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A11102146072
/NSRDS-NBS
QC100 .U573 V3;1;1965 C.1 NBS-PUB-C 1964

NSRDS–NBS 3, Section 1

Selected Tables of Atomic Spectra

Atomic Energy Levels and Multiplet Tables

Si II, Si III, Si IV

U.S. DEPARTMENT OF COMMERCE

NATIONAL BUREAU OF STANDARDS

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NATIONAL BUREAU OF STANDARDS • A. V. Astin, *Director*

Selected Tables of Atomic Spectra

A Atomic Energy Levels - Second Edition
B Multiplet Tables

Si II, Si III, Si IV

Data Derived From the Analyses of Optical Spectra

Charlotte E. Moore

NSRDS–NBS 3, Section 1
National Standard Reference Data Series-
National Bureau of Standards 3
Category 3—Atomic and Molecular Properties

Issued June 25, 1965

For sale by the Superintendent of Documents, U.S. Government Printing Office
Washington, D.C., 20402 - Price 35 cents

NATIONAL BUREAU OF STANDARDS

Library of Congress Catalog Card No. : 64–60074

Foreword

The present publication has been undertaken in response to the increasing demand for a current revision of two sets of tables containing data on atomic spectra as derived from analyses of optical spectra.

The first set, *Atomic Energy Levels*, NBS Circular 467, consists of three Volumes published, respectively, in 1949, 1952, and 1958, and a fourth on rare-earth spectra, still in course of preparation.

The second set consists of two Multiplet Tables; one published in 1945 by the Princeton University Observatory, containing spectral lines in the region of wavelengths longer than 3000 Å; the other *An Ultraviolet Multiplet Table*, NBS Circular 488, appearing in five Sections, the first in 1950, the second in 1952, and the others in 1962.

In order to make data available sooner for such rapidly developing fields as space technology, plasma physics, and astrophysics, two innovations have been introduced in the present work. First, for each spectrum both the atomic energy levels and the multiplet table are being included in a single publication, as Parts A and B, respectively. Secondly, the Sections will be published at irregular intervals whenever adequate data become available for the individual spectra. In the earlier publications, the data were presented in regular order, i.e., the spectra were arranged in order of increasing atomic number of the various elements. This plan introduced long delays, as is evident from the span of years quoted above. The present plan should reduce such delays. A flexible paging system will permit the arrangement of the various Sections by atomic number regardless of the order in which they are published. Section 1 starts the plan with three spectra of silicon, $Z=14$: Si II, Si III, Si IV. The form of presentation is similar to that of the tables mentioned above.

The manuscript has been prepared by Charlotte E. Moore of the Atomic Physics Division, who also prepared the earlier tables. She acknowledges with gratitude the cordial cooperation of the National Research Council Committee on Line Spectra of the Elements, as well as that of the many atomic spectroscopists who make such a publication possible. It is hoped that as the present and succeeding Sections appear, they will inspire further urgently needed research on the analysis of atomic spectra.

A. V. Astin, *Director.*

Washington, D.C., *June 1, 1965.*

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Part A—Atomic Energy Levels

Element:	Z	Spectrum	
Silicon:	14		
		Si II	A14 II–1
		Si III	A14 III–1
		Si IV	A14 IV–1

Part B—Multiplet Tables

Element:	Z	Spectrum	
Silicon:	14		
		Si II	B14 II–1
		Si III	B14 III–1
		Si IV	B14 IV–1

1. Introduction

The increasing demand for data derived from the analyses of optical spectra has prompted the planning of a large publication. The present Section is the first of a long series to be published at irregular intervals, as suitable material becomes available. It is felt that the inclusion of both revised "Atomic Energy Levels" and "Selected Multiplets" as Parts A and B, respectively, of the same Volume may meet the present need more satisfactorily than the separate handling of each Part.

Furthermore, a flexible plan of publication permits the preparation and distribution of the Tables whenever the analysis of a spectrum has reached the stage where no further revision or extension is likely to occur in the foreseeable future.

It is hoped that the complete revision of "Atomic Energy Levels" [1] (Part A) will contain many new results for high-ionization spectra of the light and abundant elements. This can be done only if the revision is carried on gradually, parallel with the development of laboratory programs on the analyses of ultraviolet spectra.

2. Arrangement

Part A. For the "Atomic Energy Levels" the format is the same as that adopted for the first edition [1]. Recently, however, the conversion factor from cm^{-1} to eV has been revised [2]. The new factor has been adopted here. All limits and energy levels (in cm^{-1}) have been multiplied by the factor 0.000123981 to obtain the respective ionization and excitation potentials in eV quoted in the Tables.

The letters following the references are also the same as those used previously to denote the scope of the individual papers. They are as follows:

I P	Ionization potential
T	Terms
C L	Classified lines
G D	Grotrian diagram
E D	Energy diagram
Z E	Zeeman effect
I S	Isotope shift
hfs	Hyperfine structure

Predicted positions of unknown levels are entered in brackets.

Part B. A single Multiplet Table covering the observations over the entire spectral range for the various spectra, has long been urgently needed. The writer's Multiplet Table of 1945 [3] includes lines >3000 Å; it is seriously out of date and very incomplete as regards infrared data. Her Ultraviolet Multiplet Table [4] is also inadequate for the interpretation of existing ultraviolet solar spectra, and should be greatly expanded in anticipation of future space observations short of 3000 Å. In the present work it is planned to combine these two Multiplet Tables into one that is both revised and extended.

The general style of presentation is that of the "Ultraviolet Multiplet Table" [3]. As explained above, all ionization and excitation potentials have been calculated with the revised conversion factor recently recommended [2].

An arbitrary general grading of the analysis is indicated, as in the earlier tables. The four grades denote respectively:

Anal A	Analysis essentially complete.
Anal B	Analysis good but not complete.
Anal C	Leading lines classified.
Anal D	Only a few leading lines classified.

A similar grading system has been used to indicate the completeness of the Multiplet Table for a given spectrum. For spectra of the abundant elements, widely used, essentially all classified lines are listed. When multiplet data appear to be needed for only the leading lines of a spectrum, the listing is less complete. In general terms the lists may be described as follows:

List A	All classified lines included in the Multiplet Table.
List B	Most classified lines included, but fainter lines omitted.
List C	Only leading classified lines listed.
List D	Only strongest lines from ground states listed.

The columns of the Multiplet Table are self-explanatory. In column 1, the wavelengths in air are quoted for the region long of 2000 Å. Short of 2000 Å, vacuum wavelengths are quoted. "Vac" and "Air" are inserted in this column to remind the users of the change in the different spectral regions. In column 2 the reference source for the wavelength (and often for other data) is indicated by letters that refer to the separate references used for the tabulation. The references precede the multiplets. The letters following the references have the same meaning as described for Part A. In the Multiplet Table, however, the letter "I" is added to denote the reference source used for the quoted estimated intensity. When the intensity scale changes, either because of a different source, or a different author, parentheses are used in the intensity column.

The low and high excitation potentials (columns 4 and 5), and the J values (column 6) correspond respectively, to the low and high levels involved in the transition producing the line. The levels in cm^{-1} may be found in Part A. The term designations are identical in Parts A and B.

Symbols: An asterisk denotes a blend throughout. In the wavelength column the lines so marked have more than one classification in the same spectrum. In the intensity column the asterisk indicates that the intensity is affected by that of a neighboring line or of an impurity line.

If the blend involves a line in the spectrum of a different stage of ionization of the same element, an asterisk precedes the wavelength and another symbol such as "§" follows it. These symbols are explained on the first page of the Table, following the references.

The *raie ultime* is indicated by the symbol "‡".

A dagger "†" in the intensity column calls attention to intersystem combinations of astrophysical interest. Throughout the Multiplet Table, intersystem combinations are handled as permitted lines, since they are so commonly observed in the laboratory. I. S. Bowen has pointed out that under special conditions such as pertain in nebulae, for example, certain intersystem combinations from the ground state are stronger than lines from transitions in which the multiplicity does not change. The relative laboratory intensities can, therefore, be misleading under these special circumstances. A dagger denotes such intersystem lines.

An "m" preceding the wavelength indicates that the line is masked, and the spectrum of the masking line is indicated in the intensity column.

Multiplet Numbers: The earlier multiplet numbers from both the 1945 Table and the Ultraviolet Multiplet Table are widely quoted in the literature. For this reason the writer has been urgently requested to keep the old numbers throughout. This involves retaining two systems of numbering; UV numbers for multiplets short of 3000 Å; and regular numbers for those longer than 3000 Å. The old numbers have been dropped entirely in cases where the earlier designations are incorrect. As before, "*F*" following the multiplet number denotes a forbidden transition.

Newly inserted multiplets are numbered by a decimal system. For example, in Si II nine groups have been inserted between multiplets formerly published as UV 6 and UV 7. The new ones are numbered UV 6.01, UV 6.02 etc. Similarly in the longer wave region a number of multiplets have been inserted between multiplets 7 and 8 in the 1945 table. The new ones are numbered 7.01, 7.02 etc. When the old multiplet numbers are exhausted and new ones follow, the decimal system is no longer used. It is stated on the first page where the new multiplet numbers, not inserted between older ones, start. In Si II, for example, the numbers from UV 21 and 10 for the two respective regions have never been used before.

3. Acknowledgments

Many have assisted in planning this large publication. At the Mt. Wilson and Palomar Observatories, the Director, Ira S. Bowen and the late Paul W. Merrill have taken a keen interest in the project and provided much valuable help with the planning. The writer has also benefited greatly from a conference with B. Strömgren, who has carefully appraised this first Section before publication. Many others have also been consulted.

The cordial support of the National Bureau of Standards is making this program possible. Miss Sarah A. Jones and her staff in the library are indispensable for such a task. Nor could it succeed without the able assistance from the Publications Section, where Mr. John Carpenter and Mrs. Betty Arnold have spared no effort in handling the publication of this difficult material in its present legible style.

In the Spectroscopy group the support of K. G. Kessler, W. F. Meggers, and W. C. Martin, Jr. has been a source of great encouragement. Mrs. Isabel D. Murray is carrying the heavy load of preparing the final manuscript for the press. All users are indebted to her for her extreme skill and competence with these many details.

The writer takes genuine pleasure in thanking everyone who has so willingly encouraged and helped her start this enormous task. It is hoped that within the next decade there will be increased activity in the observation and analyses of atomic spectra, sufficient to fill some of the most striking gaps in our knowledge of atomic spectra.

REFERENCES

[1] C. E. Moore, Atomic Energy Levels, Circ. Nat. Bur. Std. 467:
Volume I. H to V 206 spectra, 309 p. (1949);
Volume II. Cr to Nb 152 spectra, 227 p. (1952);
Volume III. {Mo to La / Hf to Ac} 124 spectra, 245 p. (1958).

[2] J. A. Bearden and others, New Values for the Physical Constants as Recommended by the NAS–NRC, Physics Today **17**, 48–49 (1964).

[3] C. E. Moore, A Multiplet Table of Astrophysical Interest, Contr. Princeton Univ. Obs. No. 20 (1945). Reprinted as Tech. Note Nat. Bur. Std. No. 36, PB151395 (1959).

[4] C. E. Moore, An Ultraviolet Multiplet Table, Circ. Nat. Bur. Std. 488:
Section 1. H to V 78 p. (1950);
Section 2. Cr to Nb 115 p. (1952);
Section 3. {Mo to La / Hf to Ra} 94 p. (1962);
Section 4. / Section 5. Finding Lists for Sections 1, 2, and 3 (1962).

NSRDS–NBS 3, SECTION 1

SILICON, $Z=14$

A Si II Atomic Energy Levels

B Si II Multiplet Table

741–082 O—64——2

Part A

SILICON

Si II

(Al I sequence; 13 electrons) $Z=14$

Ground state $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p\ {}^2P^\circ_{1/2}$

$3p\ {}^2P^\circ_{1/2}$ ***131838.4*** $\pm$***0.1*** cm^{-1}, 758.50 Å (Vac) I P 16.35 eV

Shenstone has reobserved the Si II spectrum from 700 Å to 9500 Å and added 300 new lines to the earlier description. His revised and extended analysis "includes details of the perturbations of the $3s^2\ nx\ {}^2X$ series up to $x=g$". The limit is derived from a six-member ^2G series by means of a Ritz formula. Autoionization effects are also discussed.

Intersystem combinations connect the terms of different multiplicity.

All data in the table are taken from Shenstone's 1961 paper.

REFERENCE

A. G. Shenstone, Proc. Roy. Soc. [A] **261**, 153 to 174 (1961). I P, T, C L

Si II

Config.	Desig.	J	Level	Interval
$3s^2(^1S)3p$	$3p\ {}^2P^\circ$	0½	*0. 00*	287. 32
		1½	*287. 32*	
$3s\ 3p^2$	$3p^2\ {}^4P$	0½	42824. 35	108. 33
		1½	42932. 68	175. 29
		2½	43107. 97	
$3s\ 3p^2$	$3p^2\ {}^2D$	1½	55309. 61	15. 83
		2½	55325. 44	
$3s^2(^1S)4s$	$4s\ {}^2S$	0½	65500. 73	
$3s\ 3p^2$	$3p^2\ {}^2S$	0½	76665. 61	
$3s^2(^1S)3d$	$3d\ {}^2D$	1½	79338. 76	16. 52
		2½	79355. 28	
$3s^2(^1S)4p$	$4p\ {}^2P^\circ$	0½	*81191. 60*	59. 98
		1½	*81251. 58*	
$3s\ 3p^2$	$3p^2\ {}^2P$	0½	83802. 21	202. 31
		1½	84004. 52	
$3s^2(^1S)5s$	$5s\ {}^2S$	0½	97972. 35	
$3s^2(^1S)4d$	$4d\ {}^2D$	1½	101023. 31	1. 30
		2½	101024. 61	
$3s^2(^1S)4f$	$4f\ {}^2F^\circ$	3½	*103556. 29*	−0. 13
		2½	*103556. 42*	
$3s^2(^1S)5p$	$5p\ {}^2P^\circ$	0½	*103861. 00*	24. 51
		1½	*103885. 51*	
$3s\ 3p(^3P^\circ)3d$	$3d'\ {}^2D^\circ$	1½	*108779. 0*	41. 9
		2½	*108820. 9*	
$3s^2(^1S)6s$	$6s\ {}^2S$	0½	111184. 72	
$3s^2(^1S)5d$	$5d\ {}^2D$	1½	112394. 82	0. 16
		2½	112394. 98	
$3s^2(^1S)5f$	$5f\ {}^2F^\circ$	3½	*113760. 41*	−0. 17
		2½	*113760. 58*	

Si II

Config.	Desig.	J	Level	Interval
$3s^2(^1S)6p$	$6p\ {}^2P^\circ$	0½	*113962. 34*	14. 64
		1½	*113976. 98*	
$3s^2(^1S)5g$	$5g\ {}^2G$	3½	} 114177. 4	
		4½		
$3s\ 3p(^3P^\circ)3d$	$3d'\ {}^4F^\circ$	1½	*114265. 70*	61. 51
		2½	*114327. 21*	87. 43
		3½	*114414. 64*	114. 56
		4½	*114529. 20*	
$3s\ 3p(^3P^\circ)4s$	$4s'\ {}^4P^\circ$	0½	*116862. 44*	116. 00
		1½	*116978. 44*	199. 68
		2½	*117178. 12*	
$3s^2(^1S)7s$	$7s\ {}^2S$	0½	117915. 06	
$3s^2(^1S)6d$	$6d\ {}^2D$	1½	118523. 12	0. 07
		2½	118523. 19	
$3s^2(^1S)7p$	$7p\ {}^2P^\circ$	0½	*119245. 48*	28. 59
		1½	*119274. 07*	
$3s^2(^1S)6f$	$6f\ {}^2F^\circ$	3½	*119311. 45*	−0. 15
		2½	*119311. 60*	
$3s^2(^1S)6g$	$6g\ {}^2G$	3½	} 119578. 49	
		4½		
$3s\ 3p(^3P^\circ)4s$	$4s'\ {}^2P^\circ$	0½	*121444. 38*	146. 07
		1½	*121590. 45*	
$3s^2(^1S)8s$	$8s\ {}^2S$	0½	121814. 64	
$3s^2(^1S)7d$	$7d\ {}^2D$	1½	122163. 74	0. 06
		2½	122163. 80	
$3s^2(^1S)7f$	$7f\ {}^2F^\circ$	3½	*122655. 51*	−0. 12
		2½	*122655. 63*	
$3s^2(^1S)7g$	$7g\ {}^2G$	3½	} 122835. 39	
		4½		
$3p^3$	$3p^3\ {}^4S^\circ$	1½	*123033. 6*	

Si II—Continued

Config.	Desig.	J	Level	Interval
$3s^2(^1S)8p$	$8p\ ^2P°$	0½	*123097. 89*	41. 06
		1½	*123138. 93*	
$3s^2(^1S)9s$	$9s\ ^2S$	0½	124277. 0	
$3s\ 3p(^3P°)3d$	$3d'\ ^4D°$	0½	*124337. 4*	−12. 0
		1½	*124325. 4*	−8. 4
		2½	*124317. 0*	132. 6
		3½	*124449. 6*	
$3s^2(^1S)8d$	$8d\ ^2D$	1½	124496. 0	
		2½		
$3s\ 3p(^3P°)3d$	$3d'\ ^4P°$	2½	*124567. 5*	−48. 2
		1½	*124615. 7*	−23. 3
		0½	*124639. 0*	
$3s^2(^1S)8f$	$8f\ ^2F°$	3½	*124822. 34*	−0. 06
		2½	*124822. 40*	
$3s^2(^1S)8g$	$8g\ ^2G$	3½	124948. 66	
		4½		
$3s^2(^1S)9p$	$9p\ ^2P°$	0½	*125025. 2*	8. 8
		1½	*125034. 0*	
$3s\ 3p(^3P°)3d$	$3d'\ ^2P°$	1½	*126236. 7*	−42. 6
		0½	*126279. 3*	
$3s^2(^1S)9f$	$9f\ ^2F°$	2½	*126305. 08*	
		3½		
$3s^2(^1S)9g$	$9g\ ^2G$	3½	126396. 73	
		4½		
$3s^2(^1S)10p$	$10p\ ^2P°$	1½	*126526. 1*	−19. 6
		0½	*126545. 7*	
$3s^2(^1S)10f$	$10f\ ^2F°$	2½	*127363. 76*	
		3½		
$3s^2(^1S)10g$	$10g\ ^2G$	3½	127432. 28	
		4½		
$3s^2(^1S)11f$	$11f\ ^2F°$	2½	*128145. 61*	
		3½		
$3s^2(^1S)11g$	$11g\ ^2G$	3½	128198. 2	
		4½		
$3s\ 3p(^3P°)3d$	$3d'\ ^2F°$	2½	*131677. 4*	241. 7
		3½	*131919. 1*	
$3s\ 3p(^3P°)4p$	$4p'\ ^4D$	0½	131785. 0	76. 99
		1½	131861. 99	126. 12
		2½	131988. 11	174. 24
		3½	132162. 35	
Si III ($3s^2\ ^1S_0$)	***Limit***	--------	***131838. 4***	
$3s\ 3p(^3P°)4p$	$4p'\ ^2P$	0½	132592. 4	84. 1
		1½	132676. 5	
$3s\ 3p(^3P°)4p$	$4p'\ ^4P$	0½	134016. 96	62. 10
		1½	134079. 06	134. 63
		2½	134213. 69	
$3s\ 3p(^3P°)4p$	$4p'\ ^4S$	1½	134905. 34	
$3p^3$	$3p^3\ ^2D°$	2½	*135298. 1*	−6. 1
		1½	*135304. 2*	
$3s\ 3p(^3P°)4p$	$4p'\ ^2D$	1½	140580	193
		2½	140773	
$3p^3$	$3p^3\ ^2P°$	1½	*143982. 9*	−21. 4
		0½	*144004. 3*	

Si II—Continued

Config.	Desig.	J	Level	Interval
$3s\ 3p(^3P°)4d$	$4d'\ ^2D°$	1½	*149871. 5*	56. 8
		2½	*149928. 3*	
$3s\ 3p(^3P°)5s$	$5s'\ ^4P°$	0½	*150321. 9*	120. 7
		1½	*150442. 6*	215. 0
		2½	*150657. 6*	
$3s\ 3p(^3P°)4d$	$4d'\ ^4F°$	1½	*151077. 6*	64. 6
		2½	*151142. 2*	97. 8
		3½	*151240. 0*	137. 9
		4½	*151377. 9*	
$3s\ 3p(^3P°)5s$	$5s'\ ^2P°$	0½		
		1½	*151949. 7*	
$3s\ 3p(^3P°)4d$	$4d'\ ^4D°$	0½	*152418. 2*	13. 5
		1½	*152431. 7*	29. 2
		2½	*152460. 9*	74. 7
		3½	*152535. 6*	
$3s\ 3p(^3P°)4p$	$4p'\ ^2S$	0½	152977. 0?	
$3s\ 3p(^3P°)4d$	$4d'\ ^4P°$	2½	*153093. 7*	−90. 7
		1½	*153184. 4*	−49. 0
		0½	*153233. 4*	
$3s\ 3p(^3P°)4d$	$4d'\ ^2P°$	0½	*153494. 4*	43. 1
		1½	*153537. 5*	
$3s\ 3p(^3P°)4f$	$4f'\ ^2F$	2½	155571. 9	38. 2
		3½	155610. 1	
$3s\ 3p(^3P°)4f$	$4f'\ ^4F$	1½	155623. 3	10. 4
		2½	155633. 7	32. 4
		3½	155666. 1	29. 1
		4½	155695. 2	
$3s\ 3p(^3P°)4f$	$4f'\ ^4G$	2½	156676. 3	134. 9
		3½	156811. 2	0. 0
		4½	156811. 2	144. 5
		5½	156955. 7	
$3s\ 3p(^3P°)4f$	$4f'\ ^2G$	3½	156683. 2	280. 2
		4½	156963. 4	
$3s\ 3p(^3P°)4f$	$4f'\ ^2D$	1½	157186. 9?	4. 8
		2½	157191. 7?	
$3s\ 3p(^3P°)4f$	$4f'\ ^4D$	3½	157310. 9	−100. 5
		2½	157411. 4	−49. 9
		1½	157461. 3	−22. 7
		0½	157484. 0	
$3s\ 3p(^3P°)5d$	$5d'\ ^4F°$	1½		
		2½		
		3½		
		4½	*163907. 6?*	
$3s\ 3p(^3P°)6s$	$6s'\ ^4P°$	0½		
		1½		
		2½	*164111. 0?*	
$3s\ 3p(^3P°)5d$	$5d'\ ^4D°$	0½		
		1½		
		2½		
		3½	*164844. 0?*	
$3s\ 3p(^3P°)5d$	$5d'\ ^4P°$	0½		
		1½		
		2½	*164966. 0?*	
Si III $3s\ 3p\ ^3P°_2$	*Limit*	--------	*184953. 0*	

March 1964.

Si II Observed Terms

Configuration $1s^2\ 2s^2\ 2p^6+$	Observed Terms														
$3s^2(^1S)3p$			$3p\ ^2P°$												
$3s\ 3p^2$	$3p^2\ ^2S$		$3p^2\ ^4P$		$3p^2\ ^2D$										
			$3p^2\ ^2P$												
$3p^3$	$3p^3\ ^4S°$														
			$3p^3\ ^2P°$		$3p^3\ ^2D°$										
	$ns(n \geq 4)$				$np(n \geq 4)$			$nd(n \geq 3)$			$nf(n \geq 4)$			$ng(n \geq 5)$	
$3s^2(^1S)nl$	$4–9s\ ^2S$				$4–10p\ ^2P°$			$3–8d\ ^2D$			$4–11f\ ^2F°$			$5–11g\ ^2G$	
$3s\ 3p(^3P°)nl'$	$4–6s'\ ^4P°$				$4p'\ ^4S$	$4p'\ ^4P$	$4p'\ ^4D$	$3–5d'\ ^4P°$	$3–5d'\ ^4D°$	$3–5d'\ ^4F°$	$4f'\ ^4D$	$4f'\ ^4F$	$4f'\ ^4G$		
	$4,5s'\ ^2P°$				$4p'\ ^2S$	$4p'\ ^2P$	$4p'\ ^2D$	$3, 4d'\ ^2P°$	$3, 4d'\ ^2D°$	$3d'\ ^2F°$	$4f'\ ^2D$	$4f'\ ^2F$	$4f'\ ^2G$		

Part B

SILICON

Si II (Z=14)

I P 16.35 eV Limit 131838.4±0.1 cm^{-1} 758.50 Å (Vac)

Anal A List A February 1964

REFERENCES

A A. G. Shenstone, Proc. Roy. Soc. [A] **261**, 153 to 174 (1961). I P, T, C L, I; W L 711 Å to 9412 Å

P Predicted wavelength.

New Multiplet Numbers, not inserted between older ones, start with UV 21 and 10.

Si II

I A.	Ref	Int	E P Low	E P High	J	Multiplet No.
Air						
2334.606	A	30	0. 04	5. 34	1½—2½	$3p\ ^2P°$ —$3p^2\ ^4P$
2344.203	A	10	0. 04	5. 32	1½—1½	UV 0.01
2334.404	A	30	0. 00	5. 31	0½—0½	
2350.174	A	20	0. 04	5. 31	1½—0½	
Vac						
1816.921	A	200	0. 04	6. 86	1½—2½	$3p\ ^2P°$ —$3p^2\ ^2D$
1808.003	A	150	0. 00	6. 86	0½—1½	UV 1
1817.445	A	10	0. 04	6. 86	1½—1½	
1533.445‡	A	1000	0. 04	8. 12	1½—0½	$3p\ ^2P°$ —$4s\ ^2S$
1526.719	A	500	0. 00	8. 12	0½—0½	UV 2
1309.274	A	200	0. 04	9. 51	1½—0½	$3p\ ^2P°$ —$3p^2\ ^2S$
1304.369	A	100	0. 00	9. 51	0½—0½	UV 3
1264.730	A	2000	0. 04	9. 84	1½—2½	$3p\ ^2P°$ —$3d\ ^2D$
1260.418	A	1000	0. 00	9. 84	0½—1½	UV 4
1265.023	A	200	0. 04	9. 84	1½—1½	
1194.496	A	250	0. 04	10. 41	1½—1½	$3p\ ^2P°$ —$3p^2\ ^2P$
1193.284	A	200	0. 00	10. 39	0½—0½	UV 5
1197.389	A	100	0. 04	10. 39	1½—0½	
1190.418	A	100	0. 00	10. 41	0½—1½	
1023.693	A	50	0. 04	12. 15	1½—0½	$3p\ ^2P°$ —$5s\ ^2S$
1020.699	A	25	0. 00	12. 15	0½—0½	UV 5.01
992.675	A	200	0. 04	12. 53	1½—2½	$3p\ ^2P°$ —$4d\ ^2D$
989.867	A	100	0. 00	12. 52	0½—1½	UV 6
901.735	A	20	0. 04	13. 78	1½—0½	$3p\ ^2P°$ —$6s\ ^2S$
899.405	A	10	0. 00	13. 78	0½—0½	UV 6.01
891.999	A	200	0. 04	13. 93	1½—2½	$3p\ ^2P°$ —$5d\ ^2D$
889.722	A	100	0. 00	13. 93	0½—1½	UV 6.02
850.142	A	10	0. 04	14. 62	1½—0½	$3p\ ^2P°$ —$7s\ ^2S$
848.074	A	5	0. 00	14. 62	0½—0½	UV 6.03
845.774	A	40*h*	0. 04	14. 69	1½—2½	$3p\ ^2P°$ —$6d\ ^2D$
843.718	A	20*h*	0. 00	14. 69	0½—1½	UV 6.04
822.844	A	5*h*	0. 04	15. 10	1½—0½	$3p\ ^2P°$ —$8s\ ^2S$
820.918	A	3*h*	0. 00	15. 10	0½—0½	UV 6.05
820.516	A	20*h*	0. 04	15. 15	1½—2½	$3p\ ^2P°$ —$7d\ ^2D$
818.590	A	2*h*	0. 00	15. 15	0½—1½	UV 6.06
805.101	A	10*h*	0. 04	15. 44	1½—	$3p\ ^2P°$ —$8d\ ^2D$
803.234	A	3*h*	0. 00	15. 44	0½—1½	UV 6.07
755.362	A	2	0. 04	16. 45	1½—1½	$3p\ ^2P°$ —$4p\ ^2P$
						UV 6.08

Si II

I A	Ref	Int	E P Low	E P High	J	Multiplet No.
Vac						
711.83	A	1*h*	0. 04	17. 45	1½—2½	$3p\ ^2P°$ —$4p\ ^2D$
711.34	A	0*h*	0. 00	17. 43	0½—1½	UV 6.09
1350.057	A	150	5. 34	14. 53	2½—2½	$3p^2\ ^4P$ —$4s'\ ^4P°$
1350.520	A	20	5. 32	14. 50	1½—1½	UV 7
1350.658	A	20	5. 31	14. 49	0½—0½	
1353.718	A	100	5. 34	14. 50	2½—1½	
1352.635	A	100	5. 32	14. 49	1½—0½	
1346.873	A	100	5. 32	14. 53	1½—2½	
1348.543	A	100	5. 31	14. 50	0½—1½	
1251.164	A	200	5. 34	15. 25	2½—1½	$3p^2\ ^4P$ —$3p^3\ ^4S°$
1248.426	A	150	5. 32	15. 25	1½—1½	UV 8
1246.738	A	100	5. 31	15. 25	0½—1½	
1229.388	A	200	5. 34	15. 43	2½—3½	$3p^2\ ^4P$ —$3d'\ ^4D°$
1228.746	A	150	5. 32	15. 41	1½—2½	UV 8.01
1226.986	A	40	5. 31	15. 41	0½—1½	
1231.406	A	5	5. 34	15. 41	2½—2½	
1228.617	A	25	5. 32	15. 41	1½—1½	
1226.814	A	50	5. 31	15. 42	0½—0½	
1228.437	A	10	5. 32	15. 42	1½—0½	
1227.604	A	100	5. 34	15. 44	2½—2½	$3p^2\ ^4P$ —$3d'\ ^4P°$
1224.252	A	20	5. 32	15. 45	1½—1½	UV 8.02
1222.288	A	0	5. 31	15. 45	0½—0½	
1226.887	A	20	5. 34	15. 45	2½—1½	
1223.907	A	20	5. 32	15. 45	1½—0½	
1224.972	A	10	5. 32	15. 44	1½—2½	
1222.635	A	5	5. 31	15. 45	0½—1½	
929.810	A	20	5. 34	18. 68	2½—2½	$3p^2\ ^4P$ —$5s'\ ^4P°$
930.242	A	0	5. 31	18. 64	0½—0½	UV 8.03
931.667	A	5	5. 34	18. 65	2½—1½	
931.200	A	5	5. 32	18. 64	1½—0½	
928.297	A	5	5. 32	18. 68	1½—2½	
929.206	A	1	5. 31	18. 65	0½—1½	
913.853	A	20	5. 34	18. 91	2½—3½	$3p^2\ ^4P$ —$4d'\ ^4D°$
913.012	A	10	5. 32	18. 90	1½—2½	UV 8.04
912.375	A	5	5. 31	18. 90	0½—1½	
914.476	A	2	5. 34	18. 90	2½—2½	
913.264	A	3	5. 32	18. 90	1½—1½	
912.459	A	5	5. 31	18. 90	0½—0½	
909.209	A	3	5. 34	18. 98	2½—2½	$3p^2\ ^4P$ —$4d'\ ^4P°$
907.033	A	0	5. 32	18. 99	1½—1½	UV 8.05
905.71	A	0	5. 31	19. 00	0½—0½	
908.461	A	1	5. 34	18. 99	2½—1½	
906.586	A	1	5. 32	19. 00	1½—0½	
907.762	A	0	5. 32	18. 98	1½—2½	
906.126	A	0	5. 31	18. 99	0½—1½	

Si II—Continued

I A	Ref	Int	E P Low	E P High	J	Multiplet No.
Vac						
826.42	A	1*h*	5. 34	20. 35	2½—2½	$3p^2\ ^4P$ —$6s'\ ^4P°$? UV 8. 06
821.450	A	2*h*	5. 34	20. 44	2½—3½	$3p^2\ ^4P$ —$5d'\ ^4D°$? UV 8. 07
820.63	A	3*h*	5. 34	20. 45	2½—2½	$3p^2\ ^4P$ —$5d'\ ^4P°$?
819.49	A	0*h*	5. 32	20. 45	1½—2½?	UV 8. 08
Air						
3856.017	A	500*h*	6. 86	10. 07	2½—1½	$3p^2\ ^2D$ —$4p\ ^2P°$
3862.595	A	200*h*	6. 86	10. 07	1½—0½	1
3853.664	A	100*h*	6. 86	10. 07	1½—1½	
2072.701	A	200	6. 86	12. 84	2½—3½	$3p^2\ ^2D$ —$4f\ ^2F°$
2072.016	A	200	6. 86	12. 84	1½—2½	UV 9
2058.646	A	50	6. 86	12. 88	2½—1½	$3p^2\ ^2D$ —$5p\ ^2P°$
2059.014	A	50	6. 86	12. 88	1½—0½	UV 9.01
2057.965	A	(2)	6. 86	12. 88	1½—1½	
Vac						
1869.317	A	20	6. 86	13. 49	2½—2½	$3p^2\ ^2D$ —$3d\ ^2D°$
1870.227	A	15	6. 86	13. 49	1½—1½	UV 9.02
1870.782	A	3	6. 86	13. 49	2½—1½	
1868.765	A	1	6. 86	13. 49	1½—2½	
1711.296	A	20*h*	6. 86	14. 10	2½—3½	$3p^2\ ^2D$ —$5f\ ^2F°$
1710.826	A	10*h*	6. 86	14. 10	1½—2½	UV 10
1704.967	A	2*h*	6. 86	14. 13	1½—0½	$3p^2\ ^2D$ —$6p\ ^2P°$ UV 10.01
1563.765	A	10	6. 86	14. 79	2½—1½	$3p^2\ ^2D$ —$7p\ ^2P°$
1564.066	A	5	6. 86	14. 78	1½—0½	UV 10.02
1562.845	A	15	6. 86	14. 79	2½—3½	$3p^2\ ^2D$ —$6f\ ^2F°$
1562.451	A	10	6. 86	14. 79	1½—2½	UV 11
1509.101	A	100*h*	6. 86	15. 07	2½—1½	$3p^2\ ^2D$ —$4s\ ^2P°$
1512.072	A	50*h*	6. 86	15. 06	1½—0½	UV 11.01
1508.741	A	3*h*	6. 86	15. 07	1½—1½	
1485.224	A	30	6. 86	15. 21	2½—3½	$3p^2\ ^2D$ —$7f\ ^2F°$
1484.873	A	15	6. 86	15. 21	1½—2½	UV 12
1476.928	A	1	6. 86	15. 25	2½—1½	$3p^2\ ^2D$ —$3p^3\ ^4S°$ UV 12.01
1474.649	A	15*h*	6. 86	15. 27	2½—1½	$3p^2\ ^2D$ —$8p\ ^2P°$
1475.188	A	5*h*	6. 86	15. 26	1½—0½	UV 12.02
1474.304	A	1*h*	6. 86	15. 27	1½—1½	
1438.931	A	4*h*	6. 86	15. 48	2½—3½	$3p^2\ ^2D$ —$8f\ ^2F°$
1438.576	A	2*h*	6. 86	15. 48	1½—2½	UV 13
1434.542	A	2*h*	6. 86	15. 50	2½—1½	$3p^2\ ^2D$ —$9p\ ^2P°$
1434.400	A	1*h*	6. 86	15. 50	1½—0½	UV 13.01
1410.219	A	20*h*	6. 86	15. 65	2½—1½	$3p^2\ ^2D$ —$3d'\ ^2P°$
1409.073	A	10*h*	6. 86	15. 66	1½—0½	UV 13.02
1409.90	A	2*h*	6. 86	15. 65	1½—1½	
1404.478	A	6*h*	6. 86	15. 69	2½—1½	$3p^2\ ^2D$ —$10p\ ^2P°$
1403.783	A	5*h*	6. 86	15. 69	1½—0½	UV 13.03
1404.170	A	1*h*	6. 86	15. 69	1½—1½	
1305.590	A	50*h*	6. 86	16. 36	2½—3½	$3p^2\ ^2D$ —$3d'\ ^2F°$
1309.458	A	20*h*	6. 86	16. 33	1½—2½	UV 13.04
1309.77	A	2*h*	6. 86	16. 33	2½—2½	
1250.433	A	150	6. 86	16. 77	2½—2½	$3p^2\ ^2D$ —$3p^3\ ^2D°$
1250.089	A	100	6. 86	16. 78	1½—1½	UV 13.05

Si II—Continued

I A	Ref	Int	E P Low	E P High	J	Multiplet No.
Vac						
1127.907	A	40*h*	6. 86	17. 85	2½—1½	$3p^2\ ^2D$ —$3p^3\ ^2P°$
1127.442	A	20*h*	6. 86	17. 85	1½—0½	UV 13.06
1057.050	A	30	6. 86	18. 59	2½—2½	$3p^2\ ^2D$ —$4d'\ ^2D°$
1057.503	A	15	6. 86	18. 58	1½—1½	UV 13.07
1057.690	A	2	6. 86	18. 58	2½—1½	
1056.899	A	2	6. 86	18. 59	1½—2½	
1034.967	A	0?	6. 86	18. 84	2½—1½	$3p^2\ ^2D$ —$5s'\ ^2P°$? UV 13.08
Air						
6347.103	A	1000	8. 12	10. 07	0½—1½	$4s\ ^2S$ —$4p\ ^2P°$
6371.359	A	1000	8. 12	10. 07	0½—0½	2
2604.422	A	(2)	8. 12	12. 88	0½—1½	$4s\ ^2S$ —$5p\ ^2P°$
2606.084	A	(1)	8. 12	12. 88	0½—0½	UV 15
2346.234	A	0*H*	9. 51	14. 79	0½—1½	$3p^2\ ^2S$ —$7p\ ^2P°$ UV 15.01
2225.267	A	(1)	9. 51	15. 07	0½—1½	$3p^2\ ^2S$ —$4s'\ ^2P°$ UV 15.02
2016.654	A	3*h*	9. 51	15. 65	0½—1½	$3p^2\ ^2S$ —$3d'\ ^2P°$
2014.92	A	0*h*	9. 51	15. 66	0½—0½	UV 15.03
Vac						
1485.513	A	100*hp*	9. 51	17. 85	0½—1½	$3p^2\ ^2S$ —$3p^3\ ^2P°$
1485.024	A	90*hp*	9. 51	17. 85	0½—0½	UV 15.04
Air						
4130.893	A	500*H*	9. 84	12. 84	2½—3½	$3d\ ^2D$ —$4f\ ^2F°$
4128.067	A	300*H*	9. 84	12. 84	1½—2½	3
4075.451	A	20*H*	9. 84	12. 88	2½—1½	$3d\ ^2D$ —$5p\ ^2P°$
4076.781	A	15*H*	9. 84	12. 88	1½—0½	3.01
4072.711	A	3*h*	9. 84	12. 88	1½—1½	
2905.692	A	500	9. 84	14. 10	2½—3½	$3d\ ^2D$ —$5f\ ^2F°$
2904.283	A	300	9. 84	14. 10	1½—2½	UV 17
2887.511	A	10*h*	9. 84	14. 13	2½—1½	$3d\ ^2D$ —$6p\ ^2P°$
2887.358	A	5*h*	9. 84	14. 13	1½—0½	UV 17.01
2886.133	A	(1)	9. 84	14. 13	1½—1½	
2851.456	A	(2)	9. 84	14. 19	2½—3½	$3d\ ^2D$ —$3d'\ ^4F°$
2857.231	A	(1)	9. 84	14. 17	1½—2½	UV 17.02
2858.514	A	(1)	9. 84	14. 17	2½—2½	
2504.331	A	2*h*	9. 84	14. 79	2½—1½	$3d\ ^2D$ —$7p\ ^2P°$
2505.091	A	2*h*	9. 84	14. 78	1½—0½	UV 17.03
2501.970	A	5*h*	9. 84	14. 79	2½—3½	$3d\ ^2D$ —$6f\ ^2F°$
2500.928	A	3*h*	9. 84	14. 79	1½—2½	UV 18
2366.972	A	5*h*	9. 84	15. 07	2½—1½	$3d\ ^2D$ —$4s'\ ^2P°$
2374.255	A	5*h*	9. 84	15. 06	1½—0½	UV 18.01
2366.053	A	(5)	9. 84	15. 07	1½—1½	
2307.863	A	(2)	9. 84	15. 21	1½—2½	$3d\ ^2D$ —$7f\ ^2F°$ UV 18.02
2283.266	A	(3)	9. 84	15. 27	2½—1½	$3d\ ^2D$ —$8p\ ^2P°$
2284.542	A	(1)	9. 84	15. 26	1½—0½	UV 18.03
Vac						
1902.459	A	100*h*	9. 84	16. 36	2½—3½	$3d\ ^2D$ —$3d'\ ^2F°$
1910.621	A	50*h*	9. 84	16. 33	1½—2½	UV 18.04
1911.265	A	0*h*	9. 84	16. 33	2½—2½	

Si II—Continued

I A	Ref	Int	E P Low	E P High	J	Multiplet No.
Vac						
1787.538	A	8	9. 84	16. 77	2½—2½	$3d\ ^2D$ —$3p^3\ ^2D°$
1786.817	A	4	9. 84	16. 78	1½—1½	UV 18. 05
1416.972	A	10*h*	9. 84	18. 59	2½—2½	$3d\ ^2D$ —$4d'\ ^2D°$
1417.781	A	5	9. 84	18. 58	1½—1½	UV 18. 06
1418.110	A	0	9. 84	18. 58	2½—1½	
Air						
5978.929	A	500	10. 07	12. 15	1½—0½	$4p\ ^2P°$ —$5s\ ^2S$
5957.561	A	500	10. 07	12. 15	0½—0½	4
5055.981	A	1000	10. 07	12. 53	1½—2½	$4p\ ^2P°$ —$4d\ ^2D$
5041.026	A	1000	10. 07	12. 52	0½—1½	5
5056.314	A	(30)	10. 07	12. 52	1½—1½	
3339.819	A	500	10. 07	13. 78	1½—0½	$4p\ ^2P°$ —$6s\ ^2S$
3333.139	A	300	10. 07	13. 78	0½—0½	6
3210.025	A	200*HH*	10. 07	13. 93	1½—2½	$4p\ ^2P°$ —$5d\ ^2D$
3203.872	A	100*HH*	10. 07	13. 93	0½—1½	7
2726.702	A	5*h*	10. 07	14. 62	1½—0½	$4p\ ^2P°$ —$7s\ ^2S$
2722.250	A	2*h*	10. 07	14. 62	0½—0½	UV 19
2682.210	A	10*h*	10. 07	14. 69	1½—2½	$4p\ ^2P°$ —$6d\ ^2D$
2677.906	A	3*h*	10. 07	14. 69	0½—1½	UV 20
2439.953	A	0*H*	10. 07	15. 15	0½—1½	$4p\ ^2P°$ —$7d\ ^2D$
						UV 21
2311.719	A	(1)	10. 07	15. 44	1½—	$4p\ ^2P°$ —$8d\ ^2D$
						UV 22
Vac						
1944.586	A	15	10. 07	16. 45	1½—1½	$4p\ ^2P°$ —$4p'\ ^2P$
1945.504	A	3	10. 07	16. 44	0½—0½	UV 23
1947.769	A	1	10. 07	16. 44	1½—0½	
Air						
2834.472	A	3*h*	10. 41	14. 79	1½—1½	$3p^2\ ^2P$ —$7p\ ^2P°$
2820.580	A	2*h*	10. 39	14. 78	0½—0½	UV 24
2836.765	A	(1)	10. 41	14. 78	1½—0½	
2818.302	A	(2)	10. 39	14. 79	0½—1½	
2659.781	A	5*h*	10. 41	15. 07	1½—1½	$3p^2\ ^2P$ —$4s'\ ^2P°$
2655.803	A	3*h*	10. 39	15. 06	0½—0½	UV 25
2670.153	A	0*h*	10. 41	15. 06	1½—0½	
2645.539	A	0*h*	10. 39	15. 07	0½—1½	
2554.530	A	(10)	10. 41	15. 27	1½—1½	$3p^2\ ^2P$ —$8p\ ^2P°$
2544.046	A	(3)	10. 39	15. 26	0½—0½	UV 26
2557.206	A	(1)	10. 41	15. 26	1½—0½	
2541.393	A	(2)	10. 39	15. 27	0½—1½	
Vac						
1949.564	A	100	10. 41	16. 77	1½—2½	$3p^2\ ^2P$ —$3p^3\ ^2D°$
1941.667	A	50	10. 39	16. 78	0½—1½	UV 27
1949.331	A	10	10. 41	16. 78	1½—1½	
1667.267	A	0	10. 41	17. 85	1½—1½	$3p^2\ ^2P$ —$3p^3\ ^2P°$
1661.059	A	3*h*	10. 39	17. 85	0½—0½	UV 28
1661.633	A	1*h*	10. 39	17. 85	0½—1½	
1516.910	A	60*p*	10. 41	18. 59	1½—2½	$3p^2\ ^2P$ —$4d'\ ^2D°$
1513.570	A	30*p*	10. 39	18. 58	0½—1½	UV 29
1518.221	A	5*p*	10. 41	18. 58	1½—1½	
1471.775	A	2	10. 41	18. 84	1½—1½	$3p^2\ ^2P$ —$5s'\ ^2P°$
						UV 30

Si II—Continued

I A	Ref	Int	E P Low	E P High	J	Multiplet No.
Air						
4232.864	A	(10)	12. 15	15. 07	0½—1½	$5s\ ^2S$ —$4s'\ ^2P°$
4259.202	A	(5)	12. 15	15. 06	0½—0½	7.01
7849.72	A	(500)	12. 53	14. 10	2½—3½	$4d\ ^2D$ —$5f\ ^2F°$
7848.80	A	(400)	12. 52	14. 10	1½—2½	7.02
5466.868	A	500*H*	12. 53	14. 79	2½—3½	$4d\ ^2D$ —$6f\ ^2F°$
5466.432	A	500*H*	12. 52	14. 79	1½—2½	7.03
4861.095	A	(10)	12. 53	15. 07	2½—1½	$4d\ ^2D$ —$4s'\ ^2P°$
4895.558	A	0*h*	12. 52	15. 06	1½—0½	7.04
4621.721	A	(150)	12. 53	15. 21	2½—3½	$4d\ ^2D$ —$7f\ ^2F°$
4621.418	A	(100)	12. 52	15. 21	1½—2½	7.05
4200.898	A	(40)	12. 53	15. 48	2½—3½	$4d\ ^2D$ —$8f\ ^2F°$
4200.657	A	(30)	12. 52	15. 48	1½—2½	7.06
3954.507	A	(10)	12. 53	15. 66	2½—3½	$4d\ ^2D$ —$9f\ ^2F°$
3954.296	A	(5)	12. 52	15. 66	1½—2½	7.07
3795.553	A	(1)	12. 53	15. 79	2½—3½	$4d\ ^2D$ —$10f\ ^2F°$
3795.362	A	(3)	12. 52	15. 79	1½—2½	7.08
3686.133	A	(2)	12. 53	15. 89	2½—3½	$4d\ ^2D$ —$11f\ ^2F°$
3685.950	A	(1)	12. 52	15. 89	1½—2½	7.09
3235.92	A	(2*H*)	12. 53	16. 36	2½—3½	$4d\ ^2D$ —$3d'\ ^2F°$
						7.10
Vac						
1904.326	A	5*h*	12. 53	19. 04	2½—1½	$4d\ ^2D$ —$4d'\ ^2P°$
1905.878	A	3*h*	12. 52	19. 03	1½—0½	UV 31
Air						
9412.72	A	100	12. 84	14. 16		$4f\ ^2F°$ —$5g\ ^2G$
						7.11
6679.65	A	(2)	12. 84	14. 69		$4f\ ^2F°$ —$6d\ ^2D$
						7.12
6239.630	A	(100)	12. 84	14. 83		$4f\ ^2F°$ —$6g\ ^2G$
						7.13
5185.535	A	(100)	12. 84	15. 23		$4f\ ^2F°$ —$7g\ ^2G$
						7.14
4673.273	A	(20)	12. 84	15. 49		$4f\ ^2F°$ —$8g\ ^2G$
						7.15
4376.957	A	(5*h*)	12. 84	15. 67		$4f\ ^2F°$ —$9g\ ^2G$
						7.16
4187.137	A	(5*h*)	12. 84	15. 80		$4f\ ^2F°$ —$10g\ ^2G$
						7.17
4056.993	A	(2*h*)	12. 84	15. 89		$4f\ ^2F°$ —$11g\ ^2G$
						7.18
7125.84	A	(4)	12. 88	14. 62	1½—0½	$5p\ ^2P°$ —$7s\ ^2S$
7113.45	A	(2)	12. 88	14. 62	0½—0½	7.19
6829.82	A	(40)	12. 88	14. 69	1½—2½	$5p\ ^2P°$ —$6d\ ^2D$
6818.45	A	(20)	12. 88	14. 69	0½—1½	7.20
5575.973	A	(5)	12. 88	15. 10	1½—0½	$5p\ ^2P°$ —$8s\ ^2S$
5568.355	A	(2)	12. 88	15. 10	0½—0½	7.21

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Si II—Continued

I A	Ref	Int	E P Low	E P High	J	Multiplet No.
Air						
5469.450	A	(30)	12. 88	15. 15	1½—2½	$5p\ ^2P^\circ$ —$7d\ ^2D$ 7.22
5462.146	A	(10)	12. 88	15. 15	0½—1½	
4902.65	A	(3*h*)	12. 88	15. 41	1½—0½	$5p\ ^2P^\circ$ —$9s\ ^2S$ 7.23
4850.550	A	(5*h*)	12. 88	15. 44	1½—2½	$5p\ ^2P^\circ$ —$8d\ ^2D$ 7.24
4844.82	A	(2*h*)	12. 88	15. 44	0½—1½	
3472.43	A	2*h*	12. 88	16. 45	1½—1½	$5p\ ^2P^\circ$ —$4p'\ ^2P$ 7.25
3479.538	A	2	12. 88	16. 44	0½—0½	
4190.724	A	100*h*	13. 49	16. 45	2½—1½	$3d'\ ^2D^\circ$ —$4p'\ ^2P$ 7.26
4198.133	A	50	13. 49	16. 44	1½—0½	
4183.345	A	10*h*	13. 49	16. 45	1½—1½	
3128.77	A	1	13. 49	17. 45	2½—2½	$3d'\ ^2D^\circ$ —$4p'\ ^2D$ 7.27
2136.560	A	50*h*	13. 49	19. 29	2½—3½	$3d'\ ^2D^\circ$ —$4f'\ ^2F$ UV 32
2136.402	A	30*h*	13. 49	19. 29	1½—2½	
2133.99	A	10*h*	13. 49	19. 30	2½—3½	$3d'\ ^2D^\circ$ —$4f'\ ^4F$ UV 33
8044.50	A	(15)	13. 93	15. 48		$5d\ ^2D$ —$8f\ ^2F^\circ$ 7.28
7187.04	A	(2)	13. 93	15. 66		$5d\ ^2D$ —$9f\ ^2F^\circ$ 7.29
7911.47	A	(10*h*)	14. 10	15. 67		$5f\ ^2F^\circ$ —$9g\ ^2G$ 7.30
7312.29	A	(3*h*)	14. 10	15. 80		$5f\ ^2F^\circ$ —$10g\ ^2G$ 7.31
6924.53	A	(0*H*)	14. 10	15. 89		$5f\ ^2F^\circ$ —$11g\ ^2G$ 7.32
5669.562	A	1000*h*	14. 20	16. 39	4½—3½	$3d'\ ^4F^\circ$ —$4p'\ ^4D$ 7. 33
5688.811	A	300*h*	14. 19	16. 36	3½—2½	
5701.374	A	200*h*	14. 17	16. 35	2½—1½	
5706.370	A	100*h*	14. 17	16. 34	1½—0½	
5632.973	A	100*h*	14. 19	16. 39	3½—3½	
5660.656	A	150*h*	14. 17	16. 36	2½—2½	
5681.44	A	30*h*	14. 17	16. 35	1½—1½	
5605.351	A	3*h*	14. 17	16. 39	2½—3½	
5641.01	A	2*h*	14. 17	16. 36	1½—2½	
2428.45	A	10*h*	14. 20	19. 30	4½—4½	$3d'\ ^4F^\circ$ —$4f'\ ^4F$ UV 34
2423.42	A	3*h*	14. 19	19. 30	3½—3½	
2420.19	A	3*h*	14. 17	19. 30	2½—2½	
2417.20	A	2*h*	14. 17	19. 29	1½—1½	
2421.72	A	3*h*	14. 19	19. 30	3½—4½	
2418.29	A	2*h*	14. 17	19. 30	2½—3½	
2416.60	A	1*h*	14. 17	19. 30	1½—2½	
2356.295	A	100*H*	14. 20	19. 46	4½—5½	$3d'\ ^4F^\circ$ —$4f'\ ^4G$ UV 35
2357.97	A	50*H*	14. 19	19. 44	3½—4½	
2353.09	A	20*H*	14. 17	19. 44	2½—3½	
2357.18	A	30*H*	14. 17	19. 42	1½—2½	
2364.33	A	3*h*	14. 20	19. 44	4½—4½	
2357.96	P	Si II	14. 19	19. 44	3½—3½	
2360.59	A	5*h*	14. 17	19. 42	2½—2½	

Si II—Continued

I A	Ref	Int	E P Low	E P High	J	Multiplet No.
Air						
2349.54	A	10*H*	14. 19	19. 46	3½—4½	$3d'\ ^4F^\circ$ —$4f'\ ^2G$ UV 36
2360.20	A	10*H*	14. 17	19. 43	2½—3½	
2365.06	A	2*h*	14. 19	19. 43	3½—3½	
2336.730	A	2*h*	14. 20	19. 50	4½—3½	$3d'\ ^4F^\circ$ —$4f'\ ^4D$ UV 37
2325.04	P		14. 19	19. 52	3½—2½	
2317.64	P		14. 17	19. 52	2½—1½	
2313.100	A	(0?)	14. 17	19. 53	1½—0½	
6671.88	A	100	14. 53	16. 39	2½—3½	$4s'\ ^4P^\circ$ —$4p'\ ^4D$ 7. 34
6660.52	A	50*h*	14. 50	16. 36	1½—2½	
6665.00	A	15	14. 49	16. 35	0½—1½	
6750.28	A	20*h*	14. 53	16. 36	2½—2½	
6717.04	A	50*h*	14. 50	16. 35	1½—1½	
6699.38	A	20	14. 49	16. 34	0½—0½	
6808.19	A	2*h*	14. 53	16. 35	2½—1½	
6751.88	A	5	14. 50	16. 34	1½—0½	
5868.404	A	300*h*	14. 53	16. 64	2½—2½	$4s'\ ^4P^\circ$ —$4p'\ ^4P$ 8
5846.134	A	50	14. 50	16. 62	1½—1½	
5827.801	A	30	14. 49	16. 62	0½—0½	
5915.220	A	150	14. 53	16. 62	2½—1½	
5867.483	A	10	14. 50	16. 62	1½—0½	
5800.468	A	150*h*	14. 50	16. 64	1½—2½	
5806.738	A	200	14. 49	16. 62	0½—1½	
5639.478	A	200*h*	14. 53	16. 73	2½—1½	$4s'\ ^4P^\circ$ —$4p'\ ^4S$ 9
5576.661	A	150*h*	14. 50	16. 73	1½—1½	
5540.74	A	100*h*	14. 49	16. 73	0½—1½	
7490.33	A	(1)	14. 78	16. 44	0½—0½	$7p\ ^2P^\circ$ —$4p'\ ^2P?$ 10
3185.99	A	(10*h*)	15. 07	18. 97	1½—0½	$4s'\ ^2P^\circ$ —$4p'\ ^2S$ 11
3170.40	A	1*h*	15. 06	18. 97	0½—0½	
3208.25	A	(2)	15. 43	19. 29	3½—3½	$3d'\ ^4D^\circ$ —$4f'\ ^2F$ 12
3194.69	A	50	15. 41	19. 29	2½—3½	
3199.514	A	200	15. 43	19. 30	3½—4½	$3d'\ ^4D^\circ$ —$4f'\ ^4F$ 13
3188.97	A	150	15. 41	19. 30	2½—3½	
3193.09	A	150	15. 41	19. 30	1½—2½	
3195.41	A	100	15. 42	19. 29	0½—1½	
3202.49	A	20	15. 43	19. 30	3½—3½	
3192.25	A	50	15. 41	19. 30	2½—2½	
3194.21	A	50	15. 41	19. 29	1½—1½	
3205.77	A	(1)	15. 43	19. 30	3½—2½	
3042.191	A	30*h*	15. 43	19. 50	3½—3½	$3d'\ ^4D^\circ$ —$4f'\ ^4D$ 14
3020.78	P		15. 41	19. 52	2½—2½	
3017.00	P		15. 41	19. 52	1½—1½	
3015.980	A	(3)	15. 42	19. 53	0½—0½	
3032.85	A	2*H*	15. 43	19. 52	3½—2½	
3014.920	A	(3)	15. 41	19. 53	1½—0½	
3030.000	A	100*h*	15. 41	19. 50	2½—3½	
3021.55	A	20*H*	15. 41	19. 52	1½—2½	
3018.04	A	2*H*	15. 42	19. 52	0½—1½	
3220.44	A	10	15. 44	19. 29	2½—3½	$3d'\ ^4P^\circ$—$4f'\ ^2F$ 15

Si II—Continued

I A	Ref	Int	E P Low	E P High	J	Multiplet No.
Air						
3214.66	A	75	15. 44	19. 30	2½—3½	$3d'\ ^4P°—4f'\ ^4F$ 16
3223.01	A	20	15. 45	19. 30	1½—2½	
3217.99	A	15*h*	15. 44	19. 30	2½—2½	
3224.13	A	1	15. 45	19. 29	1½—1½	
3053.184	A	150*h*	15. 44	19. 50	2½—3½	$3d'\ ^4P°—4f'\ ^4D$ 17
3048.30	A	50*H*	15. 45	19. 52	1½—2½	
3045.77	A	10*H*	15. 45	19. 52	0½—1½	
3043.85	A	10*H*	15. 44	19. 52	2½—2½	
*3043.692	A	100*hh*	15. 45	19. 52	1½—1½	
*3043.692	A	100*hh*	15. 45	19. 53	0½—0½	
3039.21	A	3*H*	15. 44	19. 52	2½—1½	
3041.573	A	20*H*	15. 45	19. 53	1½—0½	
3125.26	A	1	15. 48	19. 44	—3½	$8f\ ^2F°—4f'\ ^4G$ 18
3138.21	A	(3)	15. 48	19. 42	—2½?	
4016.22	A	5*HH*	16. 36	19. 44	3½—4½	$3d'\ ^2F°—4f'\ ^4G$ 19
3977.46	A	10*HH*	16. 33	19. 44	2½—3½	
3991.77	A	15*HH*	16. 36	19. 46	3½—4½	$3d'\ ^2F°—4f'\ ^2G$ 20
3998.01	A	10*HH*	16. 33	19. 43	2½—3½	
3955.74	A	10*h*	16. 36	19. 49	3½—2½	$3d'\ ^2F°—4f'\ ^2D$? 21
3919.00	A	5*h*	16. 33	19. 49	2½—1½	
5405.34	A	100*h*	16. 39	18. 68	3½—2½	$4p'\ ^4D—5s'\ ^4P°$ 22
5417.24	A	15*H*	16. 36	18. 65	2½—1½	
5415.64	A	5*H*	16. 35	18. 64	1½—0½	
5354.89	A	5*H*	16. 36	18. 68	2½—2½	
5380.48	A	5*H*	16. 35	18. 65	1½—1½	
5393.18	A	3*H*	16. 34	18. 64	0½—0½	
*5202.413	A	500*h*	16. 39	18. 77	3½—4½	$4p'\ ^4D—4d'\ ^4F°$ 23
5192.86	A	200*h*	16. 36	18. 75	2½—3½	
5185.25	A	100*h*	16. 35	18. 74	1½—2½	
5181.90	A	100	16. 34	18. 73	0½—1½	
5240.31	A	5*h*	16. 39	18. 75	3½—3½	
*5219.37	A	10*h*	16. 36	18. 74	2½—2½	
*5202.413	A	500*h*	16. 35	18. 73	1½—1½	
4906.99	A	20*h*	16. 39	18. 91	3½—3½	$4p'\ ^4D—4d'\ ^4D°$ 24
4883.20	A	15*h*	16. 36	18. 90	2½—2½	
4860.16	P		16. 35	18. 90	1½—1½	
4845.26	A	3*h*	16. 34	18. 90	0½—0½	
4890.25	A	0*h*	16. 36	18. 90	2½—1½	
4853.35	A	2*h*	16. 35	18. 90	1½—2½	
4842.32	A	2*h*	16. 34	18. 90	0½—1½	
4776.20	A	3*h*	16. 39	18. 98	3½—2½	$4p'\ ^4D—4d'\ ^4P°$ 25
3149.92	A	(20)	16. 39	20. 32	3½—4½	$4p'\ ^4D—5d'\ ^4F°$? 26

Si II—Continued

I A	Ref	Int	E P Low	E P High	J	Multiplet No.
Air						
5794.90	A	30*H*	16. 45	18. 59	1½—2½	$4p'\ ^2P—4d'\ ^2D°$ 27
5785.73	A	30*h*	16. 44	18. 58	0½—1½	
5813.99	A	1*H*	16. 45	18. 58	1½—1½	
4792.29	A	5*h*	16. 45	19. 04	1½—1½	$4p'\ ^2P—4d'\ ^2P°$ 28
4782.89	A	3*h*	16. 44	19. 03	0½—0½	
6080.06	A	20*H*	16. 64	18. 68	2½—2½	$4p'\ ^4P—5s'\ ^4P°$ 29
6019.76	A	4*H*	16. 62	18. 65	1½—1½	
6131.76	A	4*H*	16. 62	18. 64	0½—0½	
6160.16	A	5*H*	16. 64	18. 65	2½—1½	
6155.17	A	5*H*	16. 62	18. 64	1½—0½	
6030.27	A	5*H*	16. 62	18. 68	1½—2½	
6086.67	A	10*H*	16. 62	18. 65	0½—1½	
5456.45	A	100*H*	16. 64	18. 91	2½—3½	$4p'\ ^4P—4d'\ ^4D°$ 30
5438.62	A	100*h*	16. 62	18. 90	1½—2½	
5428.92	A	15*H*	16. 62	18. 90	0½—1½	
5478.73	A	5*H*	16. 64	18. 90	2½—2½	
5447.26	A	20*H*	16. 62	18. 90	1½—1½	
5432.89	A	15*H*	16. 62	18. 90	0½—0½	
5451.18	A	0*h*	16. 62	18. 90	1½—0½	
5295.19	A	30*h*	16. 64	18. 98	2½—2½	$4p'\ ^4P—4d'\ ^4P°$ 31
5232.76	A	0*h*	16. 62	18. 99	1½—1½	
5269.74	A	3*h*	16. 64	18. 99	2½—1½	
*5219.37	A	10*h*	16. 62	19. 00	1½—0½	
5257.64	A	3*h*	16. 62	18. 98	1½—2½	
5215.67	A	1*h*	16. 62	18. 99	0½—1½	
5496.45	A	200*h*	16. 73	18. 98	1½—2½	$4p'\ ^4S—4d'\ ^4P°$ 32
5469.21	A	100*h*	16. 73	18. 99	1½—1½	
5454.49	A	15*H*	16. 73	19. 00	1½—0½	
4932.80	A	20*h*	16. 78	19. 29	1½—2½	$3p^3\ ^2D°—4f'\ ^2F$? 33
4908.18	A	5*h*	16. 77	19. 30	2½—3½	$3p^3\ ^2D°—4f'\ ^4F$ 34

Unclassified Lines of Si II

Air			Vac		
6067.45	A	10*HH*	1237.36	A	3*H*
3461.642	A	(2)	1235.920	A	10
3414.758	A	(3)	1233.354	A	5*h*
Vac			1216.117	A	10*h*
1311.265	A	2	1084.144	A	3
1275.662	A	5*h*	1082.400	A	2
1274.300	A	3*h*			

NSRDS–NBS 3, SECTION 1

SILICON, Z=14

A Si III Atomic Energy Levels

B Si III Multiplet Table

Part A

SILICON

Si III

(Mg I sequence; 12 electrons) Z=14

Ground state $1s^2\ 2s^2\ 2p^6\ 3s^2\ {}^1S_0$

$3s^2\ {}^1S_0$ **270139.3±0.4** cm^{-1}, 370.179 Å (Vac) I P 33.49 eV

The analysis is by Toresson, who has reobserved the spectrum from 400 Å to 10000 Å. He has measured some 360 lines and added 107 energy levels to the earlier analysis.

Observed intersystem combinations connect the terms of different multiplicity. Three levels not connected with the rest by observed transitions, are indicated by "+x". Predicted positions of the $8d\ {}^3D_{1,2}$ levels and of the ${}^{3,1}K°$ and ${}^{3,1}L$ terms are entered in brackets in the table.

The ionization limit has been well determined from the nh-series, by means of a Ritz formula.

REFERENCE

Y. G. Toresson, Ark. Fys. (Stockholm) 18, No. 28, 389 to 416 (1960). I P, T, C L, G D

Si III

Config.	Desig.	J	Level	Interval
$3s^2$	$3s^2\ {}^1S$	0	0. 00	
$3s(^2S)3p$	$3p\ {}^3P°$	0	*52724. 69*	128. 59
		1	*52853. 28*	261. 73
		2	*53115. 01*	
$3s(^2S)3p$	$3p\ {}^1P°$	1	*82884. 41*	
$3p^2$	$3p^2\ {}^1D$	2	122214. 52	
$3p^2$	$3p^2\ {}^3P$	0	129708. 45	133. 52
		1	129841. 97	258. 55
		2	130100. 52	
$3s(^2S)3d$	$3d\ {}^3D$	3	142943. 74	−2. 10
		2	142945. 84	−2. 41
		1	142948. 25	
$3s(^2S)4s$	$4s\ {}^3S$	1	153377. 05	
$3p^2$	$3p^2\ {}^1S$	0	153444. 23	
$3s(^2S)4s$	$4s\ {}^1S$	0	159069. 61	
$3s(^2S)3d$	$3d\ {}^1D$	2	165765. 00	
$3s(^2S)4p$	$4p\ {}^3P°$	0	*175230. 01*	33. 09
		1	*175263. 10*	73. 16
		2	*175336. 26*	
$3s(^2S)4p$	$4p\ {}^1P°$	1	*176487. 19*	
$3p(^2P°)3d$	$3d'\ {}^3F°$	2	*198923. 15*	103. 34
		3	*199026. 49*	137. 61
		4	*199164. 10*	
$3s(^2S)4d$	$4d\ {}^3D$	1	201597. 73	0. 55
		2	201598. 28	1. 20
		3	201599. 48	
$3s(^2S)4d$	$4d\ {}^1D$	2	204330. 79	
$3s(^2S)4f$	$4f\ {}^1F°$	3	*204828. 06*	

Si III

Config.	Desig.	J	Level	Interval
$3p(^2P°)3d$	$3d'\ {}^1D°$	2	*205029. 09*	
$3s(^2S)5s$	$5s\ {}^3S$	1	206176. 08	
$3s(^2S)5s$	$5s\ {}^1S$	0	207874. 09	
$3s(^2S)4f$	$4f\ {}^3F°$	2	*209531. 40*	27. 93
		3	*209559. 33*	40. 37
		4	*209599. 70*	
$3s(^2S)5p$	$5p\ {}^1P°$	1	*214532. 17*	
$3s(^2S)5p$	$5p\ {}^3P°$	2	*214989. 27*	−5. 38
		1	*214994. 65*	−0. 81
		0	*214995. 46*	
$3p(^2P°)3d$	$3d'\ {}^3P°$	2	*216190. 24*	−98. 45
		1	*216288. 69*	−61. 57
		0	*216350. 26*	
$3p(^2P°)3d$	$3d'\ {}^3D°$	1	*217385. 77*	54. 15
		2	*217439. 92*	49. 57
		3	*217489. 49*	
$3s(^2S)5f$	$5f\ {}^1F°$	3	*225526. 33*	
$3p(^2P°)4s$	$4s'\ {}^3P°$	0	*226400. 00*	127. 42
		1	*226527. 42*	292. 86
		2	*226820. 28*	
$3s(^2S)5d$	$5d\ {}^3D$	1	227081. 19	3. 02
		2	227084. 21	4. 51
		3	227088. 72	
$3s(^2S)5d$	$5d\ {}^1D$	2	227665. 09	
$3p(^2P°)3d$	$3d'\ {}^1P°$	1	*228699. 75*	
$3s(^2S)6s$	$6s\ {}^3S$	1	229623. 19	
$3s(^2S)5f$	$5f\ {}^3F°$	2	*230267. 7*	0. 9
		3	*230268. 62*	2. 04
		4	*230270. 66*	

Si III—Continued

Config.	Desig.	J	Level	Interval
$3s(^2S)5g$	$5g\ ^3G$	3	230301. 22	
		4	230301. 66	0. 44
		5	230302. 35	0. 69
$3s(^2S)5g$	$5g\ ^1G$	4	230302. 01	
$3s(^2S)6s$	$6s\ ^1S$	0	230364. 46	
$3s(^2S)6p$	$6p\ ^1P°$	1	*234387. 64*	
$3s(^2S)6p$	$6p\ ^3P°$	0	*234415. 07*	
		1	*234428. 40*	13. 33
		2	*234442. 18*	13. 78
$3p(^2P°)3d$	$3d'\ ^1F°$	3	*235413. 93*	
$3p(^2P°)4s$	$4s'\ ^1P°$	1	*235951. 09*	
$3s(^2S)6d$	$6d\ ^3D$	1	240262. 28	
		2	240284. 28	22. 00
		3	240314. 63	30. 35
$3s(^2S)6d$	$6d\ ^1D$	2	240549. 77	
$3s(^2S)7s$	$7s\ ^3S$	1	242145. 10	
$3s(^2S)6f$	$6f\ ^3F°$	2	*242410. 88*	
		3	*242411. 27*	0. 39
		4	*242411. 70*	0. 43
$3s(^2S)6g$	$6g\ ^3G$	3	242473. 66	
		4	242473. 86	0. 20
		5	242474. 81	0. 95
$3s(^2S)6g$	$6g\ ^1G$	4	242474. 27	
$3s(^2S)7s$	$7s\ ^1S$	0	242537. 95	
$3s(^2S)6h$	$6h\ ^{3,1}H°$		*242639. 38*	
$3p(^2P°)4p$	$4p'\ ^1P$	1	242885. 30	
$3s(^2S)6f$	$6f\ ^1F°$	3	*243868. 50*	
$3p(^2P°)4p$	$4p'\ ^3D$	1	244736. 93	
		2	244866. 05	129. 12
		3	245086. 58	220. 53
$3s(^2S)7p$	$7p\ ^1P°$	1	*244871. 47*	
$3s(^2S)7p$	$7p\ ^3P°$	0	*244928. 72*	
		1	*244933. 36*	4. 64
		2	*244943. 31*	9. 95
$3p(^2P°)4p$	$4p'\ ^3P$	0	247871. 66	
		1	247953. 69	82. 03
		2	248168. 04	214. 35
$3p(^2P°)4p$	$4p'\ ^1D$	2	247935. 39	
$3p(^2P°)4p$	$4p'\ ^3S$	1	248772. 86	
$3s(^2S)7d$	$7d\ ^3D$	1	249093. 5	
		2	249103. 90	10. 4
		3	249121. 14	17. 24
$3s(^2S)8s$	$8s\ ^3S$	1	249766. 19	
$3s(^2S)7f$	$7f\ ^3F°$	2	*249774. 48*	
		3	*249774. 70*	0. 22
		4	*249774. 98*	0. 28
$3s(^2S)7g$	$7g\ ^3G$	3	249817. 32	
		4	249817. 85	0. 53
		5	249818. 93	1. 08
$3s(^2S)7g$	$7g\ ^1G$	4	249817. 94	
$3s(^2S)8s$	$8s\ ^1S$	0	249857. 26	

Si III—Continued

Config.	Desig.	J	Level	Interval
$3s(^2S)7h$	$7h\ ^{3,1}H°$	4, 5, 6	*249937. 29*	
$3s(^2S)7i$	$7i\ ^{3,1}I$	5, 6, 7	249966. 49	
$3s(^2S)7f$	$7f\ ^1F°$	3	*250366. 22*	
$3s(^2S)7d$	$7d\ ^3D$	2	250636. 55	
$3s(^2S)8d$	$8d\ ^3D$	1	[254002]	
		2	[254004]	2
		3	254007. 48	3
$3s(^2S)8f$	$8f\ ^3F°$	2	*254557. 03*	
		3	*254557. 26*	0. 23
		4	*254557. 64*	0. 38
$3s(^2S)8g$	$8g\ ^1G$	4	254584. 6	
$3s(^2S)8g$	$8g\ ^3G$	3, 4	254584. 8	
		5	254585. 75	1. 0
$3s(^2S)8h$	$8h\ ^{3,1}H°$	4, 5, 6	*254674. 4*	
$3s(^2S)8i$	$8i\ ^{3,1}I$	5, 6, 7	254694. 99	
$3s(^2S)8k$	$8k\ ^{3,1}K°$	6, 7, 8	[*254702. 29*]	
$3s(^2S)8d$	$8d\ ^1D$	2	254766. 75	
$3s(^2S)8f$	$8f\ ^1F°$	3	*254855. 42*	
$3s(^2S)9d$	$9d\ ^3D$	1, 2, 3	257415. 6	
$3s(^2S)9f$	$9f\ ^3F°$	2, 3, 4	*257831. 4*	
$3s(^2S)9d$	$9d\ ^1D$	2	257848. 5	
$3s(^2S)9g$	$9g\ ^3G$	3, 4, 5	257853. 6	
$3s(^2S)9h$	$9h\ ^{3,1}H°$	4, 5, 6	*257922. 0*	
$3s(^2S)9i$	$9i\ ^{3,1}I$	5, 6, 7	257936. 99	
$3s(^2S)9k$	$9k\ ^{3,1}K°$	6, 7, 8	[*257942. 30*]	
$3s(^2S)9l$	$9l\ ^{3,1}L$	7, 8, 9	[257944. 45]	
$3s(^2S)9f$	$9f\ ^1F°$	3	*258013. 37*	
$3p(^2P°)4p$	$4p'\ ^1S$	0	258978. 66	
$3p(^2P°)4d$	$4d'\ ^1D°?$	2	*267483. 87*	
$3p(^2P°)4d$	$4d'\ ^3F°?$	4	*267686. 48*	
		3, 2		
Si IV ($^2S_{0\frac{1}{2}}$)	**Limit**	-------	**270139. 3**	
$3p(^2P°)4f$	$4f'\ [2\frac{1}{2}]?$	3	278920. 68	
$3p(^2P°)4f$	$4f'\ [3\frac{1}{2}]?$	3	278938. 08	
		4	278938. 08 + x	
$3p(^2P°)5p$	$5p'\ ^1P?$	1	282291. 19?	
$3p(^2P°)5f$	$5f'\ [3\frac{1}{2}]?$	3	301484. 51	
$3p(^2P°)5g$	$5g'\ [4\frac{1}{2}]°$	5	*301884. 14* + x	−6. 83
		4	*301890. 97* + x	
$3p(^2P°)5g$	$5g'\ [3\frac{1}{2}]°$	3	*301887. 94*	
		4	*301892. 26*	4. 32
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Si IV ($^2P°_{0\frac{1}{2}}$)	*Limit*	-------	341426. 8	
Si IV ($^2P°_{1\frac{1}{2}}$)	*Limit*	-------	341887. 9	

Si III Observed Terms

Config. $1s^2\ 2s^2\ 2p^6+$	Observed Terms						
$3s^2$	$3s^2\ {}^1S$						
$3s(^2S)3p$	$3p\ {}^3P^\circ$ $3p\ {}^1P^\circ$						
$3p^2$	$3p^2\ {}^3P$ $3p^2\ {}^1S$ $3p^2\ {}^1D$						
	$ns(n\geq 4)$	$np(n\geq 4)$	$nd(n\geq 3)$	$nf(n\geq 4)$	$ng(n\geq 5)$	$nh(n\geq 6)$	$ni(n\geq 7)$
$3s(^2S)nl$	$4\text{–}8s\ {}^3S$ $4\text{–}8s\ {}^1S$	$4\text{–}7p\ {}^3P^\circ$ $4\text{–}7p\ {}^1P^\circ$	$3\text{–}9d\ {}^3D$ $3\text{–}9d\ {}^1D$	$4\text{–}9f\ {}^3F^\circ$ $4\text{–}9f\ {}^1F^\circ$	$5\text{–}9g\ {}^3G$ $5\text{–}8g\ {}^1G$	$6\text{–}9h\ {}^{3,1}H^\circ$	$7\text{–}9i\ {}^{3,1}I$
$3p(^2P^\circ)nl'$	$4s'\ {}^3P^\circ$ $4s'\ {}^1P^\circ$	$4p'\ {}^3S$ $4p'\ {}^3P$ $4p'\ {}^3D$ $4p'\ {}^1S$ $4, 5?p'\ {}^1P$ $4p'\ {}^1D$	$3d'\ {}^3P^\circ$ $3d'\ {}^3D^\circ$ $3, 4?d'\ {}^3F^\circ$ $3d'\ {}^1P^\circ$ $3, 4?d'\ {}^1D^\circ$ $3d'\ {}^1F^\circ$	$4, 5f'\ {}^{3,1}F?$	$5g'\ {}^{3,1}G^\circ$		

Multiplet Table

Part B SILICON

Si III (Z=14)

I P 33.49 eV Limit 270139.3±0.4 cm^{-1} 370.179 Å (Vac)

Anal A List A April 1964

REFERENCES

A Y. G. Toresson, Ark. Fys. (Stockholm) **18**, No. 28, 389 to 416 (1960).
I P, T, C L, I, G D; W L 423 Å to 9799 Å

P Predicted wavelength

New Multiplet Numbers, not inserted between older ones, start with UV 11 and 14.

*Blend

*and § Blend of Si III and Si IV

Si III **Si III**

I A	Ref	Int	E P Low	E P High	J	Multiplet No.	I A	Ref	Int	E P Low	E P High	J	Multiplet No.
Vac 1892.030	A	3†	0. 00	6. 55	0—1	$3s^2\ ^1S$ —$3p\ ^3P°$ UV 1	Vac 1447.196	A	6	6. 58	15. 15	2—2	$3p\ ^3P°$ —$3p^2\ ^1D$
							1441.732	A	5	6. 55	15. 15	1—2	UV 3.05
1206.510‡	A	30*	0. 00	10. 28	0—1	$3s^2\ ^1S$ —$3p\ ^1P°$ UV 2	1298.960	A	18	6. 58	16. 13	2—2	$3p\ ^3P°$ —$3p^2\ ^3P$
							1298.891	A	15	6. 55	16. 10	1—1	UV 4
							1303.320	A	16	6. 58	16. 10	2—1	
566.613	A	8	0. 00	21. 88	0—1	$3s^2\ ^1S$ —$4p\ ^1P°$ UV 3	1301.146	A	14	6. 55	16. 08	1—0	
							1294.543	A	17	6. 55	16. 13	1—2	
							1296.726	A	14	6. 54	16. 10	0—1	
466.129	A	4	0. 00	26. 60	0—1	$3s^2\ ^1S$ —$5p\ ^1P°$ UV 3.01	1113.228	A	18	6. 58	17. 72	2—3	$3p\ ^3P°$ —$3d\ ^3D$
							1109.970	A	16	6. 55	17. 72	1—2	UV 5
437.255	P		0. 00	28. 35	0—1	$3s^2\ ^1S$ —$3d'\ ^1P°$ UV 3.02	1108.368	A	14	6. 54	17. 72	0—1	
							1113.204	P		6. 58	17. 72	2—2	
							1109.940	P	16	6. 55	17. 72	1—1	
426.644	P		0. 00	29. 06	0—1	$3s^2\ ^1S$ —$6p\ ^1P°$ UV 3.03	1113.174	P		6. 58	17. 72	2—1	
423.817	P		0. 00	29. 25	0—1	$3s^2\ ^1S$ —$4s'\ ^1P°$ UV 3.04							

Si III—Continued

I A	Ref	Int	E P Low	E P High	J	Multiplet No.
Vac						
997.389	A	16	6. 58	19. 02	2—1	$3p\ ^3P°$ —$4s\ ^3S$ UV 6
994.787	A	13	6. 55	19. 02	1—1	
993.519	A	10	6. 54	19. 02	0—1	
*673.477	A	5	6. 58	24. 99	2—3	$3p\ ^3P°$ —$4d\ ^3D$ UV 6.01
*672.293	A	4	6. 55	24. 99	1—2	
671.718	A	2	6. 54	24. 99	0—1	
*673.477	A	5	6. 58	24. 99	2—2	
*672.293	A	4	6. 55	24. 99	1—1	
*673.477	A	5	6. 58	24. 99	2—1	
653.332	A	8	6. 58	25. 56	2—1	$3p\ ^3P°$ —$5s\ ^3S$ UV 6.02
652.223	A	6	6. 55	25. 56	1—1	
651.668	A	4	6. 54	25. 56	0—1	
574.799	P		6. 58	28. 15	2—3	$3p\ ^3P°$ —$5d\ ^3D$ UV 6.03
573.951	P		6. 55	28. 15	1—2	
573.538	P		6. 54	28. 15	0—1	
574.814	P		6. 58	28. 15	2—2	
573.961	P		6. 55	28. 15	1—1	
574.824	P		6. 58	28. 15	2—1	
566.546	P		6. 58	28. 47	2—1	$3p\ ^3P°$ —$6s\ ^3S$ UV 6.04
565.698	A	2	6. 55	28. 47	1—1	
565.289	A	1	6. 54	28. 47	0—1	
534.189	P		6. 58	29. 79	2—3	$3p\ ^3P°$ —$6d\ ^3D$ UV 6.05
533.530	P		6. 55	29. 79	1—2	
533.226	P		6. 54	29. 79	0—1	
534.276	P		6. 58	29. 79	2—2	
533.592	P		6. 55	29. 79	1—1	
534.339	P		6. 58	29. 79	2—1	
520. 92	A	0	6. 58	30. 39	2—3	$3p\ ^3P°$—$4p'\ ^3D$ UV 6. 06
*520. 79	A	00	6. 55	30. 36	1—2	
*520. 79	A	00	6. 54	30. 34	0—1	
521. 510	P		6. 58	30. 36	2—2	
521. 149	P		6. 55	30. 34	1—1	
521. 861	P		6. 58	30. 34	2—1	
512. 681	P		6. 58	30. 77	2—2	$3p\ ^3P°$—$4p'\ ^3P$ UV 6. 07
512. 557	P		6. 55	30. 74	1—1	
513. 245	P		6. 58	30. 74	2—1	
512. 772	P		6. 55	30. 73	1—0	
511. 994	P		6. 55	30. 77	1—2	
512. 219	P		6. 54	30. 74	0—1	
511. 096	P		6. 58	30. 84	2—1	$3p\ ^3P°$—$4p'\ ^3S$ UV 6. 08
510. 414	P		6. 55	30. 84	1—1	
510. 079	P		6. 54	30. 84	0—1	
Air						
2541. 818	A	25	10. 28	15. 15	1—2	$3p\ ^1P°$—$3p^2\ ^1D$ UV 6. 09
Vac						
1417. 237	A	13	10. 28	19. 02	1—0	$3p\ ^1P°$—$3p^2\ ^1S$ UV 9
1312. 590	A	13	10. 28	19. 72	1—0	$3p\ ^1P°$—$4s\ ^1S$ UV 10
1206. 533	A	30*	10. 28	20. 55	1—2	$3p\ ^1P°$—$3d\ ^1D$ UV 11
823. 408	A	9	10. 28	25. 33	1—2	$3p\ ^1P°$—$4d\ ^1D$ UV 12
800. 066	A	5	10. 28	25. 77	1—0	$3p\ ^1P°$—$5s\ ^1S$ UV 13

Si III—Continued

I A	Ref	Int	E P Low	E P High	J	Multiplet No.
Vac						
690. 689	A	2	10. 28	28. 23	1—2	$3p\ ^1P°$—$5d\ ^1D$ UV 14
678. 055	A	2	10. 28	28. 56	1—0	$3p\ ^1P°$—$6s\ ^1S$ UV 15
634. 255	P		10. 28	29. 82	1—2	$3p\ ^1P°$—$6d\ ^1D$ UV 16
624.997	P		10. 28	30. 11	1—1	$3p\ ^1P°$ —$4p'\ ^1P$ UV 17
605.873	P		10. 28	30. 74	1—2	$3p\ ^1P°$ —$4p'\ ^1D$ UV 18
567.878	P		10. 28	32. 11	1—0	$3p\ ^1P°$ —$4p'\ ^1S$ UV 19
1842.547	A	9	15. 15	21. 88	2—1	$3p^2\ ^1D$ —$4p\ ^1P°$ UV 20
1210.456	A	10	15. 15	25. 39	2—3	$3p^2\ ^1D$ —$4f\ ^1F°$ UV 21
1207.517	A	9	15. 15	25. 42	2—2	$3p^2\ ^1D$ —$3d'\ ^1D°$ UV 22
1083.210	A	6	15. 15	26. 60	2—1	$3p^2\ ^1D$ —$5p\ ^1P°$ UV 23
967.946	A	9	15. 15	27. 96	2—3	$3p^2\ ^1D$ —$5f\ ^1F°$ UV 24
939.093	A	7	15. 15	28. 35	2—1	$3p^2\ ^1D$ —$3d'\ ^1P°$ UV 25
891.479	P		15. 15	29. 06	2—1	$3p^2\ ^1D$ —$6p\ ^1P°$ UV 26
883.398	A	5	15. 15	29. 19	2—3	$3p^2\ ^1D$ —$3d'\ ^1F°$ UV 27
879.233	A	0	15. 15	29. 25	2—1	$3p^2\ ^1D$ —$4s'\ ^1P°$ UV 28
822.004	P		15. 15	30. 24	2—3	$3p^2\ ^1D$ —$6f\ ^1F°$ UV 29
*1178.004	A	8	16. 13	26. 65	2—2	$3p^2\ ^3P$ —$5p\ ^3P°$ UV 30
*1174.369	A	5	16. 10	26. 66	1—1	
*1178.004	A	8	16. 13	26. 66	2—1	
*1174.369	A	5	16. 10	26. 66	1—0	
1174.432	A	6	16. 10	26. 65	1—2	
1172.529	A	4	16. 08	26. 66	0—1	
1161.579	A	8	16. 13	26. 80	2—2	$3p^2\ ^3P$ —$3d'\ ^3P°$ UV 31
1156.782	A	4	16. 10	26. 82	1—1	
1160.255	A	6	16. 13	26. 82	2—1	
1155.957	A	6	16. 10	26. 82	1—0	
1158.102	A	7	16. 10	26. 80	1—2	
1154.998	A	6	16. 08	26. 82	0—1	
1144.306	A	8	16. 13	26. 96	2—3	$3p^2\ ^3P$ —$3d'\ ^3D°$ UV 32
1141.580	A	7	16. 10	26. 96	1—2	
1140.545	A	6	16. 08	26. 95	0—1	
1144.959	A	6	16. 13	26. 96	2—2	
1142.282	A	6	16. 10	26. 95	1—1	
1145.669	P		16. 13	26. 95	2—1	

Si III—Continued

I A	Ref	Int	E P Low	E P High	J	Multiplet No.
Vac						
1033.920	A	8	16. 13	28. 12	2—2	$3p^2\ ^3P$ —$4s'\ ^3P°$
1034.287	A	4	16. 10	28. 09	1—1	UV 33
1037.053	A	7	16. 13	28. 09	2—1	
1035.657	A	3	16. 10	28. 07	1—0	
1031.169	A	7	16. 10	28. 12	1—2	
1032.851	A	3	16. 08	28. 09	0—1	
Air						
3086.236	A	25	17. 72	21. 74	3—2	$3d\ ^3D$ —$4p\ ^3P°$
3093.424	A	20	17. 72	21. 73	2—1	1
3096.826	A	16	17. 72	21. 73	1—0	
3086.46	A	6	17. 72	21. 74	2—2	
3093.65	A	5	17. 72	21. 73	1—1	
3086.666	P		17. 72	21. 74	1—2	
2980.519	A	5	17. 72	21. 88	2—1	$3d\ ^3D$ —$4p\ ^1P°$ UV 34
Vac						
1778.715	P		17. 72	24. 69	3—4	$3d\ ^3D$ —$3d'\ ^3F°$
1783.146	P		17. 72	24. 68	2—3	UV 35
1786.515	P		17. 72	24. 66	1—2	
1783.079	P		17. 72	24. 68	3—3	
1786.438	P		17. 72	24. 66	2—2	
1786.371	P		17. 72	24. 66	3—2	
1500.241	A	12	17. 72	25. 99	3—4	$3d\ ^3D$ —$4f\ ^3F°$
1501.191	A	10	17. 72	25. 98	2—3	UV 36
1501.870	A	9	17. 72	25. 98	1—2	
1501.150	P		17. 72	25. 98	3—3	
1501.827	P		17. 72	25. 98	2—2	
1501.780	P		17. 72	25. 98	3—2	
1388.011	P	5	17. 72	26. 65	3—2	$3d\ ^3D$ —$5p\ ^3P°$
1387.948	P		17. 72	26. 66	2—1	UV 37
1387.979	P		17. 72	26. 66	1—0	
1388.052	P		17. 72	26. 65	2—2	
1387.994	P		17. 72	26. 66	1—1	
1388.098	P		17. 72	26. 65	1—2	
1365.253	P	8	17. 72	26. 80	3—2	$3d\ ^3D$ —$3d'\ ^3P°$
1363.459	P	7	17. 72	26. 82	2—1	UV 38
1362.366	A	5	17. 72	26. 82	1—0	
1365.292	P		17. 72	26. 80	2—2	
1363.504	P		17. 72	26. 82	1—1	
1365.337	P		17. 72	26. 80	1—2	
1341.465	A	8	17. 72	26. 96	3—3	$3d\ ^3D$ —$3d'\ ^3D°$
1342.392	A	7	17. 72	26. 96	2—2	UV 39
*1343.388	A	6	17. 72	26. 95	1—1	
1342.351	P		17. 72	26. 96	3—2	
*1343.388	A	6	17. 72	26. 95	2—1	
1341.496	P		17. 72	26. 96	2—3	
1342.432	P		17. 72	26. 96	1—2	
1192.228	P		17. 72	28. 12	3—2	$3d\ ^3D$ —$4s'\ ^3P°$
1196.436	P		17. 72	28. 09	2—1	UV 40
1198.297	P		17. 72	28. 07	1—0	
1192.258	P		17. 72	28. 12	2—2	
1196.470	P		17. 72	28. 09	1—1	
1192.293	P		17. 72	28. 12	1—2	
1145.122	P	8*	17. 72	28. 55	3—4	$3d\ ^3D$ —$5f\ ^3F°$
1145.177	P	7*	17. 72	28. 55	2—3	UV 41
1145.22	P		17. 72	28. 55	1—2	
1145.149	P	8*	17. 72	28. 55	3—3	
1145.19	P	7*	17. 72	28. 55	2—2	
1145.16	P		17. 72	28. 55	3—2	

Si III—Continued

I A	Ref	Int	E P Low	E P High	J	Multiplet No.
Vac						
1092.915	P		17. 72	29. 07	3—2	$3d\ ^3D$ —$6p\ ^3P°$
1093.105	P		17. 72	29. 06	2—1	UV 42
1093.293	P		17. 72	29. 06	1—0	
1092.940	P		17. 72	29. 07	2—2	
1093.133	P		17. 72	29. 06	1—1	
1092.969	P		17. 72	29. 07	1—2	
1005.349	P	7*	17. 72	30. 05	3—4	$3d\ ^3D$ —$6f\ ^3F°$
1005.374	P		17. 72	30. 05	2—3	UV 43
1005.403	P		17. 72	30. 05	1—2	
1005.353	P		17. 72	30. 05	3—3	
1005.378	P		17. 72	30. 05	2—2	
1005.357	P		17. 72	30. 05	3—2	
936.056	P	3*	17. 72	30. 97	3—4	$3d\ ^3D$ —$7f\ ^3F°$
936.077	P		17. 72	30. 97	2—3	UV 44
936.100	P		17. 72	30. 97	1—2	
936.058	P		17. 72	30. 97	3—3	
936.079	P		17. 72	30. 97	2—2	
936.060	P		17. 72	30. 97	3—2	
Air						
4552.616	A	30	19. 02	21. 74	1—2	$4s\ ^3S$ —$4p\ ^3P°$
4567.823	A	25	19. 02	21. 73	1—1	2
4574.759	A	20	19. 02	21. 73	1—0	
Vac						
1623.055	P		19. 02	26. 65	1—2	$4s\ ^3S$ —$5p\ ^3P°$
1622.913	P		19. 02	26. 66	1—1	UV 45
1622.892	P		19. 02	26. 66	1—0	
1361.597	A	8	19. 02	28. 12	1—2	$4s\ ^3S$ —$4s'\ ^3P°$
1367.049	A	7	19. 02	28. 09	1—1	UV 46
1369.437	A	5	19. 02	28. 07	1—0	
Air						
4338.501	A	9	19. 02	21. 88	0—1	$3p^2\ ^1S$ —$4p\ ^1P°$ 3
Vac						
1636.990	A	1	19. 02	26. 60	0—1	$3p^2\ ^1S$ —$5p\ ^1P°$ UV 47
1328.806	P		19. 02	28. 35	0—1	$3p^2\ ^1S$ —$3d'\ ^1P°$ UV 48
1235.431	A	7	19. 02	29. 06	0—1	$3p^2\ ^1S$ —$6p\ ^1P°$ UV 49
1212.011	A	2	19. 02	29. 25	0—1	$3p^2\ ^1S$ —$4s'\ ^1P°$ UV 50
Air						
6173.712	A	3	19. 72	21. 73	0—1	$4s\ ^1S$ —$4p\ ^3P°$ 3.01
5739.733	A	20	19. 72	21. 88	0—1	$4s\ ^1S$ —$4p\ ^1P°$ 4
Vac						
1803.023	A	3	19. 72	26. 60	0—1	$4s\ ^1S$ —$5p\ ^1P°$ UV 51
1436.166	A	7	19. 72	28. 35	0—1	$4s\ ^1S$ —$3d'\ ^1P°$ UV 52
1327.703	P		19. 72	29. 06	0—1	$4s\ ^1S$ —$6p\ ^1P°$ UV 53

Si III—Continued

I A	Ref	Int	E P Low	E P High	J	Multiplet No.
Vac 1300.703	P		19. 72	29. 25	0—1	$4s\ ^1S$ —$4s'\ ^1P°$ UV 54
Air 9323.899	A	3*h*	20. 55	21. 88	2—1	$3d\ ^1D$ —$4p\ ^1P°$ 4.01
2559.210	A	14	20. 55	25. 39	2—3	$3d\ ^1D$ —$4f\ ^1F°$ UV 55
2546.093	A	10	20. 55	25. 42	2—2	$3d\ ^1D$ —$3d'\ ^1D°$ UV 56
2049.913	A	2	20. 55	26. 60	2—1	$3d\ ^1D$ —$5p\ ^1P°$ UV 57
Vac 1673.315	A	7	20. 55	27. 96	2—3	$3d\ ^1D$ —$5f\ ^1F°$ UV 58
1588.950	A	2	20. 55	28. 35	2—1	$3d\ ^1D$ —$3d'\ ^1P°$ UV 59
1457.253	A	5	20. 55	29. 06	2—1	$3d\ ^1D$ —$6p\ ^1P°$ UV 60
1435.776	A	8	20. 55	29. 19	2—3	$3d\ ^1D$ —$3d'\ ^1F°$ UV 61
1424.775	A	2	20. 55	29. 25	2—1	$3d\ ^1D$ —$4s'\ ^1P°$ UV 62
1280.354	A	6	20. 55	30. 24	2—3	$3d\ ^1D$ —$6f\ ^1F°$ UV 63
1182.018	A	3	20. 55	31. 04	2—3	$3d\ ^1D$ —$7f\ ^1F°$ UV 64
Air 3806.544	A	30	21. 74	24. 99	2—3	$4p\ ^3P°$ —$4d\ ^3D$ 5
3796.114	A	25	21. 73	24. 99	1—2	
3791.41	A	20*	21. 73	24. 99	0—1	
3447.938	P		21. 74	25. 33	2—2	$4p\ ^3P°$ —$4d\ ^1D$ 5.01
3439.242	A	3	21. 73	25. 33	1—2	
3241.622	A	15	21. 74	25. 56	2—1	$4p\ ^3P°$ —$5s\ ^3S$ 6
3233.954	A	14	21. 73	25. 56	1—1	
3230.499	A	12	21. 73	25. 56	0—1	
Vac 1842.064	P		21. 74	28. 47	2—1	$4p\ ^3P°$ —$6s\ ^3S$ UV 65
1839.585	P		21. 73	28. 47	1—1	
1838.466	P		21. 73	28. 47	0—1	
1433.690	A	6	21. 74	30. 39	2—3	$4p\ ^3P°$ —$4p'\ ^3D$ UV 66
1436.724	A	4	21. 73	30. 36	1—2	
1438.702	A	2	21. 73	30. 34	0—1	
1438.228	A	2	21. 74	30. 36	2—2	
1439.391	A	2	21. 73	30. 34	1—1	
1440.908	P		21. 74	30. 34	2—1	
1373.030	A	5	21. 74	30. 77	2—2	$4p\ ^3P°$ —$4p'\ ^3P$ UV 67
1375.688	A	2	21. 73	30. 74	1—1	
1377.082	A	3	21. 74	30. 74	2—1	
1377.238	A	2	21. 73	30. 73	1—0	
1371.652	A	3	21. 73	30. 77	1—2	
1375.083	A	2	21. 73	30. 74	0—1	

Si III—Continued

I A	Ref	Int	E P Low	E P High	J	Multiplet No.
Vac 1361.719	P		21. 74	30. 84	2—1	$4p\ ^3P°$ —$4p'\ ^3S$ UV 68
1360.360	A	1	21. 73	30. 84	1—1	
1359.751	P		21. 73	30. 84	0—1	
Air 3981.238	A	5	21. 88	24. 99	1—1	$4p\ ^1P°$ —$4d\ ^3D$ 6.01
3590.465	A	20	21. 88	25. 33	1—2	$4p\ ^1P°$ —$4d\ ^1D$ 7
3185.125	A	16	21. 88	25. 77	1—0	$4p\ ^1P°$ —$5s\ ^1S$ 8
Vac 1953.968	P		21. 88	28. 23	1—2	$4p\ ^1P°$ —$5d\ ^1D$ UV 69
1856.062	A	1	21. 88	28. 56	1—0	$4p\ ^1P°$ —$6s\ ^1S$ UV 70
1560.974	P		21. 88	29. 82	1—2	$4p\ ^1P°$ —$6d\ ^1D$ UV 71
1506.060	A	6	21. 88	30. 11	1—1	$4p\ ^1P°$ —$4p'\ ^1P$ UV 72
1399.615	P		21. 88	30. 74	1—2	$4p\ ^1P°$ —$4p'\ ^1D$ UV 73
1212.247	P		21. 88	32. 11	1—0	$4p\ ^1P°$ —$4p'\ ^1S$ UV 74
Air 3580.050	A	3*h*	24. 69	28. 15	4—3	$3d'\ ^3F°$ —$5d\ ^3D$ 8.01
3563.11	A	2*h**	24. 68	28. 15	3—2	
3550.38	A	1*h**	24. 66	28. 15	2—1	
3210.554	A	15	24. 69	28. 55	4—5	$3d'\ ^3F°$ —$5g\ ^3G$ 8.02
3196.504	A	14	24. 68	28. 55	3—4	
3186.022	A	13	24. 66	28. 55	2—3	
2429.35	A	7*	24. 69	29. 79	4—3	$3d'\ ^3F°$ —$6d\ ^3D$ UV 75
2423.049	P		24. 68	29. 79	3—2	
2418.281	P		24. 66	29. 79	2—1	
2308.191	A	10	24. 69	30. 06	4—5	$3d'\ ^3F°$ —$6g\ ^3G$ UV 76
2300.930	A	8	24. 68	30. 06	3—4	
2295.476	A	6	24. 66	30. 06	2—3	
2176.894	A	5	24. 69	30. 39	4—3	$3d'\ ^3F°$ —$4p'\ ^3D$ UV 77
2180.836	A	4	24. 68	30. 36	3—2	
2182.049	A	3	24. 66	30. 34	2—1	
2170.42	A	0	24. 68	30. 39	3—3	
7466.322	A	9*h*	24. 99	26. 65	3—2	$4d\ ^3D$ —$5p\ ^3P°$ 8.03
*7462.624	A	8*h*	24. 99	26. 66	2—1	
7461.890	A	5*h*	24. 99	26. 66	1—0	
7465.669	A	4*h*	24. 99	26. 65	2—2	
7462.347	P		24. 99	26. 66	1—1	
6851.65	A	7*h*	24. 99	26. 80	3—2	$4d\ ^3D$ —$3d'\ ^3P°$ 8.04
6805.244	A	4*h*	24. 99	26. 82	2—1	
6776.623	A	2*h*	24. 99	26. 82	1—0	
6851.18	A	3*h*	24. 99	26. 80	2—2	
6805.029	P		24. 99	26. 82	1—1	

Si III—Continued

I A	Ref	Int	E P Low	E P High	J	Multiplet No.
Air						
3963.838	A	6	24. 99	28. 12	3—2	$4d\ ^3D$ —$4s'\ ^3P°$ 8.05
*4010.192	A	4	24. 99	28. 09	2—1	
4030.752	A	2	24. 99	28. 07	1—0	
3963.671	P		24. 99	28. 12	2—2	
*4010.192	A	4	24. 99	28. 09	1—1	
3486.911	A	15	24. 99	28. 55		$4d\ ^3D$ —$5f\ ^3F°$ 8.06
3043.932	A	7	24. 99	29. 07	3—2	$4d\ ^3D$ —$6p\ ^3P°$ 8.07
3045.076	A	5	24. 99	29. 06	2—1	
3046.284	A	3	24. 99	29. 06	1—0	
2449.484	A	11	24. 99	30. 05		$4d\ ^3D$ —$6f\ ^3F°$ UV 78
2306.42	A	2*h*	24. 99	30. 37	3—2	$4d\ ^3D$ —$7p\ ^3P°$ UV 79
2306.889	P	1*h**	24. 99	30. 37	2—1	
2307.107	P		24. 99	30. 37	1—0	
2075.04	A	2*h*	24. 99	30. 97		$4d\ ^3D$ —$7f\ ^3F°$ UV 80
9799.906	A	2*h*	25. 33	26. 60	2—1	$4d\ ^1D$ —$5p\ ^1P°$ 8.08
4716.651	A	16	25. 33	27. 96	2—3	$4d\ ^1D$ —$5f\ ^1F°$ 8.09
4102.422	A	8	25. 33	28. 35	2—1	$4d\ ^1D$ —$3d'\ ^1P°$ 8.10
3216.249	A	7	25. 33	29. 19	2—3	$4d\ ^1D$ —$3d'\ ^1F°$ 8.11
3161.610	A	8	25. 33	29. 25	2—1	$4d\ ^1D$ —$4s'\ ^1P°$ 8.12
m2528.471	P	Si I	25. 33	30. 24	2—3	$4d\ ^1D$ —$6f\ ^1F°$ UV 81
2171.559	A	1	25. 33	31. 04	2—3	$4d\ ^1D$ —$7f\ ^1F°$ UV 82
Vac						
m1979.233	P	Si I	25. 33	31. 60	2—3	$4d\ ^1D$ —$8f\ ^1F°$ UV 83
Air						
4377.626	A	8*h*	25. 39	28. 23	3—2	$4f\ ^1F°$ —$5d\ ^1D$ 8.13
3924.468	A	20	25. 39	28. 55	3—4	$4f\ ^1F°$ —$5g\ ^1G$ 8.14
2655.512	A	14	25. 39	30. 06	3—4	$4f\ ^1F°$ —$6g\ ^1G$ UV 84
2222.01	A	2*h*	25. 39	30. 97	3—4	$4f\ ^1F°$ —$7g\ ^1G$ UV 85
2640.788	A	11	25. 42	30. 11	2—1	$3d'\ ^1D°$—$4p'\ ^1P$ UV 86
2329.931	A	2*h*	25. 42	30. 74	2—2	$3d'\ ^1D°$—$4p'\ ^1D$ UV 87
4842.57	A	5*	25. 56	28. 12	1—2	$5s\ ^3S$ —$4s'\ ^3P°$ 8.15
4912.332	A	4	25. 56	28. 09	1—1	
m4943.260	P	O II	25. 56	28. 07	1—0	

Si III—Continued

I A	Ref	Int	E P Low	E P High	J	Multiplet No.
Air						
4800.428	A	8	25. 77	28. 35	0—1	$5s\ ^1S$ —$3d'\ ^1P°$ 8.16
5716.289	A	8	25. 99	28. 15	4—3	$4f\ ^3F°$ —$5d\ ^3D$ 8.17
5704.598	A	7	25. 98	28. 15	3—2	
5696.50	A	7*	25. 98	28. 15	2—1	
5703.121	A	4	25. 98	28. 15	3—3	
5695.522	A	3	25. 98	28. 15	2—2	
4828.968	A	18	25. 99	28. 55	4—5	$4f\ ^3F°$ —$5g\ ^3G$ 9
4819.718	A	16	25. 98	28. 55	3—4	
4813.330	A	15	25. 98	28. 55	2—3	
3254.800	A	7	25. 99	29. 79	4—3	$4f\ ^3F°$ —$6d\ ^3D$ 9.01
3253.741	A	5	25. 98	29. 79	3—2	
3253.117	A	4	25. 98	29. 79	2—1	
3250.56	A	1	25. 98	29. 79	3—3	
3250.79	A	1	25. 98	29. 79	2—2	
3040.933	A	9	25. 99	30. 06	4—5	$4f\ ^3F°$ —$6g\ ^3G$ 10
3037.287	A	8	25. 98	30. 06	3—4	
3034.732	A	6	25. 98	30. 06	2—3	
2817.110	A	9	25. 99	30. 39	4—3	$4f\ ^3F°$ —$4p'\ ^3D$ UV 88
2831.490	A	7	25. 98	30. 36	3—2	
2839.622	A	5	25. 98	30. 34	2—1	
2813.912	P		25. 98	30. 39	3—3	
2829.23	A	1*	25. 98	30. 36	2—2	
m2485.623	P	Cu II	25. 99	30. 97	4—5	$4f\ ^3F°$ —$7g\ ^3G$ UV 89
2483.196	A	6	25. 98	30. 97	3—4	
2481.508	A	3	25. 98	30. 97	2—3	
7612.356	A	12*h*	26. 60	28. 23	1—2	$5p\ ^1P°$ —$5d\ ^1D$ 10.01
6314.459	A	7	26. 60	28. 56	1—0	$5p\ ^1P°$ —$6s\ ^1S$ 10.02
3842.458	A	7	26. 60	29. 82	1—2	$5p\ ^1P°$ —$6d\ ^1D$ 10.03
3569.673	A	8	26. 60	30. 07	1—0	$5p\ ^1P°$ —$7s\ ^1S$ 10.04
3525.939	A	9	26. 60	30. 11	1—1	$5p\ ^1P°$ —$4p'\ ^1P$ 10.05
2830.02	A	1*	26. 60	30. 98	1—0	$5p\ ^1P°$ —$8s\ ^1S$ UV 90
8262.568	A	9*h*	26. 65	28. 15	2—3	$5p\ ^3P°$ —$5d\ ^3D$ 10.06
8269.324	A	8*h*	26. 66	28. 15	1—2	
8271.944	A	6*h*	26. 66	28. 15	0—1	
8265.640	A	5*h*	26. 65	28. 15	2—2	
8271.377	A	5*h*	26. 66	28. 15	1—1	
8267.75	A	0*h*	26. 65	28. 15	2—1	
6831.560	A	6*h*	26. 65	28. 47	2—1	$5p\ ^3P°$ —$6s\ ^3S$ 10.07
6834.08	A	4*h*	26. 66	28. 47	1—1	
6834.38	A	2*h*	26. 66	28. 47	0—1	
3947.488	A	6*h*	26. 65	29. 79	2—3	$5p\ ^3P°$ —$6d\ ^3D$ 10.08
3953.080	A	4*h*	26. 66	29. 79	1—2	
3956.66	A	2*h*	26. 66	29 79	0—1	
3952.239	A	1*h*	26. 65	29. 79	2—2	
3956.55	A	1*h*	26. 66	29. 79	1—1	
3681.402	A	7*h*	26. 65	30. 02	2—1	$5p\ ^3P°$ —$7s\ ^3S$ 10.09
3682.15	A	5*h*	26. 66	30. 02	1—1	
3682.25	A	2*h*	26. 66	30. 02	0—1	

Si III—Continued

I A	Ref	Int	E P Low	E P High	J	Multiplet No.
Air						
3321.578	A	4	26. 65	30. 39	2—3	$5p\ ^3P^\circ$ —$4p'\ ^3D$ 10.10
3346.717	A	2	26. 66	30. 36	1—2	
3361.343	P		26. 66	30. 34	0—1	
3013.091	A	5	26. 65	30. 77	2—2	$5p\ ^3P^\circ$ —$4p'\ ^3P$ 10.1i
3032.66	A	4*	26. 65	30. 74	2—1	
2959.150	A	5	26. 65	30. 84	2—1	$5p\ ^3P^\circ$ —$4p'\ ^3S$ UV 91
*2959.67	A	3*	26. 66	30. 84	1—1	
*2959.67	A	3*	26. 66	30. 84	0—1	
2874.626	A	4	26. 65	30. 97	2—1	$5p\ ^3P^\circ$ —$8s\ ^3S$ UV 92
*2875.09	A	2*	26. 66	30. 97	1—1	
*2875.09	A	2*	26. 66	30. 97	0—1	
7442.327	A	4h	26. 80	28. 47	2—1	$3d'\ ^3P^\circ$ —$6s\ ^3S$ 10.12
7497.286	A	3h	26. 82	28. 47	1—1	
7532.055	A	1h	26. 82	28. 47	0—1	
3126.267	A	6	26. 80	30. 77	2—2	$3d'\ ^3P^\circ$ —$4p'\ ^3P$ 11
3157.159	A	1	26. 82	30. 74	1—1	
3147.371	A	7	26. 80	30. 74	2—1	
*3165.38§	A	2	26. 82	30. 73	1—0	
3135.906	A	3	26. 82	30. 77	1—2	
3163.281	A	2	26. 82	30. 74	0—1	
3068.238	A	7	26. 80	30. 84	2—1	$3d'\ ^3P^\circ$ —$4p'\ ^3S$ 11.01
3077.523	A	4	26. 82	30. 84	1—1	
3083.363	A	2	26. 82	30. 84	0—1	
4379.876	A	1h	26. 96	29. 79	3—3	$3d'\ ^3D^\circ$ —$6d\ ^3D$ 11.02
3622.538	A	8h	26. 96	30. 39	3—3	$3d'\ ^3D^\circ$ —$4p'\ ^3D$ 11.03
3645.123	A	6h	26. 96	30. 36	2—2	
3655.112	A	4h	26. 95	30. 34	1—1	
3651.721	A	2h	26. 96	30. 36	3—2	
3662.366	A	2h	26. 96	30. 34	2—1	
3616.040	A	1h	26. 96	30. 39	2—3	
3637.943	A	2h	26. 95	30. 36	1—2	
3258.664	A	12	26. 96	30. 77	3—2	$3d'\ ^3D^\circ$ —$4p'\ ^3P$ 12
3276.264	A	10	26. 96	30. 74	2—1	
3279.258	A	7	26. 95	30. 73	1—0	
3253.401	A	7	26. 96	30. 77	2—2	
3270.456	A	6	26. 95	30. 74	1—1	
3283.570	A	1	26. 96	30. 74	3—2	$3d'\ ^3D^\circ$ —$4p'\ ^1D$ 12.01
5898.788	A	10h	27. 96	30. 06	3—4	$5f\ ^1F^\circ$ —$6g\ ^1G$ 12.02
4461.27	A	0	27. 96	30. 74	3—2	$5f\ ^1F^\circ$ —$4p'\ ^1D$ 12.03
4115.504	A	5h	27. 96	30. 97	3—4	$5f\ ^1F^\circ$ —$7g\ ^1G$ 12.04
3440.37	A	5*	27. 96	31. 56	3—4	$5f\ ^1F^\circ$ —$8g\ ^1G$ 12.05
7408.467	A	3h	28. 12	29. 79	2—3	$4s'\ ^3P^\circ$ —$6d\ ^3D$ 12.06
7267.090	A	2h	28. 09	29. 79	1—2	
7211.836	A	1h	28. 07	29. 79	0—1	
7425.10	A	1h	28. 12	29. 79	2—2	
7278.79	A	0h	28. 09	29. 79	1—1	

Si III—Continued

I A	Ref	Int	E P Low	E P High	J	Multiplet No.
Air						
6111.571	A	1	28. 09	30. 11	1—1	$4s'\ ^3P^\circ$ —$4p'\ ^1P$ 12.07
5473.045	A	7	28. 12	30. 39	2—3	$4s'\ ^3P^\circ$ —$4p'\ ^3D$ 12.08
5451.462	A	6	28. 09	30. 36	1—2	
5451.961	A	4	28. 07	30. 34	0—1	
5539.926	A	3	28. 12	30. 36	2—2	
5490.114	A	3	28. 09	30. 34	1—1	
5579.94	A	0	28. 12	30. 34	2—1	
4683.022	A	9	28. 12	30. 77	2—2	$4s'\ ^3P^\circ$ —$4p'\ ^3P$ 13
4665.869	A	8	28. 09	30. 74	1—1	
4730.519	A	7	28. 12	30. 74	2—1	
4683.797	A	7	28. 09	30. 73	1—0	
4619.657	A	7	28. 09	30. 77	1—2	
4638.277	A	7	28. 07	30. 74	0—1	
4734.627	A	2	28. 12	30. 74	2—2	$4s'\ ^3P^\circ$ —$4p'\ ^1D$ 14
4669.89	A	1	28. 09	30. 74	1—2	
4553.996	A	8	28. 12	30. 84	2—1	$4s'\ ^3P^\circ$ —$4p'\ ^3S$ 15
4494.048	A	6	28. 09	30. 84	1—1	
4468.452	A	2	28. 07	30. 84	0—1	
4482.884	A	3h	28. 12	30. 89	2—3	$4s'\ ^3P^\circ$ —$7d\ ^3D$ 16
4428.146	A	1h	28. 09	30. 88	1—2	
4486.28	A	0h	28. 12	30. 88	2—2	
6524.357	A	6h	28. 15	30. 05	3—4	$5d\ ^3D$ —$6f\ ^3F^\circ$ 17
6522.626	A	4h	28. 15	30. 05	2—3	
6521.485	A	3h	28. 15	30. 05	1—2	
5599.246	A	4	28. 15	30. 37	3—2	$5d\ ^3D$ —$7p\ ^3P^\circ$ 18
5600.952	A	3	28. 15	30. 37	2—1	
5601.461	A	2	28. 15	30. 37	1—0	
5597.90	A	0. 5	28. 15	30. 37	2—2	
5600.00	A	0	28. 15	30. 37	1—1	
4406.721	A	8h	28. 15	30. 97	3—4	$5d\ ^3D$ —$7f\ ^3F^\circ$ 19
4405.901	A	6h	28. 15	30. 97	2—3	
4405.351	A	4h	28. 15	30. 97	1—2	
3639.445	A	5h	28. 15	31. 56	3—4	$5d\ ^3D$ —$8f\ ^3F^\circ$ 20
3638.898	A	3h	28. 15	31. 56	2—3	
3638.524	A	2h	28. 15	31. 56	1—2	
3251.871	A	1h	28. 15	31. 97	3—	$5d\ ^3D$ —$9f\ ^3F^\circ$ 21
3251.383	A	0. 5	28. 15	31. 97	2—	
3251.07	P	0h	28. 15	31. 97	1—	
6169.835	A	3h	28. 23	30. 24	2—3	$5d\ ^1D$ —$6f\ ^1F^\circ$ 22
5810.187	A	3h	28. 23	30. 36	2—1	$5d\ ^1D$ —$7p\ ^1P^\circ$ 23
m4403.830	P	Si IV	28. 23	31. 04	2—3	$5d\ ^1D$ —$7f\ ^1F^\circ$ 24
3676.731	A	3h	28. 23	31. 60	2—3	$5d\ ^1D$ —$8f\ ^1F^\circ$ 25
8436.487	A	1h	28. 35	29. 82	1—2	$3d'\ ^1P^\circ$ —$6d\ ^1D$ 26
*7047.58§	A	5h	28. 35	30. 11	1—1	$3d'\ ^1P^\circ$ —$4p'\ ^1P$ 27

Si III—Continued

I A	Ref	Int	E P Low	E P High	J	Multiplet No.
Air						
5135.110	A	3	28. 35	30. 77	1—2	$3d'\ ^1P°$ —$4p'\ ^3P$ 28
5197.264	A	5	28. 35	30. 74	1—2	$3d'\ ^1P°$ —$4p'\ ^1D$ 29
8191.679	A	8*h*	28. 55	30. 06	4—5	$5f\ ^3F°$ —$6g\ ^3G$
8191.16	A	6*h*	28. 55	30. 06	3—4	30
*8190.431	A	7*h*	28. 55	30. 06	2—3	
*8190.431	A	7*h*	28. 55	30. 06	3—4	$5f\ ^3F°$ —$6g\ ^1G$ 31
5303.415	A	2	28. 55	30. 89	4—3	$5f\ ^3F°$ —$7d\ ^3D$
5307.709	A	1	28. 55	30. 88	3—2	32
5310.390	A	1	28. 55	30. 88	2—1	
5114.116	A	8*h*	28. 55	30. 97	4—5	$5f\ ^3F°$ —$7g\ ^3G$
*5113.76	A	7*h*	28. 55	30. 97	3—4	33
*5113.76	A	7*h*	28. 55	30. 97	2—3	
4211.679	A	2*h*	28. 55	31. 49	4—3	$5f\ ^3F°$ —$8d\ ^3D$ 34
4111.512	A	3*h*	28. 55	31. 56	4—5	$5f\ ^3F°$ —$8g\ ^3G$
4111.255	A	2*h*	28. 55	31. 56	3—4	35
8255.81	A	1*H*	28. 55	30. 05		$5g\ ^3G$ —$6f\ ^3F°$ 36
8103.448	A	11*h*	28. 55	30. 08	5—	$5g\ ^{3,1}G$ —$6h\ ^{3,1}H°$
8102.862	A	9*h*	28. 55	30. 08	4,3—	37
5091.419	A	10*h*	28. 55	30. 99		$5g\ ^{3,1}G$ —$7h\ ^{3,1}H°$ 38
4101.86	A	5*H*	28. 55	31. 57		$5g\ ^{3,1}G$ —$8h\ ^{3,1}H°$ 39
3619.581	A	3*h*	28. 55	31. 98	5—	$5g\ ^3G$ —$9h\ ^{3,1}H°$ 40
6152.556	A	2	29. 06	31. 07	1—2	$6p\ ^1P°$ —$7d\ ^1D$ 41
6810.594	A	1*h*	29. 07	30. 89	2—3	$6p\ ^3P°$ —$7d\ ^3D$
6812.200	A	0. 5	29. 06	30. 88	1—2	42
6810.79	A	0*h*	29. 06	30. 88	0—1	
7984.20	A	0*h*	29. 19	30. 74	3—2	$3d'\ ^1F°$ —$4p'\ ^1D$ 43
2296.873	A	10	29. 19	34. 58	3—3	$3d'\ ^1F°$ —$4f'$ [3½]? UV 93
Vac						
1513.533	A	2	29. 19	37. 38	3—3	$3d'\ ^1F°$ —$5f'$ [3½]? UV 94

Si III—Continued

I A	Ref	Int	E P Low	E P High	J	Multiplet No.
Air						
8341.931	A	2*h*	29. 25	30. 74	1—2	$4s'\ ^1P°$ —$4p'\ ^1D$ 44
7189.072	A	1*h*	29. 25	30. 98	1—0	$4s'\ ^1P°$ —$8s\ ^1S$ 45
4341.400	A	8	29. 25	32. 11	1—0	$4s'\ ^1P°$ —$4p'\ ^1S$ 46
2157.280	A	2	29. 25	35. 00	1—1	$4s'\ ^1P°$ —$5p'\ ^1P?$ UV 95
5724.609	A	1*h*	29. 82	31. 99	2—3	$6d\ ^1D$ —$9f\ ^1F°$ 47
8212.05	A	2*H*	30. 05	31. 56		$6f\ ^3F°$ —$8g\ ^3G$ 48
6662.95	A	0*H*	30. 05	31. 91		$6f\ ^3F°$ —$9d\ ^3D$ 49
6473.96	A	1*H*	30. 05	31. 97		$6f\ ^3F°$ —$9g\ ^3G$ 50
8194.71	A	3*H**	30. 06	31. 57	5—	$6g\ ^{3,1}G$ —$8h\ ^{3,1}H°$
8194.18	A	3*H*	30. 06	31. 57	4,3—	51
6471.86	A	2*H*	30. 06	31. 98	5—	$6g\ ^3G$ —$9h\ ^{3,1}H°$ 52
8292.615	A	3*h*	30. 08	31. 58		$6h\ ^{3,1}H°$—$8i\ ^{3,1}I$ 53
6535.163	A	2*h*	30. 08	31. 98		$6h\ ^{3,1}H°$—$9i\ ^{3,1}I$ 54
4064.113	A	2*h*	30. 11	33. 16	1—2	$4p'\ ^1P$ —$4d'\ ^1D°?$ 55
9173.267	A	2*h*	30. 24	31. 59	3—2	$6f\ ^1F°$ —$8d\ ^1D$ 56
7151.08	A	2*H*	30. 24	31. 97	3—2	$6f\ ^1F°$ —$9d\ ^1D$ 57
4423.556	A	4*h*	30. 39	33. 19	3—4	$4p'\ ^3D$ —$4d'\ ^3F°?$ 58
8728.019	A	3*h*	33. 16	34. 58	2—3	$4d'\ ^1D°$ —$4f'$ [3½]? 59
4351.974	A	2*h*	34. 58	37. 43	3—4	$4f'$ [2½]—$5g'$ [3½]°?
4352.810	A	2*h*	34. 58	37. 43	3—3	60
4356.821	A	4*h*	(34. 58	37. 43)	4—5	$4f'$ [3½]—$5g'$ [4½]°?
4355.525	A	3*h*	(34. 58	37. 43)	4—4	61
4355.281	A	3*h*	34. 58	37. 43	3—4	[3½]°?
4356.100	A	2*h*	34. 58	37. 43	3—3	

NSRDS–NBS 3, SECTION 1

SILICON, $Z=14$

A Si IV Atomic Energy Levels

B Si IV Multiplet Table

Part A SILICON

Si IV

(Na I sequence; 11 electrons) Z=14

Ground state $1s^2\ 2s^2\ 2p^6\ 3s\ {}^2S_{0\frac{1}{2}}$

$3s\ {}^2S_{0\frac{1}{2}}$ **364093.1±0.6** cm^{-1}, 274.655 Å (Vac) I P 45.14 eV

Toresson has reobserved the spectrum from 400 Å to 10000 Å. He has revised and extended the entire term system and thus made it possible to calculate reliable wavelengths for extended series members.

The limit is well determined by application of the polarization formula to the hydrogen-like terms $4,5f\ {}^2F°$ and $5g\ {}^2G$. The undisturbed *nf*, *ng*, *nh* and *ni* series are excellently represented.

REFERENCE

Y. G. Toresson, Ark. Fys. (Stockholm) **17**, No. 12, 179 to 192 (1960). I P, T, C L, G D

Si IV **Si IV**

Config.	Desig.	J	Level	Interval	Config.	Desig.	J	Level	Interval
$3s$	$3s\ {}^2S$	0½	0. 00		$6h$	$6h\ {}^2H°$	4½ 5½	*315317. 36*	
$3p$	$3p\ {}^2P°$	0½ 1½	*71287. 54* *71748. 64*	461. 10	$7s$	$7s\ {}^2S$	0½	318742. 79	
$3d$	$3d\ {}^2D$	2½ 1½	160374. 41 160375. 60	−1. 19	$7p$	$7p\ {}^2P°$	0½ 1½	*322312. 93* *322337. 83*	24. 90
$4s$	$4s\ {}^2S$	0½	193978. 89		$7d$	$7d\ {}^2D$	1½ 2½	327361. 97	
$4p$	$4p\ {}^2P°$	0½ 1½	*218266. 86* *218428. 67*	161. 81	$7f$	$7f\ {}^2F°$	2½ 3½	*328200. 04*	
$4d$	$4d\ {}^2D$	2½ 1½	250008. 02 250008. 14	−0. 12	$7g$	$7g\ {}^2G$	3½ 4½	328249. 64	
$4f$	$4f\ {}^2F°$	2½ 3½	*254127. 08* *254129. 03*	1. 95	$7h$	$7h\ {}^2H°$	4½ 5½	*328257. 12*	
$5s$	$5s\ {}^2S$	0½	265417. 95		$7i$	$7i\ {}^2I$	5½ 6½	328260. 76	
$5p$	$5p\ {}^2P°$	0½ 1½	*276503. 67* *276579. 03*	75. 36	$8s$	$8s\ {}^2S$	0½	330439. 66	
$5d$	$5d\ {}^2D$	1½ 2½	291497. 50 291497. 60	0. 10	$8p$	$8p\ {}^2P°$	0½ 1½	*332743. 87* *332759. 92*	16. 05
$5f$	$5f\ {}^2F°$	2½ 3½	*293718. 99*		$8d$	$8d\ {}^2D$	1½ 2½	336051. 55	
$5g$	$5g\ {}^2G$	3½ 4½	293837. 92		$8f$	$8f\ {}^2F°$	2½ 3½	*336616. 55*	
$6s$	$6s\ {}^2S$	0½	299676. 95		$8g$	$8g\ {}^2G$	3½ 4½	336650. 69	
$6p$	$6p\ {}^2P°$	0½ 1½	*305641. 10* *305682. 27*	41. 17					
$6d$	$6d\ {}^2D$	1½ 2½	313914. 92		Si V ($^1S_0$)	*Limit*		**364093. 1**	
$6f$	$6f\ {}^2F°$	2½ 3½	*315230. 27*						
$6g$	$6g\ {}^2G$	3½ 4½	315305. 28						

May 1964.

Part B

SILICON

Si IV ($Z=14$)

I P 45.14 eV Limit 364093.1 ±0.6 cm^{-1} 274.655 Å (Vac)

Anal A List A April 1964

REFERENCES

A Y. G. Toresson, Ark. Fys. (Stockholm) **17**, No. 12, 179 to 192 (1960).
I P, T, C L, I, G D; W L 400 Å to 10000 Å

P Predicted Wavelength
New Multiplet Numbers, not inserted between older ones, start with UV 5 and 8.

Si IV

I A	Ref	Int	E P Low	E P High	J	Multiplet No.
Vac						
1393.755	A	15	0.00	8.90	0½—1½	$3s\ ^2S$ —$3p\ ^2P°$
1402.769	A	12	0.00	8.84	0½—0½	UV 1
457.818	A	4	0.00	27.08	0½—1½	$3s\ ^2S$ —$4p\ ^2P°$
458.155	A	3	0.00	27.06	0½—0½	UV 2
361.560	P		0.00	34.29	0½—1½	$3s\ ^2S$ —$5p\ ^2P°$
361.659	P		0.00	34.28	0½—0½	UV 2.01
327.137	P		0.00	37.90	0½—1½	$3s\ ^2S$ —$6p\ ^2P°$
327.181	P		0.00	37.89	0½—0½	UV 2.02
1128.340	A	10	8.90	19.88	1½—2½	$3p\ ^2P°$—$3d\ ^2D$
1122.486	A	8	8.84	19.88	0½—1½	UV 3
1128.325	P		8.90	19.88	1½—1½	
818.129	A	8	8.90	24.05	1½—0½	$3p\ ^2P°$—$4s\ ^2S$
815.049	A	7	8.84	24.05	0½—0½	UV 4
560.980	P		8.90	31.00	1½—	$3p\ ^2P°$ —$4d\ ^2D$
559.533	P		8.84	31.00	0½—1½	UV 5
516.348	A	3	8.90	32.91	1½—0½	$3p\ ^2P°$ —$5s\ ^2S$
515.118	A	2	8.84	32.91	0½—0½	UV 6
455.065	P		8.90	36.14	1½—	$3p\ ^2P°$ —$5d\ ^2D$
454.112	P		8.84	36.14	0½—1½	UV 7
438.734	P		8.90	37.15	1½—0½	$3p\ ^2P°$ —$6s\ ^2S$
437.849	P		8.84	37.15	0½—0½	UV 8
412.939	P		8.90	38.91	1½—	$3p\ ^2P°$ —$6d\ ^2D$
412.155	P		8.84	38.92	0½—1½	UV 9
*1722.534	A	6	19.88	27.08	2½—1½	$3d\ ^2D$ —$4p\ ^2P°$
1727.377	A	5	19.88	27.06	1½—0½	UV 10
*1722.534	A	6	19.88	27.08	1½—1½	
1066.629	A	8	19.88	31.51		$3d\ ^2D$ —$4f\ ^2F°$ UV 11

Si IV

I A	Ref	Int	E P Low	E P High	J	Multiplet No.
Vac						
860.551	P		19.88	34.29	2½—1½	$3d\ ^2D$ —$5p\ ^2P°$
861.118	P		19.88	34.28	1½—0½	UV 12
860.560	P		19.88	34.29	1½—1½	
749.941	A	5	19.88	36.42		$3d\ ^2D$ —$5f\ ^2F°$ UV 13
688.194	P		19.88	37.90	2½—1½	$3d\ ^2D$ —$6p\ ^2P°$
688.395	P		19.88	37.89	1½—0½	UV 14
688.200	P		19.88	37.90	1½—1½	
645.759	A	2	19.88	39.08		$3d\ ^2D$ —$6f\ ^2F°$ UV 15
Air						
4088.854	A	10	24.05	27.08	0½—1½	$4s\ ^2S$ —$4p\ ^2P°$
4116.097	A	9	24.05	27.06	0½—0½	1
Vac						
1210.652	P		24.05	34.29	0½—1½	$4s\ ^2S$ —$5p\ ^2P°$
1211.757	P		24.05	34.28	0½—0½	UV 16
895.228	P		24.05	37.90	0½—1½	$4s\ ^2S$ —$6p\ ^2P°$
895.558	P		24.05	37.89	0½—0½	UV 17
Air						
*3165.710	A	9	27.08	31.00	1½—2½	$4p\ ^2P°$—$4d\ ^2D$
3149.561	A	7	27.06	31.00	0½—1½	2
*3165.710	A	9	27.08	31.00	1½—1½	
2127.467	A	4	27.08	32.91	1½—0½	$4p\ ^2P°$—$5s\ ^2S$
2120.179	A	3	27.06	32.91	0½—0½	UV 18
Vac						
1368.571	P		27.08	36.14	1½—2½	$4p\ ^2P°$—$5d\ ^2D$
1365.549	P		27.06	36.14	0½—1½	UV 19
1368.573	P		27.08	36.14	1½—1½	
1230.795	P		27.08	37.15	1½—0½	$4p\ ^2P°$—$6s\ ^2S$
1228.349	P		27.06	37.15	0½—0½	UV 20
1047.271	P		27.08	38.92	1½—	$4p\ ^2P°$—$6d\ ^2D$
1045.500	P		27.06	38.92	0½—1½	UV 21

Si IV—Continued

I A	Ref	Int	E P Low	E P High	J	Multiplet No.
Air						
*3762.435	A	8	31.00	34.29	2½—1½	4*d* ²D —5*p* ²P°
3773.151	A	6	31.00	34.28	1½—0½	3
*3762.435	A	8	31.00	34.29	1½—1½	
2287.041	A	5*h*	31.00	36.42		4*d* ²D —5*f* ²F° UV 22
Vac						
1796.162	P		31.00	37.90	2½—1½	4*d* ²D —6*p* ²P°
1797.496	P		31.00	37.89	1½—0½	UV 23
1796.166	P		31.00	37.90	1½—1½	
1533.220	P		31.00	39.08		4*d* ²D —6*f* ²F° UV 24
Air						
2675.249	A	4	31.51	36.14	3½—2½	4*f* ²F° —5*d* ²D
*2675.120	A	4	31.51	36.14	2½—	UV 25
2517.506	A	7	31.51	36.43		4*f* ²F° —5*g* ²G UV 26
Vac						
1672.612	P		31.51	38.92		4*f* ²F° —6*d* ²D UV 27
1634.607	A	1	31.51	39.09		4*f* ²F° —6*g* ²G UV 28
Air						
8957.245	A	2*h*	32.91	34.29	0½—1½	5*s* ²S —5*p* ²P°
9018.162	A	1*h*	32.91	34.28	0½—0½	3.01
2482.816	A	2	32.91	37.90	0½—1½	5*s* ²S —6*p* ²P°
2485.378	A	1	32.91	37.89	0½—0½	UV 29
*6701.207	A	7	34.29	36.14	1½—2½	5*p* ²P° —5*d* ²D
6667.556	A	5	34.28	36.14	0½—1½	3.02
*6701.207	A	7	34.29	36.14	1½—1½	
4328.175	A	5	34.29	37.15	1½—0½	5*p* ²P° —6*s* ²S
4314.104	A	3	34.28	37.15	0½—0½	4
2677.57	A	1*	34.29	38.92	1½—	5*p* ²P° —6*d* ²D
2672.193	A	1	34.28	38.92	0½—1½	UV 30
2370.985	A	3	34.29	39.52	1½—0½	5*p* ²P° —7*s* ²S
2366.755	A	2	34.28	39.52	0½—0½	UV 31
*7047.939	A	6*h*	36.14	37.90	2½—1½	5*d* ²D —6*p* ²P°
7068.410	A	4*h*	36.14	37.89	1½—0½	4.01
*7047.939	A	6*h*	36.14	37.90	1½—1½	
4212.407	A	7*hl*	36.14	39.08		5*d* ²D —6*f* ²F° 5
m3241.583	P	Si III	36.14	39.96	2½—1½	5*d* ²D —7*p* ²P°
3244.192	A	1*h*	36.14	39.96	1½—0½	5.01
m3241.572	P	Si III	36.14	39.96	1½—1½	
2723.812	A	3*h*	36.14	40.69		5*d* ²D —7*f* ²F° UV 32
4950.105	A	3	36.42	38.92		5*f* ²F° —6*d* ²D 5.02
4647.45	A	1*hl*	36.42	39.08		5*f* ²F° —6*f* ²F° 5.03*F*
4631.241	A	9*hl*	36.42	39.09		5*f* ²F° —6*g* ²G 6

Si IV—Continued

I A	Ref	Int	E P Low	E P High	J	Multiplet No.
Air						
4628.62	A	3*H*	36.42	39.09		5*f* ²F° —6*h* ²H° 6.01*F*
2971.522	A	1*h*	36.42	40.59		5*f* ²F° —7*d* ²D UV 33
2895.131	A	3*hl*	36.42	40.70		5*f* ²F° —7*g* ²G UV 34
2328.56	A	2*H*	36.42	41.74		5*f* ²F° —8*g* ²G UV 35
4673.297	A	2*h*	36.43	39.08		5*g* ²G —6*f* ²F° 6.02
4656.92	A	3*H*	36.43	39.09		5*g* ²G —6*g* ²G 6.03*F*
4654.323	A	10*hs*	36.43	39.09		5*g* ²G —6*h* ²H° 7
2904.470	A	2*h*	36.43	40.70		5*g* ²G —7*h* ²H° UV 36
4411.652	A	0*h*	37.15	39.96	0½—1½	6*s* ²S —7*p* ²P°
m4416.506	P	O II	37.15	39.96	0½—0½	8
7654.555	A	4*h*	37.90	39.52	1½—0½	6*p* ²P° —7*s* ²S
7630.497	A	2*h*	37.89	39.52	0½—0½	9
4611.27	A	0*h*	37.90	40.59	1½—	6*p* ²P° —7*d* ²D
m4602.578	P	O II	37.89	40.59	0½—1½	10
4038.057	A	2*h*	37.90	40.97	1½—0½	6*p* ²P° —8*s* ²S
4031.39	A	1*h**	37.89	40.97	0½—0½	11
6998.358	A	3*h*	38.92	40.69		6*d* ²D—7*f* ²F° 12
5304.971	A	2*h*	38.92	41.26	—1½	6*d* ²D —8*p* ²P°
5309.493	A	1*h*	38.92	41.25	1½—0½	13
4403.734	A	2*hl*	38.92	41.73		6*d* ²D—8*f* ²F° 14
8240.606	A	1*h*	39.08	40.59		6*f* ²F°—7*d* ²D 15
7678.748	A	4*hl*	39.08	40.70		6*f* ²F°—7*g* ²G 16
4667.14	A	1*H*	39.08	41.74		6*f* ²F°—8*g* ²G 17
7752.905	A	1*h*	39.09	40.69		6*g* ²G—7*f* ²F° 18
7718.785	A	5*hl*	39.09	40.70		6*g* ²G—7*h* ²H° 19
7730.469	A	1*h*	39.09	40.70		6*h* ²H°—7*g* ²G 20
7725.64	A	2*H*	39.09	40.70		6*h* ²H°—7*h* ²H° 21*F*
7723.818	A	6*hs*	39.09	40.70		6*h* ²H°—7*i* ²I 22

U.S. GOVERNMENT PRINTING OFFICE: 1965 O—741–082