Table 1: Oscillator strengths for lines arising from the 5s5p5d-5s5p6s-$5p^3$ levels of Sn II

Transition		Wavelength **(Experimental)**	f-value
Upper level	Lower level	$\lambda(\AA)$	This work
$5s5p(^3P)5d\ ^2D_{3/2}$	$5s5p^2\ ^4P_{1/2}$	1593.4	0.00318
	$5s5p^2\ ^4P_{3/2}$	1643.2	0.00093
	$5s^2(^1S)\ 6s\ ^2S_{1/2}$	1910.7	0.00078
	$5s5p^2\ ^2D_{3/2}$	1984.9	0.01090
	$5s5p^2\ ^2D_{5/2}$	2009.6	0.00830
	$5s^2(^1S)\ 5d\ ^2D_{3/2}$	2650.5	0.00067
	$5s^2(^1S)\ 5d\ ^2D_{5/2}$	2690.0	0.00027
	$5s5p^2\ ^2P_{1/2}$	3476.1	0.00002
	$5s5p^2\ ^2P_{3/2}$	3635.1	0.00039
	$5s^2(^1S)\ 7s\ ^2S_{1/2}$	4358.6	0.00036
	$5s^2(^1S)\ 6d\ ^2D_{5/2}$	5299.4	0.00036
$5s5p(^3P)6s\ ^2P_{1/2}$	$5s5p^2\ ^4P_{1/2}$	1484.7	0.00937
	$5s5p^2\ ^4P_{3/2}$	1527.9	0.00283
	$5s^2(^1S)\ 6s\ ^2S_{1/2}$	1756.4	0.00029
	$5s5p^2\ ^2D_{3/2}$	1819.0	0.0267
	$5s^2(^1S)\ 5d\ ^2D_{3/2}$	2357.7	0.0425
	$5s5p^2\ ^2S_{1/2}$	2975.0	0.00011
	$5s5p^2\ ^2P_{1/2}$	2997.3	0.0316
	$5s5p^2\ ^2P_{3/2}$	3115.2	0.00115
	$5s^2(^1S)\ 7s\ ^2S_{1/2}$	3632.2	0.00188
	$5s^2(^1S)\ 6d\ ^2D_{3/2}$	4241.4	0.00048
$5s\ 5p(^3P)5d\ ^4D_{3/2}$	$5s5p^2\ ^4P_{1/2}$	1360.2	1.17
	$5s5p^2\ ^4P_{3/2}$	1396.4	0.24
	$5s5p^2\ ^4P_{5/2}$	1440.0	0.00000
	$5s^2(^1S)\ 6s\ ^2S_{1/2}$	1584.9	0.00017
	$5s5p^2\ ^2D_{3/2}$	1635.7	0.0129
	$5s5p^2\ ^2D_{5/2}$	1652.4	0.00004
	$5s^2(^1S)\ 5d\ ^2D_{3/2}$	2058.6	0.00031
	$5s^2(^1S)\ 5d\ ^2D_{5/2}$	2086.2	0.00645
	$5s5p^2\ ^2S_{1/2}$	2514.1	0.00026
	$5s5p^2\ ^2P_{1/2}$	2530.0	0.00031
	$5s5p^2\ ^2P_{1/2}$	2613.5	0.00616
	$5s^2(^1S)\ 7s\ ^2S_{1/2}$	2967.3	0.00016
$5s\ 5p(^3P)5d\ ^4D_{1/2}$	$5s5p^2\ ^4P_{1/2}$	1358.7	0.95
	$5s5p^2\ ^4P_{3/2}$	1394.8	0.0298
	$5s^2(^1S)\ 6s\ ^2S_{1/2}$	1582.8	0.00006
	$5s5p^2\ ^2D_{3/2}$	1633.4	0.00017
	$5s^2(^1S)\ 5d\ ^2D_{3/2}$	2055.1	0.0096
	$5s5p^2\ ^2S_{1/2}$	2508.9	0.00057
	$5s5p^2\ ^2P_{1/2}$	2524.7	0.00255
	$5s5p^2\ ^2P_{3/2}$	2607.8	0.00008
$5s\ 5p(^3P)5d\ ^4P_{5/2}$	$5s5p^2\ ^4P_{3/2}$	1391.1	0.821
	$5s5p^2\ ^4P_{5/2}$	1438.4	0.0026
	$5s5p^2\ ^2D_{3/2}$	1628.4	0.00028
	$5s5p^2\ ^2D_{5/2}$	1645.0	0.0194
	$5s^2(^1S)\ 5d\ ^2D_{3/2}$	2047.2	0.00223
	$5s^2(^1S)\ 5d\ ^2D_{5/2}$	2074.4	0.00002
	$5s5p^2\ ^2P_{3/2}$	2595.6	0.0010
$5s\ 5p(^3P)5d\ ^4D_{7/2}$	$5s5p^2\ ^4P_{5/2}$	1393.5	1.13

Table ??. Continued.

	Transition	Wavelenth	Oscillator Strengths
	5s5p^2 ^{4}P$_{5/2}$	1586.6	0.0209
	5s^2(^1S) 8d ^{2}D$_{5/2}$	5978.1	0.00039
	5s^2(^1S) 7g ^{2}G$_{9/2}$	7063.7	0.00018
5s 5p(^3P)5d ^{4}P$_{3/2}$	5s5p^2 ^{4}P$_{1/2}$	1303.9	0.00618
	5s5p^2 ^{4}P$_{3/2}$	1337.1	0.349
	5s5p^2 ^{4}P$_{5/2}$	1380.7	0.173
	5s^2(^1S) 6s ^{2}S$_{1/2}$	1508.9	0.00006
	5s5p^2 ^{2}D$_{3/2}$	1554.9	0.00003
	5s5p^2 ^{2}D$_{5/2}$	1570.0	0.00231
	5s^2(^1S) 5d ^{2}D$_{3/2}$	1932.3	0.00024
	5s^2(^1S) 5d ^{2}D$_{5/2}$	1956.6	0.00006
	5s5p^2 ^{2}S$_{1/2}$	2328.2	0.00021
	5s5p^2 ^{2}P$_{3/2}$	2413.2	0.00133
5s 5p(^3P)5d ^{2}F$_{5/2}$	5s5p^2 ^{4}P$_{3/2}$	1317.9	0.00045
	5s5p^2 ^{4}P$_{5/2}$	1360.2	0.00106
	5s5p^2 ^{2}D$_{3/2}$	1528.9	0.659
	5s5p^2 ^{2}D$_{5/2}$	1543.6	0.0385
	5s^2(^1S) 5d ^{2}D$_{3/2}$	1892.5	0.194
	5s^2(^1S) 5d ^{2}D$_{5/2}$	1915.7	0.00649
	5s5p^2 ^{2}P$_{3/2}$	2351.4	0.0038
5p^3 ^{4}S$_{3/2}$	5s5p^2 ^{4}P$_{1/2}$	1279.4	0.353
	5s5p^2 ^{4}P$_{3/2}$	1311.3	0.374
	5s5p^2 ^{4}P$_{5/2}$	1353.2	0.316
	5s^2(^1S) 6s ^{2}S$_{1/2}$	1476.2	0.00017
	5s5p^2 ^{2}D$_{3/2}$	1520.1	0.00902
	5s5p^2 ^{2}D$_{5/2}$	1534.6	0.0827
	5s^2(^1S) 5d ^{2}D$_{3/2}$	1878.9	0.00333
	5s^2(^1S) 5d ^{2}D$_{5/2}$	1901.9	0.0187
	5s5p^2 ^{2}S$_{1/2}$	2251.1	0.0284
	5s5p^2 ^{2}P$_{1/2}$	2263.8	0.00993
	5s5p^2 ^{2}P$_{3/2}$	2330.5	0.00003
5s 5p(^1P)5d ^{2}D$_{3/2}$	5s5p^2 ^{4}P$_{1/2}$	1166.8	0.00554
	5s5p^2 ^{4}P$_{3/2}$	1193.3	0.00406
	5s5p^2 ^{4}P$_{5/2}$	1227.9	0.0008
	5s^2(^1S) 6s ^{2}S$_{1/2}$	1328.3	0.00005
	5s5p^2 ^{2}D$_{3/2}$	1363.8	1.09
	5s5p^2 ^{2}D$_{5/2}$	1375.4	0.0477
	5s^2(^1S) 5d ^{2}D$_{3/2}$	1645.7	0.00046
	5s^2(^1S) 5d ^{2}D$_{5/2}$	1663.3	0.0015
	5s5p^2 ^{2}S$_{1/2}$	1924.5	0.0058
	5s5p^2 ^{2}P$_{1/2}$	1933.8	0.129
	5s5p^2 ^{2}P$_{3/2}$	1982.2	0.0149
5s 5p(^1P)5d ^{2}D$_{5/2}$	5s5p^2 ^{4}P$_{3/2}$	1185.6	0.0056
	5s5p^2 ^{4}P$_{5/2}$	1219.8	0.0135
	5s5p^2 ^{2}D$_{3/2}$	1353.8	0.143
	5s5p^2 ^{2}D$_{5/2}$	1365.3	0.993
	5s^2(^1S) 5d ^{2}D$_{3/2}$	1631.2	0.0153
	5s^2(^1S) 5d ^{2}D$_{5/2}$	1648.5	0.00089
	5s5p^2 ^{2}P$_{3/2}$	1961.1	0.119
	5s^2(^1S) 8d ^{2}D$_{3/2}$	3707.1	0.00068
	5s^2(^1S) 7g ^{2}G$_{7/2}$	4217.9	0.0004
	5s^2(^1S) 8g ^{2}S$_{7/2}$	4631.7	0.00009

Table 2: Lifetimes (in ns) of Sn II levels

Level	This work	Other authors	
		Theoretical	Experimental
$5s^2\ (^1S)4f\ \ ^2F_{5/2}$	3.2	3.2 [a]	5.0 ± 1.0 [a] , 5.2 ± 0.5 [b], 4.6 ± 1.0 [c] 3.2 ± 0.5 [d], 9.0 ± 0.7 [e]
$5s^2\ (^1S)4f\ \ ^2F_{7/2}$	3.4	3.4 [a]	5.0 ± 0.5 [b], 6.9 ± 1.0 [a]
$5s5p(^3P)5d\ \ ^2D_{3/2}$	18.78		
$5s5p(^3P)6s\ \ ^2P_{1/2}$	3.5		
$5s\ 5p(^3P)5d\ \ ^4D_{3/2}$	0.33		
$5s\ 5p(^3P)5d\ \ ^4D_{1/2}$	0.27		
$5s\ 5p(^3P)5d\ \ ^4P_{5/2}$	0.51		
$5s\ 5p(^3P)5d\ \ ^4D_{7/2}$	0.34		
$5s\ 5p(^3P)5d\ \ ^4P_{3/2}$	0.45		
$5s\ 5p(^3P)5d\ \ ^2F_{5/2}$	0.62		
$5p^3\ \ ^4S_{3/2}$	0.23		
$5s\ 5p(^1P)5d\ \ ^2D_{3/2}$	0.23		
$5s\ 5p(^1P)5d\ \ ^2D_{5/2}$	0.24		

[a] *Alonso-Medina, A., & Colón, C. (?)*
[b] *Gorshkov, V. N., & Verolainen, Y. F. (?)*
[c] *Schectman, R. L. et al (?)*
[d] *Wujec, T., & Musielok, J. (?)*
[e] *Miller, M. H. et al (?)*

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