^{104}Ru(^{18}O,α2nγ) 1998Sa30

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jean Blachot	NDS 111, 717 (2010)	1-Dec-2009

E=65 MeV. Taken from XUNDL.
Measured Eγ, Iγ, γγ, Iγγ(θ) using DORIS array of 12 Compton-suppressed HPGe detectors.

^{116}Sn Levels

E(level)†	Jπ	E(level)†	Jπ	E(level)†	Jπ	E(level)†	Jπ
0.0	0+	3227.96 *20*	8−	5388.0‡ *6*	12+	6344.08 *23*	15−
1293.77 *10*	2+	3492.06 *20*	8+	5495.91 *23*	13+	6358.0 *6*	(14+)
1756.9‡ *4*	0+	3522.49 *22*	9−	5522.19 *23*	13+	6659.52 *25*	16−
(2112.53‡ *12*)	2+	3546.73 *22*	10+	5573.6 *5*	(12+)	6663.1 *6*	(15+)
2266.24 *13*	3−	3711.8‡ *4*	8+	5707.2 *3*		7082.15 *25*	17−
2366.10 *15*	5−	4495.67 *22*	10−	5723.24 *25*	(12−)	7229.2‡ *6*	16+
2391.08 *13*	4+	4505.2‡ *4*	10+	5823.68 *23*	14+	7457.3 *6*	(16+)
2529.43‡ *15*	4+	4701.83 *23*	11+	5929.3 *3*	(13+)	8227.9‡ *6*	18+
2773.43 *17*	6−	4878.63 *23*	11−	5977.57 *23*	13−	8585.6 *3*	
2908.87 *17*	7−	4881.95 *23*	12+	6098.30 *24*	14+	8661.2 *4*	
3032.23‡ *17*	6+	5161.27 *23*	12+	6213.01 *23*	14−	9141.4 *4*	
3210.6 *4*	7−	5329.90 *24*	12+	6313.4‡ *6*	14+	9321.9‡ *12*	(20+)

† From least-squares fit to Eγ′s.
‡ Band(A): 0+ intruder band, configuration=$\pi g_{9/2}^{-2} g_{7/2}^{2}$.

γ(^{116}Sn)

Angular distribution ratio: R=Iγ(at extreme angles)/Iγ(at≈90°). R=1.5 for stretched quadrupole and ΔJ=0, dipole; ≈0.8 for ΔJ=1, dipole; and <0.8 for ΔJ=1, D+Q type.

Eγ	Iγ	E_i(level)	J_i^π	E_f	J_f^π	Comments
54 *9*	<0.1	3546.73	10+	3492.06	8+	
99.9 *1*	2.9 *2*	2366.10	5−	2266.24	3−	R=0.94 *12*.
114.9 *1*	1.1 *1*	6213.01	14−	6098.30	14+	
131.1 *1*	15.6 *5*	6344.08	15−	6213.01	14−	R=0.79 *7*.
135.4 *1*	19.0 *7*	2908.87	7−	2773.43	6−	R=0.77 *5*.
138.2 *4*	1.4 *2*	2529.43	4+	2391.08	4+	
166.1 *1*	1.9 *1*	5495.91	13+	5329.90	12+	R=0.7 *2*.
235.4 *1*	9.3 *3*	6213.01	14−	5977.57	13−	R=0.81 *5*.
270.3 *2*	0.5 *9*	5977.57	13−	5707.2		
294.5 *1*	28.8 *10*	3522.49	9−	3227.96	8−	R=0.88 *2*.
301.5 *1*	15.2 *6*	5823.68	14+	5522.19	13+	R=0.80 *8*.
305.1 *1*	1.0 *1*	6663.1	(15+)	6358.0	(14+)	
315.4 *1*	26.1 *9*	6659.52	16−	6344.08	15−	R=0.91 *9*.
318.8 *1*	4.8 *3*	3546.73	10+	3227.96	8−	
319.1 *1*	45 *2*	3227.96	8−	2908.87	7−	R=0.87 *2*.
334.7 *1*	2.2 *2*	5495.91	13+	5161.27	12+	R=1.0 *3*.
355.6 *4*	0.5 *2*	(2112.53)	2+	1756.9	0+	
360.9 *1*	17.6 *9*	5522.19	13+	5161.27	12+	R=0.94 *10*.
366.6 *1*	3.9 *2*	6344.08	15−	5977.57	13−	
407.3 *1*	19 *2*	2773.43	6−	2366.10	5−	R=0.82 *6*.

Continued on next page (footnotes at end of table)

^{104}Ru(^{18}O,α2nγ) 1998Sa30 (continued)

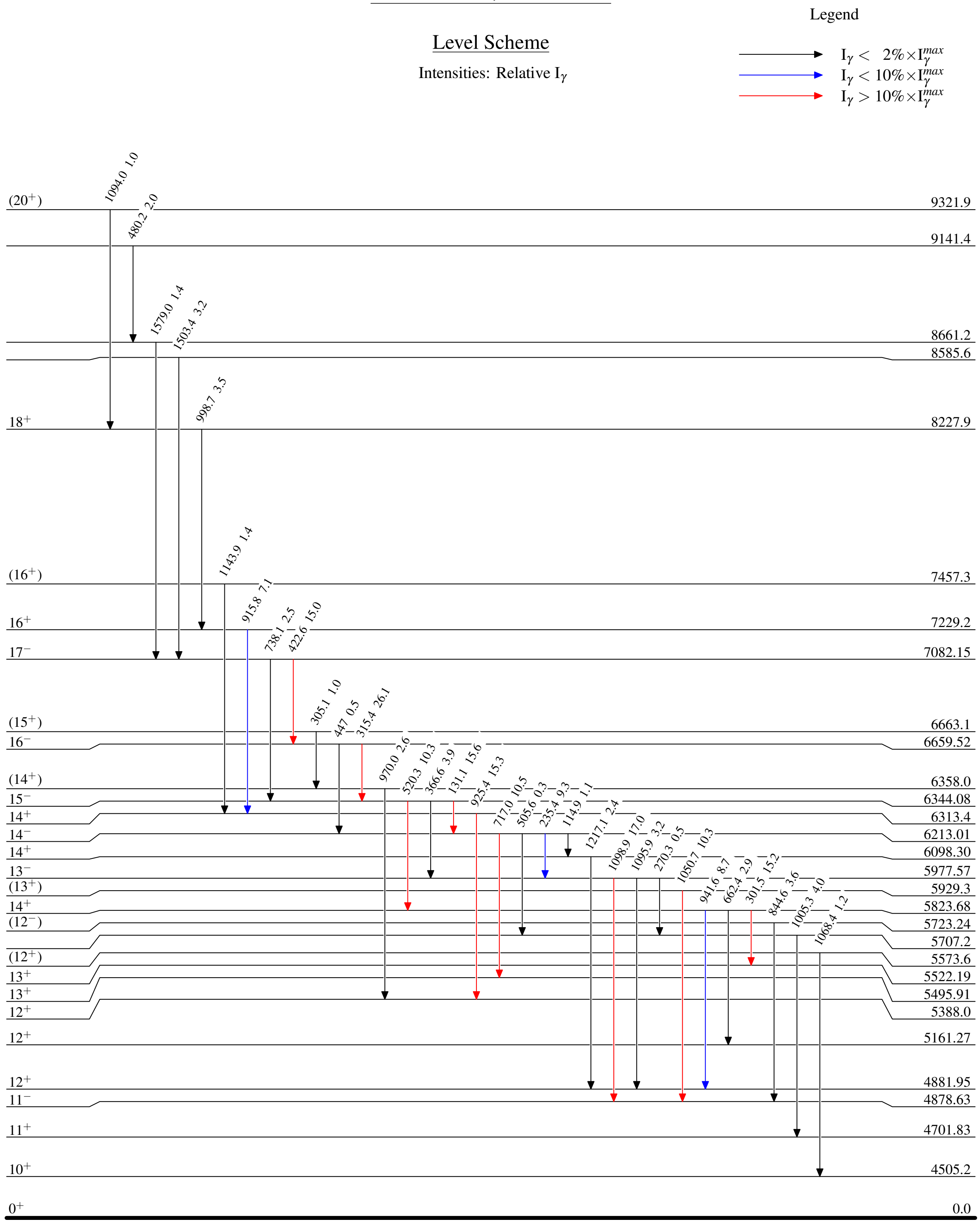
γ(^{116}Sn) (continued)

E_γ	I_γ	E_i(level)	J^π_i	E_f	J^π_f	Comments
416.9 *1*	12.8 *8*	2529.43	4$^+$	2112.53?	2$^+$	
422.6 *1*	15.0 *5*	7082.15	17$^-$	6659.52	16$^-$	R=0.87 *6*.
437.2 *3*	0.9 *2*	3210.6	7$^-$	2773.43	6$^-$	
447 *1*	0.5 *1*	6659.52	16$^-$	6213.01	14$^-$	
459.3 *1*	10.4 *9*	5161.27	12$^+$	4701.83	11$^+$	R=1.20 *10*.
463 *1*	<0.1	1756.9	0$^+$	1293.77	2$^+$	
480.2 *1*	2.0 *1*	9141.4		8661.2		
502.8 *1*	10.7 *4*	3032.23	6$^+$	2529.43	4$^+$	
505.6 *3*	0.3 *1*	6213.01	14$^-$	5707.2		
520.3 *1*	10.3 *4*	6344.08	15$^-$	5823.68	14$^+$	R=0.79 *9*.
542.8 *1*	30.8 *12*	2908.87	7$^-$	2366.10	5$^-$	R=0.97 *15*.
583.2 *1*	11.4 *6*	3492.06	8$^+$	2908.87	7$^-$	
613.8 *1*	5.1 *3*	5495.91	13$^+$	4881.95	12$^+$	R=1.26 *12*.
641.2 *4*	22.7 *9*	3032.23	6$^+$	2391.08	4$^+$	R=1.31 *7*.
662.4 *2*	2.9 *4*	5823.68	14$^+$	5161.27	12$^+$	R=1.4 *3*.
679.6 *3*	31.1 *12*	3711.8	8$^+$	3032.23	6$^+$	R=1.29 *7*.
717.0 *1*	10.5 *4*	6213.01	14$^-$	5495.91	13$^+$	R=0.69 *7*.
738.1 *1*	2.5 *3*	7082.15	17$^-$	6344.08	15$^-$	
793.4 *1*	29.2 *11*	4505.2	10$^+$	3711.8	8$^+$	R=1.26 *7*.
794.0 *1*	7.0 *6*	5495.91	13$^+$	4701.83	11$^+$	R=1.40 *6*.
818.8 *1*	5.9 *11*	(2112.53)	2$^+$	1293.77	2$^+$	
820.4 *1*	4.0 *4*	5522.19	13$^+$	4701.83	11$^+$	R=1.14 *20*.
844 *2*	1.9 *4*	3210.6	7$^-$	2366.10	5$^-$	
844.6 *1*	3.6 *3*	5723.24	(12$^-$)	4878.63	11$^-$	R=1.2 *3*.
882.8 *4*	25.5 *9*	5388.0	12$^+$	4505.2	10$^+$	R=1.42 *8*.
915.8 *1*	7.1 *4*	7229.2	16$^+$	6313.4	14$^+$	R=1.2 *2*.
925.4 *1*	15.3 *6*	6313.4	14$^+$	5388.0	12$^+$	R=1.26 *11*.
941.6 *1*	8.7 *5*	5823.68	14$^+$	4881.95	12$^+$	R=1.3 *2*.
970.0 *1*	2.6 *3*	6358.0	(14$^+$)	5388.0	12$^+$	
972.5 *1*	12.9 *14*	2266.24	3$^-$	1293.77	2$^+$	R=0.7 *2*.
998.7 *1*	3.5 *3*	8227.9	18$^+$	7229.2	16$^+$	R=1.3 *2*.
1005.3 *2*	4.0 *8*	5707.2		4701.83	11$^+$	
1050.7 *2*	10.3 *11*	5929.3	(13$^+$)	4878.63	11$^-$	
1068.4 *3*	1.2 *3*	5573.6	(12$^+$)	4505.2	10$^+$	
1072.2 *2*	6.8 *6*	2366.10	5$^-$	1293.77	2$^+$	
1094.0 *10*	1.0 *5*	9321.9	(20$^+$)	8227.9	18$^+$	
1095.9 *2*	3.2 *3*	5977.57	13$^-$	4881.95	12$^+$	
1097.3 *1*	25 *2*	2391.08	4$^+$	1293.77	2$^+$	R=1.53 *9*.
1098.9 *1*	17.0 *7*	5977.57	13$^-$	4878.63	11$^-$	R=1.44 *3*.
1143.9 *2*	1.4 *2*	7457.3	(16$^+$)	6313.4	14$^+$	
1154.9 *1*	23.2 *12*	4701.83	11$^+$	3546.73	10$^+$	R=1.1 *14*.
1217.1 *2*	2.4 *7*	6098.30	14$^+$	4881.95	12$^+$	
1267.7 *1*	4.8 *4*	4495.67	10$^-$	3227.96	8$^-$	
1293.8 *1*	48 *3*	1293.77	2$^+$	0.0	0$^+$	R=1.49 *9*.
1335.2 *1*	30 *2*	4881.95	12$^+$	3546.73	10$^+$	R=1.2 *2*.
1356.1 *1*	23.7 *10*	4878.63	11$^-$	3522.49	9$^-$	R=1.46 *3*.
1503.4 *1*	3.2 *3*	8585.6		7082.15	17$^-$	R=1.0 *2*.
1579.0 *2*	1.4 *2*	8661.2		7082.15	17$^-$	
1614.7 *1*	19.2 *9*	5161.27	12$^+$	3546.73	10$^+$	R=1.26 *15*.
1783.5 *2*	2.0 *10*	5329.90	12$^+$	3546.73	10$^+$	
2112.4 *2*	7 *2*	(2112.53)	2$^+$	0.0	0$^+$	

^{104}Ru(^{18}O,α2nγ) 1998Sa30

Level Scheme

Intensities: Relative I_γ



$^{116}_{50}Sn_{66}$

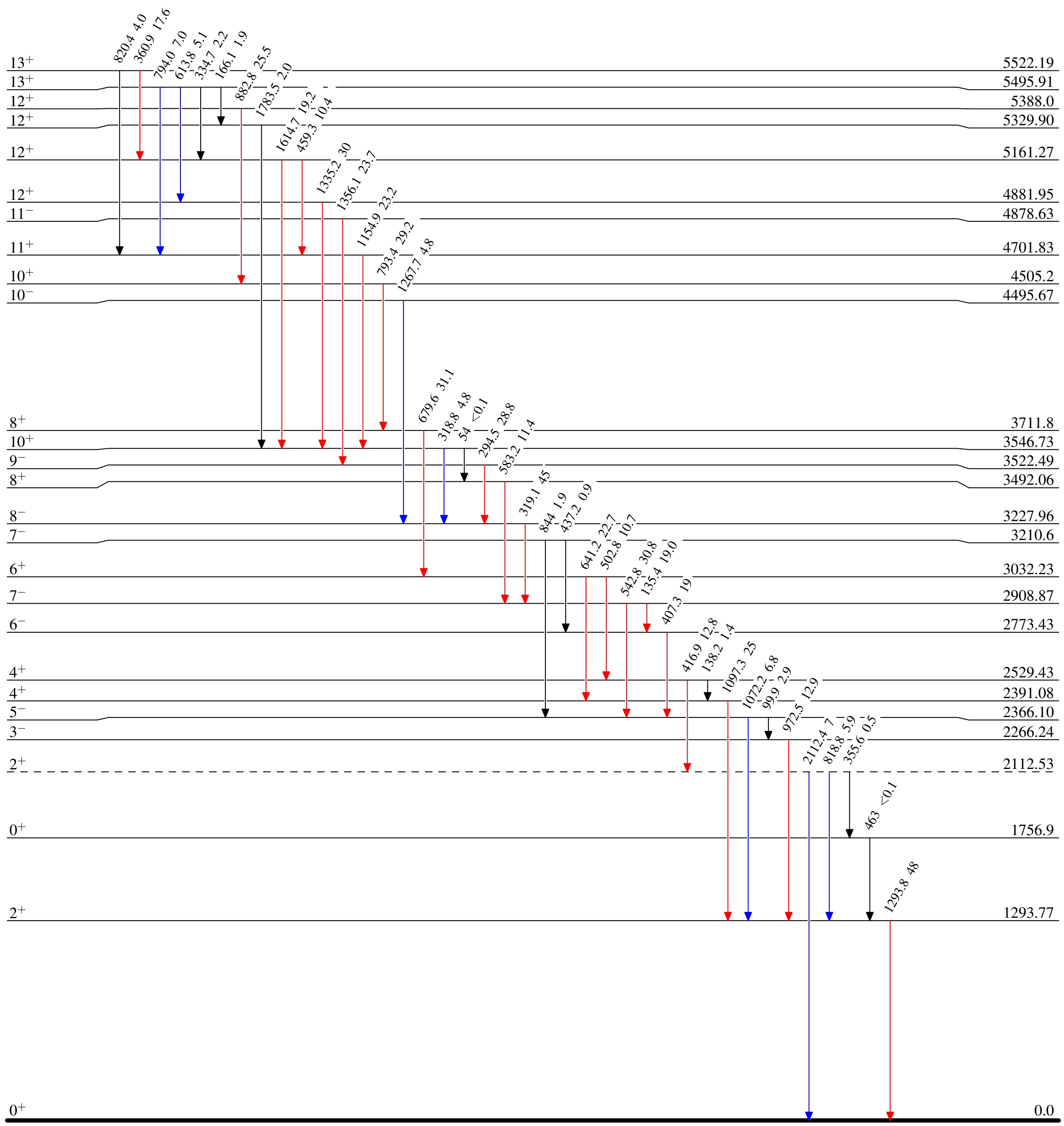
^{104}Ru(^{18}O,α2nγ) 1998Sa30

Level Scheme (continued)

Intensities: Relative I_γ

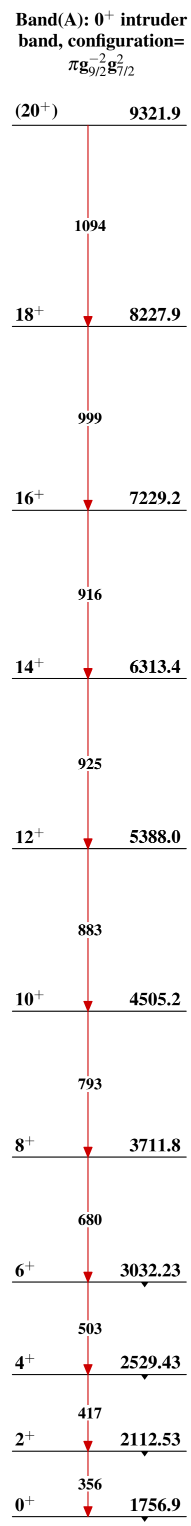
Legend

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



$^{116}_{50}Sn_{66}$

^{104}Ru(^{18}O,α2nγ) 1998Sa30



$^{116}_{50}Sn_{66}$