^{153}Eu(n,n′γ) 1983Bo38,1984Bo13

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

The γ data and placements are all from 1983Bo38 and the band assignments are from 1984Bo13. Other: 1979BoZH. All papers from the same group.
E(n)=fast.

^{153}Eu Levels

The later paper, 1984Bo13, indicates the reactions that populate various levels. This paper does not indicate all of the levels listed in 1983Bo38 as being populated in the (n,n′γ). The assignments of 1983Bo38 are adopted here.

E(level)	Jπ†	E(level)	Jπ†	E(level)	Jπ†	E(level)	Jπ†
0.0‡	5/2+	193.10‡ *10*	9/2+	637.26[c] *18*	3/2−	732.59[a] *9*	7/2+
83.76‡ *8*	7/2+	269.90@ *17*	(7/2+)	682.39[c] *19*	(5/2−)	761.02 *20*	
97.88# *17*	5/2−	325.60‡ *20*	11/2+	694.44[b] *18*	5/2+	789.28 *21*	1/2+
103.52@ *18*	3/2+	569.60& *8*	7/2+	706.96[d] *18*	5/2+	827.67[d] *15*	7/2+
152.01# *20*	7/2−	617.86[a] *8*	5/2+	711.76& *11*	9/2+	841.11 *20*	3/2+
172.53@ *18*	5/2+	634.61[b] *21*	(1/2+)	719.22[b] *20*	3/2+	876.92[a] *10*	9/2+

† From ^{153}Eu Adopted Levels.
‡ Band(A): 5/2[413] band.
# Band(B): 5/2[532] band.
@ Band(C): 3/2[411] band.
& Band(D): 7/2[404] band.
[a] Band(E): K=5/2 vibrational band.
[b] Band(F): 1/2[420] band. Strongly mixed configuration according to 2005Bu02.
[c] Band(G): 3/2[541] band. Strongly mixed configuration according to 2005Bu02.
[d] Band(H): 5/2[402] band. According to results and analysis of particle-transfer data (2005Bu02), the level at 706.6 is expected to be highly mixed with complex configurations; and 5/2[402] strength is fragmented over many levels.

γ(^{153}Eu)

E_γ	I_γ	E_i(level)	J^π_i	E_f	J^π_f
424.51 *11*	2.87 *23*	694.44	5/2+	269.90	(7/2+)
437.13 *10*	2.19 *15*	706.96	5/2+	269.90	(7/2+)
463.58 *8*	4.58 *21*	637.26	3/2−	172.53	5/2+
485.87 *8*	5.10 *20*	569.60	7/2+	83.76	7/2+
518.60 *10*	4.13 *28*	711.76	9/2+	193.10	9/2+
521.05 *8*	8.99 *29*	694.44	5/2+	172.53	5/2+
531.09 *10*	15.8 *10*	634.61	(1/2+)	103.52	3/2+
533.99† *10*	20.4† *10*	617.86	5/2+	83.76	7/2+
533.99† *10*	20.4† *10*	637.26	3/2−	103.52	3/2+
539.38† *11*	13.2† *11*	637.26	3/2−	97.88	5/2−
539.38† *11*	13.2† *11*	732.59	7/2+	193.10	9/2+
541.42 *24*	5.7 *11*	694.44	5/2+	152.01	7/2−
545.65 *13*	8.6 *9*	719.22	3/2+	172.53	5/2+
551.32 *17*	1.63 *22*	876.92	9/2+	325.60	11/2+

Continued on next page (footnotes at end of table)

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γ(^{153}Eu) (continued)

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π
555.12 *10*	6.11 *25*	706.96	$5/2^+$	152.01	$7/2^-$
557.73 *10*	5.55 *24*	827.67	$7/2^+$	269.90	$(7/2^+)$
569.55 *10*	23.3 *12*	569.60	$7/2^+$	0.0	$5/2^+$
578.79 *10*	5.82 *20*	682.39	$(5/2^-)$	103.52	$3/2^+$
584.59 *10*	3.17 *19*	682.39	$(5/2^-)$	97.88	$5/2^-$
587.58 *11*	5.57 *20*	761.02		172.53	$5/2^+$
592.8‡ *27*	1.3 *3*	694.44	$5/2^+$	103.52	$3/2^+$
596.7		694.44	$5/2^+$	97.88	$5/2^-$
603.26 *12*	2.66 *23*	706.96	$5/2^+$	103.52	$3/2^+$
608.95 *10*	15.7	706.96	$5/2^+$	97.88	$5/2^-$
[x]610.33					
615.72 *10*	5.74 *24*	719.22	$3/2^+$	103.52	$3/2^+$
617.97 *10*	15.31 *26*	617.86	$5/2^+$	0.0	$5/2^+$
628.05 *10*	6.77 *24*	711.76	$9/2^+$	83.76	$7/2^+$
634.62 *18*	2.9 *4*	827.67	$7/2^+$	193.10	$9/2^+$
636.28‡ *20*	2.6 *4*	637.26	$3/2^-$	0.0	$5/2^+$
649.24 *24*	2.0 *4*	732.59	$7/2^+$	83.76	$7/2^+$
657.40 *12*	6.7 *4*	761.02		103.52	$3/2^+$
667.65‡ *12*	5.8 *4*	841.11	$3/2^+$	172.53	$5/2^+$
676.64‡ *13*	2.62 *24*	761.02		83.76	$7/2^+$
681.50‡ *15*	3.0 *3*	682.39	$(5/2^-)$	0.0	$5/2^+$
683.94 *10*	1.7 *3*	876.92	$9/2^+$	193.10	$9/2^+$
685.76 *10*	9.0 *3*	789.28	$1/2^+$	103.52	$3/2^+$
729.82 *10*	6.40 *27*	827.67	$7/2^+$	97.88	$5/2^-$
732.60 *11*	8.5 *4*	732.59	$7/2^+$	0.0	$5/2^+$
737.42‡ *22*	1.90 *26*	841.11	$3/2^+$	103.52	$3/2^+$
757.4‡ *2*	2.8 *3*	841.11	$3/2^+$	83.76	$7/2^+$
793.1 *1*	5.4 *3*	876.92	$9/2^+$	83.76	$7/2^+$
827.6 *2*	4.9 *3*	827.67	$7/2^+$	0.0	$5/2^+$
876.4 *3*	0.7 *2*	876.92	$9/2^+$	0.0	$5/2^+$

† Multiply placed with undivided intensity.
‡ Placement of transition in the level scheme is uncertain.
[x] γ ray not placed in level scheme.

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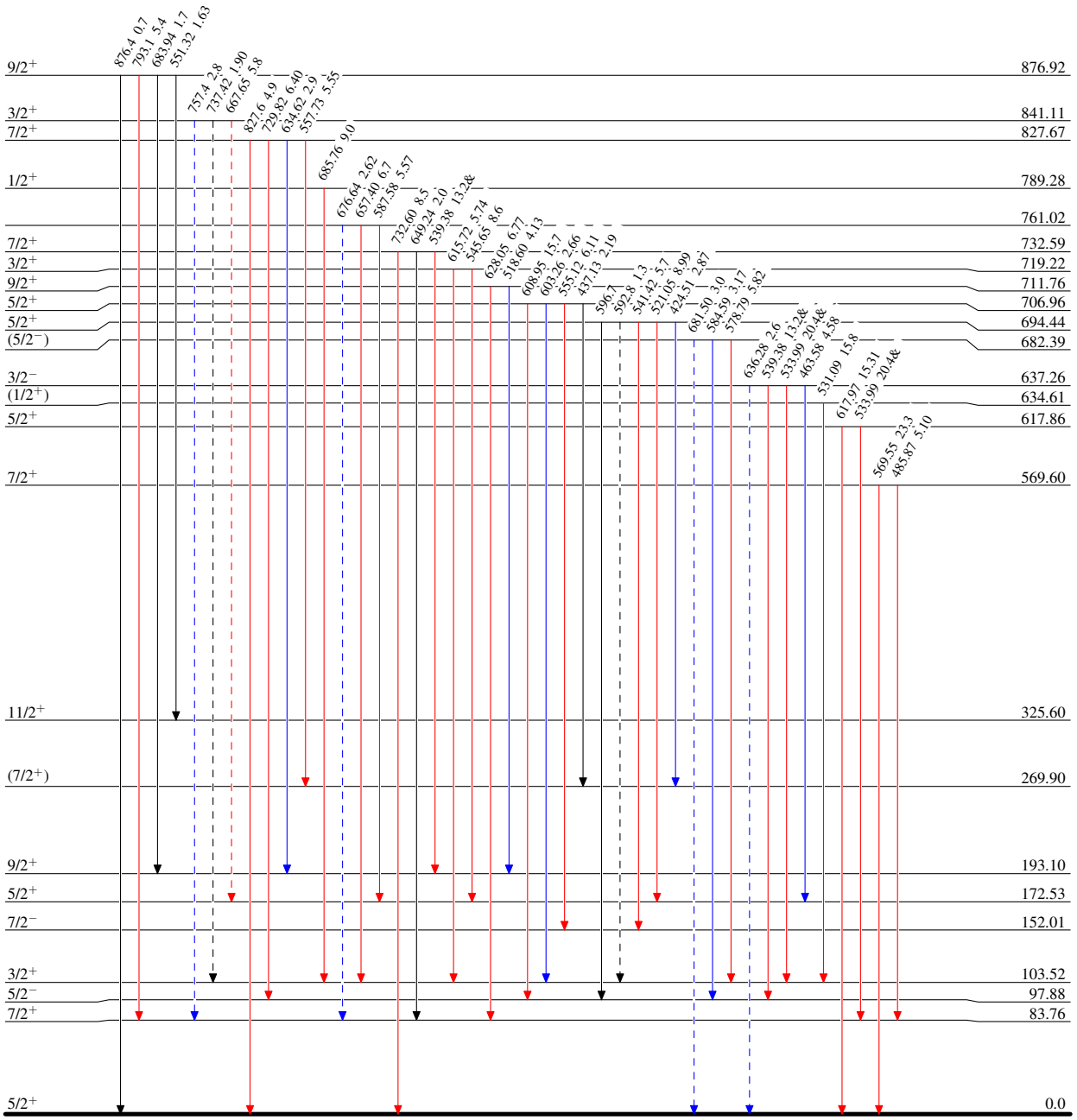
Level Scheme

Intensities: Relative I_γ
& Multiply placed: undivided intensity given

Legend
- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$
- γ Decay (Uncertain)



$^{153}_{63}Eu_{90}$

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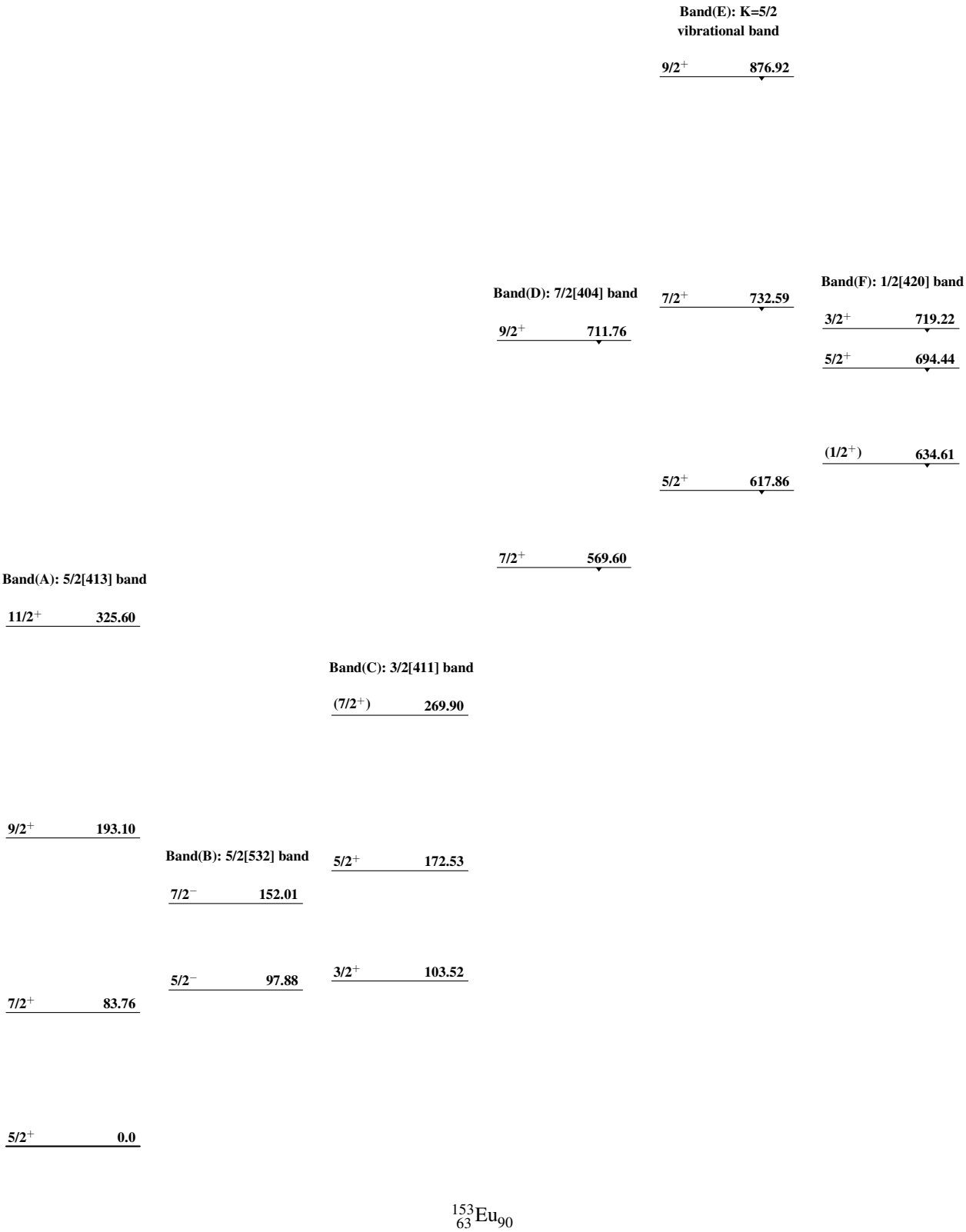

$^{153}_{63}Eu_{90}$

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$^{153}_{63}Eu_{90}$