^{124}Sn(^{18}O,5nγ) E=70 MeV 2000Zh39,2000Zh27

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	E. Browne, J. K. Tuli	NDS 108,2173 (2007)	1-Oct-2006

E=78 MeV. Measured Eγ, Iγ, $\gamma\gamma$ coin and DCO ratios using an array of eight Compton-suppressed Ge detectors and a planar Ge detector.

^{137}Ce Levels

E(level)†	J$^\pi$	E(level)†	J$^\pi$	E(level)†	J$^\pi$	E(level)†	J$^\pi$
0.0		2561.6 *5*	19/2$^{(+)}$	3702.5‡ *6*	27/2$^{(+)}$	5304.2# *6*	35/2$^{(+)}$
254.3 *3*	11/2$^-$	2811.9 *5*	23/2$^-$	3724.7 *6*	(25/2$^+$)	5379.1@ *6*	33/2$^{(-)}$
927.9 *4*	15/2$^-$	2928.4‡ *5*	19/2$^{(+)}$	3743.5 *5*	(23/2)	5545.1@ *6*	35/2$^{(-)}$
1144.4 *4*	13/2$^-$	2971.6 *5*	23/2$^{(+)}$&	3762.9 *5*	(23/2)	5850.7@ *6*	37/2$^{(-)}$
1980.5 *4*	15/2$^{(-)}$	3067.1‡ *5*	21/2$^{(+)}$	3890.4 *7*	(27/2$^+$)	6110.0# *6*	(37/2$^+$)
2039.6 *5*	19/2$^-$	3128.4 *5*	(21/2$^+$)	3935.5 *5*	25/2$^-$	6321.1@ *7*	39/2$^{(-)}$
2191.2 *5*	19/2$^-$	3224.8‡ *5*	23/2$^{(+)}$	3985.3 *5*	27/2$^{(+)}$	6459.0# *7*	(39/2$^+$)
2199.0 *5*	(15/2)	3303.5 *5*	(25/2$^-$)	4114.2‡ *6*	29/2$^{(+)}$	6929.2@ *8*	(41/2$^-$)
2437.2 *4*	(17/2$^-$)	3404.6 *5*	23/2$^{(+)}$	4255.0# *6*	31/2$^{(+)}$	7660.3@ *8*	(43/2$^-$)
2466.9 *5*	(17/2)	3415.3‡ *5*	25/2$^{(+)}$	4668.0 *7*	(29/2$^+$)		
2489.6 *5*	21/2$^-$	3683.9 *5*	25/2$^{(+)}$	4703.6‡ *6*	31/2$^{(+)}$		
2538.2 *5*	19/2$^{(+)}$	3694.0 *5*	(27/2$^-$)	4731.4# *6*	33/2$^{(+)}$		

† Deduced by evaluators from least-squares fit to γ-ray energies, using ΔE=0.3 keV for all γ rays.
‡ Band(A): level sequence based on 19/2$^{(+)}$.
# Band(B): level sequence based on 31/2$^{(+)}$.
@ Band(C): level sequence based on 33/2$^{(-)}$.
& Evaluators noticed that π=(+) is not consistent with 482γ M1+E2 to 21/2$^-$.

γ(^{137}Ce)

E$_\gamma$	I$_\gamma$	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.	Comments
48.6	0.5	2538.2	19/2$^{(+)}$	2489.6	21/2$^-$		
49.8		3985.3	27/2$^{(+)}$	3935.5	25/2$^-$		
96.4	0.8	3224.8	23/2$^{(+)}$	3128.4	(21/2$^+$)		
138.7	3.1	3067.1	21/2$^{(+)}$	2928.4	19/2$^{(+)}$		
157	11.0	3224.8	23/2$^{(+)}$	3067.1	21/2$^{(+)}$		
165.7	4.1	3890.4	(27/2$^+$)	3724.7	(25/2$^+$)		
166.0	3.2	5545.1	35/2$^{(-)}$	5379.1	33/2$^{(-)}$		
172.6		3935.5	25/2$^-$	3762.9	(23/2)		
190.5	32.7	3415.3	25/2$^{(+)}$	3224.8	23/2$^{(+)}$	(M1+E2)	DCO=0.91 *3*.
192.0		3935.5	25/2$^-$	3743.5	(23/2)		
254.3		254.3	11/2$^-$	0.0			
267.9		2466.9	(17/2)	2199.0	(15/2)		
269.7	11.8	4255.0	31/2$^{(+)}$	3985.3	27/2$^{(+)}$	E2	DCO=1.29 *9*.
276.2	0.8	3404.6	23/2$^{(+)}$	3128.4	(21/2$^+$)		
279.3	2.2	3683.9	25/2$^{(+)}$	3404.6	23/2$^{(+)}$		21/2$^{(+)}$ to (23/2)$^+$ shown in table 1 is a misprint. Starting J^π should be 25/2$^{(+)}$ as in level-scheme figure.
287.2	39.1	3702.5	27/2$^{(+)}$	3415.3	25/2$^{(+)}$	M1+E2	DCO=0.59 *2*.
298.4	14.4	2489.6	21/2$^-$	2191.2	19/2$^-$	M1+E2	DCO=0.62 *4*.
301.4	6.4	3985.3	27/2$^{(+)}$	3683.9	25/2$^{(+)}$	M1+E2	DCO=0.57 *6*.
305.6	9.0	5850.7	37/2$^{(-)}$	5545.1	35/2$^{(-)}$	M1+E2	DCO=0.56 *5*.

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^{124}Sn(^{18}O,5nγ) E=70 MeV 2000Zh39,2000Zh27 (continued)

γ(^{137}Ce) (continued)

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.	Comments
320.1	5.3	3724.7	$(25/2^+)$	3404.6	$23/2^{(+)}$	(M1+E2)	DCO<1.
322.3	8.5	2811.9	$23/2^-$	2489.6	$21/2^-$	M1+E2	DCO<1.
337.5	5.1	3404.6	$23/2^{(+)}$	3067.1	$21/2^{(+)}$	M1+E2	DCO=0.67 *1.0*.
349.0	1.4	6459.0	$(39/2^+)$	6110.0	$(37/2^+)$	M1+E2	DCO=0.75 *31*.
366.8	2.7	2928.4	$19/2^{(+)}$	2561.6	$19/2^{(+)}$	M1+E2	DCO=0.80 *15*.
370.4	0.7	2561.6	$19/2^{(+)}$	2191.2	$19/2^-$	(E1)	DCO<1.
390.5		3694.0	$(27/2^-)$	3303.5	$(25/2^-)$		
411.7	7.0	4114.2	$29/2^{(+)}$	3702.5	$27/2^{(+)}$	M1+E2	DCO=0.50 *7*.
443.7	1.7	3415.3	$25/2^{(+)}$	2971.6	$23/2^{(+)}$	(M1+E2)	DCO<1.
450.0	49.9	2489.6	$21/2^-$	2039.6	$19/2^-$	M1+E2	DCO=0.50 *2*.
456.7	2.4	2437.2	$(17/2^-)$	1980.5	$15/2^{(-)}$		
459.1		3683.9	$25/2^{(+)}$	3224.8	$23/2^{(+)}$		
461.5	5.2	2928.4	$19/2^{(+)}$	2466.9	(17/2)		
470.4	15.8	6321.1	$39/2^{(-)}$	5850.7	$37/2^{(-)}$	M1+E2	DCO=0.35 *3*.
476.4	25.7	4731.4	$33/2^{(+)}$	4255.0	$31/2^{(+)}$	M1+E2	DCO=0.48 *3*.
482.0	6.2	2971.6	$23/2^{(+)}$	2489.6	$21/2^-$	M1+E2	
486	2.9	2466.9	(17/2)	1980.5	$15/2^{(-)}$		
491.2		2928.4	$19/2^{(+)}$	2437.2	$(17/2^-)$		
491.6	3.0	3303.5	$(25/2^-)$	2811.9	$23/2^-$	(M1+E2)	DCO=0.40 *6*.
505.5	3.1	3067.1	$21/2^{(+)}$	2561.6	$19/2^{(+)}$	M1+E2	DCO=0.66 *13*.
522.0	6.2	2561.6	$19/2^{(+)}$	2039.6	$19/2^-$	(E1)	DCO=0.90 *11*.
546.5	2.1	5850.7	$37/2^{(-)}$	5304.2	$35/2^{(+)}$		
552.5	23.8	4255.0	$31/2^{(+)}$	3702.5	$27/2^{(+)}$	E2	DCO=1.22 *7*.
572.8	6.3	5304.2	$35/2^{(+)}$	4731.4	$33/2^{(+)}$	M1+E2	DCO=0.23 *4*.
589.4		4703.6	$31/2^{(+)}$	4114.2	$29/2^{(+)}$	(M1+E2)	DCO<1.
600.6		5304.2	$35/2^{(+)}$	4703.6	$31/2^{(+)}$		
608.1	1.8	6929.2	$(41/2^-)$	6321.1	$39/2^{(-)}$		
673.6	100	927.9	$15/2^-$	254.3	$11/2^-$	E2	DCO=1.73 *5*.
681.8	0.7	3985.3	$27/2^{(+)}$	3303.5	$(25/2^-)$		
686.6	4.3	3224.8	$23/2^{(+)}$	2538.2	$19/2^{(+)}$	E2	DCO=1.22 *22*.
731.1		7660.3	$(43/2^-)$	6929.2	$(41/2^-)$		
735.2	18.4	3224.8	$23/2^{(+)}$	2489.6	$21/2^-$	(E1)	DCO=0.62 *5*.
772.3		2811.9	$23/2^-$	2039.6	$19/2^-$		
777.6	2.0	4668.0	$(29/2^+)$	3890.4	$(27/2^+)$		
805.8	2.3	6110.0	$(37/2^+)$	5304.2	$35/2^{(+)}$		
813.7	9.2	5545.1	$35/2^{(-)}$	4731.4	$33/2^{(+)}$	(E1)	DCO=0.53 *6*.
836.1	2.7	1980.5	$15/2^{(-)}$	1144.4	$13/2^-$	(M1+E2)	DCO<1.
875.9	2.6	3067.1	$21/2^{(+)}$	2191.2	$19/2^-$	(E1)	DCO=0.54 *13*.
882.1	2.1	3694.0	$(27/2^-)$	2811.9	$23/2^-$		
890.1	4.3	1144.4	$13/2^-$	254.3	$11/2^-$	M1+E2	
937.2	3.7	3128.4	$(21/2^+)$	2191.2	$19/2^-$		
1027.5	8.9	3067.1	$21/2^{(+)}$	2039.6	$19/2^-$	(E1)	DCO=0.51 *7*.
1052.6	1.4	1980.5	$15/2^{(-)}$	927.9	$15/2^-$	(M1+E2)	DCO<1.
1054.6		2199.0	(15/2)	1144.4	$13/2^-$		
1111.7	79.0	2039.6	$19/2^-$	927.9	$15/2^-$	E2	DCO=0.97 *3*.
1124.1	5.1	5379.1	$33/2^{(-)}$	4255.0	$31/2^{(+)}$	(E1)	DCO=0.57 *11*.
1154.8		6459.0	$(39/2^+)$	5304.2	$35/2^{(+)}$		
1253.9	1.4	3743.5	(23/2)	2489.6	$21/2^-$		
1263.3	23.4	2191.2	$19/2^-$	927.9	$15/2^-$	E2	DCO=1.26 *9*.
1273.3	1.4	3762.9	(23/2)	2489.6	$21/2^-$		
1378.6		6110.0	$(37/2^+)$	4731.4	$33/2^{(+)}$		
1445.9	3.0	3935.5	$25/2^-$	2489.6	$21/2^-$	E2	DCO=1.29 *29*.

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^{124}Sn(^{18}O,5nγ) E=70 MeV 2000Zh39,2000Zh27 (continued)

γ(^{137}Ce) (continued)

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.	Comments
1509.3		2437.2	$(17/2^-)$	927.9	$15/2^-$	(M1+E2)	DCO<1.
1726.2	1.6	1980.5	$15/2^{(-)}$	254.3	$11/2^-$	E2	DCO=1.51 *62*.

^{124}Sn(^{18}O,5nγ) E=70 MeV 2000Zh39,2000Zh27

Level Scheme

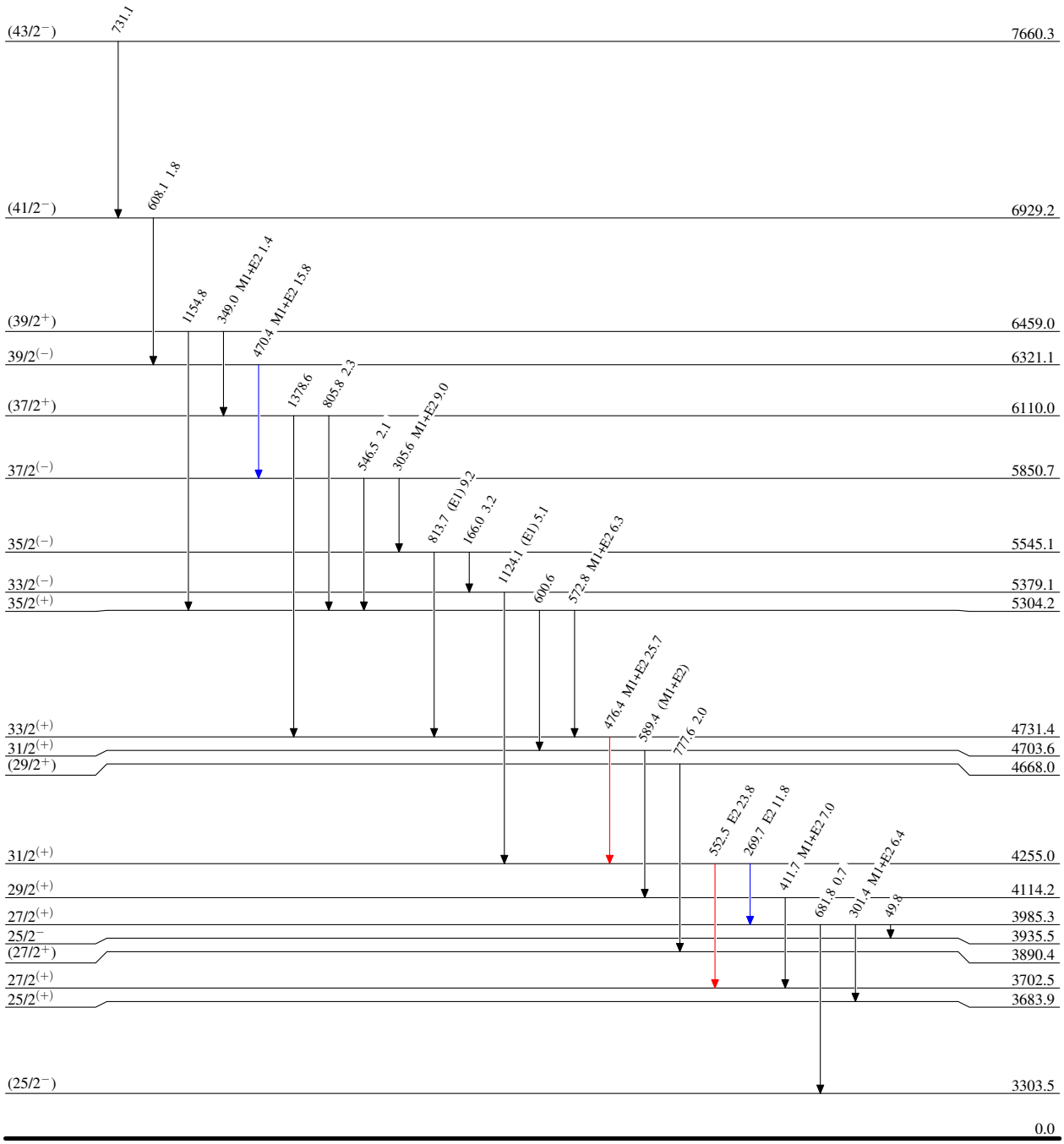
Intensities: Relative I_γ

Legend

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

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

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



$^{137}_{58}Ce_{79}$

^{124}Sn(^{18}O,5nγ) E=70 MeV 2000Zh39,2000Zh27

Level Scheme (continued)

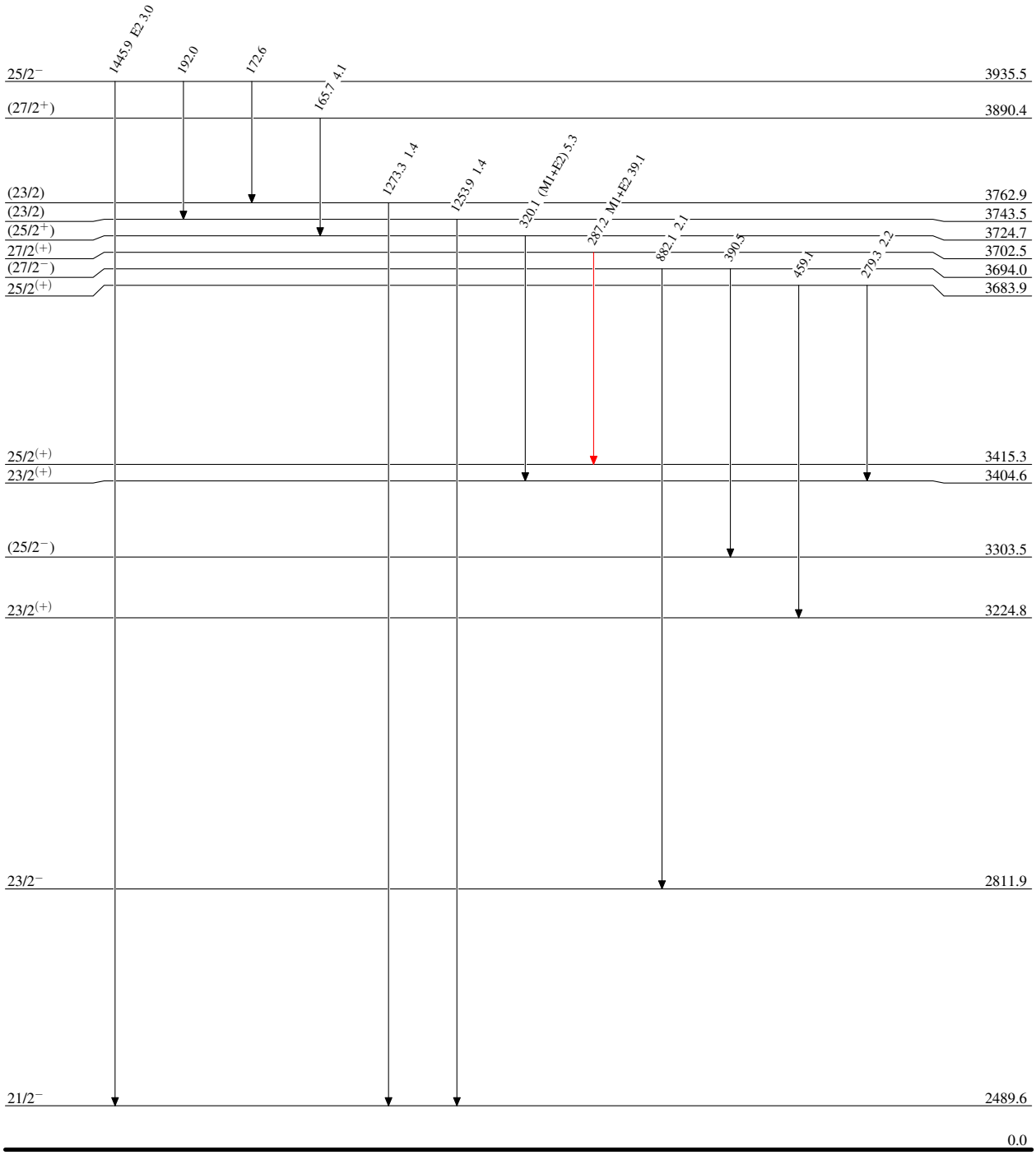
Intensities: Relative I_γ

Legend

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

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

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

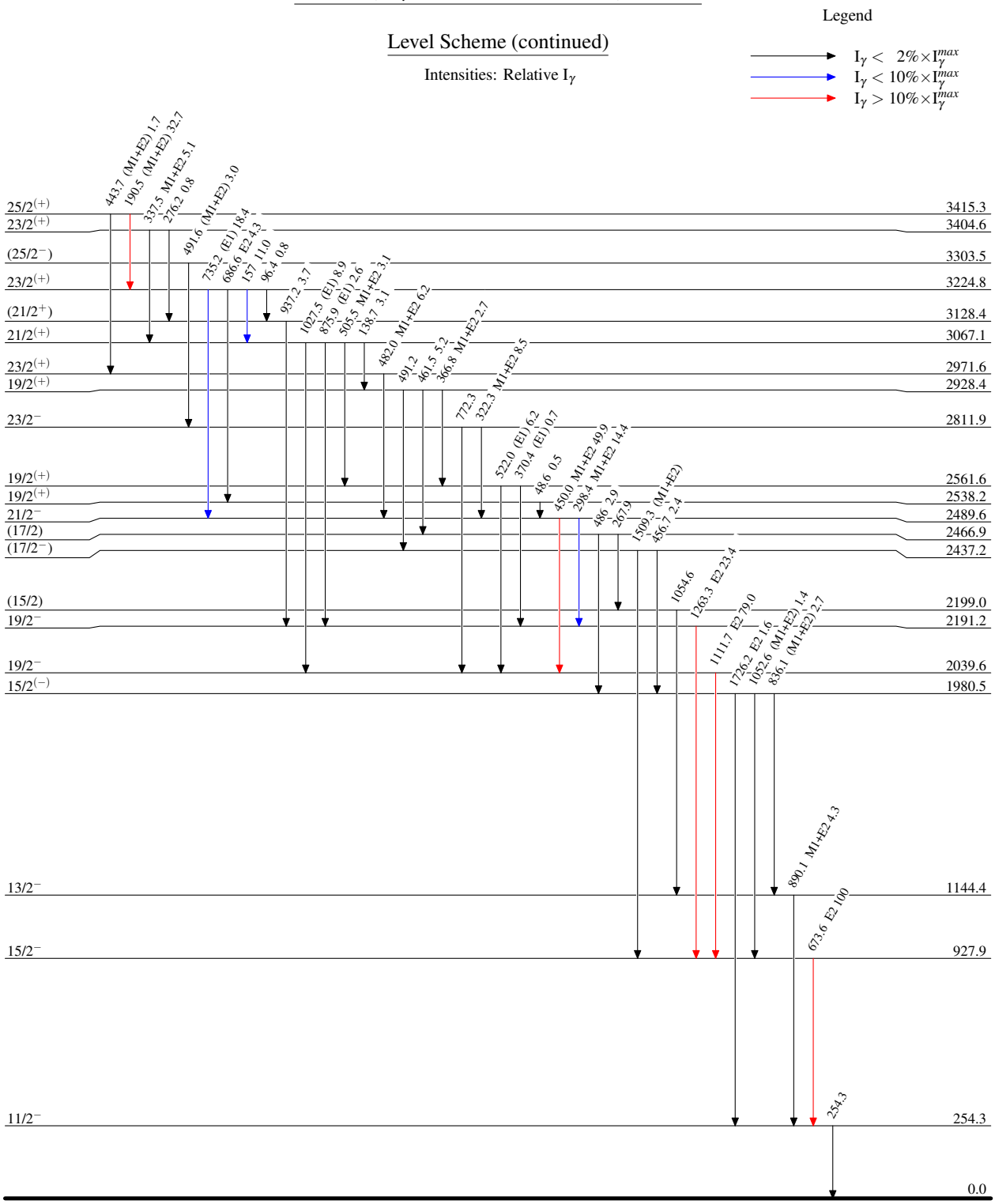


$^{137}_{58}Ce_{79}$

^{124}Sn(^{18}O,5nγ) E=70 MeV 2000Zh39,2000Zh27

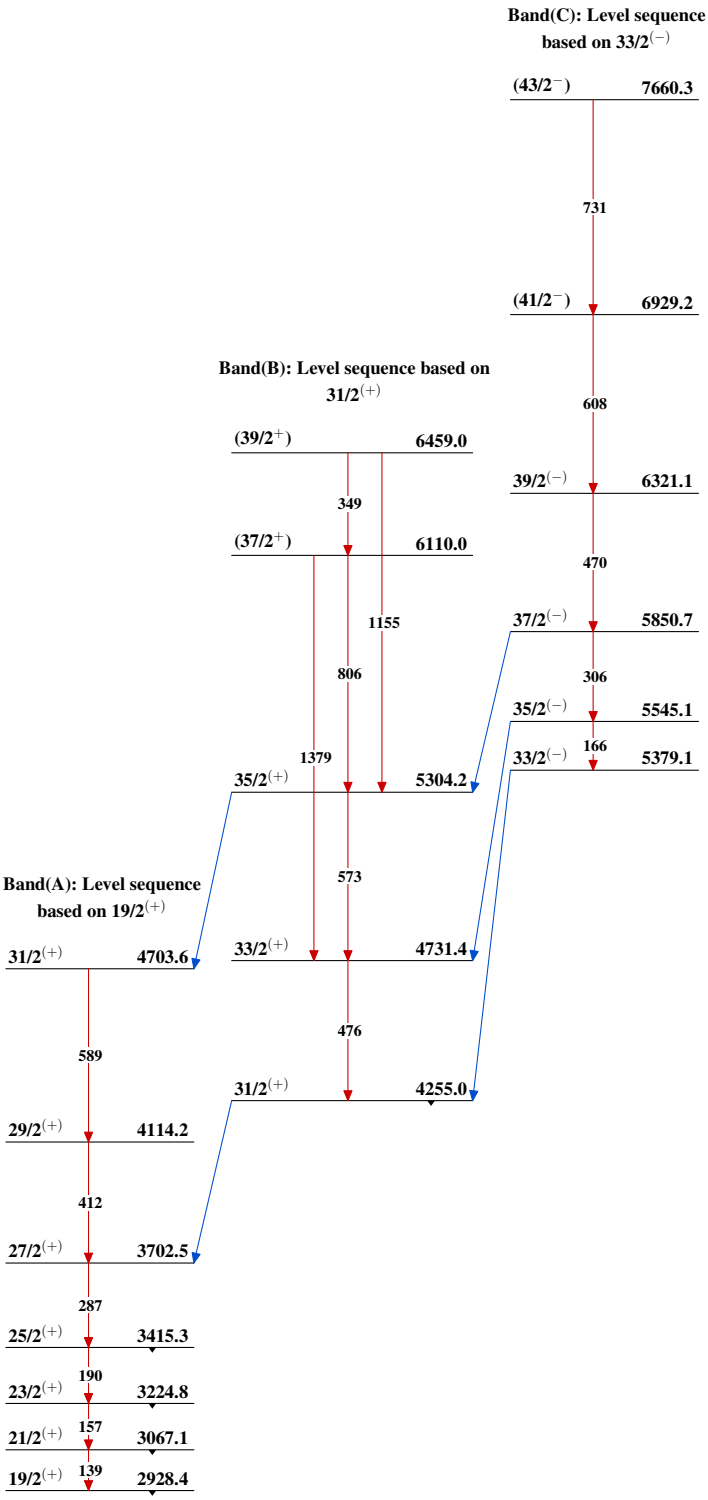
Level Scheme (continued)

Intensities: Relative I_γ



$^{137}_{58}Ce_{79}$

^{124}Sn(^{18}O,5nγ) E=70 MeV 2000Zh39,2000Zh27



$^{137}_{58}Ce_{79}$