^{116}Sn(n,n′γ) 1991Ra01,1991Go07

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

Enriched ^{116}Sn 95.7% (42.6 γ) (1991Ra01).
E(n)=1.9 to 4.5 MeV, step of 50 keV (1991Ra01).
Measured: γ, γγ, γ(θ), excit, tof, DSA (no results given) (1991Ra01).
The energy dependent cross sections have been calculated and compared with the measured (1991Ra01).
1991Go07 measured γ, γ(θ), linear polarization but no details are given.

^{116}Sn Levels

E(level)	Jπ†	$T_{1/2}$	E(level)	Jπ†
0.0	0^+		3309.1	6^-
1293.6‡	2^+	0.51@ ps *+20−14*	3315.0	3^+
1756.8‡	0^+		3333.7	1^-
2027.5‡	0^+		3344.4	2^+
2112.3‡	2^+		3350.9	5^+
2225.4‡	2^+		3371.4	3^+
2266.2‡	3^-		3416.2	3^+
2366.1‡	5^-		3416.5	2^-
2390.9‡	4^+		3427.9	4^-
2529.2‡	4^+		3453.9	4^-
2545.6‡	0^+		3469.5	2^+
2585.6‡	1^+		3507.2	5^-
2650.4‡	2^+		3508.3	2^+
2773.5‡	6^-		3514.2	2^+
2790.5‡	0^+		3552.0	3^+
2801.3‡	4^+		3572.9	
2843.8‡	2^+		3576.2	5^-
2909.6‡	7^-		3586.6	2^+
2960.0‡	2^+		3593.8	3^+
2996.3‡	3^+		3616.3	4^-
3016.5‡	6^-		3624.6	4^+
3032.2‡	6^+		3640.7	4^+
3046.4‡	4^+		3648.1	5^-
3088.5‡	2^+		3658.7	2^+
3097.3‡	4^+		3706.9	3^+
3105.3‡	5^-#		3712.0	1^+
3157.8‡	4^-		3730.9	0^+
3179.70‡ *7*	3^+		3742.9	3^-
3194.3‡	0^+		3748.1	0^+
3209.9‡	7^-		3777.3	1^+
3227.4‡	2^+		3787.3	6^-
3228.1			3805.5	4^+
3235.9	0^+		3806.0	2^+
3257.8	5^-		3809.3	
3277.2	6^+		3836.5	0^+
3288.9	4^+		3843.6	3^-

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^{116}Sn(n,n′γ) 1991Ra01,1991Go07 (continued)

^{116}Sn Levels (continued)

E(level)	Jπ†	E(level)	Jπ†	E(level)	Jπ†	E(level)	Jπ†
3852.1	2+	4001.1	1−	4128.2	2+	4238.5	2+
3903.6	2+	4013.2	2+	4143.9	3+	4251.6	1+
3904.9	1+	4015.1	4+	4162.4	2−	4278.4	2+
3916.9	2+	4026.5	1+	4170.4	2+	4280.7	3−
3945.8	1+	4028.5	0+	4190.5	3+	4297.1	3+
3950.3	3+	4037.4	3+	4200.1	1+		
3952.5	2+	4076.0	1+	4201.5	2+		
3973.7	4+	4113.9	1+	4211.6	2+		

† As given by 1991Ra01.
‡ Also given by 1991Go07.
# 1991Go07 gives (7−).
@ From 2007Or04, Doppler-shift attenuation method.

γ(^{116}Sn)

Eγ†	Iγ†	Ei(level)	Jπi	Ef	Jπf	Eγ†	Iγ†	Ei(level)	Jπi	Ef	Jπf
99.9 *6*	100‡	2366.1	5−	2266.2	3−	748.0 *6*		3277.2	6+	2529.2	4+
331.7 *4*	100	3105.3	5−	2773.5	6−	770.95 *7*		2996.3	3+	2225.4	2+
x344.0 *5*						788.81 *8*		3179.70	3+	2390.9	4+
355.0 *9*	15 *3*	3350.9	5+	2996.3	3+	791.75 *6*		3157.8	4−	2366.1	5−
355.4 *4*	7.3‡	2112.3	2+	1756.8	0+	818.7 *2*	81‡	2112.3	2+	1293.6	2+
360.2 *2*	8‡	2585.6	1+	2225.4	2+	828.8 *1*		2585.6	1+	1756.8	0+
374.52 *6*		2960.0	2+	2585.6	1+	831.1 *7*	24 *2*	3097.3	4+	2266.2	3−
378.24 *14*		3179.70	3+	2801.3	4+	831.1 *7*		3416.5	2−	2585.6	1+
384.3 *6*		2650.4	2+	2266.2	3−	839.6 *5*	44 *6*	3105.3	5−	2266.2	3−
407.5# *3*		2773.5	6−	2366.1	5−	844.1 *6*	100	3209.9	7−	2366.1	5−
407.5# *3*		3453.9	4−	3046.4	4+	x849.8 *6*					
417.0 *3*		2529.2	4+	2112.3	2+	857.9 *8*		3658.7	2+	2801.3	4+
417.4 *4*	100	4076.0	1+	3658.7	2+	x884.32 *8*					
436.5 *6*	40 *6*	3209.9	7−	2773.5	6−	x886.2 *7*					
463.4 *2*		1756.8	0+	1293.6	2+	891.7 *5*		3257.8	5−	2366.1	5−
466.7 *6*		2996.3	3+	2529.2	4+	x924.1 *4*					
503.3 *6*	82 *12*	3032.2	6+	2529.2	4+	931.8 *2*	100‡	2225.4	2+	1293.6	2+
535.5		3309.1	6−	2773.5	6−	943.1		3309.1	6−	2366.1	5−
538.3 *6*		2650.4	2+	2112.3	2+	961.3 *4*		3227.4	2+	2266.2	3−
543.5 *5*		2909.6	7−	2366.1	5−	962.0 *6*		3228.1		2266.2	3−
549.1 *9*	100	3350.9	5+	2801.3	4+	972.6 *2*		2266.2	3−	1293.6	2+
568.0 *6*	43 *4*	3097.3	4+	2529.2	4+	980.4 *2*		3371.4	3+	2390.9	4+
605.3 *6*		2996.3	3+	2390.9	4+	1000.9 *2*		3586.6	2+	2585.6	1+
x615.6 *6*						1022.7 *6*		3288.9	4+	2266.2	3−
641.1 *4*	100	3032.2	6+	2390.9	4+	1060.9 *6*		3427.9	4−	2366.1	5−
650.46 *8*		3016.5	6−	2366.1	5−	1072.5 *6*	81.6‡	2366.1	5−	1293.6	2+
656.2 *6*	17‡	3046.4	4+	2390.9	4+	1078.14		3344.4	2+	2266.2	3−
678.2 *5*		2790.5	0+	2112.3	2+	1089.5 *4*		3315.0	3+	2225.4	2+
706.4 *7*	100	3097.3	4+	2390.9	4+	1097.3 *2*		2390.9	4+	1293.6	2+
714.4 *5*	50 *5*	3105.3	5−	2390.9	4+	1115.16 *5*		3227.4	2+	2112.3	2+
731.2 *7*	21 *2*	3097.3	4+	2366.1	5−	1119.00 *7*		3344.4	2+	2225.4	2+
734.0 *3*		2027.5	0+	1293.6	2+	1123.8 *5*		3235.9	0+	2112.3	2+
738.8 *5*	77 *3*	3105.3	5−	2366.1	5−	1146.0 *2*		3371.4	3+	2225.4	2+

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^{116}Sn(n,n′γ) 1991Ra01,1991Go07 (continued)

γ(^{116}Sn) (continued)

E_γ †	I_γ †	E_i(level)	J_i^π	E_f	J_f^π	Comments
1150.31 *6*		3416.5	2^-	2266.2	3^-	
1161.8 *4*		3427.9	4^-	2266.2	3^-	
1185.3 *6*		3576.2	5^-	2390.9	4^+	
x1189.9 *6*						
1200.2 *6*		3228.1		2027.5	0^+	
1203.1 *4*		3315.0	3^+	2112.3	2^+	
1232.0 *7*		3344.4	2^+	2112.3	2^+	
1241.0 *7*		3507.2	5^-	2266.2	3^-	
1243.8 *7*		3469.5	2^+	2225.4	2^+	
1249.8 *7*		3640.7	4^+	2390.9	4^+	
1252.0 *6*		2545.6	0^+	1293.6	2^+	
1257.0 *5*	93 *10*	3648.1	5^-	2390.9	4^+	
1282.5 *8*	100	3648.1	5^-	2366.1	5^-	
1292.0 *2*	≤100‡	2585.6	1^+	1293.6	2^+	
1293.58 *5*		1293.6	2^+	0.0	0^+	B(E2)(W.u.)=9.1 *+34−26*
1331.68 *10*		3088.5	2^+	1756.8	0^+	
1350.1 *4*		3616.3	4^-	2266.2	3^-	
1356.8 *2*	100‡	2650.4	2^+	1293.6	2^+	
1368.38 *9*		3593.8	3^+	2225.4	2^+	
1396.0 *5*		3508.3	2^+	2112.3	2^+	
1408.7 *7*		4200.1	1^+	2790.5	0^+	
1421.2 *5*		3787.3	6^-	2366.1	5^-	
1433.4 *4*		3658.7	2^+	2225.4	2^+	
1440.7 *7*		3706.9	3^+	2266.2	3^-	
x1460.67 *10*						
1474.4 *9*		3586.6	2^+	2112.3	2^+	
1476.7 *9*		3742.9	3^-	2266.2	3^-	
1481.4 *4*		3593.8	3^+	2112.3	2^+	
1496.7 *6*		2790.5	0^+	1293.6	2^+	
1507.70 *10*		2801.3	4^+	1293.6	2^+	
1546.4 *7*		3658.7	2^+	2112.3	2^+	
1550.0 *3*	34‡	2843.8	2^+	1293.6	2^+	
1576.7 *2*		4162.4	2^-	2585.6	1^+	
1618.7 *6*		3843.6	3^-	2225.4	2^+	
1631.0 *10*		3742.9	3^-	2112.3	2^+	
1650.74 *6*		3916.9	2^+	2266.2	3^-	
1666.38 *7*	65‡	2960.0	2^+	1293.6	2^+	
1678.2 *3*		3903.6	2^+	2225.4	2^+	
1684.6 *8*	28 *5*	3950.3	3^+	2266.2	3^-	
1693.1 *8*	38 *12*	3805.5	4^+	2112.3	2^+	
1697.0 *8*		3809.3		2112.3	2^+	
1702.68 *5*		2996.3	3^+	1293.6	2^+	
1724.6 *3*	100	3950.3	3^+	2225.4	2^+	
1731.8 *4*		3843.6	3^-	2112.3	2^+	
1752.6 *6*	100‡	3046.4	4^+	1293.6	2^+	
1771.2 *5*		4037.4	3^+	2266.2	3^-	
1795.02 *7*	57	3088.5	2^+	1293.6	2^+	
1861.4 *8*		3973.7	4^+	2112.3	2^+	
1877.36 *8*		3904.9	1^+	2027.5	0^+	
1886.12 *10*		3179.70	3^+	1293.6	2^+	
1896.4 *5*		4162.4	2^-	2266.2	3^-	
1900.72 *5*		3194.3	0^+	1293.6	2^+	
1902.7 *8*	100	4015.1	4^+	2112.3	2^+	
1934.1 *5*		3228.1		1293.6	2^+	

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^{116}Sn(n,n′γ) 1991Ra01,1991Go07 (continued)

γ(^{116}Sn) (continued)

E_γ †	I_γ †	E_i(level)	J_i^π	E_f	J_f^π	E_γ †	I_γ †	E_i(level)	J_i^π	E_f	J_f^π
1963.1 *4*	47 *16*	4076.0	1^+	2112.3	2^+	2734.8 *6*		4028.5	0^+	1293.6	2^+
[x]1973.2 *7*						2742.8 *3*		4037.4	3^+	1293.6	2^+
1976.2 *9*		4201.5	2^+	2225.4	2^+	2843.9 *2*	100‡	2843.8	2^+	0.0	0^+
2014.5 *7*		4280.7	3^-	2266.2	3^-	2850.0 *6*		4143.9	3^+	1293.6	2^+
2021.3 *8*		3315.0	3^+	1293.6	2^+	2868.2 *5*		4162.4	2^-	1293.6	2^+
2050.9 *4*		3344.4	2^+	1293.6	2^+	2877.1 *7*		4170.4	2^+	1293.6	2^+
2077.7 *4*		3371.4	3^+	1293.6	2^+	2897.1 *7*		4190.5	3^+	1293.6	2^+
2112.2 *8*	100‡	2112.3	2^+	0.0	0^+	2918.2 *5*		4211.6	2^+	1293.6	2^+
2122.6 *6*		3416.2	3^+	1293.6	2^+	2945.2 *6*	100	4238.5	2^+	1293.6	2^+
2148.0 *5*		3904.9	1^+	1756.8	0^+	2959.8 *3*	100‡	2960.0	2^+	0.0	0^+
2175.9 *4*		3469.5	2^+	1293.6	2^+	2985.1 *6*		4278.4	2^+	1293.6	2^+
2220.1 *6*		3514.2	2^+	1293.6	2^+	3003.2 *5*		4297.1	3^+	1293.6	2^+
2225.2 *5*	65‡	2225.4	2^+	0.0	0^+	3088.5 *2*	100‡	3088.5	2^+	0.0	0^+
2243.8 *4*		4001.1	1^-	1756.8	0^+	3333.6 *4*		3333.7	1^-	0.0	0^+
2258.4 *5*		3552.0	3^+	1293.6	2^+	3514.7 *6*		3514.2	2^+	0.0	0^+
2279.5 *3*		3572.9		1293.6	2^+	3586.9 *4*		3586.6	2^+	0.0	0^+
2331.0 *7*		3624.6	4^+	1293.6	2^+	3658.2 *3*		3658.7	2^+	0.0	0^+
2356.9 *7*		4113.9	1^+	1756.8	0^+	3711.9 *3*		3712.0	1^+	0.0	0^+
2437.3 *7*		3730.9	0^+	1293.6	2^+	3777.2 *7*		3777.3	1^+	0.0	0^+
2449.0 *5*		3742.9	3^-	1293.6	2^+	3805.9 *8*		3806.0	2^+	0.0	0^+
2454.5 *5*		3748.1	0^+	1293.6	2^+	3852.0 *8*		3852.1	2^+	0.0	0^+
2511.9 *6*	100	3805.5	4^+	1293.6	2^+	3903.5 *4*		3903.6	2^+	0.0	0^+
2542.9 *8*		3836.5	0^+	1293.6	2^+	3952.5 *4*		3952.5	2^+	0.0	0^+
2549.7 *3*		3843.6	3^-	1293.6	2^+	4013.4 *2*		4013.2	2^+	0.0	0^+
2585.9 *2*	30‡	2585.6	1^+	0.0	0^+	4026.5 *3*		4026.5	1^+	0.0	0^+
2650.6 *8*	17‡	2650.4	2^+	0.0	0^+	4128.2 *2*		4128.2	2^+	0.0	0^+
2652.7 *9*		3945.8	1^+	1293.6	2^+	4170.4 *6*		4170.4	2^+	0.0	0^+
2657.4 *7*	24 *4*	3950.3	3^+	1293.6	2^+	4199.8 *8*		4200.1	1^+	0.0	0^+
2707.4 *4*		4001.1	1^-	1293.6	2^+	4237.8 *6*	93 *15*	4238.5	2^+	0.0	0^+
2719.1 *9*		4013.2	2^+	1293.6	2^+	4251.6 *8*		4251.6	1^+	0.0	0^+
2721.5 *9*	74 *9*	4015.1	4^+	1293.6	2^+	4278.6 *8*		4278.4	2^+	0.0	0^+

† From 1991Ra01, except where noted otherwise. Iγ are relative photon branchings normalized to 100 for the strongest transition from each level.

‡ From 1991Go07. In addition to the branchings included here 1991Go07 give data for several transition not reported by 1991Ra01.

Multiply placed.

[x] γ ray not placed in level scheme.

^{116}Sn(n,n′γ) 1991Ra01,1991Go07

Level Scheme

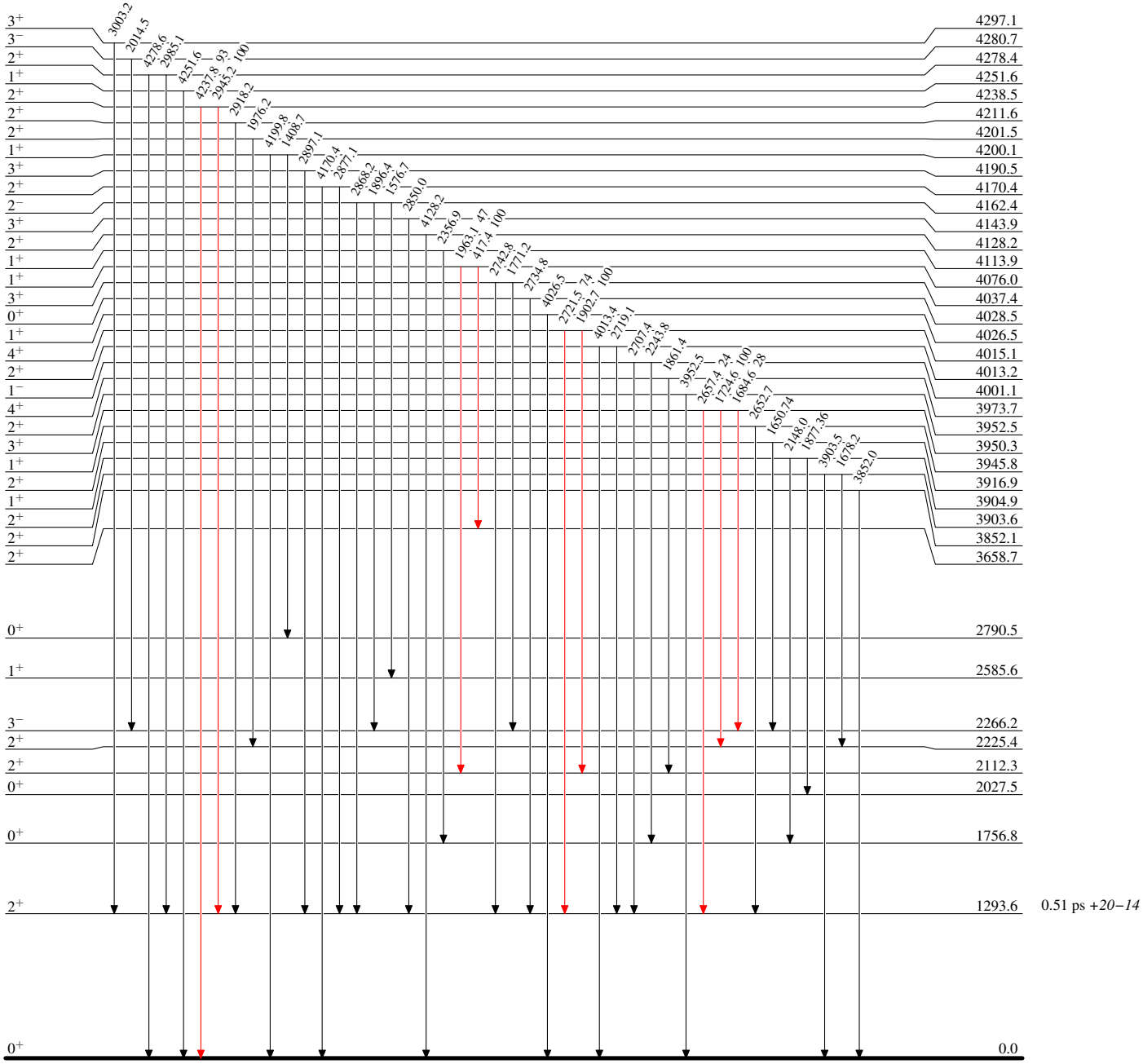
Intensities: Relative I_γ

Legend

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

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

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



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

^{116}Sn(n,n′γ) 1991Ra01,1991Go07

Level Scheme (continued)

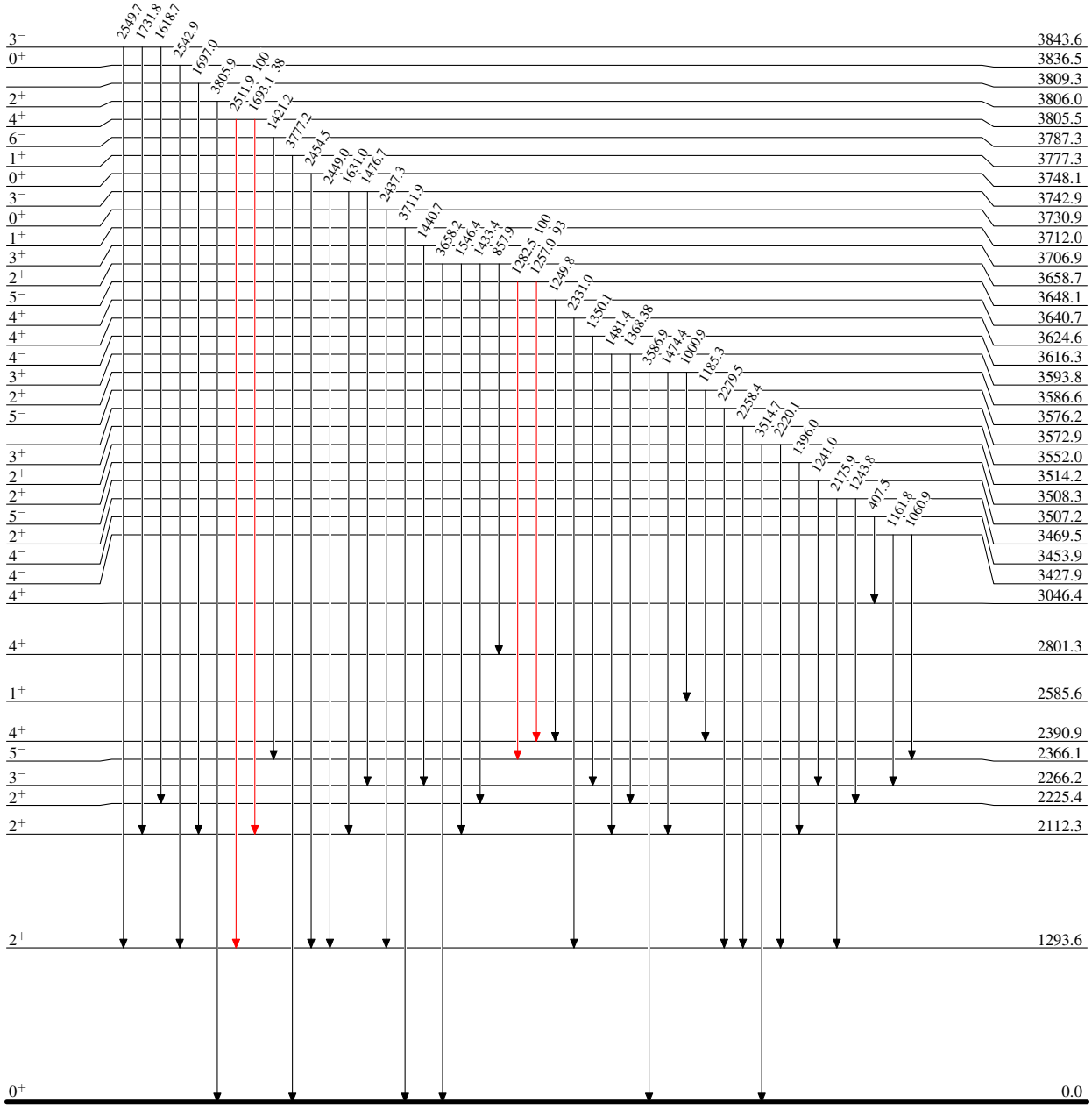
Intensities: Relative I_γ

Legend

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

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

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



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

^{116}Sn(n,n′γ) 1991Ra01,1991Go07

Level Scheme (continued)

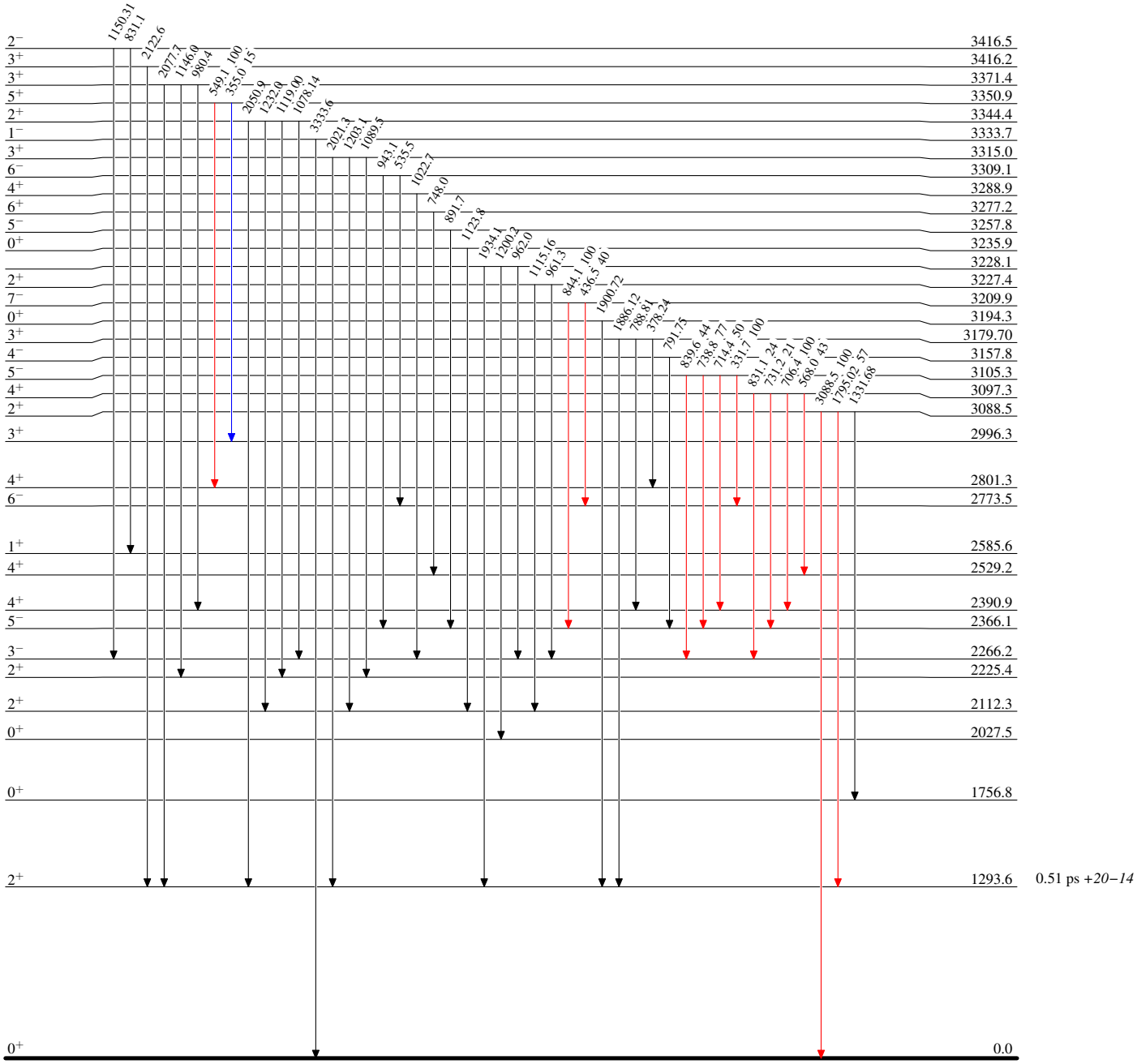
Intensities: Relative I_γ

Legend

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

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

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



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

^{116}Sn(n,n′γ) 1991Ra01,1991Go07

Level Scheme (continued)

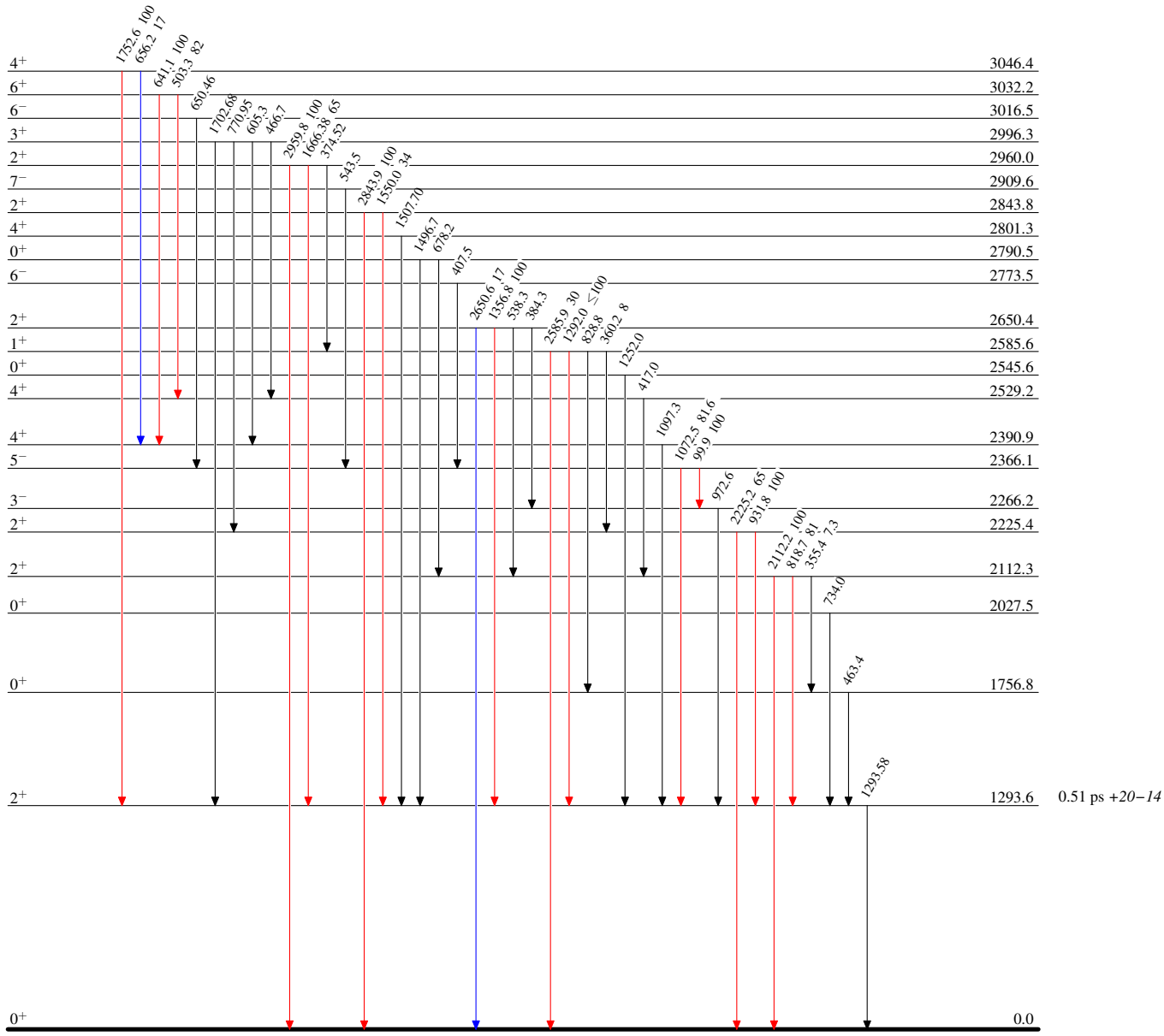
Intensities: Relative I_γ

Legend

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

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

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



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