^{116}Sn(^{58}Ni,2pnγ) 1999Ba13

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin, E. A. Mccutchan	NDS 151, 334 (2018)	30-Jun-2018

1999Ba13: E(^{58}Ni)=267 MeV; JUROSPHERE Compton-suppressed Ge detector array (10 TESSA detectors and 15 EUROGAM I detectors), RITU gas-filled recoil separator; measured Eγ, Iγ, $\gamma\gamma$ coin.

^{171}Os Levels

E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡
0.0#	(5/2$^-$)	1619.61d 15	(23/2$^+$)	2629.54# 25	(29/2$^-$)	3897.10c 15	(41/2$^+$)
76.69@ 7	(7/2$^-$)	1642.94# 10	(21/2$^-$)	2675.99a 12	(31/2$^-$)	3968.73@ 19	(39/2$^-$)
186.31b 13	(13/2$^+$)	1752.94h 13	(21/2$^-$)	2720.3 7		4054.72& 16	(41/2$^-$)
207.56# 7	(9/2$^-$)	1801.52f 22	(23/2$^+$)	2725.76b 13	(33/2$^+$)	4082.29d 25	(39/2$^+$)
440.11b 13	(17/2$^+$)	1878.2 8		2793.55d 18	(31/2$^+$)	4159.59e 20	(41/2$^+$)
445.20@ 8	(11/2$^-$)	1910.98@ 10	(23/2$^-$)	2840.48@ 12	(31/2$^-$)	4299.0# 5	(41/2$^-$)
601.16# 8	(13/2$^-$)	2017.5g 3	(25/2$^+$)	2893.80& 12	(33/2$^-$)	4459.13a 22	(43/2$^-$)
626.00d 15	(15/2$^+$)	2081.72b 13	(29/2$^+$)	3078.1f 4	(31/2$^+$)	4538.94c 19	(45/2$^+$)
887.26b 12	(21/2$^+$)	2141.06# 10	(25/2$^-$)	3115.30a 13	(35/2$^-$)	4635.5@ 5	(43/2$^-$)
894.97@ 9	(15/2$^-$)	2161.88h 12	(25/2$^-$)	3117.8# 4	(33/2$^-$)	4766.74& 24	(45/2$^-$)
1067.99d 15	(19/2$^+$)	2201.88d 16	(27/2$^+$)	3174.7g 5	(33/2$^+$)	4791.9d 4	(43/2$^+$)
1110.10# 9	(17/2$^-$)	2247.2 5		3333.39c 14	(37/2$^+$)	4883.7e 3	(45/2$^+$)
1138.1g 3	(17/2$^+$)	2337.15& 19	(25/2$^-$)	3372.74@ 15	(35/2$^-$)	5219.0a 5	(47/2$^-$)
1285.88f 22	(19/2$^+$)	2359.36@ 11	(27/2$^-$)	3415.76& 13	(37/2$^-$)	5277.80c 24	(49/2$^+$)
1400.38@ 10	(19/2$^-$)	2413.56a 12	(27/2$^-$)	3415.79d 22	(35/2$^+$)	5503.2& 4	(49/2$^-$)
1454.03b 12	(25/2$^+$)	2423.27f 25	(27/2$^+$)	3505.79e 16	(37/2$^+$)	5644.5e 4	(49/2$^+$)
1538.7g 3	(21/2$^+$)	2520.94& 12	(29/2$^-$)	3666.8# 4	(37/2$^-$)	6109.5c 11	(53/2$^+$)
1547.2 3		2559.5g 4	(29/2$^+$)	3725.92a 15	(39/2$^-$)	6260.2& 21	(53/2$^-$)

† From a least-squares fit to Eγ, by evaluators.
‡ Authors′ tentative values, based largely on likely configurations and population of bands relative to the yrast line.
# Band(A): 5/2[523], α=+1/2 band. E band; becomes EBC band as J increases.
@ Band(a): 5/2[523], α=−1/2 band. F band; becomes FBC band as J increases.
& Band(B): (ν 5/2[523])(i$_{13/2}$)^2 α=+1/2 band. EAB band; becomes EABCD band as J increases.
a Band(b): (ν 5/2[523])(i$_{13/2}$)^2 α=−1/2 band. FAB band; becomes FABCD band as J increases.
b Band(C): i$_{13/2}$, α=+1/2 band. A band.
c Band(D): ABC band. Yrast for J≥37/2.
d Band(E): i$_{13/2}$, α=−1/2 band. B band; becomes BAD band as J increases.
e Band(F): ACD band.
f Band(G): A⊗(γ vibration) band.
g Band(H): A⊗(β vibration) band.
h Band(I): B⊗(octupole vibration) band.

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$\gamma(^{171}Os)$

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π
76.60 *10*		76.69	(7/2$^-$)	0.0	(5/2$^-$)
130.78 *4*	23 *7*	207.56	(9/2$^-$)	76.69	(7/2$^-$)
155.76 *12*	2.8 *2*	601.16	(13/2$^-$)	445.20	(11/2$^-$)
183.37 *17*	1.8 *2*	2520.94	(29/2$^-$)	2337.15	(25/2$^-$)
185.84 *12*	4.2 *6*	626.00	(15/2$^+$)	440.11	(17/2$^+$)
207.64 *9*	4.1 *14*	207.56	(9/2$^-$)	0.0	(5/2$^-$)
237.49 *5*	16.0 *14*	445.20	(11/2$^-$)	207.56	(9/2$^-$)
253.80 *3*	>325	440.11	(17/2$^+$)	186.31	(13/2$^+$)
262.36 *5*	15.0 *7*	2675.99	(31/2$^-$)	2413.56	(27/2$^-$)
316.74 *6*	9.8 *5*	2675.99	(31/2$^-$)	2359.36	(27/2$^-$)
359.10 *4*	26.3 *10*	2520.94	(29/2$^-$)	2161.88	(25/2$^-$)
368.58 *4*	51 *5*	445.20	(11/2$^-$)	76.69	(7/2$^-$)
372.86 *4*	38.1 *14*	2893.80	(33/2$^-$)	2520.94	(29/2$^-$)
379.92 *8*	9.5 *5*	2520.94	(29/2$^-$)	2141.06	(25/2$^-$)
393.61 *4*	65 *3*	601.16	(13/2$^-$)	207.56	(9/2$^-$)
400.56 *17*	6.1 *7*	1538.7	(21/2$^+$)	1138.1	(17/2$^+$)
408.96 *5*	21.4 *9*	2161.88	(25/2$^-$)	1752.94	(21/2$^-$)
439.04 *10*	8.9 *5*	2520.94	(29/2$^-$)	2081.72	(29/2$^+$)
439.31 *5*	23.7 *10*	3115.30	(35/2$^-$)	2675.99	(31/2$^-$)
439.64 *12*	14.2 *27*	626.00	(15/2$^+$)	186.31	(13/2$^+$)
441.94 *9*	15.6 *12*	1067.99	(19/2$^+$)	626.00	(15/2$^+$)
447.16 *3*	324 *10*	887.26	(21/2$^+$)	440.11	(17/2$^+$)
448.45 *5*	30 *10*	2359.36	(27/2$^-$)	1910.98	(23/2$^-$)
449.78 *5*	50 *10*	894.97	(15/2$^-$)	445.20	(11/2$^-$)
478.86 *13*	13.8 *12*	2017.5	(25/2$^+$)	1538.7	(21/2$^+$)
481.12 *5*	23.5 *10*	2840.48	(31/2$^-$)	2359.36	(27/2$^-$)
488.3 *3*	13.8 *10*	3117.8	(33/2$^-$)	2629.54	(29/2$^-$)
488.48 *22*	21.9 *13*	2629.54	(29/2$^-$)	2141.06	(25/2$^-$)
498.13 *4*	49.4 *18*	2141.06	(25/2$^-$)	1642.94	(21/2$^-$)
502.13 *12*	9.6 *6*	2413.56	(27/2$^-$)	1910.98	(23/2$^-$)
505.42 *4*	50.8 *21*	1400.38	(19/2$^-$)	894.97	(15/2$^-$)
508.93 *4*	69 *3*	1110.10	(17/2$^-$)	601.16	(13/2$^-$)
510.60 *4*	47.4 *18*	1910.98	(23/2$^-$)	1400.38	(19/2$^-$)
515.26 *26*	5.1 *7*	1801.52	(23/2$^+$)	1285.88	(19/2$^+$)
518.32 *24*	6.8 *6*	2161.88	(25/2$^-$)	1642.94	(21/2$^-$)
521.96 *5*	37.1 *14*	3415.76	(37/2$^-$)	2893.80	(33/2$^-$)
532.26 *8*	14.6 *8*	3372.74	(35/2$^-$)	2840.48	(31/2$^-$)
532.84 *4*	56.3 *21*	1642.94	(21/2$^-$)	1110.10	(17/2$^-$)
541.94 *19*	5.8 *7*	2559.5	(29/2$^+$)	2017.5	(25/2$^+$)
548.92 *9*	9.1 *5*	3666.8	(37/2$^-$)	3117.8	(33/2$^-$)
551.57 *7*	31.6 *15*	1619.61	(23/2$^+$)	1067.99	(19/2$^+$)
563.71 *6*	32.5 *14*	3897.10	(41/2$^+$)	3333.39	(37/2$^+$)
566.79 *3*	249 *8*	1454.03	(25/2$^+$)	887.26	(21/2$^+$)
582.23 *7*	27.0 *14*	2201.88	(27/2$^+$)	1619.61	(23/2$^+$)
582.9† *3*	3.1 *8*	2337.15	(25/2$^-$)	1752.94	(21/2$^-$)
591.67 *7*	25.4 *12*	2793.55	(31/2$^+$)	2201.88	(27/2$^+$)
595.99 *12*	8.9 *6*	3968.73	(39/2$^-$)	3372.74	(35/2$^-$)
607.62 *4*	65.1 *22*	3333.39	(37/2$^+$)	2725.76	(33/2$^+$)
610.62 *8*	16.8 *8*	3725.92	(39/2$^-$)	3115.30	(35/2$^-$)
615.24 *24*	5.7 *7*	3174.7	(33/2$^+$)	2559.5	(29/2$^+$)
621.77 *25*	7.9 *9*	2423.27	(27/2$^+$)	1801.52	(23/2$^+$)
622.24 *12*	14.5 *9*	3415.79	(35/2$^+$)	2793.55	(31/2$^+$)
627.66 *4*	163 *5*	2081.72	(29/2$^+$)	1454.03	(25/2$^+$)
627.82 *13*	20.0 *19*	1067.99	(19/2$^+$)	440.11	(17/2$^+$)
632.20 *16*	5.9 *5*	4299.0	(41/2$^-$)	3666.8	(37/2$^-$)

Continued on next page (footnotes at end of table)

^{116}Sn(^{58}Ni,2pnγ) 1999Ba13 (continued)

γ(^{171}Os) (continued)

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π
638.96 *8*	17.7 *9*	4054.72	(41/2$^-$)	3415.76	(37/2$^-$)
641.84 *11*	17.2 *12*	4538.94	(45/2$^+$)	3897.10	(41/2$^+$)
644.04 *4*	103 *4*	2725.76	(33/2$^+$)	2081.72	(29/2$^+$)
653.83 *15*	10.1 *8*	4159.59	(41/2$^+$)	3505.79	(37/2$^+$)
654.86 *21*	6.3 *21*	3078.1	(31/2$^+$)	2423.27	(27/2$^+$)
659.99 *27*	9.7 *11*	1547.2		887.26	(21/2$^+$)
666.50 *12*	11.7 *7*	4082.29	(39/2$^+$)	3415.79	(35/2$^+$)
666.8 *4*	2.1 *4*	4635.5	(43/2$^-$)	3968.73	(39/2$^-$)
708.05 *9*	28.8 *13*	2161.88	(25/2$^-$)	1454.03	(25/2$^+$)
709.6 *3*	3.8 *5*	4791.9	(43/2$^+$)	4082.29	(39/2$^+$)
712.02 *18*	7.8 *6*	4766.74	(45/2$^-$)	4054.72	(41/2$^-$)
724.06 *17*	8.1 *6*	4883.7	(45/2$^+$)	4159.59	(41/2$^+$)
732.42 *18*	12.2 *10*	1619.61	(23/2$^+$)	887.26	(21/2$^+$)
733.21 *16*	8.1 *6*	4459.13	(43/2$^-$)	3725.92	(39/2$^-$)
736.5 *3*	3.4 *5*	5503.2	(49/2$^-$)	4766.74	(45/2$^-$)
738.86 *15*	7.5 *5*	5277.80	(49/2$^+$)	4538.94	(45/2$^+$)
748.24 *23*	7.3 *7*	2201.88	(27/2$^+$)	1454.03	(25/2$^+$)
757.0 *20*	0.4 *4*	6260.2	(53/2$^-$)	5503.2	(49/2$^-$)
759.9 *4*	3.2 *5*	5219.0	(47/2$^-$)	4459.13	(43/2$^-$)
760.8 *3*	4.7 *5*	5644.5	(49/2$^+$)	4883.7	(45/2$^+$)
780.03 *10*	17.9 *9*	3505.79	(37/2$^+$)	2725.76	(33/2$^+$)
793.2 *4*	6.1 *9*	2247.2		1454.03	(25/2$^+$)
826.15 *23*	6.1 *6*	4159.59	(41/2$^+$)	3333.39	(37/2$^+$)
831.7 *10*	0.8 *4*	6109.5	(53/2$^+$)	5277.80	(49/2$^+$)
845.50 *22*	15.3 *15*	1285.88	(19/2$^+$)	440.11	(17/2$^+$)
865.65 *8*	34.7 *17*	1752.94	(21/2$^-$)	887.26	(21/2$^+$)
914.60 *24*	11.8 *11*	1801.52	(23/2$^+$)	887.26	(21/2$^+$)
951.9 *3*	10.0 *10*	1138.1	(17/2$^+$)	186.31	(13/2$^+$)
959.54 *12*	16.9 *10*	2413.56	(27/2$^-$)	1454.03	(25/2$^+$)
969.2 *3*	8.2 *9*	2423.27	(27/2$^+$)	1454.03	(25/2$^+$)
990.9 *7*	4.1 *10*	1878.2		887.26	(21/2$^+$)
1022.9 *4*	6.2 *6*	1910.98	(23/2$^-$)	887.26	(21/2$^+$)
1098.5 *3*	13.0 *14*	1538.7	(21/2$^+$)	440.11	(17/2$^+$)
1266.3 *6*	5.9 *9*	2720.3		1454.03	(25/2$^+$)

† Poor fit; level-energy difference=584.67 *25* if this γ is omitted from fit.

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Level Scheme

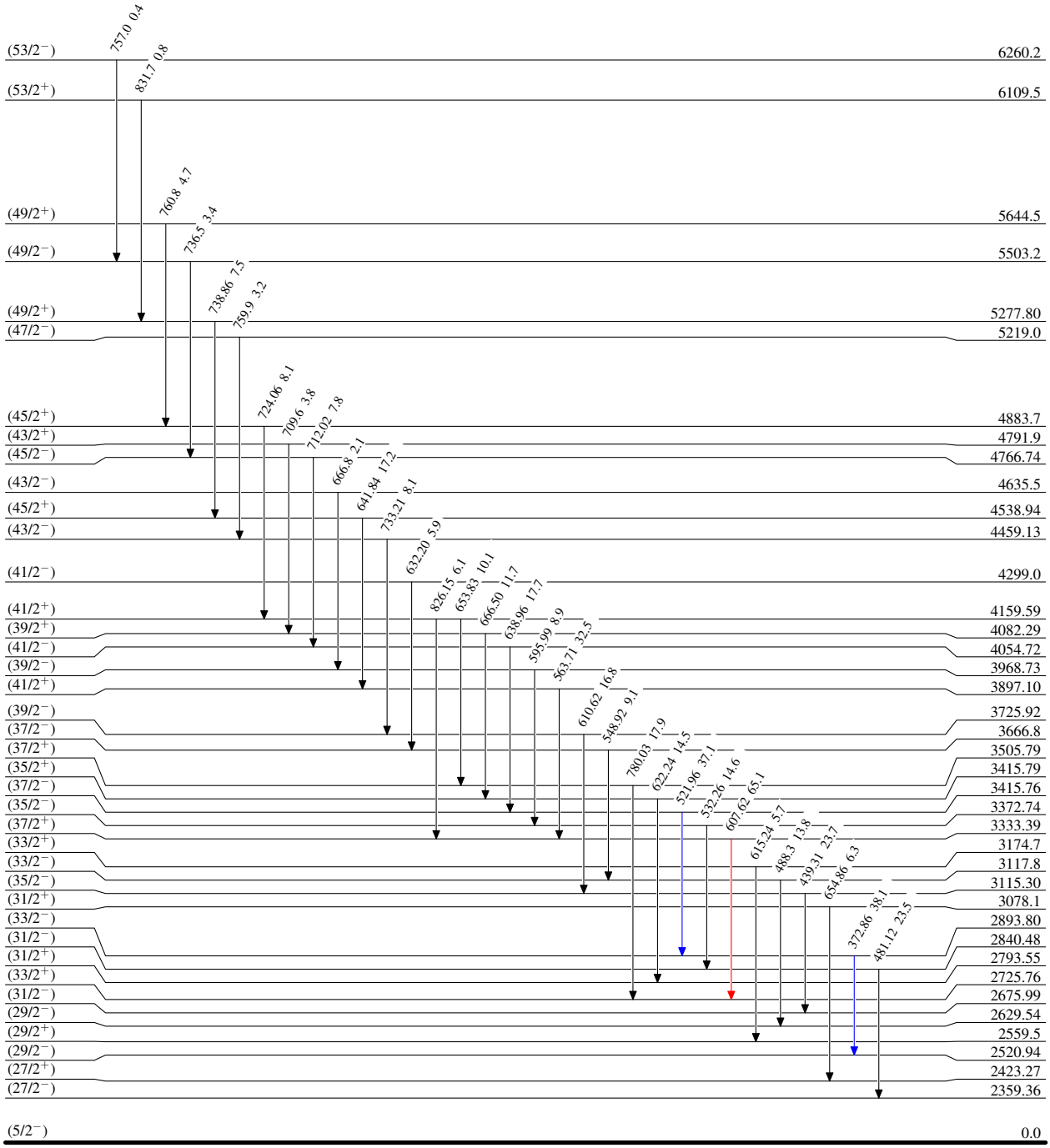
Intensities: Relative I_γ

Legend

$I_\gamma < 2\% \times I_\gamma^{max}$

$I_\gamma < 10\% \times I_\gamma^{max}$

$I_\gamma > 10\% \times I_\gamma^{max}$



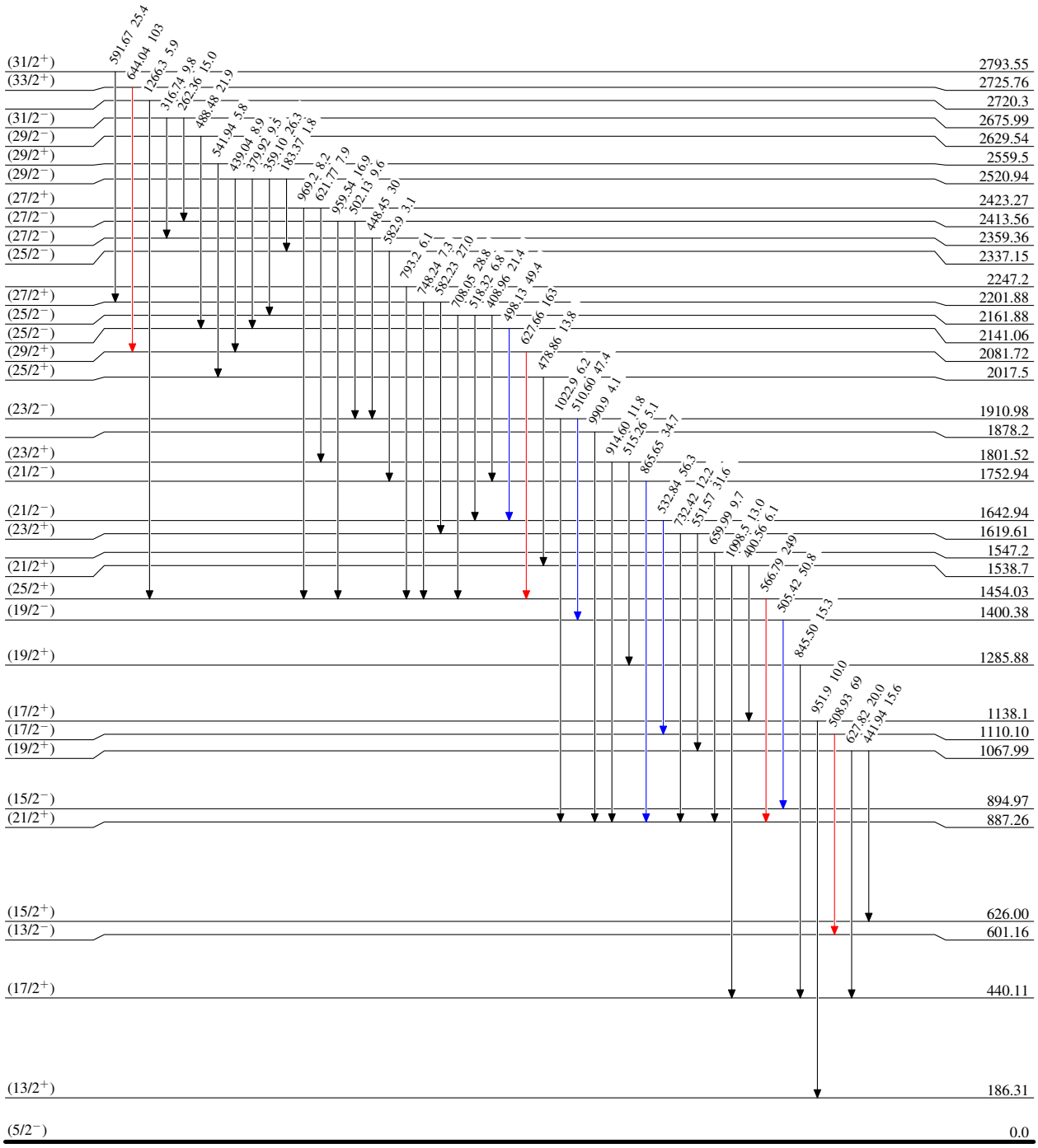
$^{171}_{76}Os_{95}$

^{116}Sn(^{58}Ni,2pnγ) 1999Ba13

Level Scheme (continued)

Intensities: Relative I_γ

Legend
- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$



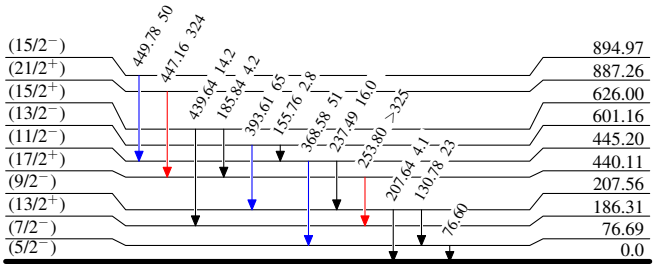
$^{171}_{76}Os_{95}$

^{116}Sn(^{58}Ni,2pnγ) 1999Ba13

Level Scheme (continued)

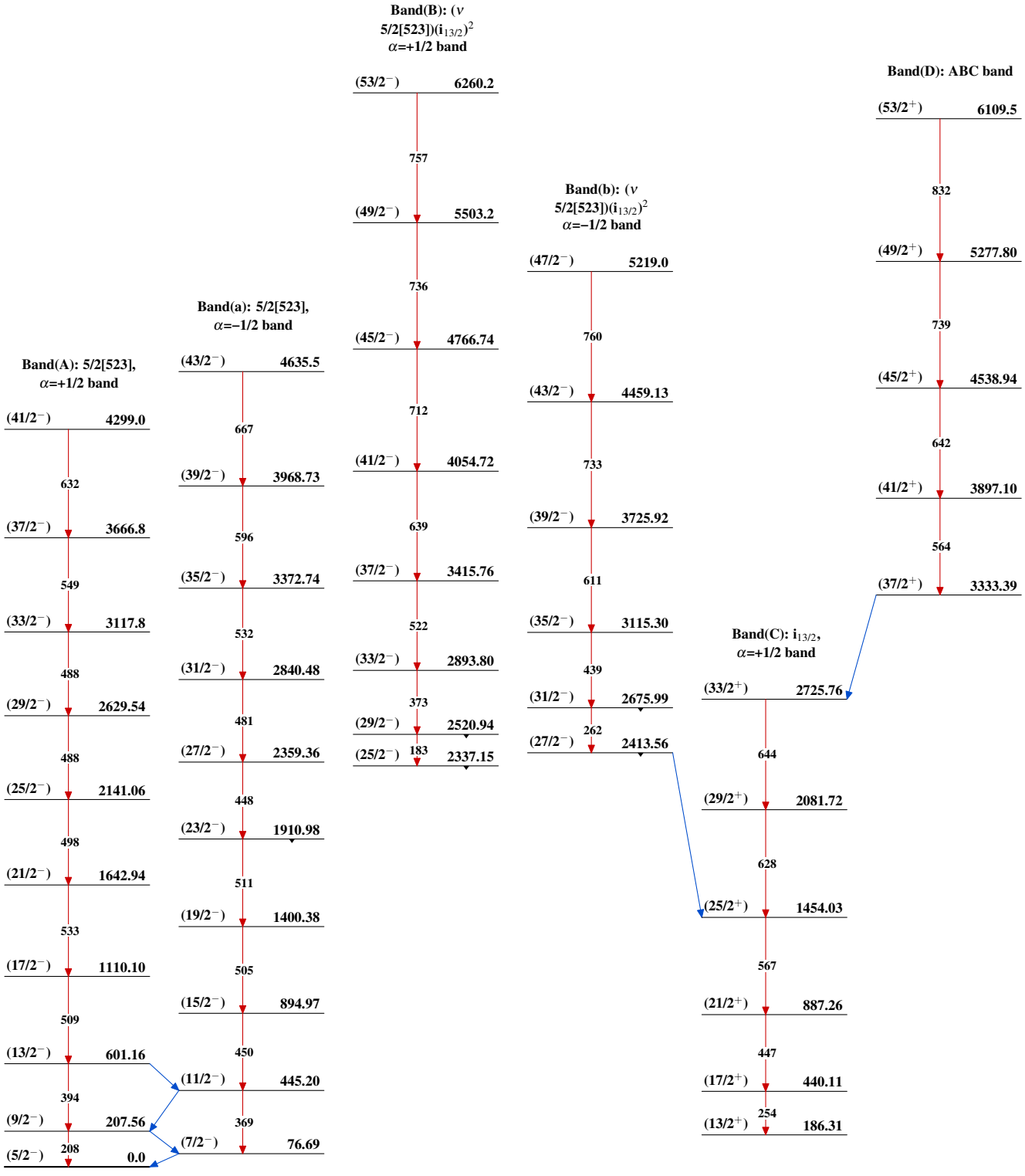
Intensities: Relative I_γ

Legend
- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$



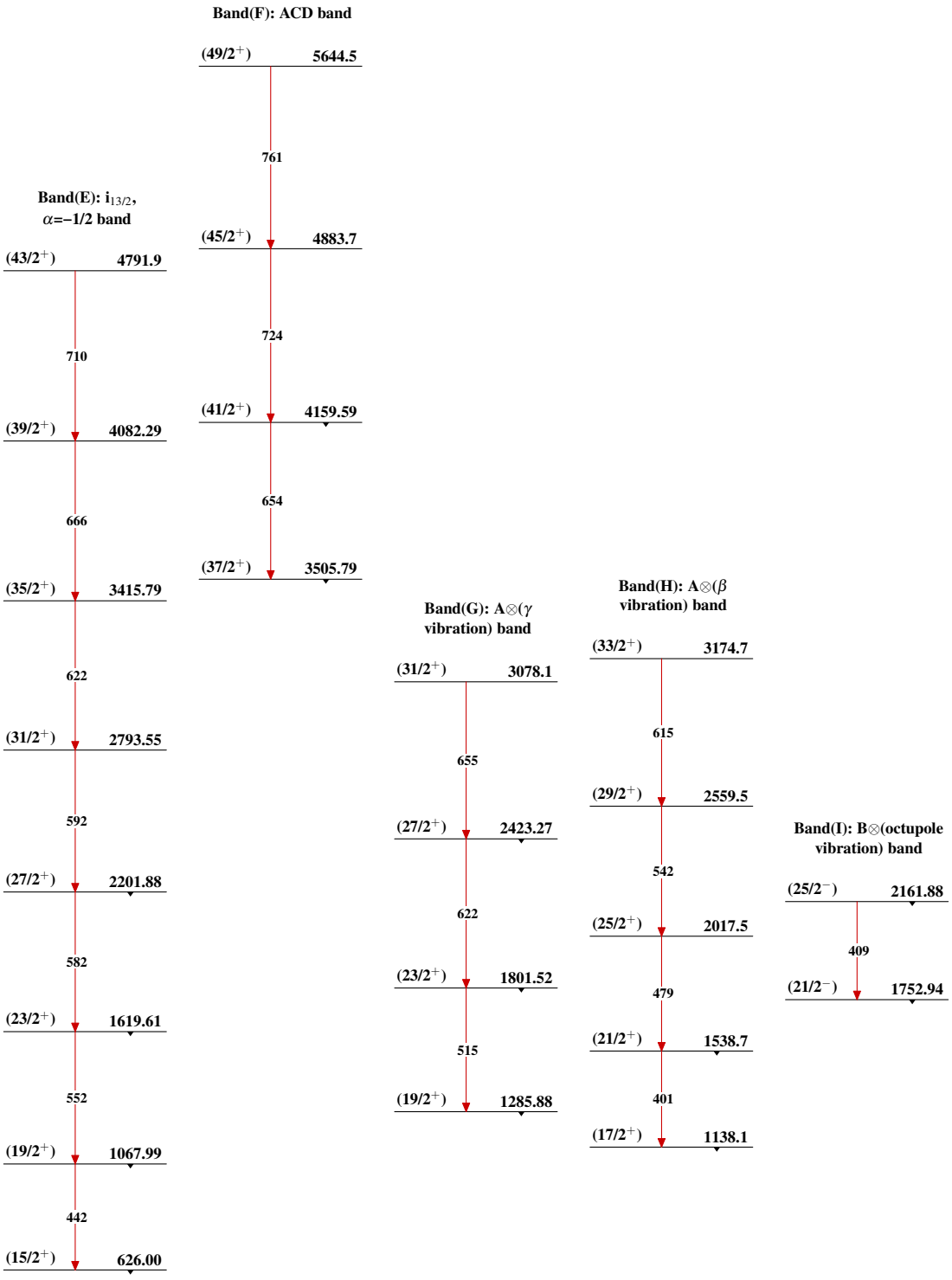
$^{171}_{76}Os_{95}$

$^{116}Sn(^{58}Ni,2pn\gamma)$ 1999Ba13



$^{171}_{76}Os_{95}$

^{116}Sn(^{58}Ni,2pnγ) 1999Ba13 (continued)



$^{171}_{76}Os_{95}$