

Table 2. CITRO calculated energy levels relative to the ground energy of Fe XX with spectroscopic identifications. The leading percentage compositions of levels which contributions exceed 10% are presented in the last column.

Index	Configuration	LS	J	E (cm ⁻¹)	Composition
1	2s ² 2p ³	⁴ S	1.5	-219142255.	88%
2	2s ² 2p ³	² D	1.5	138856.	74% + 18% 2s ² 2p ³ ² P
3	2s ² 2p ³	² D	2.5	175952.	100%
4	2s ² 2p ³	² P	0.5	260471.	98%
5	2s ² 2p ³	² P	1.5	322368.	71% + 23% 2s ² 2p ³ ² D
6	2s ¹ 2p ⁴	⁴ P	2.5	750386.	97%
7	2s ¹ 2p ⁴	⁴ P	1.5	817703.	98%
8	2s ¹ 2p ⁴	⁴ P	0.5	839423.	95%
9	2s ¹ 2p ⁴	² D	1.5	1039244.	93%
10	2s ¹ 2p ⁴	² D	2.5	1055467.	97%
11	2s ¹ 2p ⁴	² S	0.5	1192125.	72% + 24% 2s ¹ 2p ⁴ ² P
12	2s ¹ 2p ⁴	² P	1.5	1239208.	94%
13	2s ¹ 2p ⁴	² P	0.5	1336259.	75% + 23% 2s ¹ 2p ⁴ ² S
14	2p ⁵	² P	1.5	1948441.	98%
15	2p ⁵	² P	0.5	2055642.	98%
16	2s ² 2p ² (³ P) 3s ¹	⁴ P	0.5	7182452.	77% + 13% 2s ² 2p ² (³ P) 3s ¹ ² P
17	2s ² 2p ² (³ P) 3s ¹	⁴ P	1.5	7247014.	92%
18	2s ² 2p ² (³ P) 3s ¹	² P	0.5	7277194.	82% + 16% 2s ² 2p ² (³ P) 3s ¹ ⁴ P
19	2s ² 2p ² (³ P) 3s ¹	⁴ P	2.5	7288611.	79% + 19% 2s ² 2p ² (¹ D) 3s ¹ ² D
20	2s ² 2p ² (³ P) 3s ¹	² P	1.5	7320048.	66% + 30% 2s ² 2p ² (¹ D) 3s ¹ ² D
21	2s ² 2p ² (³ P) 3p ¹	⁴ D	0.5	7383127.	51% + 18% 2s ² 2p ² (³ P) 3p ¹ ² S
22	2s ² 2p ² (¹ D) 3s ¹	² D	2.5	7422476.	79% + 19% 2s ² 2p ² (³ P) 3s ¹ ⁴ P
23	2s ² 2p ² (³ P) 3p ¹	⁴ D	1.5	7425886.	60% + 22% 2s ² 2p ² (³ P) 3p ¹ ⁴ P
24	2s ² 2p ² (¹ D) 3s ¹	² D	1.5	7432236.	68% + 27% 2s ² 2p ² (³ P) 3s ¹ ² P
25	2s ² 2p ² (³ P) 3p ¹	² S	0.5	7444010.	43% + 36% 2s ² 2p ² (³ P) 3p ¹ ⁴ D + 18% 2s ² 2p ² (³ P) 3p ¹ ⁴ P
26	2s ² 2p ² (³ P) 3p ¹	⁴ D	1.5	7473052.	30% + 29% 2s ² 2p ² (³ P) 3p ¹ ⁴ P + 19% 2s ² 2p ² (³ P) 3p ¹ ² D
27	2s ² 2p ² (³ P) 3p ¹	⁴ D	2.5	7482036.	83% + 12% 2s ² 2p ² (³ P) 3p ¹ ⁴ P
28	2s ² 2p ² (³ P) 3p ¹	⁴ P	0.5	7494147.	66% + 19% 2s ² 2p ² (³ P) 3p ¹ ² S
29	2s ² 2p ² (³ P) 3p ¹	⁴ P	2.5	7501739.	44% + 21% 2s ² 2p ² (³ P) 3p ¹ ² D + 19% 2s ² 2p ² (¹ D) 3p ¹ ² D
30	2s ² 2p ² (³ P) 3p ¹	² D	1.5	7513961.	46% + 25% 2s ² 2p ² (³ P) 3p ¹ ⁴ P + 15% 2s ² 2p ² (¹ D) 3p ¹ ² D
31	2s ² 2p ² (³ P) 3p ¹	⁴ D	3.5	7523024.	81% + 17% 2s ² 2p ² (¹ D) 3p ¹ ² F
32	2s ² 2p ² (³ P) 3p ¹	⁴ S	1.5	7547229.	60% + 19% 2s ² 2p ² (¹ D) 3p ¹ ² P
33	2s ² 2p ² (¹ S) 3s ¹	² S	0.5	7555745.	86%
34	2s ² 2p ² (³ P) 3p ¹	² P	1.5	7570380.	58% + 11% 2s ² 2p ² (¹ D) 3p ¹ ² P
35	2s ² 2p ² (³ P) 3p ¹	² D	2.5	7575926.	35% + 31% 2s ² 2p ² (³ P) 3p ¹ ⁴ P + 26% 2s ² 2p ² (¹ D) 3p ¹ ² F
36	2s ² 2p ² (³ P) 3p ¹	² P	0.5	7595963.	66% + 15% 2s ² 2p ² (³ P) 3p ¹ ² S
37	2s ² 2p ² (¹ D) 3p ¹	² F	2.5	7648460.	52% + 25% 2s ² 2p ² (¹ D) 3p ¹ ² D + 11% 2s ² 2p ² (³ P) 3p ¹ ² D
38	2s ¹ 2p ³ (⁵ S) 3s ¹	⁶ S	2.5	7658350.	92%
39	2s ² 2p ² (¹ D) 3p ¹	² F	3.5	7663050.	82% + 16% 2s ² 2p ² (³ P) 3p ¹ ⁴ D
40	2s ² 2p ² (³ P) 3d ¹	⁴ F	1.5	7663219.	62% + 12% 2s ² 2p ² (³ P) 3d ¹ ⁴ D
41	2s ² 2p ² (¹ D) 3p ¹	² D	1.5	7670305.	47% + 24% 2s ² 2p ² (¹ D) 3p ¹ ² P + 12% 2s ² 2p ² (³ P) 3p ¹ ² D
42	2s ² 2p ² (³ P) 3d ¹	⁴ F	2.5	7685960.	50% + 26% 2s ² 2p ² (³ P) 3d ¹ ⁴ D
43	2s ² 2p ² (¹ D) 3p ¹	² D	2.5	7687545.	51% + 31% 2s ² 2p ² (³ P) 3p ¹ ² D
44	2s ² 2p ² (¹ D) 3p ¹	² P	0.5	7696875.	90%
45	2s ² 2p ² (³ P) 3d ¹	² P	1.5	7734866.	43% + 28% 2s ² 2p ² (³ P) 3d ¹ ⁴ F + 20% 2s ² 2p ² (³ P) 3d ¹ ⁴ D
46	2s ² 2p ² (³ P) 3d ¹	⁴ F	3.5	7736076.	71% + 24% 2s ² 2p ² (³ P) 3d ¹ ⁴ D
47	2s ² 2p ² (³ P) 3d ¹	⁴ D	0.5	7743115.	81% + 14% 2s ² 2p ² (³ P) 3d ¹ ² P
48	2s ² 2p ² (³ P) 3d ¹	⁴ F	2.5	7743817.	40% + 20% 2s ² 2p ² (³ P) 3d ¹ ² F + 15% 2s ² 2p ² (¹ D) 3d ¹ ² F + 12% 2s ² 2p ² (³ P) 3d ¹ ⁴ D
49	2s ² 2p ² (¹ D) 3p ¹	² P	1.5	7753499.	32% + 24% 2s ² 2p ² (³ P) 3p ¹ ² P + 21% 2s ¹ 2p ³ (⁵ S) 3s ¹ ⁴ S + 13% 2s ² 2p ² (¹ D) 3p ¹ ² D
50	2s ² 2p ² (³ P) 3d ¹	⁴ D	1.5	7768415.	50% + 29% 2s ² 2p ² (³ P) 3d ¹ ² P
51	2s ² 2p ² (³ P) 3d ¹	⁴ D	3.5	7770368.	39% + 22% 2s ² 2p ² (¹ D) 3d ¹ ² F + 18% 2s ² 2p ² (³ P) 3d ¹ ⁴ F

Table 2. continued.

Index	Configuration	LS	J	E (cm ⁻¹)	Composition
52	2s ² 2p ² (³ P) 3d ¹	² F	2.5	7773010.	+ 14% 2s ² 2p ² (³ P) 3d ¹ ² F 39% + 25% 2s ² 2p ² (³ P) 3d ¹ ⁴ P + 15% 2s ² 2p ² (³ P) 3d ¹ ⁴ D + 14% 2s ² 2p ² (¹ D) 3d ¹ ² F
53	2s ² 2p ² (³ P) 3d ¹	⁴ F	4.5	7773230.	83% + 15% 2s ² 2p ² (¹ D) 3d ¹ ² G
54	2s ¹ 2p ³ (⁵ S) 3s ¹	⁴ S	1.5	7777898.	61% + 12% 2s ² 2p ² (³ P) 3p ¹ ⁴ S
55	2s ² 2p ² (¹ S) 3p ¹	² P	0.5	7799166.	80% + 12% 2s ² 2p ² (³ P) 3p ¹ ² P
56	2s ² 2p ² (³ P) 3d ¹	⁴ P	2.5	7806999.	44% + 35% 2s ² 2p ² (³ P) 3d ¹ ⁴ D + 15% 2s ² 2p ² (¹ D) 3d ¹ ² D
57	2s ² 2p ² (¹ S) 3p ¹	² P	1.5	7813045.	76%
58	2s ² 2p ² (³ P) 3d ¹	⁴ P	1.5	7818763.	72% + 10% 2s ² 2p ² (³ P) 3d ¹ ⁴ D
59	2s ² 2p ² (³ P) 3d ¹	² P	0.5	7819930.	61% + 21% 2s ² 2p ² (³ P) 3d ¹ ⁴ P
60	2s ² 2p ² (³ P) 3d ¹	⁴ P	0.5	7827850.	62% + 20% 2s ² 2p ² (³ P) 3d ¹ ² P
61	2s ² 2p ² (³ P) 3d ¹	² F	3.5	7839918.	44% + 26% 2s ² 2p ² (³ P) 3d ¹ ⁴ D + 23% 2s ² 2p ² (¹ D) 3d ¹ ² G
62	2s ² 2p ² (³ P) 3d ¹	² D	1.5	7864123.	69%
63	2s ² 2p ² (³ P) 3d ¹	² D	2.5	7865251.	63% + 15% 2s ² 2p ² (¹ D) 3d ¹ ² F + 11% 2s ² 2p ² (¹ D) 3d ¹ ² D
64	2s ¹ 2p ³ (⁵ S) 3p ¹	⁶ P	1.5	7877914.	94%
65	2s ¹ 2p ³ (⁵ S) 3p ¹	⁶ P	2.5	7884264.	90%
66	2s ¹ 2p ³ (⁵ S) 3p ¹	⁶ P	3.5	7900366.	77% + 10% 2s ² 2p ² (¹ D) 3d ¹ ² G
67	2s ² 2p ² (¹ D) 3d ¹	² G	3.5	7903779.	37% + 31% 2s ² 2p ² (¹ D) 3d ¹ ² F + 20% 2s ¹ 2p ³ (⁵ S) 3p ¹ ⁶ P
68	2s ² 2p ² (¹ D) 3d ¹	² G	4.5	7919844.	84% + 15% 2s ² 2p ² (³ P) 3d ¹ ⁴ F
69	2s ² 2p ² (¹ D) 3d ¹	² D	1.5	7933796.	76%
70	2s ² 2p ² (¹ D) 3d ¹	² D	2.5	7937908.	50% + 24% 2s ² 2p ² (¹ D) 3d ¹ ² F
71	2s ² 2p ² (¹ D) 3d ¹	² P	0.5	7953974.	88%
72	2s ² 2p ² (³ P) 3d ¹	² F	3.5	7958832.	35% + 35% 2s ² 2p ² (¹ D) 3d ¹ ² F + 22% 2s ² 2p ² (¹ D) 3d ¹ ² G
73	2s ¹ 2p ³ (³ D) 3s ¹	⁴ D	1.5	7964329.	83% + 11% 2s ¹ 2p ³ (³ P) 3s ¹ ⁴ P
74	2s ¹ 2p ³ (⁵ S) 3p ¹	⁴ P	1.5	7964415.	86%
75	2s ¹ 2p ³ (⁵ S) 3p ¹	⁴ P	2.5	7965042.	84%
76	2s ¹ 2p ³ (³ D) 3s ¹	⁴ D	0.5	7965931.	88%
77	2s ¹ 2p ³ (³ D) 3s ¹	⁴ D	2.5	7966422.	81% + 14% 2s ¹ 2p ³ (³ P) 3s ¹ ⁴ P
78	2s ¹ 2p ³ (⁵ S) 3p ¹	⁴ P	0.5	7972338.	90%
79	2s ² 2p ² (¹ D) 3d ¹	² S	0.5	7986462.	81%
80	2s ² 2p ² (³ P) 3d ¹	² D	2.5	7988008.	31% + 26% 2s ² 2p ² (¹ D) 3d ¹ ² F + 21% 2s ² 2p ² (¹ D) 3d ¹ ² D + 11% 2s ² 2p ² (³ P) 3d ¹ ² F
81	2s ¹ 2p ³ (³ D) 3s ¹	⁴ D	3.5	7988167.	98%
82	2s ² 2p ² (¹ D) 3d ¹	² P	1.5	7989830.	71% + 11% 2s ² 2p ² (³ P) 3d ¹ ² P
83	2s ¹ 2p ³ (³ D) 3s ¹	² D	1.5	8032834.	79% + 12% 2s ¹ 2p ³ (³ P) 3s ¹ ² P
84	2s ¹ 2p ³ (³ D) 3s ¹	² D	2.5	8049288.	82%
85	2s ² 2p ² (¹ S) 3d ¹	² D	2.5	8072444.	81%
86	2s ² 2p ² (¹ S) 3d ¹	² D	1.5	8083172.	77% + 13% 2s ² 2p ² (³ P) 3d ¹ ² D
87	2s ¹ 2p ³ (³ P) 3s ¹	⁴ P	0.5	8104009.	93%
88	2s ¹ 2p ³ (³ P) 3s ¹	⁴ P	1.5	8114420.	78% + 11% 2s ¹ 2p ³ (³ D) 3s ¹ ⁴ D
89	2s ¹ 2p ³ (⁵ S) 3d ¹	⁶ D	0.5	8132705.	97%
90	2s ¹ 2p ³ (³ P) 3s ¹	⁴ P	2.5	8132881.	50% + 24% 2s ¹ 2p ³ (⁵ S) 3d ¹ ⁶ D + 10% 2s ¹ 2p ³ (³ D) 3s ¹ ² D
91	2s ¹ 2p ³ (⁵ S) 3d ¹	⁶ D	1.5	8133002.	97%
92	2s ¹ 2p ³ (⁵ S) 3d ¹	⁶ D	2.5	8133676.	72% + 17% 2s ¹ 2p ³ (³ P) 3s ¹ ⁴ P
93	2s ¹ 2p ³ (⁵ S) 3d ¹	⁶ D	3.5	8134375.	96%
94	2s ¹ 2p ³ (⁵ S) 3d ¹	⁶ D	4.5	8136716.	97%
95	2s ¹ 2p ³ (³ D) 3p ¹	⁴ D	0.5	8162134.	67% + 14% 2s ¹ 2p ³ (³ D) 3p ¹ ² P
96	2s ¹ 2p ³ (³ D) 3p ¹	⁴ D	1.5	8164569.	53% + 16% 2s ¹ 2p ³ (³ D) 3p ¹ ² P
97	2s ¹ 2p ³ (³ P) 3s ¹	² P	0.5	8169941.	88%
98	2s ¹ 2p ³ (³ D) 3p ¹	⁴ F	2.5	8177976.	50% + 32% 2s ¹ 2p ³ (³ D) 3p ¹ ⁴ D + 11% 2s ¹ 2p ³ (³ P) 3p ¹ ⁴ D
99	2s ¹ 2p ³ (³ D) 3p ¹	⁴ F	1.5	8179890.	62% + 14% 2s ¹ 2p ³ (³ D) 3p ¹ ² P
100	2s ¹ 2p ³ (³ P) 3s ¹	² P	1.5	8183278.	69% + 12% 2s ¹ 2p ³ (¹ D) 3s ¹ ² D + 11% 2s ¹ 2p ³ (³ D) 3s ¹ ² D
101	2s ¹ 2p ³ (³ D) 3p ¹	⁴ F	3.5	8197564.	67% + 24% 2s ¹ 2p ³ (³ D) 3p ¹ ⁴ D
102	2s ¹ 2p ³ (³ D) 3p ¹	⁴ D	2.5	8202106.	59% + 30% 2s ¹ 2p ³ (³ D) 3p ¹ ⁴ F

Table 2. continued.

Index	Configuration	LS	J	E (cm ⁻¹)	Composition
103	2s ¹ 2p ³ (³ D) 3p ¹	² P	1.5	8211826.	34% + 33% 2s ¹ 2p ³ (³ D) 3p ¹ ⁴ D + 16% 2s ¹ 2p ³ (³ D) 3p ¹ ⁴ F
104	2s ¹ 2p ³ (³ D) 3p ¹	⁴ D	3.5	8213862.	63% + 18% 2s ¹ 2p ³ (³ D) 3p ¹ ⁴ F + 11% 2s ¹ 2p ³ (³ D) 3p ¹ ² F
105	2s ¹ 2p ³ (³ D) 3p ¹	² P	0.5	8221187.	74% + 15% 2s ¹ 2p ³ (³ D) 3p ¹ ⁴ D
106	2s ¹ 2p ³ (³ D) 3p ¹	² F	2.5	8225803.	81%
107	2s ¹ 2p ³ (³ D) 3p ¹	⁴ F	4.5	8227987.	99%
108	2s ¹ 2p ³ (³ D) 3p ¹	² F	3.5	8237284.	80% + 13% 2s ¹ 2p ³ (³ D) 3p ¹ ⁴ D
109	2s ¹ 2p ³ (⁵ S) 3d ¹	⁴ D	2.5	8241629.	86%
110	2s ¹ 2p ³ (⁵ S) 3d ¹	⁴ D	1.5	8244429.	88%
111	2s ¹ 2p ³ (⁵ S) 3d ¹	⁴ D	3.5	8247905.	90%
112	2s ¹ 2p ³ (⁵ S) 3d ¹	⁴ D	0.5	8249061.	92%
113	2s ¹ 2p ³ (³ D) 3p ¹	⁴ P	1.5	8264001.	52% + 25% 2s ¹ 2p ³ (³ P) 3p ¹ ⁴ S
114	2s ¹ 2p ³ (³ D) 3p ¹	⁴ P	0.5	8269910.	75% + 17% 2s ¹ 2p ³ (³ P) 3p ¹ ⁴ P
115	2s ¹ 2p ³ (³ D) 3p ¹	⁴ P	2.5	8280604.	79%
116	2s ¹ 2p ³ (³ S) 3s ¹	⁴ S	1.5	8283922.	79% + 14% 2s ¹ 2p ³ (¹ P) 3s ¹ ² P
117	2s ¹ 2p ³ (³ D) 3p ¹	² D	1.5	8289373.	57% + 16% 2s ¹ 2p ³ (³ D) 3p ¹ ² P + 10% 2s ¹ 2p ³ (³ P) 3p ¹ ² P
118	2s ¹ 2p ³ (³ D) 3p ¹	² D	2.5	8311067.	70%
119	2s ¹ 2p ³ (³ S) 3s ¹	² S	0.5	8317071.	72% + 19% 2s ¹ 2p ³ (¹ P) 3s ¹ ² P
120	2s ¹ 2p ³ (³ P) 3p ¹	⁴ D	0.5	8320540.	67% + 24% 2s ¹ 2p ³ (³ P) 3p ¹ ² P
121	2s ¹ 2p ³ (¹ D) 3s ¹	² D	2.5	8325223.	91%
122	2s ¹ 2p ³ (¹ D) 3s ¹	² D	1.5	8332129.	85% + 10% 2s ¹ 2p ³ (³ P) 3s ¹ ² P
123	2s ¹ 2p ³ (³ P) 3p ¹	⁴ D	1.5	8332548.	73%
124	2s ¹ 2p ³ (³ P) 3p ¹	⁴ D	2.5	8343848.	73% + 12% 2s ¹ 2p ³ (³ D) 3p ¹ ⁴ F
125	2s ¹ 2p ³ (³ P) 3p ¹	⁴ S	1.5	8352278.	58% + 25% 2s ¹ 2p ³ (³ D) 3p ¹ ⁴ P
126	2s ¹ 2p ³ (³ P) 3p ¹	⁴ D	3.5	8362793.	73% + 11% 2s ¹ 2p ³ (³ D) 3p ¹ ⁴ F
127	2s ¹ 2p ³ (³ P) 3p ¹	² P	0.5	8364350.	45% + 16% 2s ¹ 2p ³ (³ P) 3p ¹ ⁴ D + 15% 2s ¹ 2p ³ (³ P) 3p ¹ ⁴ P
128	2s ¹ 2p ³ (³ P) 3p ¹	⁴ P	0.5	8371239.	45% + 18% 2s ¹ 2p ³ (³ P) 3p ¹ ² P
129	2s ¹ 2p ³ (³ P) 3p ¹	⁴ P	1.5	8378485.	51% + 21% 2s ¹ 2p ³ (³ P) 3p ¹ ² D
130	2s ¹ 2p ³ (³ P) 3p ¹	⁴ P	2.5	8381445.	57% + 14% 2s ¹ 2p ³ (³ P) 3p ¹ ² D
131	2s ¹ 2p ³ (³ P) 3p ¹	² D	1.5	8388132.	51% + 25% 2s ¹ 2p ³ (³ P) 3p ¹ ⁴ P
132	2s ¹ 2p ³ (³ P) 3p ¹	² P	1.5	8409207.	51% + 24% 2s ¹ 2p ³ (³ D) 3p ¹ ² D
133	2s ¹ 2p ³ (³ P) 3p ¹	² D	2.5	8411354.	49% + 21% 2s ¹ 2p ³ (³ P) 3p ¹ ⁴ P
134	2s ¹ 2p ³ (³ D) 3d ¹	⁴ F	1.5	8411909.	79% + 14% 2s ¹ 2p ³ (³ P) 3d ¹ ⁴ F
135	2s ¹ 2p ³ (³ D) 3d ¹	⁴ F	2.5	8419555.	68% + 13% 2s ¹ 2p ³ (³ P) 3d ¹ ⁴ F + 12% 2s ¹ 2p ³ (³ D) 3d ¹ ⁴ G
136	2s ¹ 2p ³ (³ D) 3d ¹	⁴ F	3.5	8429777.	51% + 31% 2s ¹ 2p ³ (³ D) 3d ¹ ⁴ G + 12% 2s ¹ 2p ³ (³ P) 3d ¹ ⁴ F
137	2s ¹ 2p ³ (³ D) 3d ¹	⁴ G	2.5	8442066.	75% + 15% 2s ¹ 2p ³ (³ D) 3d ¹ ⁴ F
138	2s ¹ 2p ³ (³ D) 3d ¹	⁴ G	4.5	8444561.	76% + 13% 2s ¹ 2p ³ (³ P) 3d ¹ ⁴ F
139	2s ¹ 2p ³ (³ D) 3d ¹	⁴ G	3.5	8445385.	53% + 36% 2s ¹ 2p ³ (³ D) 3d ¹ ⁴ F
140	2s ¹ 2p ³ (³ P) 3p ¹	² S	0.5	8453838.	56% + 11% 2s ¹ 2p ³ (¹ P) 3p ¹ ² S
141	2s ¹ 2p ³ (³ D) 3d ¹	⁴ F	4.5	8456834.	92%
142	2s ¹ 2p ³ (¹ P) 3s ¹	² P	1.5	8458414.	80% + 13% 2s ¹ 2p ³ (³ S) 3s ¹ ⁴ S
143	2s ¹ 2p ³ (³ D) 3d ¹	⁴ D	0.5	8459707.	70% + 11% 2s ¹ 2p ³ (³ P) 3d ¹ ⁴ D
144	2s ¹ 2p ³ (¹ P) 3s ¹	² P	0.5	8462558.	70% + 18% 2s ¹ 2p ³ (³ S) 3s ¹ ² S
145	2s ¹ 2p ³ (³ D) 3d ¹	⁴ D	1.5	8465209.	67%
146	2s ¹ 2p ³ (³ D) 3d ¹	⁴ G	5.5	8466120.	100%
147	2s ¹ 2p ³ (³ D) 3d ¹	⁴ D	2.5	8476553.	58% + 17% 2s ¹ 2p ³ (³ D) 3d ¹ ⁴ P + 14% 2s ¹ 2p ³ (³ P) 3d ¹ ⁴ P
148	2s ¹ 2p ³ (³ D) 3d ¹	² S	0.5	8476995.	61% + 16% 2s ¹ 2p ³ (³ D) 3d ¹ ⁴ P + 13% 2s ¹ 2p ³ (³ P) 3d ¹ ⁴ P
149	2s ¹ 2p ³ (³ D) 3d ¹	⁴ D	3.5	8485186.	54% + 31% 2s ¹ 2p ³ (³ D) 3d ¹ ² G
150	2s ¹ 2p ³ (³ S) 3p ¹	⁴ P	1.5	8494661.	48% + 17% 2s ¹ 2p ³ (³ S) 3p ¹ ² P
151	2s ¹ 2p ³ (³ D) 3d ¹	² G	3.5	8495410.	55% + 32% 2s ¹ 2p ³ (³ D) 3d ¹ ⁴ D
152	2s ¹ 2p ³ (³ S) 3p ¹	⁴ P	0.5	8497057.	37% + 22% 2s ¹ 2p ³ (³ S) 3p ¹ ² P + 15% 2s ¹ 2p ³ (¹ P) 3p ¹ ² P + 10% 2s ¹ 2p ³ (¹ D) 3p ¹ ² P
153	2s ¹ 2p ³ (³ D) 3d ¹	² G	4.5	8499616.	86%
154	2s ¹ 2p ³ (³ D) 3d ¹	⁴ P	2.5	8505387.	59% + 29% 2s ¹ 2p ³ (³ D) 3d ¹ ⁴ D
155	2s ¹ 2p ³ (³ D) 3d ¹	⁴ P	1.5	8510189.	47% + 19% 2s ¹ 2p ³ (³ D) 3d ¹ ⁴ S + 15% 2s ¹ 2p ³ (³ P) 3d ¹ ⁴ P

Table 2. continued.

Index	Configuration	<i>LS</i>	<i>J</i>	<i>E</i> (cm ⁻¹)	Composition
156	2s ¹ 2p ³ (³ D) 3d ¹	4P	0.5	8511463.	65% + 24% 2s ¹ 2p ³ (³ D) 3d ¹ ² S
157	2s ¹ 2p ³ (³ D) 3d ¹	2P	1.5	8515592.	35% + 34% 2s ¹ 2p ³ (³ D) 3d ¹ ⁴ P + 16% 2s ¹ 2p ³ (³ D) 3d ¹ ⁴ D
158	2s ¹ 2p ³ (³ S) 3p ¹	4P	2.5	8516356.	77% + 11% 2s ¹ 2p ³ (¹ P) 3p ¹ ² D
159	2s ¹ 2p ³ (³ D) 3d ¹	2D	2.5	8516857.	37% + 30% 2s ¹ 2p ³ (³ P) 3d ¹ ² D + 18% 2s ¹ 2p ³ (³ D) 3d ¹ ² F
160	2s ¹ 2p ³ (³ D) 3d ¹	4S	1.5	8532295.	51% + 24% 2s ¹ 2p ³ (³ D) 3d ¹ ² P
161	2s ¹ 2p ³ (¹ D) 3p ¹	2P	1.5	8533542.	38% + 31% 2s ¹ 2p ³ (³ S) 3p ¹ ⁴ P + 20% 2s ¹ 2p ³ (³ S) 3p ¹ ² P
162	2s ¹ 2p ³ (³ S) 3p ¹	4P	0.5	8533584.	36% + 28% 2s ¹ 2p ³ (³ S) 3p ¹ ² P + 15% 2s ¹ 2p ³ (³ P) 3p ¹ ² S
163	2s ¹ 2p ³ (³ D) 3d ¹	2P	0.5	8535491.	83%
164	2s ¹ 2p ³ (¹ D) 3p ¹	2F	2.5	8541261.	84% + 11% 2s ¹ 2p ³ (³ P) 3p ¹ ² D
165	2s ¹ 2p ³ (¹ D) 3p ¹	2F	3.5	8556149.	92%
166	2s ¹ 2p ³ (³ D) 3d ¹	2D	1.5	8564878.	75%
167	2s ¹ 2p ³ (³ D) 3d ¹	2F	3.5	8572287.	75%
168	2s ¹ 2p ³ (³ D) 3d ¹	2F	2.5	8575790.	54% + 28% 2s ¹ 2p ³ (³ D) 3d ¹ ² D
169	2s ¹ 2p ³ (¹ D) 3p ¹	2D	1.5	8581535.	79%
170	2s ¹ 2p ³ (¹ D) 3p ¹	2D	2.5	8587698.	82%
171	2s ¹ 2p ³ (³ P) 3d ¹	4F	1.5	8588528.	76% + 12% 2s ¹ 2p ³ (³ D) 3d ¹ ⁴ F
172	2s ¹ 2p ³ (³ P) 3d ¹	4F	2.5	8589022.	68% + 13% 2s ¹ 2p ³ (³ P) 3d ¹ ⁴ D
173	2s ¹ 2p ³ (³ P) 3d ¹	4F	3.5	8591044.	62% + 16% 2s ¹ 2p ³ (³ P) 3d ¹ ⁴ D
174	2s ¹ 2p ³ (³ P) 3d ¹	4F	4.5	8602225.	71% + 12% 2s ¹ 2p ³ (³ D) 3d ¹ ² G + 10% 2s ¹ 2p ³ (³ D) 3d ¹ ⁴ G
175	2s ¹ 2p ³ (³ P) 3d ¹	4P	2.5	8610134.	59% + 12% 2s ¹ 2p ³ (³ P) 3d ¹ ⁴ D
176	2s ¹ 2p ³ (³ P) 3d ¹	4P	0.5	8613308.	56% + 16% 2s ¹ 2p ³ (³ P) 3d ¹ ⁴ D + 13% 2s ¹ 2p ³ (³ D) 3d ¹ ⁴ P
177	2s ¹ 2p ³ (³ P) 3d ¹	4P	1.5	8614472.	43% + 23% 2s ¹ 2p ³ (³ P) 3d ¹ ⁴ D + 14% 2s ¹ 2p ³ (³ D) 3d ¹ ⁴ S
178	2s ¹ 2p ³ (¹ P) 3p ¹	2D	1.5	8621791.	37% + 34% 2s ¹ 2p ³ (¹ D) 3p ¹ ² P + 17% 2s ¹ 2p ³ (³ S) 3p ¹ ² P
179	2s ¹ 2p ³ (³ P) 3d ¹	4D	0.5	8626141.	55% + 15% 2s ¹ 2p ³ (³ P) 3d ¹ ⁴ P
180	2s ¹ 2p ³ (³ P) 3d ¹	2D	1.5	8627896.	46% + 16% 2s ¹ 2p ³ (³ P) 3d ¹ ⁴ P + 16% 2s ¹ 2p ³ (³ P) 3d ¹ ⁴ D
181	2s ¹ 2p ³ (¹ D) 3p ¹	2P	0.5	8631610.	59% + 16% 2s ¹ 2p ³ (¹ P) 3p ¹ ² P + 11% 2s ¹ 2p ³ (³ S) 3p ¹ ² P
182	2s ¹ 2p ³ (³ P) 3d ¹	4D	3.5	8633220.	59% + 11% 2s ¹ 2p ³ (³ D) 3d ¹ ² F
183	2s ¹ 2p ³ (³ P) 3d ¹	4D	2.5	8635358.	52%
184	2s ¹ 2p ³ (³ P) 3d ¹	4D	1.5	8638680.	33% + 23% 2s ¹ 2p ³ (³ P) 3d ¹ ² D
185	2s ¹ 2p ³ (³ P) 3d ¹	2F	2.5	8659104.	76%
186	2s ¹ 2p ³ (³ P) 3d ¹	2F	3.5	8676230.	65% + 14% 2s ¹ 2p ³ (¹ D) 3d ¹ ² G
187	2s ¹ 2p ³ (³ P) 3d ¹	2D	2.5	8691063.	51% + 22% 2s ¹ 2p ³ (³ D) 3d ¹ ² D + 13% 2s ¹ 2p ³ (³ D) 3d ¹ ² F
188	2s ¹ 2p ³ (¹ P) 3p ¹	2D	2.5	8693085.	83% + 11% 2s ¹ 2p ³ (³ S) 3p ¹ ⁴ P
189	2s ¹ 2p ³ (¹ P) 3p ¹	2P	1.5	8701785.	79%
190	2s ¹ 2p ³ (¹ P) 3p ¹	2D	1.5	8703268.	45% + 34% 2s ¹ 2p ³ (³ S) 3p ¹ ² P + 10% 2s ¹ 2p ³ (¹ D) 3p ¹ ² P
191	2s ¹ 2p ³ (¹ P) 3p ¹	2S	0.5	8703356.	42% + 35% 2s ¹ 2p ³ (¹ P) 3p ¹ ² P
192	2s ¹ 2p ³ (³ P) 3d ¹	2P	0.5	8704215.	65% + 12% 2s ¹ 2p ³ (¹ D) 3d ¹ ² P
193	2s ¹ 2p ³ (³ P) 3d ¹	2P	1.5	8735021.	65%
194	2s ¹ 2p ³ (³ S) 3d ¹	4D	2.5	8759111.	68%
195	2s ¹ 2p ³ (³ S) 3p ¹	2P	0.5	8762021.	29% + 28% 2s ¹ 2p ³ (¹ P) 3p ¹ ² S + 27% 2s ¹ 2p ³ (¹ P) 3p ¹ ² P
196	2s ¹ 2p ³ (³ S) 3d ¹	4D	1.5	8762362.	43% + 15% 2s ¹ 2p ³ (¹ P) 3d ¹ ² D + 15% 2s ¹ 2p ³ (³ S) 3d ¹ ² D
197	2s ¹ 2p ³ (³ S) 3d ¹	4D	3.5	8765128.	76% + 12% 2s ¹ 2p ³ (¹ P) 3d ¹ ² F
198	2s ¹ 2p ³ (³ S) 3d ¹	4D	0.5	8771004.	74%
199	2s ¹ 2p ³ (³ S) 3d ¹	2D	1.5	8787284.	35% + 28% 2s ¹ 2p ³ (³ S) 3d ¹ ⁴ D + 12% 2s ¹ 2p ³ (¹ D) 3d ¹ ² D
200	2s ¹ 2p ³ (¹ D) 3d ¹	2D	2.5	8797164.	42% + 28% 2s ¹ 2p ³ (³ S) 3d ¹ ² D + 14% 2s ¹ 2p ³ (³ S) 3d ¹ ⁴ D
201	2s ¹ 2p ³ (¹ D) 3d ¹	2G	4.5	8801734.	94%
202	2s ¹ 2p ³ (¹ D) 3d ¹	2G	3.5	8804783.	72% + 12% 2s ¹ 2p ³ (¹ D) 3d ¹ ² F + 11% 2s ¹ 2p ³ (³ P) 3d ¹ ² F
203	2s ¹ 2p ³ (¹ D) 3d ¹	2F	3.5	8822593.	72%
204	2s ¹ 2p ³ (¹ D) 3d ¹	2F	2.5	8825393.	74%
205	2s ¹ 2p ³ (¹ D) 3d ¹	2P	1.5	8845804.	74% + 11% 2s ¹ 2p ³ (¹ D) 3d ¹ ² D
206	2s ¹ 2p ³ (¹ D) 3d ¹	2P	0.5	8853319.	52% + 37% 2s ¹ 2p ³ (¹ D) 3d ¹ ² S
207	2s ² 2p ⁴ (³ P) 3s ¹	4P	2.5	8867063.	87%
208	2s ¹ 2p ³ (¹ D) 3d ¹	2D	1.5	8867232.	49% + 17% 2s ¹ 2p ³ (¹ D) 3d ¹ ² P
209	2s ¹ 2p ³ (¹ D) 3d ¹	2D	2.5	8870040.	34% + 27% 2s ¹ 2p ³ (³ S) 3d ¹ ² D + 26% 2s ¹ 2p ³ (¹ P) 3d ¹ ² F

Table 2. continued.

Index	Configuration	LS	J	E (cm ⁻¹)	Composition
210	2s ¹ 2p ³ (¹ D) 3d ¹	² S	0.5	8880419.	52% + 26% 2s ¹ 2p ³ (¹ D) 3d ¹ ² P + 14% 2s ¹ 2p ³ (³ P) 3d ¹ ² P
211	2s ² 2p ⁴ (³ P) 3s ¹	² P	1.5	8902133.	44% + 39% 2p ⁴ 3s ¹ ⁴ P + 11% 2p ⁴ 3s ¹ ² D
212	2s ¹ 2p ³ (¹ P) 3d ¹	² F	3.5	8942584.	82% + 12% 2s ¹ 2p ³ (³ S) 3d ¹ ⁴ D
213	2s ¹ 2p ³ (¹ P) 3d ¹	² D	2.5	8945298.	49% + 26% 2s ¹ 2p ³ (¹ P) 3d ¹ ² F + 13% 2s ¹ 2p ³ (³ S) 3d ¹ ² D
214	2s ² 2p ⁴ (³ P) 3s ¹	⁴ P	0.5	8954152.	89%
215	2s ¹ 2p ³ (¹ P) 3d ¹	² P	1.5	8961978.	63% + 20% 2s ¹ 2p ³ (¹ P) 3d ¹ ² D
216	2s ¹ 2p ³ (¹ P) 3d ¹	² P	0.5	8963610.	80%
217	2s ¹ 2p ³ (¹ P) 3d ¹	² D	2.5	8968174.	37% + 32% 2s ¹ 2p ³ (¹ P) 3d ¹ ² F + 15% 2s ¹ 2p ³ (³ S) 3d ¹ ² D
218	2s ² 2p ⁴ (³ P) 3s ¹	⁴ P	1.5	8971190.	56% + 35% 2p ⁴ 3s ¹ ² P
219	2s ¹ 2p ³ (¹ P) 3d ¹	² D	1.5	9005888.	47% + 30% 2s ¹ 2p ³ (³ S) 3d ¹ ² D + 14% 2s ¹ 2p ³ (¹ P) 3d ¹ ² P
220	2s ² 2p ⁴ (³ P) 3s ¹	² P	0.5	9010425.	87%
221	2s ² 2p ⁴ (¹ D) 3s ¹	² D	2.5	9048958.	87%
222	2s ² 2p ⁴ (¹ D) 3s ¹	² D	1.5	9054249.	81% + 14% 2p ⁴ 3s ¹ ² P
223	2s ² 2p ⁴ (³ P) 3p ¹	⁴ P	1.5	9058337.	59% + 12% 2p ⁴ 3p ¹ ⁴ S
224	2s ² 2p ⁴ (³ P) 3p ¹	⁴ P	2.5	9061932.	65% + 23% 2p ⁴ 3p ¹ ⁴ D
225	2s ² 2p ⁴ (³ P) 3p ¹	⁴ P	0.5	9091526.	40% + 21% 2p ⁴ 3p ¹ ² P + 20% 2p ⁴ 3p ¹ ² P + 14% 2p ⁴ 3p ¹ ² S
226	2s ² 2p ⁴ (³ P) 3p ¹	⁴ D	3.5	9094707.	85% + 10% 2p ⁴ 3p ¹ ² F
227	2s ² 2p ⁴ (³ P) 3p ¹	² D	2.5	9096758.	56% + 14% 2p ⁴ 3p ¹ ⁴ P + 13% 2p ⁴ 3p ¹ ⁴ D + 11% 2p ⁴ 3p ¹ ² F
228	2s ² 2p ⁴ (³ P) 3p ¹	⁴ P	0.5	9150570.	46% + 14% 2p ⁴ 3p ¹ ⁴ D + 13% 2p ⁴ 3p ¹ ² P + 12% 2p ⁴ 3p ¹ ² S + 11% 2p ⁴ 3p ¹ ² P
229	2s ² 2p ⁴ (³ P) 3p ¹	⁴ D	1.5	9152527.	45% + 19% 2p ⁴ 3p ¹ ² D + 14% 2p ⁴ 3p ¹ ⁴ S
230	2s ² 2p ⁴ (³ P) 3p ¹	⁴ D	0.5	9159358.	66% + 11% 2p ⁴ 3p ¹ ² S
231	2s ² 2p ⁴ (³ P) 3p ¹	⁴ D	1.5	9170956.	34% + 34% 2p ⁴ 3p ¹ ² P + 13% 2p ⁴ 3p ¹ ² P
232	2s ² 2p ⁴ (³ P) 3p ¹	⁴ D	2.5	9185371.	55% + 24% 2p ⁴ 3p ¹ ² D + 15% 2p ⁴ 3p ¹ ⁴ P
233	2s ² 2p ⁴ (³ P) 3p ¹	⁴ S	1.5	9193091.	38% + 27% 2p ⁴ 3p ¹ ⁴ P + 13% 2p ⁴ 3p ¹ ² P
234	2s ² 2p ⁴ (³ P) 3p ¹	² S	0.5	9208376.	56% + 17% 2p ⁴ 3p ¹ ² P + 11% 2p ⁴ 3p ¹ ² P
235	2s ² 2p ⁴ (³ P) 3p ¹	² D	1.5	9213048.	62% + 22% 2p ⁴ 3p ¹ ⁴ S
236	2s ² 2p ⁴ (¹ D) 3p ¹	² F	2.5	9238738.	77%
237	2s ² 2p ⁴ (¹ D) 3p ¹	² F	3.5	9260966.	86% + 10% 2p ⁴ 3p ¹ ⁴ D
238	2s ² 2p ⁴ (¹ S) 3s ¹	² S	0.5	9275555.	79%
239	2s ² 2p ⁴ (¹ D) 3p ¹	² D	1.5	9280532.	80% + 12% 2p ⁴ 3p ¹ ² P
240	2s ² 2p ⁴ (¹ D) 3p ¹	² D	2.5	9293226.	81%
241	2s ² 2p ⁴ (³ P) 3d ¹	⁴ D	2.5	9305990.	73%
242	2s ² 2p ⁴ (³ P) 3d ¹	⁴ D	3.5	9306130.	75% + 17% 2p ⁴ 3d ¹ ⁴ F
243	2s ² 2p ⁴ (³ P) 3d ¹	⁴ D	1.5	9312448.	64% + 15% 2p ⁴ 3d ¹ ⁴ P
244	2s ² 2p ⁴ (³ P) 3d ¹	⁴ D	0.5	9322669.	51% + 17% 2p ⁴ 3d ¹ ² P + 16% 2p ⁴ 3d ¹ ⁴ P + 14% 2p ⁴ 3d ¹ ² P
245	2s ² 2p ⁴ (³ P) 3d ¹	⁴ F	4.5	9330095.	87% + 11% 2p ⁴ 3d ¹ ² G
246	2s ² 2p ⁴ (¹ D) 3p ¹	² P	1.5	9340390.	48% + 40% 2p ⁴ 3p ¹ ² P
247	2s ² 2p ⁴ (³ P) 3d ¹	² F	3.5	9341832.	55% + 26% 2p ⁴ 3d ¹ ⁴ F + 14% 2p ⁴ 3d ¹ ² G
248	2s ² 2p ⁴ (³ P) 3d ¹	⁴ P	0.5	9366406.	66% + 18% 2p ⁴ 3d ¹ ² P
249	2s ² 2p ⁴ (¹ D) 3p ¹	² P	0.5	9381299.	53% + 30% 2p ⁴ 3p ¹ ² P + 10% 2p ⁴ 3p ¹ ² P
250	2s ² 2p ⁴ (³ P) 3d ¹	⁴ P	1.5	9384574.	51% + 24% 2p ⁴ 3d ¹ ² D + 11% 2p ⁴ 3d ¹ ² D
251	2s ² 2p ⁴ (³ P) 3d ¹	⁴ F	2.5	9389318.	34% + 24% 2p ⁴ 3d ¹ ² F + 16% 2p ⁴ 3d ¹ ⁴ P + 15% 2p ⁴ 3d ¹ ² D
252	2s ² 2p ⁴ (³ P) 3d ¹	⁴ D	0.5	9404145.	46% + 28% 2p ⁴ 3d ¹ ² P + 17% 2p ⁴ 3d ¹ ² P
253	2s ² 2p ⁴ (³ P) 3d ¹	⁴ F	1.5	9413336.	81%
254	2s ² 2p ⁴ (³ P) 3d ¹	⁴ F	2.5	9418310.	43% + 25% 2p ⁴ 3d ¹ ⁴ P
255	2s ² 2p ⁴ (³ P) 3d ¹	⁴ F	3.5	9420049.	50% + 26% 2p ⁴ 3d ¹ ² F + 19% 2p ⁴ 3d ¹ ⁴ D
256	2s ² 2p ⁴ (³ P) 3d ¹	⁴ D	1.5	9426391.	25% + 18% 2p ⁴ 3d ¹ ² D + 17% 2p ⁴ 3d ¹ ⁴ P + 15% 2p ⁴ 3d ¹ ² D + 12% 2p ⁴ 3d ¹ ² P
257	2s ² 2p ⁴ (³ P) 3d ¹	⁴ P	2.5	9445529.	43% + 36% 2p ⁴ 3d ¹ ² F
258	2s ² 2p ⁴ (³ P) 3d ¹	² P	1.5	9458830.	45% + 25% 2p ⁴ 3d ¹ ² P
259	2s ² 2p ⁴ (³ P) 3d ¹	² D	2.5	9469485.	37% + 27% 2p ⁴ 3d ¹ ² F + 17% 2p ⁴ 3d ¹ ² D + 11% 2p ⁴ 3d ¹ ² F
260	2s ² 2p ⁴ (¹ D) 3d ¹	² G	3.5	9485607.	82% + 11% 2p ⁴ 3d ¹ ² F
261	2s ² 2p ⁴ (¹ D) 3d ¹	² G	4.5	9489865.	87% + 12% 2p ⁴ 3d ¹ ⁴ F

Table 2. continued.

Index	Configuration	<i>LS</i>	<i>J</i>	<i>E</i> (cm ⁻¹)	Composition
262	2s ² 2p ⁴ (1S) 3p ¹	² P	0.5	9503417.	70% + 16% 2p ⁴ 3p ¹ ² P
263	2s ² 2p ⁴ (1S) 3p ¹	² P	1.5	9503917.	83%
264	2s ² 2p ⁴ (1D) 3d ¹	² F	2.5	9522123.	66% + 27% 2p ⁴ 3d ¹ ² D
265	2s ² 2p ⁴ (1D) 3d ¹	² S	0.5	9531568.	83%
266	2s ² 2p ⁴ (1D) 3d ¹	² F	3.5	9533770.	87%
267	2s ² 2p ⁴ (1D) 3d ¹	² D	2.5	9565126.	46% + 31% 2p ⁴ 3d ¹ ² D + 14% 2p ⁴ 3d ¹ ² F
268	2s ² 2p ⁴ (1D) 3d ¹	² P	1.5	9565968.	60% + 27% 2p ⁴ 3d ¹ ² P
269	2s ² 2p ⁴ (1D) 3d ¹	² D	1.5	9592493.	59% + 33% 2p ⁴ 3d ¹ ² D
270	2s ² 2p ⁴ (1D) 3d ¹	² P	0.5	9602928.	58% + 35% 2p ⁴ 3d ¹ ² P
271	2s ² 2p ² (³ P) 4s ¹	⁴ P	0.5	9713168.	67% + 23% 2s ² 2p ² (³ P) 4s ¹ ² P
272	2s ² 2p ⁴ (1S) 3d ¹	² D	2.5	9743590.	84%
273	2s ² 2p ⁴ (1S) 3d ¹	² D	1.5	9760318.	75%
274	2s ² 2p ² (³ P) 4s ¹	⁴ P	1.5	9781866.	88% + 11% 2s ² 2p ² (³ P) 4s ¹ ² P
275	2s ² 2p ² (³ P) 4s ¹	² P	0.5	9790175.	73% + 26% 2s ² 2p ² (³ P) 4s ¹ ⁴ P
276	2s ² 2p ² (³ P) 4p ¹	⁴ D	0.5	9796954.	53% + 13% 2s ² 2p ² (³ P) 4p ¹ ² P + 12% 2s ² 2p ² (³ P) 4p ¹ ² S + 10% 2s ² 2p ² (³ P) 4p ¹ ⁴ P
277	2s ² 2p ² (³ P) 4p ¹	⁴ D	1.5	9816319.	37% + 28% 2s ² 2p ² (³ P) 4p ¹ ⁴ P + 17% 2s ² 2p ² (³ P) 4p ¹ ² D
278	2s ² 2p ² (³ P) 4s ¹	⁴ P	2.5	9823763.	77% + 21% 2s ² 2p ² (1D) 4s ¹ ² D
279	2s ² 2p ² (³ P) 4s ¹	² P	1.5	9833694.	67% + 25% 2s ² 2p ² (1D) 4s ¹ ² D
280	2s ² 2p ² (³ P) 4p ¹	² S	0.5	9864017.	36% + 32% 2s ² 2p ² (³ P) 4p ¹ ⁴ D + 30% 2s ² 2p ² (³ P) 4p ¹ ⁴ P
281	2s ² 2p ² (³ P) 4p ¹	⁴ D	1.5	9875420.	54% + 13% 2s ² 2p ² (³ P) 4p ¹ ² P + 12% 2s ² 2p ² (³ P) 4p ¹ ² D
282	2s ² 2p ² (³ P) 4p ¹	⁴ D	2.5	9879699.	66% + 25% 2s ² 2p ² (³ P) 4p ¹ ⁴ P
283	2s ² 2p ² (³ P) 4p ¹	⁴ P	0.5	9887793.	51% + 23% 2s ² 2p ² (³ P) 4p ¹ ² P + 19% 2s ² 2p ² (³ P) 4p ¹ ² S
284	2s ² 2p ² (³ P) 4p ¹	² D	1.5	9893715.	59% + 22% 2s ² 2p ² (³ P) 4p ¹ ⁴ P + 15% 2s ² 2p ² (³ P) 4p ¹ ⁴ S
285	2s ² 2p ² (³ P) 4d ¹	⁴ F	1.5	9902797.	51% + 15% 2s ² 2p ² (³ P) 4d ¹ ⁴ D + 12% 2s ² 2p ² (³ P) 4d ¹ ² P
286	2s ² 2p ² (³ P) 4p ¹	⁴ P	2.5	9910943.	32% + 24% 2s ² 2p ² (³ P) 4p ¹ ⁴ D + 18% 2s ² 2p ² (³ P) 4p ¹ ² D + 14% 2s ² 2p ² (1D) 4p ¹ ² D + 11% 2s ² 2p ² (1D) 4p ¹ ² F
287	2s ² 2p ² (³ P) 4d ¹	⁴ F	2.5	9914168.	30% + 28% 2s ² 2p ² (³ P) 4d ¹ ⁴ D + 15% 2s ² 2p ² (³ P) 4d ¹ ² F + 15% 2s ² 2p ² (³ P) 4d ¹ ⁴ P
288	2s ² 2p ² (³ P) 4p ¹	⁴ D	3.5	9920089.	78% + 21% 2s ² 2p ² (1D) 4p ¹ ² F
289	2s ² 2p ² (³ P) 4p ¹	⁴ S	1.5	9926855.	50% + 27% 2s ² 2p ² (³ P) 4p ¹ ⁴ P + 15% 2s ² 2p ² (1D) 4p ¹ ² P
290	2s ² 2p ² (³ P) 4p ¹	² P	1.5	9934311.	61% + 21% 2s ² 2p ² (1D) 4p ¹ ² D
291	2s ² 2p ² (³ P) 4p ¹	² D	2.5	9942465.	50% + 26% 2s ² 2p ² (³ P) 4p ¹ ⁴ P + 16% 2s ² 2p ² (1D) 4p ¹ ² F
292	2s ² 2p ² (³ P) 4p ¹	² P	0.5	9945287.	56% + 22% 2s ² 2p ² (³ P) 4p ¹ ² S + 10% 2s ² 2p ² (1D) 4p ¹ ² P
293	2s ² 2p ² (1D) 4s ¹	² D	2.5	9951558.	77% + 21% 2s ² 2p ² (³ P) 4s ¹ ⁴ P
294	2s ² 2p ² (1D) 4s ¹	² D	1.5	9954765.	73% + 21% 2s ² 2p ² (³ P) 4s ¹ ² P
295	2s ² 2p ² (³ P) 4f ¹	⁴ G	2.5	9964905.	41% + 17% 2s ² 2p ² (³ P) 4f ¹ ² D + 15% 2s ² 2p ² (³ P) 4f ¹ ⁴ F + 11% 2s ² 2p ² (³ P) 4f ¹ ² F
296	2s ² 2p ² (³ P) 4f ¹	² G	3.5	9966594.	23% + 23% 2s ² 2p ² (³ P) 4f ¹ ⁴ D + 21% 2s ² 2p ² (³ P) 4f ¹ ⁴ F + 17% 2s ² 2p ² (³ P) 4f ¹ ⁴ G
297	2s ² 2p ² (³ P) 4d ¹	⁴ F	1.5	9973073.	38% + 35% 2s ² 2p ² (³ P) 4d ¹ ² P + 17% 2s ² 2p ² (³ P) 4d ¹ ⁴ D
298	2s ² 2p ² (³ P) 4d ¹	⁴ F	3.5	9975013.	58% + 33% 2s ² 2p ² (³ P) 4d ¹ ⁴ D
299	2s ² 2p ² (³ P) 4d ¹	⁴ D	0.5	9975598.	79% + 14% 2s ² 2p ² (³ P) 4d ¹ ² P
300	2s ² 2p ² (³ P) 4d ¹	⁴ F	2.5	9979174.	58% + 24% 2s ² 2p ² (³ P) 4d ¹ ⁴ P
301	2s ² 2p ² (³ P) 4d ¹	⁴ D	1.5	9990930.	38% + 27% 2s ² 2p ² (³ P) 4d ¹ ² P + 17% 2s ² 2p ² (³ P) 4d ¹ ² D + 14% 2s ² 2p ² (³ P) 4d ¹ ⁴ P
302	2s ² 2p ² (³ P) 4d ¹	² F	2.5	9992622.	66% + 19% 2s ² 2p ² (³ P) 4d ¹ ⁴ P
303	2s ² 2p ² (³ P) 4d ¹	⁴ D	3.5	10012826.	34% + 31% 2s ² 2p ² (³ P) 4d ¹ ⁴ F + 16% 2s ² 2p ² (1D) 4d ¹ ² F + 11% 2s ² 2p ² (³ P) 4d ¹ ² F
304	2s ² 2p ² (³ P) 4d ¹	⁴ F	4.5	10014364.	79% + 20% 2s ² 2p ² (1D) 4d ¹ ² G
305	2s ² 2p ² (³ P) 4d ¹	⁴ D	2.5	10023403.	46% + 25% 2s ² 2p ² (³ P) 4d ¹ ⁴ P + 14% 2s ² 2p ² (1D) 4d ¹ ² D
306	2s ² 2p ² (³ P) 4d ¹	⁴ P	1.5	10028562.	59% + 20% 2s ² 2p ² (³ P) 4d ¹ ⁴ D + 13% 2s ² 2p ² (1D) 4d ¹ ² P
307	2s ² 2p ² (³ P) 4d ¹	⁴ P	0.5	10031193.	71% + 16% 2s ² 2p ² (1D) 4d ¹ ² S
308	2s ² 2p ² (³ P) 4f ¹	⁴ G	2.5	10033676.	45% + 35% 2s ² 2p ² (³ P) 4f ¹ ² D + 14% 2s ² 2p ² (³ P) 4f ¹ ⁴ D

Table 2. continued.

Index	Configuration	LS	J	E (cm ⁻¹)	Composition
309	2s ² 2p ² (3P) 4f ¹	4D	3.5	10034990.	45% + 39% 2s ² 2p ² (3P) 4f ¹ 4G
310	2s ² 2p ² (3P) 4d ¹	2P	0.5	10035380.	66% + 15% 2s ² 2p ² (3P) 4d ¹ 4D + 11% 2s ² 2p ² (1D) 4d ¹ 2P
311	2s ² 2p ² (3P) 4f ¹	4G	4.5	10037357.	51% + 31% 2s ² 2p ² (3P) 4f ¹ 4F + 17% 2s ² 2p ² (3P) 4f ¹ 2G
312	2s ² 2p ² (3P) 4f ¹	2G	3.5	10037395.	48% + 20% 2s ² 2p ² (3P) 4f ¹ 4G + 16% 2s ² 2p ² (3P) 4f ¹ 2F
313	2s ² 2p ² (3P) 4f ¹	4F	1.5	10038661.	59% + 20% 2s ² 2p ² (3P) 4f ¹ 4D + 20% 2s ² 2p ² (3P) 4f ¹ 2D
314	2s ² 2p ² (3P) 4f ¹	2F	2.5	10040859.	31% + 28% 2s ² 2p ² (3P) 4f ¹ 4D + 24% 2s ² 2p ² (3P) 4f ¹ 4F + 14% 2s ² 2p ² (3P) 4f ¹ 2D
315	2s ² 2p ² (3P) 4d ¹	2D	2.5	10041167.	62% + 20% 2s ² 2p ² (1D) 4d ¹ 2F
316	2s ² 2p ² (3P) 4d ¹	2D	1.5	10041683.	58% + 14% 2s ² 2p ² (1D) 4d ¹ 2D + 12% 2s ² 2p ² (3P) 4d ¹ 2P
317	2s ² 2p ² (3P) 4d ¹	2F	3.5	10043156.	58% + 19% 2s ² 2p ² (1D) 4d ¹ 2G + 18% 2s ² 2p ² (3P) 4d ¹ 4D
318	2s ² 2p ² (1D) 4p ¹	2F	2.5	10045013.	54% + 22% 2s ² 2p ² (1D) 4p ¹ 2D + 16% 2s ² 2p ² (3P) 4p ¹ 2D
319	2s ² 2p ² (1D) 4p ¹	2D	1.5	10047326.	45% + 31% 2s ² 2p ² (1D) 4p ¹ 2P
320	2s ² 2p ² (1D) 4p ¹	2F	3.5	10049980.	78% + 20% 2s ² 2p ² (3P) 4p ¹ 4D
321	2s ² 2p ² (1D) 4p ¹	2D	2.5	10050048.	57% + 17% 2s ² 2p ² (1D) 4p ¹ 2F
322	2s ² 2p ² (1D) 4p ¹	2P	0.5	10055786.	85%
323	2s ² 2p ² (3P) 4f ¹	2G	4.5	10077876.	39% + 31% 2s ² 2p ² (3P) 4f ¹ 4G + 19% 2s ² 2p ² (1D) 4f ¹ 2H
324	2s ² 2p ² (3P) 4f ¹	4G	5.5	10078176.	78% + 21% 2s ² 2p ² (1D) 4f ¹ 2H
325	2s ² 2p ² (1D) 4p ¹	2P	1.5	10079456.	38% + 21% 2s ² 2p ² (1D) 4p ¹ 2D + 17% 2s ² 2p ² (3P) 4p ¹ 2P
326	2s ² 2p ² (3P) 4f ¹	4D	0.5	10079600.	80% + 19% 2s ² 2p ² (1D) 4f ¹ 2P
327	2s ² 2p ² (3P) 4f ¹	4D	1.5	10080149.	59% + 13% 2s ² 2p ² (1D) 4f ¹ 2P
328	2s ² 2p ² (3P) 4f ¹	4F	3.5	10080215.	42% + 17% 2s ² 2p ² (1D) 4f ¹ 2G + 14% 2s ² 2p ² (3P) 4f ¹ 4G + 11% 2s ² 2p ² (3P) 4f ¹ 2F
329	2s ² 2p ² (3P) 4f ¹	4F	2.5	10080631.	42% + 29% 2s ² 2p ² (3P) 4f ¹ 4D + 14% 2s ² 2p ² (1D) 4f ¹ 2F
330	2s ² 2p ² (1S) 4s ¹	2S	0.5	10081740.	86%
331	2s ² 2p ² (3P) 4f ¹	4F	4.5	10081766.	44% + 25% 2s ² 2p ² (3P) 4f ¹ 2G + 21% 2s ² 2p ² (1D) 4f ¹ 2G
332	2s ² 2p ² (3P) 4f ¹	2D	1.5	10082320.	53% + 18% 2s ² 2p ² (3P) 4f ¹ 4F + 12% 2s ² 2p ² (1D) 4f ¹ 2D
333	2s ² 2p ² (3P) 4f ¹	2F	3.5	10082612.	42% + 17% 2s ² 2p ² (1D) 4f ¹ 2F + 12% 2s ² 2p ² (3P) 4f ¹ 4D
334	2s ² 2p ² (3P) 4f ¹	2F	2.5	10082888.	43% + 22% 2s ² 2p ² (3P) 4f ¹ 2D + 12% 2s ² 2p ² (1D) 4f ¹ 2D + 11% 2s ² 2p ² (1D) 4f ¹ 2F
335	2s ² 2p ² (1D) 4d ¹	2F	3.5	10139531.	55% + 24% 2s ² 2p ² (1D) 4d ¹ 2G + 11% 2s ² 2p ² (3P) 4d ¹ 4D
336	2s ² 2p ² (1D) 4d ¹	2G	4.5	10146377.	79% + 20% 2s ² 2p ² (3P) 4d ¹ 4F
337	2s ² 2p ² (1D) 4d ¹	2D	2.5	10151243.	46% + 30% 2s ² 2p ² (1D) 4d ¹ 2F + 10% 2s ² 2p ² (3P) 4d ¹ 4D
338	2s ² 2p ² (1D) 4d ¹	2D	1.5	10151762.	71%
339	2s ² 2p ² (1D) 4d ¹	2G	3.5	10154290.	47% + 24% 2s ² 2p ² (1D) 4d ¹ 2F + 16% 2s ² 2p ² (3P) 4d ¹ 2F
340	2s ² 2p ² (1D) 4d ¹	2P	0.5	10154673.	82%
341	2s ² 2p ² (1D) 4d ¹	2F	2.5	10167719.	36% + 29% 2s ² 2p ² (1D) 4d ¹ 2D + 21% 2s ² 2p ² (3P) 4d ¹ 2D
342	2s ² 2p ² (1D) 4d ¹	2S	0.5	10169333.	77% + 14% 2s ² 2p ² (3P) 4d ¹ 4P
343	2s ² 2p ² (1D) 4d ¹	2P	1.5	10171124.	70%
344	2s ² 2p ² (1S) 4p ¹	2P	0.5	10176423.	86%
345	2s ² 2p ² (1S) 4p ¹	2P	1.5	10183503.	87%
346	2s ¹ 2p ³ (5S) 4s ¹	6S	2.5	10188324.	97%
347	2s ² 2p ² (1D) 4f ¹	2G	3.5	10201633.	63% + 10% 2s ² 2p ² (1D) 4f ¹ 2F
348	2s ² 2p ² (1D) 4f ¹	2G	4.5	10201665.	74% + 16% 2s ² 2p ² (3P) 4f ¹ 4F
349	2s ² 2p ² (1D) 4f ¹	2F	2.5	10202878.	73%
350	2s ² 2p ² (1D) 4f ¹	2F	3.5	10204370.	64%
351	2s ² 2p ² (1D) 4f ¹	2H	4.5	10206149.	77% + 16% 2s ² 2p ² (3P) 4f ¹ 2G
352	2s ² 2p ² (1D) 4f ¹	2H	5.5	10206939.	78% + 21% 2s ² 2p ² (3P) 4f ¹ 4G
353	2s ² 2p ² (1D) 4f ¹	2D	1.5	10208225.	78%
354	2s ² 2p ² (1D) 4f ¹	2D	2.5	10210176.	76%
355	2s ² 2p ² (1D) 4f ¹	2P	0.5	10214128.	80% + 19% 2s ² 2p ² (3P) 4f ¹ 4D
356	2s ² 2p ² (1D) 4f ¹	2P	1.5	10215207.	80%
357	2s ¹ 2p ³ (5S) 4s ¹	4S	1.5	10220492.	95%
358	2s ¹ 2p ³ (5S) 4p ¹	6P	1.5	10278589.	94%
359	2s ¹ 2p ³ (5S) 4p ¹	6P	2.5	10281032.	77% + 13% 2s ² 2p ² 4d ¹ 2D

Table 2. continued.

Index	Configuration	<i>LS</i>	<i>J</i>	<i>E</i> (cm ⁻¹)	Composition
360	2s ² 2p ² (¹ S) 4d ¹	² D	2.5	10281170.	74% + 14% 2s ¹ 2p ³ (⁵ S) 4p ¹ ⁶ P
361	2s ² 2p ² (¹ S) 4d ¹	² D	1.5	10283273.	86%
362	2s ¹ 2p ³ (⁵ S) 4p ¹	⁶ P	3.5	10287850.	97%
363	2s ¹ 2p ³ (⁵ S) 4p ¹	⁴ P	2.5	10314031.	90%
364	2s ¹ 2p ³ (⁵ S) 4p ¹	⁴ P	1.5	10314236.	93%
365	2s ¹ 2p ³ (⁵ S) 4p ¹	⁴ P	0.5	10317285.	96%
366	2s ² 2p ² (¹ S) 4f ¹	² F	2.5	10333889.	87%
367	2s ² 2p ² (¹ S) 4f ¹	² F	3.5	10334886.	87%
368	2s ¹ 2p ³ (⁵ S) 4d ¹	⁶ D	0.5	10376732.	97%
369	2s ¹ 2p ³ (⁵ S) 4d ¹	⁶ D	1.5	10376873.	96%
370	2s ¹ 2p ³ (⁵ S) 4d ¹	⁶ D	2.5	10377117.	96%
371	2s ¹ 2p ³ (⁵ S) 4d ¹	⁶ D	3.5	10377551.	96%
372	2s ¹ 2p ³ (⁵ S) 4d ¹	⁶ D	4.5	10378563.	97%
373	2s ¹ 2p ³ (⁵ S) 4d ¹	⁴ D	2.5	10419678.	94%
374	2s ¹ 2p ³ (⁵ S) 4d ¹	⁴ D	1.5	10420491.	95%
375	2s ¹ 2p ³ (⁵ S) 4d ¹	⁴ D	3.5	10421378.	95%
376	2s ¹ 2p ³ (⁵ S) 4d ¹	⁴ D	0.5	10421782.	95%
377	2s ¹ 2p ³ (⁵ S) 4f ¹	⁶ F	2.5	10442451.	95%
378	2s ¹ 2p ³ (⁵ S) 4f ¹	⁶ F	3.5	10442472.	94%
379	2s ¹ 2p ³ (⁵ S) 4f ¹	⁶ F	1.5	10442487.	96%
380	2s ¹ 2p ³ (⁵ S) 4f ¹	⁶ F	0.5	10442527.	97%
381	2s ¹ 2p ³ (⁵ S) 4f ¹	⁶ F	4.5	10442640.	94%
382	2s ¹ 2p ³ (⁵ S) 4f ¹	⁶ F	5.5	10443114.	97%
383	2s ¹ 2p ³ (⁵ S) 4f ¹	⁴ F	4.5	10447521.	94%
384	2s ¹ 2p ³ (⁵ S) 4f ¹	⁴ F	3.5	10447790.	94%
385	2s ¹ 2p ³ (⁵ S) 4f ¹	⁴ F	2.5	10448179.	95%
386	2s ¹ 2p ³ (⁵ S) 4f ¹	⁴ F	1.5	10448561.	96%
387	2s ¹ 2p ³ (³ D) 4s ¹	⁴ D	1.5	10484023.	83% + 12% 2s ¹ 2p ³ (³ P) 4s ¹ ⁴ P
388	2s ¹ 2p ³ (³ D) 4s ¹	⁴ D	0.5	10484684.	86%
389	2s ¹ 2p ³ (³ D) 4s ¹	⁴ D	2.5	10485969.	76% + 16% 2s ¹ 2p ³ (³ P) 4s ¹ ⁴ P
390	2s ¹ 2p ³ (³ D) 4s ¹	² D	1.5	10506145.	83% + 13% 2s ¹ 2p ³ (³ P) 4s ¹ ² P
391	2s ¹ 2p ³ (³ D) 4s ¹	⁴ D	3.5	10509200.	99%
392	2s ¹ 2p ³ (³ D) 4s ¹	² D	2.5	10528133.	88% + 10% 2s ¹ 2p ³ (³ D) 4s ¹ ⁴ D
393	2s ¹ 2p ³ (³ D) 4p ¹	⁴ D	0.5	10567696.	72% + 12% 2s ¹ 2p ³ (³ D) 4p ¹ ² P
394	2s ¹ 2p ³ (³ D) 4p ¹	⁴ D	1.5	10568787.	53% + 18% 2s ¹ 2p ³ (³ D) 4p ¹ ⁴ F + 10% 2s ¹ 2p ³ (³ D) 4p ¹ ² P
395	2s ¹ 2p ³ (³ D) 4p ¹	⁴ F	1.5	10574230.	61%
396	2s ¹ 2p ³ (³ D) 4p ¹	⁴ F	2.5	10574693.	68% + 11% 2s ¹ 2p ³ (³ P) 4p ¹ ⁴ D + 11% 2s ¹ 2p ³ (³ D) 4p ¹ ⁴ D
397	2s ¹ 2p ³ (³ D) 4p ¹	⁴ D	2.5	10584105.	71% + 11% 2s ¹ 2p ³ (³ D) 4p ¹ ⁴ F
398	2s ¹ 2p ³ (³ D) 4p ¹	⁴ F	3.5	10584531.	72% + 15% 2s ¹ 2p ³ (³ P) 4p ¹ ⁴ D
399	2s ¹ 2p ³ (³ D) 4p ¹	² F	2.5	10590455.	78%
400	2s ¹ 2p ³ (³ D) 4p ¹	⁴ P	1.5	10592550.	28% + 26% 2s ¹ 2p ³ (³ D) 4p ¹ ² P + 20% 2s ¹ 2p ³ (³ D) 4p ¹ ⁴ D + 11% 2s ¹ 2p ³ (³ P) 4p ¹ ⁴ S
401	2s ¹ 2p ³ (³ D) 4p ¹	² P	0.5	10594166.	72% + 12% 2s ¹ 2p ³ (³ D) 4p ¹ ⁴ D
402	2s ¹ 2p ³ (³ D) 4p ¹	⁴ D	3.5	10598561.	69% + 19% 2s ¹ 2p ³ (³ D) 4p ¹ ² F + 12% 2s ¹ 2p ³ (³ D) 4p ¹ ⁴ F
403	2s ¹ 2p ³ (³ D) 4p ¹	⁴ P	0.5	10602877.	81%
404	2s ¹ 2p ³ (³ D) 4p ¹	⁴ P	1.5	10607839.	42% + 21% 2s ¹ 2p ³ (³ D) 4p ¹ ² D + 13% 2s ¹ 2p ³ (³ D) 4p ¹ ² P
405	2s ¹ 2p ³ (³ D) 4p ¹	⁴ F	4.5	10607875.	100%
406	2s ¹ 2p ³ (³ D) 4p ¹	² F	3.5	10610876.	68% + 27% 2s ¹ 2p ³ (³ D) 4p ¹ ⁴ D
407	2s ¹ 2p ³ (³ D) 4p ¹	⁴ P	2.5	10615906.	81%
408	2s ¹ 2p ³ (³ P) 4s ¹	⁴ P	0.5	10623561.	92%
409	2s ¹ 2p ³ (³ D) 4p ¹	² D	1.5	10625339.	48% + 34% 2s ¹ 2p ³ (³ D) 4p ¹ ² P
410	2s ¹ 2p ³ (³ P) 4s ¹	⁴ P	1.5	10631903.	78%
411	2s ¹ 2p ³ (³ D) 4p ¹	² D	2.5	10639896.	79% + 12% 2s ¹ 2p ³ (³ D) 4p ¹ ⁴ P
412	2s ¹ 2p ³ (³ P) 4s ¹	⁴ P	2.5	10647471.	71% + 12% 2s ¹ 2p ³ (³ D) 4s ¹ ⁴ D

Table 2. continued.

Index	Configuration	<i>LS</i>	<i>J</i>	<i>E</i> (cm ⁻¹)	Composition
413	2s ¹ 2p ³ (³ P) 4s ¹	² P	0.5	10647628.	85%
414	2s ¹ 2p ³ (³ P) 4s ¹	² P	1.5	10663671.	70% + 11% 2s ¹ 2p ³ (³ D) 4s ¹ ² D
415	2s ¹ 2p ³ (³ D) 4d ¹	⁴ F	1.5	10664477.	81%
416	2s ¹ 2p ³ (³ D) 4d ¹	⁴ F	2.5	10668122.	60% + 19% 2s ¹ 2p ³ (³ D) 4d ¹ ⁴ G
417	2s ¹ 2p ³ (³ D) 4d ¹	⁴ G	3.5	10673369.	64% + 13% 2s ¹ 2p ³ (³ P) 4d ¹ ⁴ F + 13% 2s ¹ 2p ³ (³ D) 4d ¹ ⁴ F
418	2s ¹ 2p ³ (³ D) 4d ¹	⁴ G	2.5	10674277.	66% + 20% 2s ¹ 2p ³ (³ D) 4d ¹ ⁴ F
419	2s ¹ 2p ³ (³ D) 4d ¹	⁴ F	3.5	10676100.	56% + 19% 2s ¹ 2p ³ (³ D) 4d ¹ ⁴ G + 11% 2s ¹ 2p ³ (³ D) 4d ¹ ⁴ D
420	2s ¹ 2p ³ (³ D) 4d ¹	⁴ G	4.5	10677829.	68% + 15% 2s ¹ 2p ³ (³ P) 4d ¹ ⁴ F
421	2s ¹ 2p ³ (³ D) 4d ¹	⁴ D	0.5	10678733.	79% + 11% 2s ¹ 2p ³ (³ P) 4d ¹ ⁴ D
422	2s ¹ 2p ³ (³ D) 4d ¹	⁴ D	1.5	10681065.	68%
423	2s ¹ 2p ³ (³ D) 4d ¹	⁴ D	2.5	10686758.	55% + 23% 2s ¹ 2p ³ (³ D) 4d ¹ ⁴ P + 12% 2s ¹ 2p ³ (³ P) 4d ¹ ⁴ P
424	2s ¹ 2p ³ (³ D) 4d ¹	⁴ P	0.5	10688195.	42% + 38% 2s ¹ 2p ³ (³ D) 4d ¹ ² S + 13% 2s ¹ 2p ³ (³ P) 4d ¹ ⁴ P
425	2s ¹ 2p ³ (³ D) 4d ¹	² G	3.5	10692185.	80% + 10% 2s ¹ 2p ³ (³ P) 4d ¹ ² F
426	2s ¹ 2p ³ (³ D) 4d ¹	⁴ F	4.5	10695788.	89% + 11% 2s ¹ 2p ³ (³ D) 4d ¹ ⁴ G
427	2s ¹ 2p ³ (³ D) 4d ¹	⁴ P	1.5	10698214.	43% + 32% 2s ¹ 2p ³ (³ D) 4d ¹ ⁴ S + 11% 2s ¹ 2p ³ (³ P) 4d ¹ ⁴ P
428	2s ¹ 2p ³ (³ D) 4d ¹	⁴ G	5.5	10699583.	100%
429	2s ¹ 2p ³ (³ D) 4d ¹	⁴ D	3.5	10702717.	76% + 20% 2s ¹ 2p ³ (³ D) 4d ¹ ⁴ F
430	2s ¹ 2p ³ (³ D) 4d ¹	² S	0.5	10704487.	34% + 31% 2s ¹ 2p ³ (³ D) 4d ¹ ⁴ P + 23% 2s ¹ 2p ³ (³ D) 4d ¹ ² P
431	2s ¹ 2p ³ (³ D) 4d ¹	² F	2.5	10707750.	44% + 29% 2s ¹ 2p ³ (³ D) 4d ¹ ² D + 15% 2s ¹ 2p ³ (³ P) 4d ¹ ² D
432	2s ¹ 2p ³ (³ D) 4d ¹	² P	1.5	10707787.	46% + 22% 2s ¹ 2p ³ (³ D) 4d ¹ ² D + 11% 2s ¹ 2p ³ (³ D) 4d ¹ ⁴ D
433	2s ¹ 2p ³ (³ D) 4d ¹	² G	4.5	10710539.	86%
434	2s ¹ 2p ³ (³ D) 4d ¹	⁴ P	2.5	10711090.	60% + 32% 2s ¹ 2p ³ (³ D) 4d ¹ ⁴ D
435	2s ¹ 2p ³ (³ P) 4p ¹	⁴ D	0.5	10711727.	72% + 23% 2s ¹ 2p ³ (³ P) 4p ¹ ² P
436	2s ¹ 2p ³ (³ D) 4d ¹	⁴ S	1.5	10718940.	45% + 39% 2s ¹ 2p ³ (³ D) 4d ¹ ⁴ P
437	2s ¹ 2p ³ (³ P) 4p ¹	⁴ D	1.5	10720241.	77%
438	2s ¹ 2p ³ (³ D) 4d ¹	² P	0.5	10720922.	62% + 17% 2s ¹ 2p ³ (³ D) 4d ¹ ² S + 11% 2s ¹ 2p ³ (³ D) 4d ¹ ⁴ P
439	2s ¹ 2p ³ (³ P) 4p ¹	⁴ S	1.5	10727961.	51% + 22% 2s ¹ 2p ³ (³ P) 4p ¹ ⁴ P
440	2s ¹ 2p ³ (³ D) 4f ¹	⁴ G	2.5	10728180.	71%
441	2s ¹ 2p ³ (³ P) 4p ¹	⁴ D	2.5	10729314.	72% + 11% 2s ¹ 2p ³ (³ D) 4p ¹ ⁴ F
442	2s ¹ 2p ³ (³ D) 4f ¹	⁴ G	3.5	10729353.	47% + 17% 2s ¹ 2p ³ (³ D) 4f ¹ ⁴ F + 13% 2s ¹ 2p ³ (³ D) 4f ¹ ⁴ H
443	2s ¹ 2p ³ (³ P) 4p ¹	⁴ P	0.5	10730705.	72%
444	2s ¹ 2p ³ (³ D) 4f ¹	⁴ F	4.5	10731103.	28% + 27% 2s ¹ 2p ³ (³ D) 4f ¹ ⁴ G + 12% 2s ¹ 2p ³ (³ D) 4f ¹ ⁴ H + 10% 2s ¹ 2p ³ (³ P) 4f ¹ ⁴ F
445	2s ¹ 2p ³ (³ D) 4f ¹	⁴ D	3.5	10732312.	28% + 28% 2s ¹ 2p ³ (³ D) 4f ¹ ⁴ H + 12% 2s ¹ 2p ³ (³ D) 4f ¹ ⁴ F + 10% 2s ¹ 2p ³ (³ D) 4f ¹ ² F
446	2s ¹ 2p ³ (³ D) 4d ¹	² D	1.5	10732858.	57% + 25% 2s ¹ 2p ³ (³ D) 4d ¹ ² P
447	2s ¹ 2p ³ (³ D) 4f ¹	² D	2.5	10733141.	29% + 26% 2s ¹ 2p ³ (³ D) 4f ¹ ⁴ F + 17% 2s ¹ 2p ³ (³ D) 4f ¹ ⁴ D
448	2s ¹ 2p ³ (³ D) 4f ¹	⁴ H	3.5	10733173.	40% + 21% 2s ¹ 2p ³ (³ D) 4f ¹ ⁴ D + 16% 2s ¹ 2p ³ (³ D) 4f ¹ ⁴ G
449	2s ¹ 2p ³ (³ D) 4f ¹	⁴ H	4.5	10734343.	65% + 14% 2s ¹ 2p ³ (³ D) 4f ¹ ⁴ G
450	2s ¹ 2p ³ (³ D) 4f ¹	² G	3.5	10735021.	56% + 13% 2s ¹ 2p ³ (³ D) 4f ¹ ² F + 12% 2s ¹ 2p ³ (³ P) 4f ¹ ² F
451	2s ¹ 2p ³ (³ D) 4f ¹	⁴ H	5.5	10735957.	56% + 18% 2s ¹ 2p ³ (³ D) 4f ¹ ² H + 15% 2s ¹ 2p ³ (³ P) 4f ¹ ⁴ G
452	2s ¹ 2p ³ (³ D) 4f ¹	⁴ F	1.5	10736089.	67% + 10% 2s ¹ 2p ³ (³ P) 4f ¹ ⁴ F
453	2s ¹ 2p ³ (³ D) 4f ¹	² H	4.5	10736792.	73% + 12% 2s ¹ 2p ³ (³ P) 4f ¹ ² G
454	2s ¹ 2p ³ (³ D) 4d ¹	² F	3.5	10736798.	87%
455	2s ¹ 2p ³ (³ P) 4p ¹	² P	0.5	10737144.	59% + 17% 2s ¹ 2p ³ (³ P) 4p ¹ ⁴ D + 12% 2s ¹ 2p ³ (³ D) 4p ¹ ⁴ D
456	2s ¹ 2p ³ (³ D) 4d ¹	² D	2.5	10737878.	53% + 36% 2s ¹ 2p ³ (³ D) 4d ¹ ² F
457	2s ¹ 2p ³ (³ P) 4p ¹	² D	1.5	10738585.	56% + 15% 2s ¹ 2p ³ (³ P) 4p ¹ ⁴ S
458	2s ¹ 2p ³ (³ D) 4f ¹	² F	2.5	10739628.	38% + 18% 2s ¹ 2p ³ (³ D) 4f ¹ ⁴ P + 15% 2s ¹ 2p ³ (³ D) 4f ¹ ⁴ F + 11% 2s ¹ 2p ³ (³ D) 4f ¹ ² D
459	2s ¹ 2p ³ (³ D) 4f ¹	² P	1.5	10740528.	39% + 23% 2s ¹ 2p ³ (³ D) 4f ¹ ⁴ P + 19% 2s ¹ 2p ³ (³ D) 4f ¹ ⁴ D
460	2s ¹ 2p ³ (³ D) 4f ¹	⁴ P	2.5	10741152.	51% + 17% 2s ¹ 2p ³ (³ D) 4f ¹ ⁴ D
461	2s ¹ 2p ³ (³ D) 4f ¹	⁴ D	0.5	10742426.	50% + 22% 2s ¹ 2p ³ (³ D) 4f ¹ ² P + 14% 2s ¹ 2p ³ (³ P) 4f ¹ ⁴ D + 12% 2s ¹ 2p ³ (³ D) 4f ¹ ⁴ P
462	2s ¹ 2p ³ (³ P) 4p ¹	⁴ D	3.5	10743782.	73% + 11% 2s ¹ 2p ³ (³ D) 4p ¹ ⁴ F

Table 2. continued.

Index	Configuration	<i>LS</i>	<i>J</i>	<i>E</i> (cm ⁻¹)	Composition
463	2s ¹ 2p ³ (³ P) 4p ¹	⁴ P	1.5	10744972.	27% + 16% 2s ¹ 2p ³ (³ D) 4f ¹ ² D + 13% 2s ¹ 2p ³ (³ D) 4f ¹ ⁴ D
464	2s ¹ 2p ³ (³ P) 4p ¹	⁴ P	1.5	10745269.	25% + 15% 2s ¹ 2p ³ (³ D) 4f ¹ ² P + 12% 2s ¹ 2p ³ (³ P) 4p ¹ ² D + 11% 2s ¹ 2p ³ (³ D) 4f ¹ ² D
465	2s ¹ 2p ³ (³ P) 4p ¹	⁴ P	2.5	10746954.	49% + 18% 2s ¹ 2p ³ (³ P) 4p ¹ ² D
466	2s ¹ 2p ³ (³ P) 4p ¹	² P	1.5	10758164.	52% + 14% 2s ¹ 2p ³ (³ D) 4p ¹ ² D + 11% 2s ¹ 2p ³ (³ P) 4p ¹ ² D
467	2s ¹ 2p ³ (³ D) 4f ¹	⁴ G	5.5	10758676.	43% + 31% 2s ¹ 2p ³ (³ D) 4f ¹ ⁴ H + 26% 2s ¹ 2p ³ (³ D) 4f ¹ ² H
468	2s ¹ 2p ³ (³ D) 4f ¹	⁴ H	6.5	10758871.	100%
469	2s ¹ 2p ³ (³ D) 4f ¹	⁴ G	4.5	10759353.	51% + 40% 2s ¹ 2p ³ (³ D) 4f ¹ ⁴ F
470	2s ¹ 2p ³ (³ D) 4f ¹	² H	5.5	10760011.	52% + 46% 2s ¹ 2p ³ (³ D) 4f ¹ ⁴ G
471	2s ¹ 2p ³ (³ P) 4p ¹	² D	2.5	10760076.	52% + 16% 2s ¹ 2p ³ (³ P) 4p ¹ ⁴ P
472	2s ¹ 2p ³ (³ D) 4f ¹	⁴ F	3.5	10760207.	56% + 19% 2s ¹ 2p ³ (³ D) 4f ¹ ⁴ G + 18% 2s ¹ 2p ³ (³ D) 4f ¹ ⁴ D
473	2s ¹ 2p ³ (³ D) 4f ¹	⁴ D	2.5	10761275.	41% + 38% 2s ¹ 2p ³ (³ D) 4f ¹ ⁴ F
474	2s ¹ 2p ³ (³ D) 4f ¹	⁴ D	1.5	10762310.	51% + 30% 2s ¹ 2p ³ (³ D) 4f ¹ ⁴ P + 12% 2s ¹ 2p ³ (³ D) 4f ¹ ⁴ F
475	2s ¹ 2p ³ (³ D) 4f ¹	⁴ P	0.5	10762961.	71% + 26% 2s ¹ 2p ³ (³ D) 4f ¹ ⁴ D
476	2s ¹ 2p ³ (³ D) 4f ¹	² G	4.5	10763215.	74% + 18% 2s ¹ 2p ³ (³ D) 4f ¹ ⁴ F
477	2s ¹ 2p ³ (³ D) 4f ¹	² F	3.5	10764596.	58% + 20% 2s ¹ 2p ³ (³ D) 4f ¹ ² G + 14% 2s ¹ 2p ³ (³ D) 4f ¹ ⁴ D
478	2s ¹ 2p ³ (³ D) 4f ¹	² P	0.5	10765273.	71% + 14% 2s ¹ 2p ³ (³ D) 4f ¹ ⁴ P + 14% 2s ¹ 2p ³ (³ D) 4f ¹ ⁴ D
479	2s ¹ 2p ³ (³ D) 4f ¹	² D	2.5	10765463.	37% + 36% 2s ¹ 2p ³ (³ D) 4f ¹ ² F + 12% 2s ¹ 2p ³ (³ D) 4f ¹ ⁴ D
480	2s ¹ 2p ³ (³ D) 4f ¹	² D	1.5	10765544.	52% + 20% 2s ¹ 2p ³ (³ D) 4f ¹ ² P + 19% 2s ¹ 2p ³ (³ D) 4f ¹ ⁴ P
481	2s ¹ 2p ³ (³ P) 4p ¹	² S	0.5	10778480.	72%
482	2s ¹ 2p ³ (³ S) 4s ¹	⁴ S	1.5	10803418.	79% + 15% 2s ¹ 2p ³ (¹ P) 4s ¹ ² P
483	2s ¹ 2p ³ (³ S) 4s ¹	² S	0.5	10811445.	75% + 16% 2s ¹ 2p ³ (¹ P) 4s ¹ ² P
484	2s ¹ 2p ³ (³ P) 4d ¹	⁴ F	1.5	10814748.	76%
485	2s ¹ 2p ³ (³ P) 4d ¹	⁴ F	2.5	10817121.	58% + 23% 2s ¹ 2p ³ (³ P) 4d ¹ ⁴ D + 11% 2s ¹ 2p ³ (³ P) 4d ¹ ⁴ P
486	2s ¹ 2p ³ (³ P) 4d ¹	⁴ F	3.5	10822488.	63% + 19% 2s ¹ 2p ³ (³ P) 4d ¹ ⁴ D + 10% 2s ¹ 2p ³ (³ D) 4d ¹ ⁴ G
487	2s ¹ 2p ³ (³ P) 4d ¹	⁴ P	2.5	10826417.	50% + 18% 2s ¹ 2p ³ (³ P) 4d ¹ ⁴ F
488	2s ¹ 2p ³ (³ P) 4d ¹	⁴ D	1.5	10828097.	35% + 34% 2s ¹ 2p ³ (³ P) 4d ¹ ⁴ P
489	2s ¹ 2p ³ (³ P) 4d ¹	⁴ D	0.5	10829149.	61% + 13% 2s ¹ 2p ³ (³ P) 4d ¹ ⁴ P
490	2s ² 2p ² (³ P) 5s ¹	⁴ P	0.5	10832228.	61% + 26% 2s ² 2p ² (³ P) 5s ¹ ² P
491	2s ¹ 2p ³ (³ P) 4d ¹	⁴ F	4.5	10834912.	74% + 11% 2s ¹ 2p ³ (³ D) 4d ¹ ⁴ G
492	2s ¹ 2p ³ (¹ D) 4s ¹	² D	2.5	10836986.	87%
493	2s ¹ 2p ³ (¹ D) 4s ¹	² D	1.5	10837159.	51% + 25% 2s ¹ 2p ³ (³ P) 4d ¹ ² D
494	2s ¹ 2p ³ (³ P) 4d ¹	² D	1.5	10841286.	39% + 37% 2s ¹ 2p ³ (¹ D) 4s ¹ ² D
495	2s ¹ 2p ³ (³ P) 4d ¹	² F	2.5	10841746.	57% + 13% 2s ¹ 2p ³ (³ P) 4d ¹ ² D
496	2s ¹ 2p ³ (³ P) 4d ¹	⁴ P	0.5	10842076.	60% + 12% 2s ¹ 2p ³ (³ P) 4d ¹ ⁴ D
497	2s ¹ 2p ³ (³ P) 4d ¹	⁴ P	1.5	10844668.	35% + 35% 2s ¹ 2p ³ (³ P) 4d ¹ ⁴ D
498	2s ¹ 2p ³ (³ P) 4d ¹	⁴ D	3.5	10845278.	56% + 14% 2s ¹ 2p ³ (³ P) 4d ¹ ⁴ F
499	2s ¹ 2p ³ (³ P) 4d ¹	⁴ D	2.5	10847463.	44% + 12% 2s ¹ 2p ³ (³ P) 4d ¹ ² F + 11% 2s ¹ 2p ³ (³ P) 4d ¹ ⁴ P
500	2s ¹ 2p ³ (³ P) 4d ¹	² F	3.5	10861826.	72%
501	2s ¹ 2p ³ (³ P) 4d ¹	² D	2.5	10862646.	52% + 15% 2s ¹ 2p ³ (³ P) 4d ¹ ² F + 11% 2s ¹ 2p ³ (³ D) 4d ¹ ² F
502	2s ¹ 2p ³ (³ P) 4d ¹	² P	0.5	10870080.	67%
503	2s ¹ 2p ³ (³ P) 4f ¹	⁴ G	2.5	10871875.	49% + 25% 2s ¹ 2p ³ (³ P) 4f ¹ ⁴ F + 13% 2s ¹ 2p ³ (³ P) 4f ¹ ² F
504	2s ¹ 2p ³ (³ P) 4f ¹	⁴ F	3.5	10873259.	37% + 29% 2s ¹ 2p ³ (³ P) 4f ¹ ⁴ G + 15% 2s ¹ 2p ³ (³ P) 4f ¹ ⁴ D + 14% 2s ¹ 2p ³ (³ P) 4f ¹ ² G
505	2s ² 2p ² (³ P) 5p ¹	⁴ D	0.5	10875929.	50% + 14% 2s ² 2p ² (³ P) 5p ¹ ² P
506	2s ¹ 2p ³ (³ P) 4d ¹	² P	1.5	10877458.	73%
507	2s ¹ 2p ³ (³ P) 4f ¹	⁴ F	1.5	10878375.	60% + 14% 2s ¹ 2p ³ (³ P) 4f ¹ ⁴ D
508	2s ¹ 2p ³ (³ P) 4f ¹	² G	3.5	10878813.	28% + 28% 2s ¹ 2p ³ (³ P) 4f ¹ ² F + 24% 2s ¹ 2p ³ (³ P) 4f ¹ ⁴ G
509	2s ¹ 2p ³ (³ P) 4f ¹	⁴ G	4.5	10878949.	43% + 30% 2s ¹ 2p ³ (³ P) 4f ¹ ⁴ F
510	2s ¹ 2p ³ (³ P) 4f ¹	² F	2.5	10879787.	31% + 25% 2s ¹ 2p ³ (³ P) 4f ¹ ⁴ F + 24% 2s ¹ 2p ³ (³ P) 4f ¹ ⁴ D
511	2s ² 2p ² (³ P) 5p ¹	⁴ D	1.5	10884876.	30% + 27% 2s ² 2p ² (³ P) 5p ¹ ⁴ P + 20% 2s ² 2p ² (³ P) 5p ¹ ² D
512	2s ¹ 2p ³ (³ P) 4f ¹	² D	2.5	10886601.	31% + 28% 2s ¹ 2p ³ (³ P) 4f ¹ ⁴ G + 14% 2s ¹ 2p ³ (³ P) 4f ¹ ² F
513	2s ¹ 2p ³ (³ P) 4f ¹	⁴ D	3.5	10886624.	39% + 24% 2s ¹ 2p ³ (³ P) 4f ¹ ² G + 12% 2s ¹ 2p ³ (³ P) 4f ¹ ⁴ G
514	2s ¹ 2p ³ (³ S) 4p ¹	⁴ P	1.5	10887167.	57% + 14% 2s ² 2p ² (³ P) 5s ¹ ⁴ P

Table 2. continued.

Index	Configuration	<i>LS</i>	<i>J</i>	<i>E</i> (cm ⁻¹)	Composition
515	2s ¹ 2p ³ (³ S) 4p ¹	⁴ P	0.5	10887593.	43% + 18% 2s ¹ 2p ³ (³ S) 4p ¹ ² P + 14% 2s ² 2p ² (³ P) 5s ¹ ² P + 12% 2s ¹ 2p ³ (¹ P) 4p ¹ ² P
516	2s ¹ 2p ³ (³ P) 4f ¹	⁴ D	0.5	10893027.	76%
517	2s ¹ 2p ³ (³ P) 4f ¹	⁴ G	5.5	10894150.	74% + 10% 2s ¹ 2p ³ (³ D) 4f ¹ ⁴ H
518	2s ¹ 2p ³ (³ P) 4f ¹	⁴ D	1.5	10894805.	58% + 11% 2s ¹ 2p ³ (³ P) 4f ¹ ² D
519	2s ¹ 2p ³ (³ P) 4f ¹	² G	4.5	10895238.	51% + 21% 2s ¹ 2p ³ (³ P) 4f ¹ ⁴ G
520	2s ¹ 2p ³ (³ S) 4p ¹	⁴ P	2.5	10896753.	68% + 13% 2s ¹ 2p ³ (¹ P) 4p ¹ ² D
521	2s ¹ 2p ³ (³ P) 4f ¹	⁴ D	2.5	10898460.	40% + 19% 2s ¹ 2p ³ (³ P) 4f ¹ ⁴ F
522	2s ¹ 2p ³ (³ P) 4f ¹	² D	1.5	10899318.	49% + 14% 2s ¹ 2p ³ (³ P) 4f ¹ ⁴ F
523	2s ² 2p ² (³ P) 5s ¹	⁴ P	1.5	10900504.	43% + 20% 2s ¹ 2p ³ (³ S) 4p ¹ ² P + 15% 2s ² 2p ² (³ P) 5s ¹ ² P
524	2s ¹ 2p ³ (³ P) 4f ¹	⁴ F	3.5	10900865.	36% + 16% 2s ¹ 2p ³ (³ P) 4f ¹ ⁴ G + 13% 2s ¹ 2p ³ (³ P) 4f ¹ ⁴ D
525	2s ¹ 2p ³ (³ P) 4f ¹	⁴ F	4.5	10901734.	44% + 15% 2s ¹ 2p ³ (³ P) 4f ¹ ² G + 13% 2s ¹ 2p ³ (³ P) 4f ¹ ⁴ G
526	2s ¹ 2p ³ (³ P) 4f ¹	² D	2.5	10903092.	38% + 21% 2s ¹ 2p ³ (³ P) 4f ¹ ² F
527	2s ¹ 2p ³ (³ P) 4f ¹	² F	3.5	10903107.	39% + 17% 2s ¹ 2p ³ (³ P) 4f ¹ ² G + 12% 2s ¹ 2p ³ (³ P) 4f ¹ ⁴ D
528	2s ¹ 2p ³ (³ S) 4p ¹	⁴ P	0.5	10903179.	35% + 19% 2s ² 2p ² (³ P) 5s ¹ ² P + 16% 2s ² 2p ² (³ P) 5s ¹ ⁴ P + 16% 2s ¹ 2p ³ (³ S) 4p ¹ ² P
529	2s ² 2p ² (³ P) 5s ¹	² P	0.5	10911903.	34% + 31% 2s ¹ 2p ³ (³ S) 4p ¹ ² P + 12% 2s ¹ 2p ³ (¹ D) 4p ¹ ² P + 10% 2s ² 2p ² (³ P) 5s ¹ ⁴ P
530	2s ¹ 2p ³ (³ S) 4p ¹	² P	1.5	10916132.	27% + 22% 2s ² 2p ² (³ P) 5s ¹ ⁴ P + 22% 2s ¹ 2p ³ (³ S) 4p ¹ ⁴ P + 14% 2s ¹ 2p ³ (¹ D) 4p ¹ ² P
531	2s ¹ 2p ³ (¹ D) 4p ¹	² F	2.5	10925145.	85%
532	2s ² 2p ² (³ P) 5d ¹	⁴ F	1.5	10926228.	46% + 15% 2s ² 2p ² (³ P) 5d ¹ ⁴ D + 14% 2s ² 2p ² (³ P) 5d ¹ ² P + 11% 2s ² 2p ² (³ P) 5d ¹ ² D
533	2s ² 2p ² (³ P) 5d ¹	⁴ D	2.5	10931898.	25% + 23% 2s ² 2p ² (³ P) 5d ¹ ⁴ F + 18% 2s ² 2p ² (³ P) 5d ¹ ² F + 17% 2s ² 2p ² (³ P) 5d ¹ ⁴ P
534	2s ¹ 2p ³ (¹ D) 4p ¹	² D	1.5	10932363.	80%
535	2s ¹ 2p ³ (¹ D) 4p ¹	² F	3.5	10932645.	92%
536	2s ¹ 2p ³ (¹ D) 4p ¹	² D	2.5	10934759.	70%
537	2s ¹ 2p ³ (¹ D) 4p ¹	² P	1.5	10941289.	50% + 24% 2s ² 2p ² (³ P) 5s ¹ ² P
538	2s ² 2p ² (³ P) 5p ¹	⁴ P	0.5	10943155.	38% + 29% 2s ² 2p ² (³ P) 5p ¹ ⁴ D + 29% 2s ² 2p ² (³ P) 5p ¹ ² S
539	2s ² 2p ² (³ P) 5p ¹	⁴ D	1.5	10947735.	54% + 17% 2s ² 2p ² (³ P) 5p ¹ ² P
540	2s ² 2p ² (³ P) 5s ¹	⁴ P	2.5	10949625.	65% + 15% 2s ² 2p ² (¹ D) 5s ¹ ² D + 13% 2s ¹ 2p ³ (¹ D) 4p ¹ ² D
541	2s ² 2p ² (³ P) 5p ¹	⁴ D	2.5	10950175.	62% + 24% 2s ² 2p ² (³ P) 5p ¹ ⁴ P + 11% 2s ² 2p ² (³ P) 5p ¹ ² D
542	2s ² 2p ² (³ P) 5f ¹	⁴ G	2.5	10955534.	39% + 17% 2s ² 2p ² (³ P) 5f ¹ ² D + 16% 2s ² 2p ² (³ P) 5f ¹ ⁴ F + 12% 2s ² 2p ² (³ P) 5f ¹ ² F
543	2s ² 2p ² (³ P) 5p ¹	² P	0.5	10956307.	37% + 37% 2s ² 2p ² (³ P) 5p ¹ ⁴ P + 15% 2s ² 2p ² (³ P) 5p ¹ ² S
544	2s ² 2p ² (³ P) 5f ¹	⁴ D	3.5	10956718.	22% + 22% 2s ² 2p ² (³ P) 5f ¹ ² G + 21% 2s ² 2p ² (³ P) 5f ¹ ⁴ F + 16% 2s ² 2p ² (³ P) 5f ¹ ⁴ G
545	2s ² 2p ² (³ P) 5p ¹	² D	1.5	10957096.	55% + 22% 2s ² 2p ² (³ P) 5p ¹ ⁴ P + 17% 2s ² 2p ² (³ P) 5p ¹ ⁴ S
546	2s ¹ 2p ³ (¹ D) 4p ¹	² P	0.5	10958742.	74%
547	2s ² 2p ² (³ P) 5s ¹	² P	1.5	10959483.	37% + 21% 2s ¹ 2p ³ (¹ D) 4p ¹ ² P + 12% 2s ¹ 2p ³ (³ S) 4p ¹ ² P + 11% 2s ² 2p ² (¹ D) 5s ¹ ² D
548	2s ² 2p ² (³ P) 5g ¹	⁴ H	3.5	10960817.	36% + 18% 2s ² 2p ² (³ P) 5g ¹ ² F + 16% 2s ² 2p ² (³ P) 5g ¹ ⁴ G + 12% 2s ² 2p ² (³ P) 5g ¹ ² G
549	2s ² 2p ² (³ P) 5g ¹	⁴ F	4.5	10961199.	24% + 22% 2s ² 2p ² (³ P) 5g ¹ ² H + 20% 2s ² 2p ² (³ P) 5g ¹ ⁴ G + 15% 2s ² 2p ² (³ P) 5g ¹ ⁴ H
550	2s ¹ 2p ³ (¹ P) 4s ¹	² P	0.5	10969550.	76% + 15% 2s ¹ 2p ³ (³ S) 4s ¹ ² S
551	2s ¹ 2p ³ (¹ P) 4s ¹	² P	1.5	10969567.	75% + 15% 2s ¹ 2p ³ (³ S) 4s ¹ ⁴ S
552	2s ¹ 2p ³ (³ S) 4d ¹	⁴ D	2.5	10982941.	21% + 19% 2s ² 2p ² (³ P) 5p ¹ ⁴ P + 17% 2s ² 2p ² (³ P) 5p ¹ ² D + 13% 2s ² 2p ² (³ P) 5p ¹ ⁴ D
553	2s ² 2p ² (³ P) 5p ¹	⁴ D	3.5	10983919.	42% + 35% 2s ¹ 2p ³ (³ S) 4d ¹ ⁴ D + 12% 2s ² 2p ² (¹ D) 5p ¹ ² F
554	2s ¹ 2p ³ (³ S) 4d ¹	⁴ D	1.5	10990519.	43% + 12% 2s ² 2p ² (³ P) 5p ¹ ² P
555	2s ¹ 2p ³ (³ S) 4d ¹	⁴ D	0.5	10994698.	73% + 13% 2s ¹ 2p ³ (¹ P) 4d ¹ ² P
556	2s ² 2p ² (³ P) 5p ¹	⁴ S	1.5	10995658.	40% + 24% 2s ² 2p ² (³ P) 5p ¹ ⁴ P + 18% 2s ² 2p ² (¹ D) 5p ¹ ² P

Table 2. continued.

Index	Configuration	<i>LS</i>	<i>J</i>	<i>E</i> (cm ⁻¹)	Composition
557	2s ² 2p ² (3P) 5d ¹	4F	1.5	10995739.	41% + 32% 2s ² 2p ² (3P) 5d ¹ 2P + 15% 2s ² 2p ² (3P) 5d ¹ 4D + 11% 2s ² 2p ² (3P) 5d ¹ 4P
558	2s ¹ 2p ³ (3S) 4d ¹	4D	2.5	10996705.	48% + 14% 2s ² 2p ² (3P) 5p ¹ 4D + 10% 2s ² 2p ² (3P) 5p ¹ 4P
559	2s ² 2p ² (3P) 5d ¹	4D	0.5	10996858.	77% + 15% 2s ² 2p ² (3P) 5d ¹ 2P
560	2s ² 2p ² (3P) 5d ¹	4F	3.5	10996977.	54% + 34% 2s ² 2p ² (3P) 5d ¹ 4D + 11% 2s ² 2p ² (3P) 5d ¹ 2F
561	2s ² 2p ² (3P) 5d ¹	4F	2.5	10999077.	58% + 25% 2s ² 2p ² (3P) 5d ¹ 4P + 13% 2s ² 2p ² (3P) 5d ¹ 2D
562	2s ² 2p ² (3P) 5p ¹	2D	2.5	10999949.	35% + 26% 2s ² 2p ² (3P) 5p ¹ 4P
563	2s ² 2p ² (3P) 5p ¹	2P	1.5	11000107.	33% + 23% 2s ¹ 2p ³ (3S) 4d ¹ 4D + 15% 2s ² 2p ² (1D) 5p ¹ 2D
564	2s ¹ 2p ³ (3S) 4d ¹	4D	3.5	11001741.	41% + 33% 2s ² 2p ² (3P) 5p ¹ 4D + 11% 2s ² 2p ² (1D) 5p ¹ 2F
565	2s ² 2p ² (3P) 5p ¹	2P	0.5	11003896.	36% + 28% 2s ² 2p ² (3P) 5p ¹ 2S + 17% 2s ² 2p ² (1D) 5p ¹ 2P
566	2s ¹ 2p ³ (3S) 4d ¹	2D	1.5	11005363.	46% + 11% 2s ² 2p ² (3P) 5p ¹ 2P
567	2s ² 2p ² (3P) 5d ¹	4D	1.5	11005537.	33% + 29% 2s ² 2p ² (3P) 5d ¹ 2D + 20% 2s ² 2p ² (3P) 5d ¹ 2P + 15% 2s ² 2p ² (3P) 5d ¹ 4P
568	2s ² 2p ² (3P) 5d ¹	2F	2.5	11005774.	63% + 18% 2s ² 2p ² (3P) 5d ¹ 4P + 10% 2s ² 2p ² (3P) 5d ¹ 4D
569	2s ¹ 2p ³ (3S) 4d ¹	2D	2.5	11013736.	34% + 16% 2s ¹ 2p ³ (1D) 4d ¹ 2D + 10% 2s ² 2p ² (3P) 5p ¹ 2D
570	2s ¹ 2p ³ (1D) 4d ¹	2G	3.5	11023780.	51% + 22% 2s ² 2p ² (3P) 5f ¹ 2G
571	2s ² 2p ² (3P) 5g ¹	4H	3.5	11025764.	39% + 27% 2s ² 2p ² (3P) 5g ¹ 2F + 15% 2s ² 2p ² (3P) 5g ¹ 4F
572	2s ¹ 2p ³ (1D) 4d ¹	2G	4.5	11025863.	91%
573	2s ² 2p ² (3P) 5g ¹	4F	4.5	11026082.	42% + 23% 2s ² 2p ² (3P) 5g ¹ 2H + 16% 2s ² 2p ² (3P) 5g ¹ 4H + 12% 2s ¹ 2p ³ (3S) 4f ¹ 4F
574	2s ² 2p ² (3P) 5f ¹	4G	2.5	11026299.	38% + 23% 2s ² 2p ² (3P) 5f ¹ 2D + 17% 2s ² 2p ² (3P) 5f ¹ 4D
575	2s ² 2p ² (3P) 5f ¹	4G	3.5	11026483.	51% + 31% 2s ² 2p ² (3P) 5f ¹ 4D + 14% 2s ² 2p ² (3P) 5f ¹ 2F
576	2s ² 2p ² (3P) 5f ¹	4G	4.5	11026987.	48% + 34% 2s ² 2p ² (3P) 5f ¹ 4F + 16% 2s ² 2p ² (3P) 5f ¹ 2G
577	2s ² 2p ² (3P) 5g ¹	4G	2.5	11027203.	34% + 25% 2s ² 2p ² (3P) 5g ¹ 4F + 19% 2s ² 2p ² (3P) 5g ¹ 2F
578	2s ² 2p ² (3P) 5g ¹	4F	3.5	11027805.	27% + 21% 2s ² 2p ² (3P) 5g ¹ 2G + 16% 2s ² 2p ² (3P) 5g ¹ 2F + 14% 2s ² 2p ² (3P) 5g ¹ 4G
579	2s ² 2p ² (3P) 5f ¹	4F	1.5	11028154.	62% + 17% 2s ² 2p ² (3P) 5f ¹ 4D + 17% 2s ² 2p ² (3P) 5f ¹ 2D
580	2s ² 2p ² (3P) 5f ¹	2F	2.5	11029506.	31% + 22% 2s ² 2p ² (3P) 5f ¹ 4F + 19% 2s ² 2p ² (3P) 5f ¹ 4D
581	2s ¹ 2p ³ (1D) 4d ¹	2G	3.5	11029638.	38% + 28% 2s ² 2p ² (3P) 5f ¹ 2G
582	2s ² 2p ² (3P) 5g ¹	4H	4.5	11031296.	37% + 27% 2s ² 2p ² (3P) 5g ¹ 2G + 25% 2s ² 2p ² (3P) 5g ¹ 2H
583	2s ² 2p ² (3P) 5g ¹	4H	5.5	11031656.	45% + 37% 2s ² 2p ² (3P) 5g ¹ 4G + 17% 2s ² 2p ² (3P) 5g ¹ 2H
584	2s ¹ 2p ³ (1D) 4d ¹	2F	3.5	11031738.	82%
585	2s ¹ 2p ³ (1D) 4d ¹	2F	2.5	11032333.	71%
586	2s ² 2p ² (3P) 5d ¹	4F	3.5	11037238.	34% + 31% 2s ² 2p ² (3P) 5d ¹ 4D + 14% 2s ² 2p ² (1D) 5d ¹ 2F
587	2s ² 2p ² (3P) 5d ¹	4F	4.5	11038040.	76% + 21% 2s ² 2p ² (1D) 5d ¹ 2G
588	2s ¹ 2p ³ (1D) 4d ¹	2P	1.5	11039965.	63% + 24% 2s ¹ 2p ³ (1D) 4d ¹ 2D
589	2s ¹ 2p ³ (3S) 4f ¹	4F	1.5	11040333.	58% + 21% 2s ² 2p ² (3P) 5g ¹ 4F + 11% 2s ¹ 2p ³ (1P) 4f ¹ 2D
590	2s ² 2p ² (3P) 5d ¹	4D	2.5	11041396.	31% + 13% 2s ² 2p ² (3P) 5d ¹ 4P + 11% 2s ¹ 2p ³ (3S) 4f ¹ 4F
591	2s ¹ 2p ³ (1D) 4d ¹	2P	0.5	11041592.	50% + 42% 2s ¹ 2p ³ (1D) 4d ¹ 2S
592	2s ¹ 2p ³ (3S) 4f ¹	2F	2.5	11041972.	19% + 18% 2s ¹ 2p ³ (3S) 4f ¹ 4F + 15% 2s ² 2p ² (3P) 5d ¹ 4D
593	2s ² 2p ² (3P) 5d ¹	4P	1.5	11044494.	53% + 23% 2s ² 2p ² (3P) 5d ¹ 4D + 14% 2s ² 2p ² (1D) 5d ¹ 2P
594	2s ¹ 2p ³ (1D) 4d ¹	2D	2.5	11045600.	51% + 22% 2s ¹ 2p ³ (3S) 4d ¹ 2D
595	2s ² 2p ² (3P) 5d ¹	4P	0.5	11045954.	72% + 17% 2s ² 2p ² (1D) 5d ¹ 2S
596	2s ¹ 2p ³ (1D) 4d ¹	2D	1.5	11046033.	49% + 28% 2s ¹ 2p ³ (1D) 4d ¹ 2P
597	2s ² 2p ² (3P) 5d ¹	2P	0.5	11048626.	65% + 14% 2s ² 2p ² (1D) 5d ¹ 2P + 14% 2s ² 2p ² (3P) 5d ¹ 4D
598	2s ² 2p ² (3P) 5d ¹	2D	2.5	11048776.	35% + 13% 2s ² 2p ² (3P) 5g ¹ 4G + 10% 2s ² 2p ² (1D) 5d ¹ 2F
599	2s ² 2p ² (3P) 5g ¹	4G	2.5	11049434.	25% + 18% 2s ² 2p ² (3P) 5d ¹ 2D + 16% 2s ¹ 2p ³ (3S) 4f ¹ 2F + 13% 2s ¹ 2p ³ (3S) 4f ¹ 4F
600	2s ² 2p ² (3P) 5d ¹	2D	1.5	11049513.	45% + 21% 2s ² 2p ² (3P) 5d ¹ 2P + 15% 2s ² 2p ² (1D) 5d ¹ 2D
601	2s ¹ 2p ³ (3S) 4f ¹	4F	3.5	11049816.	40% + 19% 2s ² 2p ² (3P) 5g ¹ 4G + 17% 2s ² 2p ² (3P) 5g ¹ 2G
602	2s ¹ 2p ³ (1D) 4d ¹	2S	0.5	11051893.	50% + 36% 2s ¹ 2p ³ (1D) 4d ¹ 2P
603	2s ² 2p ² (3P) 5d ¹	2F	3.5	11051900.	52% + 17% 2s ² 2p ² (3P) 5d ¹ 4D + 14% 2s ² 2p ² (1D) 5d ¹ 2G
604	2s ¹ 2p ³ (3S) 4f ¹	4F	4.5	11053449.	50% + 11% 2s ¹ 2p ³ (1P) 4f ¹ 2G + 11% 2s ² 2p ² (3P) 5g ¹ 4G
605	2s ¹ 2p ³ (3S) 4f ¹	2F	3.5	11053701.	42% + 12% 2s ² 2p ² (3P) 5g ¹ 2G + 10% 2s ¹ 2p ³ (1P) 4f ¹ 2G

Table 2. continued.

Index	Configuration	LS	J	E (cm ⁻¹)	Composition
606	2s ¹ 2p ³ (¹ P) 4p ¹	² D	1.5	11055621.	55% + 21% 2s ² 2p ² (¹ D) 5s ¹ ² D + 12% 2s ¹ 2p ³ (³ S) 4p ¹ ² P
607	2s ¹ 2p ³ (¹ P) 4p ¹	² D	2.5	11058038.	52% + 24% 2s ² 2p ² (¹ D) 5s ¹ ² D
608	2s ¹ 2p ³ (¹ P) 4p ¹	² S	0.5	11062139.	52% + 29% 2s ¹ 2p ³ (¹ P) 4p ¹ ² P + 14% 2s ¹ 2p ³ (³ S) 4p ¹ ⁴ P
609	2s ¹ 2p ³ (¹ P) 4p ¹	² P	1.5	11068016.	80% + 12% 2s ¹ 2p ³ (³ S) 4p ¹ ⁴ P
610	2s ² 2p ² (³ P) 5f ¹	⁴ G	5.5	11069037.	77% + 22% 2s ² 2p ² (¹ D) 5f ¹ ² H
611	2s ² 2p ² (³ P) 5f ¹	⁴ G	4.5	11069111.	34% + 33% 2s ² 2p ² (³ P) 5f ¹ ² G + 18% 2s ² 2p ² (¹ D) 5f ¹ ² H
612	2s ² 2p ² (³ P) 5f ¹	⁴ F	3.5	11070427.	39% + 17% 2s ² 2p ² (¹ D) 5f ¹ ² G + 16% 2s ² 2p ² (³ P) 5f ¹ ⁴ G + 11% 2s ² 2p ² (³ P) 5f ¹ ² F
613	2s ² 2p ² (³ P) 5f ¹	⁴ F	2.5	11071071.	38% + 33% 2s ² 2p ² (³ P) 5f ¹ ⁴ D + 12% 2s ² 2p ² (¹ D) 5f ¹ ² F
614	2s ² 2p ² (³ P) 5f ¹	⁴ F	4.5	11071083.	41% + 30% 2s ² 2p ² (³ P) 5f ¹ ² G + 19% 2s ² 2p ² (¹ D) 5f ¹ ² G
615	2s ¹ 2p ³ (¹ D) 4f ¹	² H	4.5	11071157.	26% + 22% 2s ² 2p ² (³ P) 5g ¹ ² G + 22% 2s ² 2p ² (¹ D) 5g ¹ ² H
616	2s ² 2p ² (³ P) 5f ¹	⁴ D	1.5	11071280.	61% + 14% 2s ² 2p ² (³ P) 5f ¹ ⁴ F + 12% 2s ² 2p ² (¹ D) 5f ¹ ² D
617	2s ² 2p ² (³ P) 5f ¹	⁴ D	0.5	11071397.	76% + 20% 2s ² 2p ² (¹ D) 5f ¹ ² P
618	2s ² 2p ² (³ P) 5g ¹	⁴ G	5.5	11071679.	32% + 24% 2s ¹ 2p ³ (¹ D) 4f ¹ ² H + 22% 2s ² 2p ² (¹ D) 5g ¹ ² H + 14% 2s ² 2p ² (³ P) 5g ¹ ⁴ H
619	2s ² 2p ² (³ P) 5f ¹	² F	3.5	11071870.	39% + 17% 2s ² 2p ² (¹ D) 5f ¹ ² F + 14% 2s ² 2p ² (³ P) 5f ¹ ⁴ D + 11% 2s ² 2p ² (³ P) 5f ¹ ² G + 10% 2s ² 2p ² (³ P) 5f ¹ ⁴ F
620	2s ² 2p ² (³ P) 5f ¹	² F	2.5	11072682.	36% + 25% 2s ² 2p ² (³ P) 5f ¹ ² D + 12% 2s ² 2p ² (¹ D) 5f ¹ ² D + 10% 2s ² 2p ² (¹ D) 5f ¹ ² F
621	2s ² 2p ² (³ P) 5f ¹	² D	1.5	11073758.	60% + 11% 2s ² 2p ² (³ P) 5f ¹ ⁴ F + 10% 2s ² 2p ² (¹ D) 5f ¹ ² P
622	2s ² 2p ² (³ P) 5g ¹	² H	5.5	11073798.	57% + 22% 2s ² 2p ² (¹ D) 5g ¹ ² I + 19% 2s ² 2p ² (³ P) 5g ¹ ⁴ H
623	2s ² 2p ² (³ P) 5g ¹	⁴ H	6.5	11074136.	76% + 23% 2s ² 2p ² (¹ D) 5g ¹ ² I
624	2s ¹ 2p ³ (¹ D) 4f ¹	² G	3.5	11076125.	28% + 15% 2s ² 2p ² (¹ D) 5g ¹ ² G + 11% 2s ² 2p ² (³ P) 5g ¹ ⁴ G
625	2s ¹ 2p ³ (¹ D) 4f ¹	² G	4.5	11076742.	27% + 17% 2s ² 2p ² (¹ D) 5g ¹ ² G + 16% 2s ¹ 2p ³ (³ S) 4f ¹ ⁴ F + 14% 2s ² 2p ² (³ P) 5g ¹ ⁴ F + 12% 2s ² 2p ² (³ P) 5g ¹ ⁴ G
626	2s ¹ 2p ³ (¹ D) 4f ¹	² F	2.5	11077479.	44% + 14% 2s ² 2p ² (¹ D) 5g ¹ ² F + 11% 2s ² 2p ² (³ P) 5g ¹ ⁴ F
627	2s ¹ 2p ³ (¹ D) 4f ¹	² F	3.5	11078927.	41% + 12% 2s ² 2p ² (¹ D) 5g ¹ ² F
628	2s ¹ 2p ³ (¹ D) 4f ¹	² D	1.5	11079763.	46% + 16% 2s ² 2p ² (³ P) 5g ¹ ⁴ F
629	2s ¹ 2p ³ (¹ D) 4f ¹	² D	2.5	11080201.	43% + 14% 2s ² 2p ² (¹ D) 5s ¹ ² D
630	2s ¹ 2p ³ (¹ P) 4p ¹	² P	0.5	11081601.	34% + 24% 2s ¹ 2p ³ (¹ D) 4f ¹ ² P + 21% 2s ¹ 2p ³ (¹ P) 4p ¹ ² S + 15% 2s ¹ 2p ³ (³ S) 4p ¹ ² P
631	2s ² 2p ² (¹ D) 5s ¹	² D	1.5	11081925.	42% + 19% 2s ¹ 2p ³ (¹ P) 4p ¹ ² D + 11% 2s ² 2p ² (³ P) 5s ¹ ² P
632	2s ² 2p ² (¹ D) 5s ¹	² D	2.5	11082505.	34% + 23% 2s ¹ 2p ³ (¹ P) 4p ¹ ² D + 11% 2s ¹ 2p ³ (¹ D) 4f ¹ ² D
633	2s ¹ 2p ³ (¹ D) 4f ¹	² H	4.5	11083290.	63% + 10% 2s ² 2p ² (³ P) 5g ¹ ² G
634	2s ¹ 2p ³ (¹ D) 4f ¹	² H	5.5	11083900.	66% + 16% 2s ² 2p ² (³ P) 5g ¹ ⁴ G
635	2s ¹ 2p ³ (¹ D) 4f ¹	² G	3.5	11085038.	56% + 14% 2s ² 2p ² (³ P) 5g ¹ ⁴ G
636	2s ¹ 2p ³ (¹ D) 4f ¹	² G	4.5	11085612.	59% + 14% 2s ² 2p ² (³ P) 5g ¹ ⁴ G
637	2s ¹ 2p ³ (¹ D) 4f ¹	² P	0.5	11086164.	68% + 14% 2s ¹ 2p ³ (¹ P) 4p ¹ ² P
638	2s ¹ 2p ³ (¹ D) 4f ¹	² P	1.5	11086438.	90%
639	2s ¹ 2p ³ (¹ D) 4f ¹	² F	2.5	11088944.	41% + 22% 2s ² 2p ² (³ P) 5g ¹ ⁴ F + 10% 2s ² 2p ² (³ P) 5g ¹ ⁴ G
640	2s ¹ 2p ³ (¹ D) 4f ¹	² F	3.5	11089012.	45% + 17% 2s ² 2p ² (³ P) 5g ¹ ⁴ F
641	2s ¹ 2p ³ (¹ D) 4f ¹	² D	1.5	11090667.	37% + 34% 2s ² 2p ² (³ P) 5g ¹ ⁴ F + 15% 2s ¹ 2p ³ (³ S) 4f ¹ ⁴ F
642	2s ¹ 2p ³ (¹ D) 4f ¹	² D	2.5	11091597.	33% + 25% 2s ² 2p ² (³ P) 5g ¹ ² F + 12% 2s ¹ 2p ³ (³ S) 4f ¹ ² F
643	2s ² 2p ² (¹ D) 5p ¹	² F	2.5	11117137.	69% + 19% 2s ² 2p ² (³ P) 5p ¹ ² D
644	2s ² 2p ² (¹ D) 5p ¹	² F	3.5	11119028.	72% + 21% 2s ² 2p ² (³ P) 5p ¹ ⁴ D
645	2s ² 2p ² (¹ D) 5p ¹	² D	1.5	11119519.	44% + 31% 2s ² 2p ² (¹ D) 5p ¹ ² P
646	2s ² 2p ² (¹ D) 5p ¹	² D	2.5	11120153.	74% + 16% 2s ² 2p ² (³ P) 5p ¹ ⁴ P
647	2s ² 2p ² (¹ D) 5p ¹	² P	0.5	11124083.	78% + 11% 2s ² 2p ² (³ P) 5p ¹ ² S
648	2s ² 2p ² (¹ D) 5p ¹	² P	1.5	11133968.	44% + 27% 2s ² 2p ² (¹ D) 5p ¹ ² D + 15% 2s ² 2p ² (³ P) 5p ¹ ² P
649	2s ¹ 2p ³ (¹ P) 4d ¹	² D	2.5	11161180.	55% + 21% 2s ¹ 2p ³ (¹ P) 4d ¹ ² F + 11% 2s ¹ 2p ³ (³ S) 4d ¹ ² D
650	2s ¹ 2p ³ (¹ P) 4d ¹	² F	3.5	11162971.	76% + 14% 2s ¹ 2p ³ (³ S) 4d ¹ ⁴ D
651	2s ¹ 2p ³ (¹ P) 4d ¹	² P	0.5	11163432.	74% + 12% 2s ¹ 2p ³ (³ S) 4d ¹ ⁴ D
652	2s ¹ 2p ³ (¹ P) 4d ¹	² P	1.5	11163936.	57% + 19% 2s ¹ 2p ³ (¹ P) 4d ¹ ² D + 12% 2s ¹ 2p ³ (³ S) 4d ¹ ⁴ D
653	2s ² 2p ² (¹ D) 5d ¹	² F	3.5	11163972.	57% + 20% 2s ² 2p ² (¹ D) 5d ¹ ² G + 12% 2s ² 2p ² (³ P) 5d ¹ ⁴ D

Table 2. continued.

Index	Configuration	LS	J	E (cm ⁻¹)	Composition
654	2s ¹ 2p ³ (¹ P) 4d ¹	² F	2.5	11166779.	49% + 23% 2s ¹ 2p ³ (¹ P) 4d ¹ ² D
655	2s ² 2p ² (¹ D) 5d ¹	² G	4.5	11167154.	77% + 21% 2s ² 2p ² (³ P) 5d ¹ ⁴ F
656	2s ² 2p ² (¹ D) 5d ¹	² D	2.5	11169311.	42% + 34% 2s ² 2p ² (¹ D) 5d ¹ ² F + 12% 2s ² 2p ² (³ P) 5d ¹ ⁴ D
657	2s ² 2p ² (¹ D) 5d ¹	² D	1.5	11169853.	70%
658	2s ² 2p ² (¹ D) 5d ¹	² G	3.5	11170243.	54% + 20% 2s ² 2p ² (¹ D) 5d ¹ ² F + 12% 2s ² 2p ² (³ P) 5d ¹ ² F
659	2s ² 2p ² (¹ D) 5d ¹	² P	0.5	11170610.	77% + 11% 2s ² 2p ² (³ P) 5d ¹ ² P
660	2s ¹ 2p ³ (¹ P) 4d ¹	² D	1.5	11175734.	46% + 17% 2s ¹ 2p ³ (³ S) 4d ¹ ² D + 14% 2s ¹ 2p ³ (¹ P) 4d ¹ ² P
661	2s ² 2p ² (¹ D) 5d ¹	² F	2.5	11176810.	37% + 34% 2s ² 2p ² (¹ D) 5d ¹ ² D + 17% 2s ² 2p ² (³ P) 5d ¹ ² D
662	2s ² 2p ² (¹ D) 5d ¹	² S	0.5	11177225.	73% + 16% 2s ² 2p ² (³ P) 5d ¹ ⁴ P
663	2s ² 2p ² (¹ D) 5d ¹	² P	1.5	11178991.	69%
664	2s ² 2p ² (¹ D) 5g ¹	² D	1.5	11188212.	51% + 27% 2s ¹ 2p ³ (¹ P) 4f ¹ ² D + 15% 2s ² 2p ² (³ P) 5g ¹ ⁴ F
665	2s ² 2p ² (¹ D) 5g ¹	² D	2.5	11188788.	52% + 26% 2s ¹ 2p ³ (¹ P) 4f ¹ ² D
666	2s ² 2p ² (¹ D) 5g ¹	² F	2.5	11191731.	53% + 24% 2s ¹ 2p ³ (¹ P) 4f ¹ ² F
667	2s ² 2p ² (¹ D) 5g ¹	² F	3.5	11192023.	53% + 24% 2s ¹ 2p ³ (¹ P) 4f ¹ ² F
668	2s ² 2p ² (¹ D) 5f ¹	² G	4.5	11194637.	75% + 15% 2s ² 2p ² (³ P) 5f ¹ ⁴ F
669	2s ² 2p ² (¹ D) 5f ¹	² G	3.5	11194903.	71%
670	2s ² 2p ² (¹ D) 5f ¹	² H	4.5	11196509.	76% + 16% 2s ² 2p ² (³ P) 5f ¹ ² G
671	2s ² 2p ² (¹ D) 5f ¹	² H	5.5	11196822.	77% + 22% 2s ² 2p ² (³ P) 5f ¹ ⁴ G
672	2s ² 2p ² (¹ D) 5g ¹	² G	3.5	11196834.	57% + 17% 2s ¹ 2p ³ (¹ P) 4f ¹ ² G
673	2s ² 2p ² (¹ D) 5f ¹	² F	3.5	11196858.	71%
674	2s ² 2p ² (¹ D) 5f ¹	² F	2.5	11196886.	70%
675	2s ² 2p ² (¹ D) 5g ¹	² G	4.5	11197370.	58% + 17% 2s ¹ 2p ³ (¹ P) 4f ¹ ² G
676	2s ² 2p ² (¹ D) 5g ¹	² I	5.5	11200627.	76% + 15% 2s ² 2p ² (³ P) 5g ¹ ² H
677	2s ² 2p ² (¹ D) 5f ¹	² D	2.5	11200824.	71%
678	2s ² 2p ² (¹ D) 5g ¹	² I	6.5	11200988.	76% + 23% 2s ² 2p ² (³ P) 5g ¹ ⁴ H
679	2s ² 2p ² (¹ D) 5f ¹	² D	1.5	11201044.	62% + 11% 2s ² 2p ² (³ P) 5f ¹ ⁴ D
680	2s ² 2p ² (¹ D) 5g ¹	² H	4.5	11201202.	74% + 10% 2s ² 2p ² (³ P) 5g ¹ ² G
681	2s ² 2p ² (¹ S) 5s ¹	² S	0.5	11201373.	84%
682	2s ² 2p ² (¹ D) 5g ¹	² H	5.5	11201539.	74% + 14% 2s ² 2p ² (³ P) 5g ¹ ⁴ G
683	2s ² 2p ² (¹ D) 5f ¹	² P	0.5	11203547.	71% + 19% 2s ² 2p ² (³ P) 5f ¹ ⁴ D
684	2s ² 2p ² (¹ D) 5f ¹	² P	1.5	11205063.	63% + 13% 2s ² 2p ² (³ P) 5f ¹ ² D
685	2s ¹ 2p ³ (¹ P) 4f ¹	² G	3.5	11219440.	62% + 17% 2s ² 2p ² (¹ D) 5g ¹ ² G
686	2s ¹ 2p ³ (¹ P) 4f ¹	² G	4.5	11220142.	63% + 16% 2s ² 2p ² (¹ D) 5g ¹ ² G + 13% 2s ¹ 2p ³ (³ S) 4f ¹ ⁴ F
687	2s ¹ 2p ³ (¹ P) 4f ¹	² F	2.5	11227428.	57% + 22% 2s ² 2p ² (¹ D) 5g ¹ ² F
688	2s ¹ 2p ³ (¹ P) 4f ¹	² F	3.5	11227855.	57% + 22% 2s ² 2p ² (¹ D) 5g ¹ ² F
689	2s ¹ 2p ³ (¹ P) 4f ¹	² D	1.5	11232480.	55% + 25% 2s ² 2p ² (¹ D) 5g ¹ ² D + 11% 2s ¹ 2p ³ (³ S) 4f ¹ ⁴ F
690	2s ¹ 2p ³ (¹ P) 4f ¹	² D	2.5	11233425.	55% + 24% 2s ² 2p ² (¹ D) 5g ¹ ² D
691	2s ² 2p ² (¹ S) 5p ¹	² P	0.5	11246561.	86%
692	2s ² 2p ² (¹ S) 5p ¹	² P	1.5	11250242.	86%
693	2s ² 2p ² (¹ S) 5d ¹	² D	2.5	11296622.	88%
694	2s ² 2p ² (¹ S) 5d ¹	² D	1.5	11297316.	87%
695	2s ¹ 2p ³ (⁵ S) 5s ¹	⁶ S	2.5	11307669.	97%
696	2s ¹ 2p ³ (⁵ S) 5s ¹	⁴ S	1.5	11321890.	96%
697	2s ² 2p ² (¹ S) 5f ¹	² F	2.5	11322875.	87%
698	2s ² 2p ² (¹ S) 5f ¹	² F	3.5	11323334.	87%
699	2s ² 2p ² (¹ S) 5g ¹	² G	3.5	11328270.	86%
700	2s ² 2p ² (¹ S) 5g ¹	² G	4.5	11328636.	86%