopted Levels. 609 2 J²: Assigned 3/2⁻ in 153 Gd Adopted Levels. 609 2 J²: Assigned 3/2⁻ in 153 Gd Adopted Levels. 609 2 J²: Assigned 3/2⁻ in 153 Gd Adopted Levels. 609 2 J²: Assigned 3/2⁻ in 153 Gd Adopted Levels. 609 2 J²: Assigned 3/2⁻ in 153 Gd Adopted Levels. 609 2 S J²: Assigned 3/2⁻ in 153 Gd Adopted Levels. 609 2 S J²: Assigned 3/2⁻ in 153 Gd Adopted Levels. 609 2 S J²: Assigned 3/2⁻ in 153 Gd Adopted Levels. 600 2 S J²: Assigned 3/2⁻ in 153 Gd Adopted Levels. 600 2 S J²: Assigned 3/2⁻ in 153 Gd Adopted Levels. 600 2 S S J²: Assigned 3/2⁻ in 153 Gd Adopted Levels. 600 2 S S J²: Assigned 3/2⁻ in 153 Gd Adopted Levels. 600 2 S S J²: Assigned 3/2⁻ in 153 Gd Adopted Levels. 600 2 S S J²: Assigned 3/2⁻ in 153 Gd Adopted Levels. 600 2 S S J²: Assigned 3/2⁻ in 153 Gd Adopted Levels. 600 2 S S J²: Assigned 3/2⁻ in 153 Gd Adopted Levels. 600 2 S S S J²: Assigned 3/2⁻ in 153 Gd Adopted Levels. 600 2 S S J²: Assigned 3/2⁻ in 153 Gd Adopted Levels. 600 2 S S J²: Assigned 3/2⁻ in 153 Gd Adopted Levels. 600 2 S S S J²: Assigned 3/2⁻ in 153 Gd Adopted Levels. 600 2 S S S S S S S S S S S S S S S S S S						
315 2						
328 ^d 2 1/2 ⁺ 0 1063 362 2 1 361 J ^π : Assigned 3/2 ⁻ in ¹⁵³ Gd Adopted Levels. 395 2 29 J ^π : Assigned 7/2 ⁺) in ¹⁵³ Gd Adopted Levels. 413 ^d 2 3/2 ⁺ & 2,(3) 71 ≈436 (1) ≈65 J ^π : Assigned 1/2 ⁻ in ¹⁵³ Gd Adopted Levels. ≈442 5/2 ⁺ & (2) ≈40 483 ^e 2 1/2 ⁺ & 0 23 504 ^f 2 (3/2) ⁺ & 2 112 J ^π : Assigned 5/2 ⁺ in ¹⁵³ Gd Adopted Levels. 530 2 3/2 ⁻ 1 21 549 2 (5/2 ⁻ ,7/2 ⁻) 5 578 2 3,4 26 J ^π : Assigned 5/2 ⁺ in ¹⁵³ Gd Adopted Levels. 606 2 3 J ^π : Assigned 5/2 ⁻ in ¹⁵³ Gd Adopted Levels. 606 2 3 J ^π : Assigned 5/2 ⁻ in ¹⁵³ Gd Adopted Levels. 606 2 3 J ^π : Assigned 5/2 ⁻ in ¹⁵³ Gd Adopted Levels. 608 2 12 J ^π : Assigned 3/2 ⁻ in ¹⁵³ Gd Adopted Levels. 877 2 10 J ^π : Assigned 3/2 ⁻ in ¹⁵³ Gd Adopted Levels. 884 2 1 35 887 2 10 J ^π : Assigned 3/2 ⁻ in ¹⁵³ Gd Adopted Levels. 904 2 8 J ^π : Assigned 5/2 ⁺ in ¹⁵³ Gd Adopted Levels. 932 2 10 J ^π : Assigned 5/2 ⁻ in ¹⁵³ Gd Adopted Levels. 932 2 10 J ^π : Assigned 5/2 ⁻ in ¹⁵³ Gd Adopted Levels. 932 2 10 J ^π : Assigned 5/2 ⁻ in ¹⁵³ Gd Adopted Levels. 135 2 6 1082 2 15 J ^π : Assigned (3/2) ⁺ at 1101 in ¹⁵³ Gd Adopted Levels. 116 2 2 5 53 115 2 2 2,3 113 1250 2 4 dσ/dΩ value is for angle of 40°. 1280 2 4 dσ/dΩ value is for angle of 50°. 17: Assigned (1/2,3/2) ⁻ in ¹⁵³ Gd Adopted Levels.		5/21			177	
362 2					J ⁿ : Assigned 1/2 ⁻¹³ in ¹³³ Gd Adopted Levels.	
395 2 413 ^d 2 3/2+& 2,(3) 71 ≈436 (1) ≈65 (1) ≈65 442 5/2+& (2) ≈40 483 ^e 2 1/2+& 0 23 504 f 2 (3/2)+& 2 112 530 2 3/2 1 21 549 2 (5/2-7/2-) 5 578 2 3,4 26 606 2 3 J ^π : Assigned 5/2+ in ¹⁵³ Gd Adopted Levels. 606 2 3 J ^π : Assigned 5/2- in ¹⁵³ Gd Adopted Levels. 606 2 3 J ^π : Assigned 5/2- in ¹⁵³ Gd Adopted Levels. 633 2 5.6 3 647 2 10 682 2 12 773 2 (3) 35 887 2 10 10 884 2 1 35 904 2 8 J ^π : Assigned 3/2- in ¹⁵³ Gd Adopted Levels. 932 2 10 J ^π : Assigned 3/2- in ¹⁵³ Gd Adopted Levels. 932 2 10 J ^π : Assigned 5/2+ in ¹⁵³ Gd Adopted Levels. 932 2 10 J ^π : Assigned 5/2- in ¹⁵³ Gd Adopted Levels. 932 2 10 J ^π : Assigned 3/2- in ¹⁵³ Gd Adopted Levels. 932 2 10 J ^π : Assigned 5/2- in ¹⁵³ Gd Adopted Levels. 932 2 10 J ^π : Assigned 5/2- in ¹⁵³ Gd Adopted Levels. 932 2 10 J ^π : Assigned 5/2- in ¹⁵³ Gd Adopted Levels. 1035 2 6 1082 2 15 1096 2 8 J ^π : Assigned (3/2)+ at 1101 in ¹⁵³ Gd Adopted Levels. 1116 2 2 53 1152 2 2,3 113 1250 2 7 1280 2 4 dσ/dΩ value is for angle of 40°. 17: Assigned (1/2,3/2)- in ¹⁵³ Gd Adopted Levels. 17: Assigned of 50°. 17: Assigned of 50°. 17: Assigned of 50°. 17: Assigned of 50°.		1/2+			152	
413 ^d 2 3/2 ^{+&} 2,(3) 71 ×436			1		J^{π} : Assigned 3/2 ⁻ in ¹⁵³ Gd Adopted Levels.	
≈436 (1) ≈65 J ^π : Assigned 1/2 ⁻ in 153 Gd Adopted Levels. ≈442 5/2+& (2) ≈40 483e² 2 1/2+& 0 23 504f² 2 3/2- 1 21 530 2 3/2- 1 21 549 2 (5/2-,7/2-) 5 578 2 3,4 26 J ^π : Assigned (7/2) ⁻ in 153 Gd Adopted Levels. 606 2 3 J ^π : Assigned 5/2- in 153 Gd Adopted Levels. 633 2 5,6 3 647 2 10 J ^π : Assigned 3/2- in 153 Gd Adopted Levels. 857 2 10 J ^π : Assigned 3/2- in 153 Gd Adopted Levels. 884 2 1 35 904 2 8 J ^π : Assigned 5/2- in 153 Gd Adopted Levels. 932 2 10 J ^π : Assigned 5/2- in 153 Gd Adopted Levels. 986 2 24 J ^π : Assigned (3/2)- in 153 Gd Adopted Levels. 1035 3 J ^π : Assigned (3/2)- in 153 Gd Adopted Levels. 986 2 24 J ^π : Assigned (3/2)- in 15		0			J^{π} : Assigned (7/2 ⁺) in ¹⁵⁵ Gd Adopted Levels.	
≈ 442 $5/2^{+}$ (2) ≈ 40 483^{e} 2 $1/2^{+}$ 0 23 504^{f} 2 $(3/2)^{+}$ 2 112 530 2 $3/2^{-}$ 1 21 549 2 $(5/2^{-},7/2^{-})$ 5 578 2 3,4 26 J^{π} : Assigned $5/2^{+}$ in 153 Gd Adopted Levels. 606 2 3 J^{π} : Assigned $5/2^{-}$ in 153 Gd Adopted Levels. 633 2 5,6 3 647 2 10 682 2 12 J^{π} : Assigned $(3/2)^{-}$ in 153 Gd Adopted Levels. 887 2 10 J^{π} : Assigned $(3/2)^{-}$ in 153 Gd Adopted Levels. 884 2 1 35 904 2 8 J^{π} : Assigned $5/2^{+}$ in 153 Gd Adopted Levels. 982 2 10 J^{π} : Assigned $5/2^{+}$ in 153 Gd Adopted Levels. 982 2 10 J^{π} : Assigned $5/2^{+}$ in 153 Gd Adopted Levels. 982 2 10 J^{π} : Assigned $5/2^{+}$ in 153 Gd Adopted Levels. 982 2 10 J^{π} : Assigned $5/2^{+}$ in 153 Gd Adopted Levels. 982 2 10 J^{π} : Assigned $5/2^{+}$ in 153 Gd Adopted Levels. 982 2 10 J^{π} : Assigned $5/2^{+}$ in 153 Gd Adopted Levels. 982 2 10 J^{π} : Assigned $5/2^{+}$ in 153 Gd Adopted Levels. 982 2 10 J^{π} : Assigned $5/2^{+}$ in 153 Gd Adopted Levels. 982 2 10 J^{π} : Assigned $(3/2)^{+}$ in 153 Gd Adopted Levels. 982 2 15 1096 2 8 J^{π} : Assigned $(3/2)^{+}$ at 1101 in 153 Gd Adopted Levels. 1116 2 2 53 1152 2 2,3 113 1250 2 7 1280 2 4 $d\sigma/d\Omega$ value is for angle of 40° . 1298 2 13 1366 2 8 $d\sigma/d\Omega$ value is for angle of 50° . J^{π} : Assigned $(1/2,3/2)^{-}$ in 153 Gd Adopted Levels.		3/2+				
483e 2 1/2+& 0 23 504f 2 (3/2)+& 2 112 530 2 3/2 1 21 549 2 (5/2-7/2-) 5 578 2 3,4 26 J ^π : Assigned 5/2+ in ¹⁵³ Gd Adopted Levels. 606 2 3 J ^π : Assigned 5/2- in ¹⁵³ Gd Adopted Levels. 606 2 3 J ^π : Assigned 5/2- in ¹⁵³ Gd Adopted Levels. 633 2 5,6 3 647 2 10 682 2 12 J ^π : Assigned (3/2)- in ¹⁵³ Gd Adopted Levels. 773 2 (3) 35 857 2 10 J ^π : Assigned 3/2- in ¹⁵³ Gd Adopted Levels. 884 2 1 35 904 2 8 J ^π : Assigned 3/2- in ¹⁵³ Gd Adopted Levels. 932 2 10 J ^π : Assigned 5/2+ in ¹⁵³ Gd Adopted Levels. 932 2 10 J ^π : Assigned 5/2- in ¹⁵³ Gd Adopted Levels. 938 2 10 J ^π : Assigned 5/2- in ¹⁵³ Gd Adopted Levels. 938 2 10 J ^π : Assigned 3/2- in ¹⁵³ Gd Adopted Levels. 938 2 10 J ^π : Assigned (3/2+) in ¹⁵³ Gd Adopted Levels. 936 2 24 J ^π : Assigned (3/2+) in ¹⁵³ Gd Adopted Levels. 1035 2 6 1082 2 15 1096 2 8 J ^π : Assigned (3/2)+ at 1101 in ¹⁵³ Gd Adopted Levels. 1116 2 2 53 1152 2 2,3 113 1250 2 7 1280 2 4 dσ/dΩ value is for angle of 40°. 1298 2 13 1366 2 8 dσ/dΩ value is for angle of 50°. J ^π : Assigned (1/2,3/2)- in ¹⁵³ Gd Adopted Levels.		0	(1)	≈65	J^{π} : Assigned 1/2 ⁻ in ¹⁵³ Gd Adopted Levels.	
$504f$ 2 $(3/2)^{+}$ 2 112 J^{π} : Assigned $5/2^{+}$ in 153 Gd Adopted Levels. $530\ 2\ 3/2^{-}$ 1 21 $549\ 2\ (5/2^{-},7/2^{-})$ 5 $578\ 2\ 3,4\ 26$ J^{π} : Assigned $(7/2)^{-}$ in 153 Gd Adopted Levels. $606\ 2\ 3\ J^{\pi}$: Assigned $5/2^{-}$ in 153 Gd Adopted Levels. $633\ 2\ 5,6\ 3\ 647\ 2\ 10$ $682\ 2\ 12$ 10 $682\ 2\ 12$ 10 35 35 35 35 35 35 35 35			(2)	≈40		
$530\ 2$ $3/2^-$ 1 21 $549\ 2$ $(5/2^-,7/2^-)$ 5 5 $578\ 2$ 3,4 26 J^π : Assigned $(7/2)^-$ in 153 Gd Adopted Levels. $606\ 2$ 3 J^π : Assigned $5/2^-$ in 153 Gd Adopted Levels. $633\ 2$ 5,6 3 J^π : Assigned $5/2^-$ in 153 Gd Adopted Levels. $633\ 2$ 5,6 3 J^π : Assigned $(3/2)^-$ in 153 Gd Adopted Levels. $647\ 2$ 10 J^π : Assigned $3/2^-$ in 153 Gd Adopted Levels. $647\ 2$ 10 J^π : Assigned $3/2^-$ in 153 Gd Adopted Levels. $647\ 2$ 10 J^π : Assigned $3/2^-$ in 153 Gd Adopted Levels. $647\ 2$ 10 J^π : Assigned $3/2^+$ in 153 Gd Adopted Levels. $647\ 2$ 10 J^π : Assigned $3/2^+$ in 153 Gd Adopted Levels. $647\ 2$ 10 J^π : Assigned $3/2^+$ in 153 Gd Adopted Levels. $1035\ 2$ 10 J^π : Assigned $1/2$ in $1/2$ 11 $1/2$ 11 $1/2$ 12 $1/2$ 13 $1/2$ 15 $1/2$ 15 $1/2$ 15 $1/2$ 15 $1/2$ 16 $1/2$ 17 $1/2$ 18 $1/2$ 18 $1/2$ 19 1			0	23		
549 2 (5/2 ⁻ ,7/2 ⁻) 5 578 2 3,4 26 J ^π : Assigned (7/2) ⁻ in ¹⁵³ Gd Adopted Levels. 606 2 3 J ^π : Assigned 5/2 ⁻ in ¹⁵³ Gd Adopted Levels. 633 2 5,6 3 647 2 10 682 2 12 J ^π : Assigned (3/2) ⁻ in ¹⁵³ Gd Adopted Levels. 773 2 (3) 35 857 2 10 J ^π : Assigned 3/2 ⁻ in ¹⁵³ Gd Adopted Levels. 884 2 1 35 894 2 1 35 904 2 8 J ^π : Assigned 5/2 ⁺ in ¹⁵³ Gd Adopted Levels. 932 2 10 J ^π : Assigned 5/2 ⁺ in ¹⁵³ Gd Adopted Levels. 986 2 24 J ^π : Assigned 5/2 ⁻ in ¹⁵³ Gd Adopted Levels. 1035 2 6 1082 2 15 1096 2 8 J ^π : Assigned (3/2 ⁺) in ¹⁵³ Gd Adopted Levels. 1116 2 2 53 1152 2 2,3 113 1250 2 7 1280 2 4 dσ/dΩ value is for angle of 40°. 1298 2 13 1366 2 8 dσ/dΩ value is for angle of 50°. 1 ^π : Assigned (1/2,3/2) ⁻ in ¹⁵³ Gd Adopted Levels.		$(3/2)^{+}$	2	112	J^{π} : Assigned 5/2 ⁺ in ¹⁵³ Gd Adopted Levels.	
578 2 3,4 26 J^{π} : Assigned (7/2) ⁻ in ¹⁵³ Gd Adopted Levels. 606 2 3 J^{π} : Assigned 5/2 ⁻ in ¹⁵³ Gd Adopted Levels. 633 2 5,6 3 647 2 10 682 2 12 J^{π} : Assigned (3/2) ⁻ in ¹⁵³ Gd Adopted Levels. 773 2 (3) 35 857 2 10 J^{π} : Assigned 3/2 ⁻ in ¹⁵³ Gd Adopted Levels. 884 2 1 35 904 2 8 J^{π} : Assigned 5/2 ⁺ in ¹⁵³ Gd Adopted Levels. 932 2 10 J^{π} : Assigned 5/2 ⁺ in ¹⁵³ Gd Adopted Levels. 986 2 24 J^{π} : Assigned 5/2 ⁻ in ¹⁵³ Gd Adopted Levels. 1035 2 6 1082 2 15 1096 2 8 J^{π} : Assigned (3/2) ⁺ in ¹⁵³ Gd Adopted Levels. 1116 2 2 53 1152 2 2,3 113 1250 2 7 1280 2 4 $d\sigma/d\Omega$ value is for angle of 40°. 1298 2 13 1366 2 8 $d\sigma/d\Omega$ value is for angle of 50°. J^{π} : Assigned (1/2,3/2) ⁻ in ¹⁵³ Gd Adopted Levels.			1			
Second		$(5/2^-,7/2^-)$			150	
633 2 5,6 3 10 I^{π} : Assigned (3/2) ⁻ in ¹⁵³ Gd Adopted Levels. 773 2 (3) 35 I^{π} : Assigned 3/2 ⁻ in ¹⁵³ Gd Adopted Levels. 884 2 1 35 I^{π} : Assigned 5/2 ⁺ in ¹⁵³ Gd Adopted Levels. 904 2 8 I^{π} : Assigned 5/2 ⁺ in ¹⁵³ Gd Adopted Levels. 932 2 10 I^{π} : Assigned 5/2 ⁻ in ¹⁵³ Gd Adopted Levels. 986 2 24 I^{π} : Assigned 5/2 ⁻ in ¹⁵³ Gd Adopted Levels. 1035 2 6 6 I^{π} : Assigned (3/2) ⁺ in ¹⁵³ Gd Adopted Levels. 1036 2 8 I^{π} : Assigned (3/2) ⁺ at 1101 in ¹⁵³ Gd Adopted Levels. 1116 2 2 53 I^{π} : Assigned (3/2) ⁺ at 1101 in ¹⁵³ Gd Adopted Levels. 1116 2 2 53 I^{π} : Assigned (3/2) ⁺ at 1101 in ¹⁵³ Gd Adopted Levels. 11280 2 4 I^{π} : Assigned (3/2) ⁺ at 1101 in ¹⁵³ Gd Adopted Levels. 1298 2 13 I^{π} : Assigned (1/2,3/2) ⁻ in ¹⁵³ Gd Adopted Levels.			3,4		J^{π} : Assigned $(7/2)^{-}$ in ¹⁵³ Gd Adopted Levels.	
647 2 10 682 2 12 773 2 (3) 35 857 2					J^{π} : Assigned $5/2^{-}$ in ¹⁵³ Gd Adopted Levels.	
682 2			5,6			
773 2 (3) 35 (3) 35 (857 2 10 J^{π} : Assigned 3/2 ⁻ in 153 Gd Adopted Levels. (884 2 1 35 904 2 8 J^{π} : Assigned 5/2 ⁺ in 153 Gd Adopted Levels. (932 2 10 J^{π} : Assigned 5/2 ⁻ in 153 Gd Adopted Levels. (986 2 24 J^{π} : Assigned (3/2 ⁺) in 153 Gd Adopted Levels. (1035 2 6 6 1082 2 15 15 1096 2 8 J^{π} : Assigned (3/2) ⁺ at 1101 in 153 Gd Adopted Levels. (116 2 2 53 115 1250 2 7 7 1280 2 4 J^{π} : Assigned (3/2) ⁺ at 1101 in 153 Gd Adopted Levels. (1280 2 4 J^{π} : Assigned (3/2) ⁺ at 1101 in 153 Gd Adopted Levels. (1298 2 13 13 1366 2 8 J^{π} : Assigned (1/2,3/2) ⁻ in 153 Gd Adopted Levels.					IT. A	
857 2 10 J^{π} : Assigned 3/2 ⁻ in ¹⁵³ Gd Adopted Levels. 884 2 1 35 J^{π} : Assigned 5/2 ⁺ in ¹⁵³ Gd Adopted Levels. 904 2 8 J^{π} : Assigned 5/2 ⁻ in ¹⁵³ Gd Adopted Levels. 932 2 10 J^{π} : Assigned 5/2 ⁻ in ¹⁵³ Gd Adopted Levels. 986 2 24 J^{π} : Assigned (3/2 ⁺) in ¹⁵³ Gd Adopted Levels. 1035 2 6 6 I^{π} : Assigned (3/2) ⁺ at 1101 in ¹⁵³ Gd Adopted Levels. 1096 2 8 J^{π} : Assigned (3/2) ⁺ at 1101 in ¹⁵³ Gd Adopted Levels. 1116 2 2 53 I^{π} : Assigned (3/2) ⁺ at 1101 in ¹⁵³ Gd Adopted Levels. 1250 2 7 I^{π} : Assigned (3/2) value is for angle of 40°. 1298 2 13 I^{π} : Assigned (1/2,3/2) ⁻ in ¹⁵³ Gd Adopted Levels.			(3)		J": Assigned (3/2) in "Ga Adopted Leveis.	
884 2 1 35 904 2 8 J^{π} : Assigned 5/2+ in ¹⁵³ Gd Adopted Levels. 932 2 10 J^{π} : Assigned 5/2- in ¹⁵³ Gd Adopted Levels. 986 2 24 J^{π} : Assigned (3/2+) in ¹⁵³ Gd Adopted Levels. 1035 2 6 1082 2 15 1096 2 8 J^{π} : Assigned (3/2)+ at 1101 in ¹⁵³ Gd Adopted Levels. 1116 2 2 53 1152 2 2,3 113 1250 2 7 1280 2 4 $d\sigma/d\Omega$ value is for angle of 40°. 1298 2 13 1366 2 8 $d\sigma/d\Omega$ value is for angle of 50°. J^{π} : Assigned (1/2,3/2)- in ¹⁵³ Gd Adopted Levels.			(3)		In. Assigned 3/2- in 153 Gd. Adopted Levels	
904 2 8 J^{π} : Assigned 5/2+ in 153 Gd Adopted Levels. 932 2 10 J^{π} : Assigned 5/2- in 153 Gd Adopted Levels. 986 2 24 J^{π} : Assigned (3/2+) in 153 Gd Adopted Levels. 1035 2 6 6 I_{082} 2 15 I_{096} 2 8 I_{096} 3 I_{096} 3 I_{096} 4 I_{096} 4 I_{096} 5 I_{096} 6 I_{096} 7 I_{096} 8 I_{096} 8 I_{096} 9 I			1		J. Assigned 3/2 in Gu Adopted Levels.	
932 2 10 J^{π} : Assigned 5/2 ⁻ in ¹⁵³ Gd Adopted Levels. 986 2 24 J^{π} : Assigned (3/2 ⁺) in ¹⁵³ Gd Adopted Levels. 1035 2 6 1082 2 15 1096 2 8 J^{π} : Assigned (3/2) ⁺ at 1101 in ¹⁵³ Gd Adopted Levels. 1116 2 2 53 1152 2 2,3 113 1250 2 7 1280 2 4 $d\sigma/d\Omega$ value is for angle of 40°. 1298 2 13 1366 2 8 $d\sigma/d\Omega$ value is for angle of 50°. J^{π} : Assigned (1/2,3/2) ⁻ in ¹⁵³ Gd Adopted Levels.			-		J^{π} : Assigned 5/2 ⁺ in ¹⁵³ Gd Adopted Levels.	
986 2 24 J^{π} : Assigned (3/2+) in ¹⁵³ Gd Adopted Levels. 1035 2 6 1082 2 15 1096 2 8 J^{π} : Assigned (3/2)+ at 1101 in ¹⁵³ Gd Adopted Levels. 1116 2 2 53 1152 2 2,3 113 1250 2 7 1280 2 4 $d\sigma/d\Omega$ value is for angle of 40°. 1298 2 13 1366 2 8 $d\sigma/d\Omega$ value is for angle of 50°. J^{π} : Assigned (1/2,3/2)- in ¹⁵³ Gd Adopted Levels.						
1035 2 6 1082 2 15 1096 2 8 J^{π} : Assigned (3/2) ⁺ at 1101 in ¹⁵³ Gd Adopted Levels. 1116 2 2 53 1152 2 2,3 113 1250 2 7 1280 2 4 $d\sigma/d\Omega$ value is for angle of 40°. 1298 2 13 1366 2 8 $d\sigma/d\Omega$ value is for angle of 50°. J^{π} : Assigned (1/2,3/2) ⁻ in ¹⁵³ Gd Adopted Levels.						
1082 2 15 1096 2 8 J^{π} : Assigned (3/2) ⁺ at 1101 in ¹⁵³ Gd Adopted Levels. 1116 2 2 53 1152 2 2,3 113 1250 2 7 1280 2 4 $d\sigma/d\Omega$ value is for angle of 40°. 1298 2 13 1366 2 8 $d\sigma/d\Omega$ value is for angle of 50°. J^{π} : Assigned (1/2,3/2) ⁻ in ¹⁵³ Gd Adopted Levels.						
1116 2 2 53 1152 2 2,3 113 1250 2 7 1280 2 4 d σ /d Ω value is for angle of 40°. 1298 2 13 1366 2 8 d σ /d Ω value is for angle of 50°. J^{π} : Assigned (1/2,3/2) $^{-}$ in 153 Gd Adopted Levels.						
1152 2 2,3 113 1250 2 7 1280 2 4 d σ /d Ω value is for angle of 40°. 1298 2 13 1366 2 8 d σ /d Ω value is for angle of 50°. J ^π : Assigned (1/2,3/2) ⁻ in ¹⁵³ Gd Adopted Levels.	1096 2				J^{π} : Assigned $(3/2)^{+}$ at 1101 in ¹⁵³ Gd Adopted Levels.	
1250 2 7 1280 2 4 d σ /d Ω value is for angle of 40°. 1298 2 13 1366 2 8 d σ /d Ω value is for angle of 50°. J ^π : Assigned (1/2,3/2) ⁻ in ¹⁵³ Gd Adopted Levels.	1116 2					
1280 2 4 d σ /d Ω value is for angle of 40°. 1298 2 13 1366 2 8 d σ /d Ω value is for angle of 50°. J ^π : Assigned (1/2,3/2) ⁻ in ¹⁵³ Gd Adopted Levels.			2,3			
1298 2 13 1366 2 8 $d\sigma/d\Omega$ value is for angle of 50°. J^{π} : Assigned (1/2,3/2) ⁻ in ¹⁵³ Gd Adopted Levels.					1-/10	
1366 2 8 $d\sigma/d\Omega$ value is for angle of 50°. J^{π} : Assigned (1/2,3/2) ⁻ in ¹⁵³ Gd Adopted Levels.					$d\sigma/d\Omega$ value is for angle of 40° .	
J^{π} : Assigned $(1/2,3/2)^{-}$ in ¹⁵³ Gd Adopted Levels.					$d\sigma/d\Omega$ value is for angle of 50°	
	1300 2			O		
	1380 2			6	σ . 1355gaed (1/2,5/2) iii	

154Gd(d,t) 1973Lo14,1967Tj01 (continued)

¹⁵³Gd Levels (continued)

E(level) [†]	J ^{π‡#}	L@	$d\sigma/d\Omega$ (45°)(μ b/sr)	Comments
1389 2			7	
1400 2			5	J^{π} : Assigned $(3/2)^{+}$ in ¹⁵³ Gd Adopted Levels.
1455 2			12	
1474 2	$9/2^{-},11/2^{-}$	5	16	J^{π} : 1970Lo14 suggest 11/2,9/2[514]; bandhead not identified.
1509 2	(7/2 ⁺)&	3,4	48	L: 1970Lo14 listed L=4?, based upon their expectation that this is the $7/2[404]$ Nilsson state. Their $\sigma(\theta)$ data are consistent with L=3 and their cross-section ratio data are consistent with L=3.4.

[†] Values are from 1973Lo14 and uncertainties are from their general statement.

[‡] From earlier charged-particle reaction studies (1967Tj01,1972Lo04,1973Lo08) and 153 Tb ε decay (1970Bo02 and T. Tuurnala as quoted in 1970Lo14) unless noted as from this study. Assignments that differ significantly from those in 153 Gd Adopted Level are noted.

[#] The only band assignments given here that are included in the ¹⁵³Gd Adopted Levels are for the 3/2[521] and 11/2[505] bands.

[©] Deduced from DWBA analysis of angular distributions and ratio of (${}^{3}\text{He},\alpha$) and (d,t) cross sections (1973Lo14).

[&]amp; 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.

^e Band(E): 1/2[660] band.

^f Band(F): 3/2[651] band.

¹⁵⁴Gd(d,t) 1973Lo14,1967Tj01

Band(F): 3/2[651] band

(3/2)+ 504

Band(E): 1/2[660] band

1/2+ 483

Band(D): 1/2[400] band

<u>3/2</u>⁺ 413

1/2+ 328

Band(C): 3/2[402] band

<u>5/2</u>⁺ 303

<u>3/2</u>⁺ <u>212</u>

Band(B): 11/2[505] band

(11/2⁻) _____172

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

7/2- 94

5/2- 43

3/2- 0

 $^{153}_{\ 64}\mathrm{Gd}_{89}$