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Energy levels and transition probabilities for nitrogen-like Fe xx⋆,⋆⋆

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Abstract. Energies of the 700 lowest levels in Fe XX have been obtained using the multiconfiguration Dirac-Fock method. Configuration interaction method on the basis set of transformed radial orbitals with variable parameters taking into account relativistic corrections in the Breit-Pauli approximation was used to crosscheck our presented results. Transition probabilities, oscillator and line strengths are presented for electric dipole (E1), electric quadrupole (E2) and magnetic dipole (M1) transitions among these levels. The total radiative transition probabilities from each level are also provided. Results are compared with data compiled by NIST and with other theoretical work.

Key words. atomic data

1. Introduction

The new generation X-ray telescopes on board the space observatories *Chandra* and *XMM-Newton* provide high resolution spectra of numerous astrophysical sources that are rich in emission and absorption lines from various iron ions, including Fe XX (Mewe et al. 2001, 2003; van der Heyden et al. 2003). For example, the Fe XX emission line at 12.831 Å between the $2p^2(^1D)3d^1\ ^2P_{3/2}$ level and the first excited level of the ground configuration is prominent in the X-ray spectrum of Capella obtained with LETG spectrometer on *Chandra* (Mewe et al. 2001). In addition, several forbidden M1-type transitions among the levels of the ground configuration $2s^22p^3$ of Fe XX have been identified in solar spectra obtained by *Skylab* and *SOHO*/*SUMER* spectrographs (Kucera et al. 2000).

Nahar (2004) report the largest calculations of radiative rates for N-like iron to date in the framework of the Iron Project (Hummer et al. 1993), an international project initiated to fulfill a demand for accurate atomic data for the analysis of spectra obtained from satellite-born telescope missions. They employed the SUPERSTRUCTURE (Eissner et al. 1974) and the Breit-Pauli R-matrix (BPRM) code (Berrington et al. 1995), where only one-electron Darwin and mass-velocity as well as spin-orbit operators are included. A total of 1792 bound fine-structure levels were considered, with atomic data for E1-type (electric dipole) transitions obtained using the latter code, and rates for forbidden E2 (electric quadrupole), E3 (electric octupole) as well as M1 (magnetic dipole) transitions calculated with the former one. In addition, Butler & Zeippen (2001) used the BPRM code to generate collisional data among 86 levels of the $n = 2$ and $n = 3$ complexes in Fe XX.

Calculations by Froese Fischer & Tachiev (2004) using the multiconfiguration Hartree-Fock (MCHF) code for C III show good agreement with the results of Nahar (2002) obtained from the BPRM code for allowed transition probabilities. However transition probabilities are larger by a factor of 3–5 for intercombination lines. Hibbert (2003) also observe different results comparing their CIV3 (Hibbert 1975) and MCHF

⋆ Tables 8 to 10 are only available in electronic form at the CDS via anonymous ftp to cdsarc.u-strasbg.fr (130.79.128.5) or via http://cdsweb.u-strasbg.fr/cgi-bin/qcat?J/A+A/433/745
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(Froese Fischer & Tachiev 2004) data with the BPRM calculations of Berrington (2001) for some transitions in Na III. The differences in derived results for the various methods in the above papers demonstrate the need to perform calculations for Fe XX using other codes than employed by Nahar (2004). Also, the list of terms for levels presented by Nahar (2004) in their large-scale calculations is insufficient to unambiguously identify levels.

Earlier, Bhatia & Mason (1980) used computer packages (SUPERSTRUCTURE) developed at University College London (Eissner et al. 1974) to obtain radiative rates for transitions within the levels of the $2s^2 2p^3$ and $2s^1 2p^4$ configurations. Subsequently (Mason & Bhatia 1983), they supplemented their data by including $2s^2 2p^2 3s^1$ and $2s^2 2p^2 3d^1$ configurations. Later, Merkelis et al. (1997, 1999) employed the stationary second-order many-body perturbation theory approach to calculate electric dipole, electric quadrupole and magnetic dipole transition data for the ions of the N I isolectronic sequence. These data include ions with $10 \leq Z \leq 30$ but are limited to configurations $1s^2 2s^2 2p^3$, $1s^2 2s^2 p^4$ and $1s^2 2p^5$. Large-scale calculations of oscillator strengths for Fe XX were also performed under the Opacity Project (The Opacity Project Team 1995, 1997), but the relativistic effects were not included in their data.

The present results for Fe XX continue our series of calculations, which aim to provide highly reliable energy levels and radiative rates for iron ions up to the $n = 5$ complex (Jonauskas et al. 2004a,b). We note that in photoionized plasmas these high-lying levels will not in general be populated via electron impact (although collisional redistribution among the levels may play a role), but rather by a range of processes including recombination and charge transfer (Savin 2001). Accurate atomic data for highly excited levels of Fe XX are needed to properly interpret the high resolution spectra arising from *Chandra* and *XMM-Newton*, which have particularly large effective areas in the 6 to 18 Å wavelength range, covering Fe XX lines arising from the $n \geq 3$ complex.

Here we report MCDF calculations of level energies, E1, E2 and M1-type radiative transition probabilities, line and oscillator strengths for 700 levels of Fe XX . Calculated results are compared with data compiled by NIST, as well as results obtained by other authors. The agreement between the length and velocity forms of electric transition operators is checked as an additional measure of accuracy. In addition, total transition probabilities are provided, required for calculating branching ratios and the radiative lifetimes of levels.

2. Method of calculation

We perform two sets of calculations. In the first one we use the multiconfiguration Dirac-Fock (MCDF) method employed in the GRASP code of Grant et al. (1980) and Parpia et al. (1996) (`http://www.am.qub.ac.uk/DARC`). The second one adopts configuration interaction (CI) method on the basis of transformed radial orbitals (TROs) with variable parameters including relativistic effects in the Breit-Pauli approximation (Bogdanovich & Karpuškienė 1999). The latter one refered here as CITRO was used for crosschecking our MCDF result.

2.1. MCDF approach

In the MCDF method, relativistic orbitals with the same j but differing m quantum numbers have the same radial form:

$$\phi(r) = \frac{1}{r}\begin{pmatrix} P_{nlj}(r)\ \chi_{ljm}(\hat{r}) \\ i\ Q_{n\bar{l}j}(r)\ \chi_{\bar{l}jm}(\hat{r}) \end{pmatrix}. \quad (1)$$

The intermediate coupling wavefunctions are expanded on the basis of configuration state functions (CSFs) obtained for the jj-coupling scheme:

$$\Psi_\gamma(J) = \sum_\alpha c_\gamma(\alpha J)\ \Phi(\alpha J) \quad (2)$$

where CSFs are expressed as antisymmetrized products of two-component orbitals, referred to as subshells. Direct and indirect relativistic effects when the contraction of inner orbitals leads to more effective screening of the nucleus for valence orbitals are included in the wavefunctions by solving MCDF equations.

Intermediate coupling wavefunctions are eigenfunctions of the Dirac-Coulomb-Breit Hamiltonian in the relativistic approximation and the Coulomb-Breit-Pauli Hamiltonian in the nonrelativistic approximation. The relativistic Hamiltonian reduces to a nonrelativistic one, leaving terms up to the square of the fine-structure constant in the expansion for matrix elements.

The Breit operator presented in the Coulomb gauge:

$$h_{ij}^{\text{Breit}} = -\frac{\alpha_i \cdot \alpha_j}{2r_{ij}} - \frac{(\alpha_i \cdot r_{ij})(\alpha_j \cdot r_{ij})}{2r_{ij}^3} \quad (3)$$

or written in the form of the sum of magnetic and retardation interactions:

$$h_{ij}^{\text{Breit}} = -\frac{\alpha_i \cdot \alpha_j}{r_{ij}} - \frac{(\alpha_i \cdot \nabla_i)(\alpha_j \cdot \nabla_j) r_{ij}}{2} \quad (4)$$

is obtained in the limit $\omega \to 0$ from the transverse operator:

$$h_{ij}^{\text{trans}} = \frac{1}{r_{ij}}\Bigg[1 - \alpha_i \cdot \alpha_j\ \cos(\omega r_{ij}) + (\alpha_i \cdot \nabla_i)(\alpha_j \cdot \nabla_j)\ \frac{\cos(\omega r_{ij}) - 1}{\omega^2}\Bigg] \quad (5)$$

where ω is the energy of a single photon exchanged between a pair of electrons i and j. The frequency-dependent transverse Breit interaction operator is used for the calculation of Breit matrix elements in the relativistic approximation. QED corrections, which include vacuum polarization and self-energy (known as the Lamb shift), are considered in the first order of perturbation theory.

One-electron excitations from the 2p orbital of the $1s^2 2s^2 2p^3$, $1s^2 2s^1 2p^4$ and $1s^2 2p^5$ configurations up to the $8k$ orbital, as well as two-electron excitations from orbitals with $n = 2$ to all possible combinations of two electrons in the shells with $n = 3$ were employed to generate one-electron wavefunctions as a basis set for CSFs in the MCDF method.

Additionally, to extend the CI basis and obtain higher accuracy, additional 33 configurations are included, namely: $2s^23p^3$, $2p^34d^2$, $2p^34f^2$, $2s^22p^13p^14p^1$, $2s^22p^13p^15p^1$, $2s^22p^13p^16p^1$, $2s^22p^13p^14f^1$, $2s^12p^23p^14p^1$, $2s^12p^23p^14d^1$, $2s^12p^24p^14d^1$, $2s^12p^25p^14d^1$, $2s^12p^23d^14d^1$, $2s^12p^23s^14d^1$, $2s^12p^24s^14d^1$, $2s^12p^25s^14d^1$, $2s^22p^13p^14d^1$, $2s^12p^23p^14f^1$, $2s^22p^13p^15s^1$, $2s^12p^34f^1$, $2p^33p^14p^1$, $2p^33p^14f^1$, $2s^22p^14f^2$, $2s^12p^24f^2$, $2s^23d^14f^2$, $2s^24d^14f^2$, $2s^22p^15f^2$, $2s^12p^25f^2$, $2s^12p^24d^2$, $2s^13p^24d^2$, $2s^22p^14d^2$, $2s^23p^14d^2$, $2s^23d^14d^2$, $2s^23s^14d^2$.

2.2. CITRO method

In the nonrelativistic, multiconfiguration Hartree-Fock method, CSFs are obtained in the LSJ-coupling scheme and form intermediate coupling wavefunctions:

$$\Psi_\gamma(J) = \sum_{\alpha\mathrm{LS}} c_\gamma(\alpha\mathrm{LSJ})\,\Phi(\alpha\mathrm{LSJ}). \tag{6}$$

One-electron orbitals as basis for CSFs have the form:

$$\phi(r) = \frac{1}{r} P_{nl}(r) Y_{lm_l}(\vartheta,\phi)\chi_{m_s}. \tag{7}$$

Transformed radial orbitals with a variable parameters (Bogdanovich & Karpuškienė 1999) are employed to mimic the correlation effects of CSFs not introduced in the expansion for intermediate wavefunctions:

$$P^T_{nl}(r) = N\left\{ f(r)P_{nl}(r) - \sum_{n''<n} c_{n'',n} P_{n''l}(r)\right\}. \tag{8}$$

Here N is a normalization factor, $c_{n'',n}$ denotes the corresponding overlap integral, and $f(r)$ is a transforming function:

$$f(r) = r^k \exp(-Ar^m) \tag{9}$$

with variable parameters k, m and A ($k \geq 0$, $k \geq l - l'$, $m > 0$, $A > 0$). The variation of all parameters ensure the largest corrections of correlation energies obtained in the second order of perturbation theory using admixed configurations with excited electrons. A Schmidt orthogonalization procedure is employed for TROs in (8). Applications of CITRO to various atoms and ions (Bogdanovich & Karpuškienė 1999; Bogdanovich et al. 2003a,b; Karpuškienė & Bogdanovich 2003) demonstrate that such radial orbitals enables one to include correlation corrections in the CI method quite efficiently.

In the conventional Breit-Pauli (BP) approximation, the Hamiltonian includes mass-correction, one- and two-body Darwin, spin-spin contact, and orbit-orbit terms as well as spin-orbit, spin-other-orbit and spin-spin corrections (Karazija 1996). The former group of operators shifts energies of terms and the latter ones are responsible for the fine-structure splitting. Spin-other-orbit, orbit-orbit, spin-spin, spin-spin contact and two-body Darwin operators are derived from the Breit operator by expanding its matrix elements obtained with two-component relativistic orbitals in orders of the fine-structure constant. Orbit-orbit interaction, due to its complexity (Eissner et al. 1974; Badnell 1997; Gaigalas 1999), leads to a large consumption of computational time, and a small contribution to energies of levels is often omitted in calculations (Froese Fischer & Tachiev 2004). Our CITRO calculations include spin-orbit, spin-other-orbit and spin-spin corrections as well as orbit-orbit corrections within a shell of equivalent electrons. Orbit-orbit interactions between shells are usually smaller than within shells.

In CITRO calculations, we use Hartree-Fock radial orbitals for electrons with $n \leq 5$ whose states are presented here. States with $6 \leq n \leq 10$ and $l \leq 7$ employ TROs. Therefore, the number of radial orbitals used in calculations with CITRO totals 52. The method presented by Bogdanovich et al. (2002); Bogdanovich & Momkauskaitė (2004) was adopted to reduce large number of admixed configurations leaving only configurations with significant influence on the energy of adjusted configurations. Number of CSFs with odd parity decreases from 249 252 to 132 746 and CSFs with even parity – from 243 104 to 124 217. Methods used for energy matrix diagonalization are provided by Bogdanovich et al. (2002).

3. Results and discussion

We present calculations for the 700 lowest energy levels of Fe XX, and radiative transition characteristics among these. Transition probabilities, oscillator and line strengths for electric dipole, electric quadrupole and magnetic dipole transitions are obtained in the fully relativistic MCDF approach. All 698 levels arising from the $1s^22s^22p^3$, $1s^22s^12p^4$, $1s^22p^5$, $1s^22s^22p^2nl$, $1s^22s^12p^3n'l$, and $1s^22p^43l'$ ($n = 3,4,5$, $n' = 3,4$, $l = 0,..,n-1$, $l' = 0,1,2$) configurations are taken into account. Binding energies of the two lowest levels from the $1s^22s^12p^35s^1$ configuration are lower than our chosen cut-off value, which corresponds to the highest level of the $1s^22s^22p^25g^1$ configuration. Therefore those levels are also included here.

The energies of the above configurations calculated with the fully relativistic GRASP code are listed in Table 1. Indices for the levels in the first column of Table 1 are used in all tables except Table 2, where results obtained with the original CITRO code of Bogdanovich & Karpuškienė (1999) are presented. Energy levels are given in cm^{-1} relative to the ground state $1s^22s^22p^3\ {}^4S_{3/2}$, along with the leading percentage compositions (where these exceed 10%) for intermediate wavefunctions. The LSJ-coupling CSFs with largest weights for the intermediate wavefunctions are provided in the second and third columns of the table. Intermediate coupling is strong for some excited levels, so the level assignments for some terms are ambiguous.

In Table 3 our energy levels obtained with the GRASP and CITRO codes are compared with values calculated by Mason & Bhatia (1983) with SUPERSTRUCTURE and Nahar (2004) BPRM results, as well as data compiled by NIST (National Institute for Standards and Technology: `www.physics.nist.gov`) whose data are commonly used as reference set for atomic results. The energy levels are compared with respect to the ground level energies of the corresponding data sets. The Nahar (2004) values in the Table 3 are obtained with the BPRM code because it is used for E1-type transitions in their calculations. Their calculations with

SUPERSTRUCTURE are in better agreement with NIST data than the BPRM results.

Fairly good agreement with NIST energy levels is obtained using the CITRO code. The highest deviation from the NIST energies does not exceed 0.4% and the average deviation is 0.2%. In addition, the ground state energy of $-219\,142\,254$ cm^{-1} is close to the NIST recommended value of $-219\,167\,600 \pm 112\,300$ cm^{-1}. There is also very good agreement between Mason & Bhatia (1983) and NIST data sets, showing an average deviation of only 0.4%. The highest deviations in the former calculations are for the excited levels of the ground configuration, but even then the discrepancy does not exceed 1.6%. Their scaling parameters for Thomas-Fermi potential were $\lambda_s = 1.255$, $\lambda_p = 1.150$ and $\lambda_d = 1.100$ for all cases. Mason & Bhatia (1983) includes only the $2s^22p^3$, $2s^12p^4$, $2s^22p^23s^1$ and $2s^22p^23d^1$ configurations for their results, while Nahar (2004) also use the SUPERSTRUCTURE for forbidden transitions and include 9 configurations. However, their results for energy levels are worse than the data of Mason & Bhatia (1983), while the latter calculations omitted much of the correlations. Nahar (2004) does not present values of the scaling parameters employed in their calculations.

The presented BPRM results of Nahar (2004) show an average discrepancy of 0.5% with NIST values. These authors obtain better agreement with NIST than data provided by Butler & Zeippen (2001) which are not presented in the Table 3. A maximum disagreement of 3.1% is obtained for the second excited level $1s^22s^22p^3\ ^2D_{5/2}$. One of the reasons for the discrepancy is that BPRM omits all two-electron corrections originating from the Breit-Pauli operator. In Table 4 we estimate the magnitudes of some corrections missed in their calculations using the Breit-Pauli code (without TROs). The largest discrepancies of energy computed with spin-orbit, spin-other-orbit, spin-spin and orbit-orbit (within a shell) interactions with those that include only spin-orbit corrections is obtained for the same level $1s^22s^22p^3\ ^2D_{5/2}$. Spin-other-orbit and orbit-orbit interactions have the largest influence to the shifts of energies compared with spin-spin corrections. Added spin-other-orbit and orbit-orbit corrections shift the level down by a similar amount relative to the ground level. The total shift caused by these corrections leads to 3438 cm^{-1}. The influence of spin-spin interaction on the shift of the levels is smaller, and does not exceed 500 cm^{-1} for $1s^22s^12p^4\ ^4P_{3/2}$.

MCDF results show an average difference of 0.5% from NIST data for the energy levels displayed in Table 3. The largest deviation is for levels of the ground configuration, but it does not exceed 2.2% and is less than 1% for other energies. The total number of CSFs included in the CI basis is 10050, while the CITRO employs 256963 CSFs. After CI functions are supplemented by the above mentioned 33 configurations for the MCDF calculations, the average discrepancy changes from 0.6% to 0.5%. The discrepancy for the first excited level is reduced from 2.6% to 2.2%, and for the second excited level from 2.1% to 1.9%. It indicates that a larger set of CI wavefunctions would be required for our MCDF calculations to achieve higher accuracy.

To ensure the consistency of the spectroscopic dataset for levels presented in Table 1, new *LS J*-coupling spectroscopic notations are proposed in Table 5 for the levels with similar contributions to intermediate wavefunctions. We use the same technique as presented in our earlier paper for Fe XIX (Jonauskas et al. 2004b).

Energy levels and intermediate coupling wavefunctions calculated with the configuration interaction method have been employed to derive matrix elements of transition operators, which subsequently are adopted for the calculation of transition probabilities, line and oscillator strengths. Our calculated wavelengths and line strengths using the two methods mentioned above, as well as values obtained by Nahar (2004) are listed in Table 6 along with data provided by NIST. Nahar (2004) use the BPRM code for E1-type transitions and SUPERSTRUCTURE for forbidden transitions, which correspond to those in the table within the $n = 2$ complex. Only the ab initio calculations of Nahar (2004) are presented here, while their transition probabilities and oscillator strengths are corrected by the available transition energies from NIST. It is more expedient to compare calculated line strengths, as these do not explicitly depend on the transition energy and so do not contain errors arising from this quantity.

The CITRO results presented in Table 6 agree well with the wavelengths compiled by NIST, with differences of less than 1%. The largest discrepancies of up to 3.6% are obtained by the SUPERSTRUCTURE calculations of Nahar (2004) that correspond to forbidden transitions. MCDF wavelengths differ from NIST values by 2.4% and 1.9%, respectively, for transitions from the first and second excited levels to the ground state. Shorter wavelengths agree to better than 1% for our and the Nahar (2004) datasets. The agreement of the length and velocity forms (Babushkin and Coulomb gauges in the relativistic approach) is better for levels involving excited states, while weak transitions show the largest discrepancies.

Large discrepancies for line strengths are observed for transitions which include level $2s^22p^2(^1D)3d^1\ ^2D_{5/2}$ (index 70). Due to strong mixing of the CSFs, the label of the level is ambiguous as the largest weight of the $2s^22p^2(^1D)3d^1\ ^2D_{5/2}$ configuration state function amounts to less than 50% in both our calculations. NIST data report a weight of 54%, which is similar to our obtained values. On the other hand, agreement for weak transitions is never good due to mixing effects. It is interesting that all three calculations that incorporate different methods show similar discrepancies with the NIST line strengths. Similar discrepancies are also observed in all three calculations for transitions to the ground and second excited levels. Length and velocity forms of transitions from the level agree to better than 4% for both our results, indicating that major correlation effects are included in the intermediate coupling wavefunctions.

Line strengths obtained by Nahar (2004) using the BPRM code show the largest discrepancies with NIST data. In many cases it happens for intercombination spin-changing E1-type transitions. A similar effect was observed by Froese Fischer & Tachiev (2004) in Na III. However, some dipole allowed E1-type transitions of Nahar (2004) also differ by more than a factor of 4 from NIST values. As noted by

Hibbert (2003), the large discrepancies can be understood by the fact that the BPRM code uses term-coupling coefficients to introduce relativistic effects, which lead to restrictions on the *LS J* mixing coefficients. On the other hand, conventional atomic structure codes deal with the diagonalization of the full Hamiltonian matrix.

Wavelengths, transition probabilities, line and oscillator strengths obtained with the GRASP code for electric dipole, quadrupole and magnetic dipole transitions are presented in Tables 8, 9 and 10. Ratios between velocity and length forms for electric transitions are also provided. The total number of dipole allowed and intercombination E1-type transitions is 71 398, but only E1-type transitions with $f \geq 10^{-3}$ are included in Table 8. Tables 9 and 10 contain data for forbidden E2-type and M1-type transitions with $f \geq 10^{-8}$, yielding a total of 167 480 radiative rates.

The influence of forbidden transitions on the lifetimes of levels is prominent for excited levels of the ground configuration and highly excited $2s^1 2p^3 (^2D)\ 3d^1\ ^2G_{9/2}$ level (index 151). It can be seen from Table 7 that level 151 decays primarily through E2-type transitions, which reduces the lifetime of the level by more than a factor of 2. The E2-type transitions make a contribution of more than 10% to the decay of $2p^4\ (^1D)\ 3d^1\ ^2G_{9/2}$ (261), $2s^2 2p^2\ (^3P)\ 3p^1\ ^4D_{7/2}$ (31), $2s^1 2p^3\ (^3D)\ 3p^1\ ^4F_{9/2}$ (107), $2p^4\ (^1D)\ 3d^1\ ^2G_{7/2}$ (260), $2s^2 2p^2\ (^3P)\ 3p^1\ ^2S_{1/2}$ (25), $2s^1 2p^3\ (^3P)\ 3d^1\ ^4F_{9/2}$ (174), $2p^4\ (^3P)\ 3d^1\ ^4F_{9/2}$ (245) and $2p^4\ (^3P)\ 3d^1\ ^4D_{7/2}$ (241) levels. Most of these levels have large total quantum numbers, limiting the decay routes for strong dipole allowed transitions. Magnetic dipole transitions are responsible for finite lifetimes of excited levels of the ground configuration.

Finally, a comparison between the length and velocity forms of the electric dipole transitions shows an agreement of better than 10% for 790 transitions with $f \geq 0.1$, and an average deviation of only 6%. Two forms differ by up to 60% for some of the strong transitions, but their contributions to the lifetimes of the corresponding levels is negligible. For many E2 transitions, the two forms agree to better than 5%.

4. Conclusions

Multiconfiguration Dirac-Fock energy levels, as well as electric dipole, electric quadrupole and magnetic dipole transition probabilities, line and oscillator strengths have been computed for nitrogen-like Fe XX. The 700 lowest energy levels are considered. Calculated values have been compared with the data compiled by NIST and other theoretical results. Breit-Pauli energy levels and electric dipole transition characteristics on the basis set of transformed radial orbitals with variable parameters were used to crosscheck our MCDF result.

Leading percentage compositions for intermediate wavefunctions are presented in the basis of *LS J*-coupling configuration state functions. Spectroscopic notations of levels identified by the largest weights of CSFs are checked for their completeness. Of the 700 levels, 203 have weights of *LS J*-coupling CSFs of less than 50% due to strong mixing.

The 5 major radiative probabilities from each level and the total values obtained in the MCDF approximation have been provided, taking into account forbidden transitions. The largest contributions of forbidden M1-type transitions have been obtained for the lifetimes of fine-structure levels of the ground configuration. The electric quadrupole transitions are mainly noticeable for transitions from levels with large total quantum numbers. Their contributions to the lifetimes of levels exceed 10% for 9 highly excited levels. On the other hand, the $2s^1 2p^3 (^2D) 3d^1\ ^2G_{9/2}$ level decay mainly trough E2-type transition. The influence of M2 and E3-type transitions that are not presented here is negligible.

Good agreement between our set of energy levels and radiative transition characteristics for Fe XX and the available NIST data, as well as our use of a large basis of configuration state functions, allows to conclude that the achieved accuracy of our calculations is higher than those available to date. We hope that our data will be useful in astrophysical and other applications.

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Online Material

Table 1. MCDF 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	−219052141.	88%
2	$2s^2\ 2p^3$	^{2}D	1.5	141715.	74% + 18% $2s^2\ 2p^3\ ^2$P
3	$2s^2\ 2p^3$	^{2}D	2.5	179537.	100%
4	$2s^2\ 2p^3$	^{2}P	0.5	263209.	98%
5	$2s^2\ 2p^3$	^{2}P	1.5	325962.	71% + 24% $2s^2\ 2p^3\ ^2$D
6	$2s^1\ 2p^4$	^{4}P	2.5	753649.	97%
7	$2s^1\ 2p^4$	^{4}P	1.5	821409.	98%
8	$2s^1\ 2p^4$	^{4}P	0.5	843536.	95%
9	$2s^1\ 2p^4$	^{2}D	1.5	1050924.	94%
10	$2s^1\ 2p^4$	^{2}D	2.5	1066222.	97%
11	$2s^1\ 2p^4$	^{2}S	0.5	1205489.	73% + 23% $2s^1\ 2p^4\ ^2$P
12	$2s^1\ 2p^4$	^{2}P	1.5	1255768.	94%
13	$2s^1\ 2p^4$	^{2}P	0.5	1352396.	77% + 22% $2s^1\ 2p^4\ ^2$S
14	$2p^5$	^{2}P	1.5	1971784.	98%
15	$2p^5$	^{2}P	0.5	2079179.	98%
16	$2s^2\ 2p^2\ (^3$P$)\ 3s^1$	^{4}P	0.5	7155228.	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	7221726.	92%
18	$2s^2\ 2p^2\ (^3$P$)\ 3s^1$	^{2}P	0.5	7252311.	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	7264310.	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	7296115.	65% + 30% $2s^2\ 2p^2\ (^1$D$)\ 3s^1\ ^2$D
21	$2s^2\ 2p^2\ (^3$P$)\ 3p^1$	^{4}D	0.5	7356141.	51% + 18% $2s^2\ 2p^2\ (^3$P$)\ 3p^1\ ^2$S
22	$2s^2\ 2p^2\ (^3$P$)\ 3p^1$	^{4}D	1.5	7400441.	60% + 22% $2s^2\ 2p^2\ (^3$P$)\ 3p^1\ ^4$P
23	$2s^2\ 2p^2\ (^1$D$)\ 3s^1$	^{2}D	2.5	7400563.	79% + 19% $2s^2\ 2p^2\ (^3$P$)\ 3s^1\ ^4$P
24	$2s^2\ 2p^2\ (^1$D$)\ 3s^1$	^{2}D	1.5	7410643.	67% + 27% $2s^2\ 2p^2\ (^3$P$)\ 3s^1\ ^2$P
25	$2s^2\ 2p^2\ (^3$P$)\ 3p^1$	^{2}S	0.5	7418613.	43% + 36% $2s^2\ 2p^2\ (^3$P$)\ 3p^1\ ^4$D + 19% $2s^2\ 2p^2\ (^3$P$)\ 3p^1\ ^4$P
26	$2s^2\ 2p^2\ (^3$P$)\ 3p^1$	^{4}D	1.5	7448372.	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	7458331.	84% + 11% $2s^2\ 2p^2\ (^3$P$)\ 3p^1\ ^4$P
28	$2s^2\ 2p^2\ (^3$P$)\ 3p^1$	^{4}P	0.5	7470872.	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	7477776.	45% + 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	7490910.	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	7500615.	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	7524796.	58% + 19% $2s^2\ 2p^2\ (^1$D$)\ 3p^1\ ^2$P
33	$2s^2\ 2p^2\ (^1$S$)\ 3s^1$	^{2}S	0.5	7530985.	86%
34	$2s^2\ 2p^2\ (^3$P$)\ 3p^1$	^{2}P	1.5	7549587.	57% + 11% $2s^2\ 2p^2\ (^1$D$)\ 3p^1\ ^2$P
35	$2s^2\ 2p^2\ (^3$P$)\ 3p^1$	^{2}D	2.5	7554153.	33% + 31% $2s^2\ 2p^2\ (^3$P$)\ 3p^1\ ^4$P + 27% $2s^2\ 2p^2\ (^1$D$)\ 3p^1\ ^2$F
36	$2s^2\ 2p^2\ (^3$P$)\ 3p^1$	^{2}P	0.5	7575128.	65% + 16% $2s^2\ 2p^2\ (^3$P$)\ 3p^1\ ^2$S
37	$2s^2\ 2p^2\ (^1$D$)\ 3p^1$	^{2}F	2.5	7627214.	48% + 24% $2s^2\ 2p^2\ (^1$D$)\ 3p^1\ ^2$D + 10% $2s^2\ 2p^2\ (^3$P$)\ 3p^1\ ^2$D
38	$2s^1\ 2p^3\ (^5$S$)\ 3s^1$	^{6}S	2.5	7632881.	87%
39	$2s^2\ 2p^2\ (^3$P$)\ 3d^1$	^{4}F	1.5	7638491.	62% + 12% $2s^2\ 2p^2\ (^3$P$)\ 3d^1\ ^4$D
40	$2s^2\ 2p^2\ (^1$D$)\ 3p^1$	^{2}F	3.5	7643413.	82% + 16% $2s^2\ 2p^2\ (^3$P$)\ 3p^1\ ^4$D
41	$2s^2\ 2p^2\ (^1$D$)\ 3p^1$	^{2}D	1.5	7652328.	47% + 23% $2s^2\ 2p^2\ (^1$D$)\ 3p^1\ ^2$P + 13% $2s^2\ 2p^2\ (^3$P$)\ 3p^1\ ^2$D
42	$2s^2\ 2p^2\ (^3$P$)\ 3d^1$	^{4}F	2.5	7661516.	49% + 26% $2s^2\ 2p^2\ (^3$P$)\ 3d^1\ ^4$D
43	$2s^2\ 2p^2\ (^1$D$)\ 3p^1$	^{2}D	2.5	7670515.	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	7678905.	90%
45	$2s^2\ 2p^2\ (^3$P$)\ 3d^1$	^{2}P	1.5	7712273.	42% + 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	7712951.	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	7720580.	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	7721355.	40% + 20% $2s^2\ 2p^2\ (^3$P$)\ 3d^1\ ^2$F + 15% $2s^2\ 2p^2\ (^1$D$)\ 3d^1\ ^2$F
49	$2s^2\ 2p^2\ (^1$D$)\ 3p^1$	^{2}P	1.5	7736971.	32% + 25% $2s^2\ 2p^2\ (^3$P$)\ 3p^1\ ^2$P + 21% $2s^1\ 2p^3\ (^5$S$)\ 3s^1\ ^4$S
50	$2s^2\ 2p^2\ (^3$P$)\ 3d^1$	^{4}D	1.5	7746320.	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	7748360.	39% + 22% $2s^2\ 2p^2\ (^1$D$)\ 3d^1\ ^2$F + 18% $2s^2\ 2p^2\ (^3$P$)\ 3d^1\ ^4$F
52	$2s^2\ 2p^2\ (^3$P$)\ 3d^1$	^{4}F	4.5	7750981.	83% + 15% $2s^2\ 2p^2\ (^1$D$)\ 3d^1\ ^2$G
53	$2s^2\ 2p^2\ (^3$P$)\ 3d^1$	^{2}F	2.5	7751030.	38% + 25% $2s^2\ 2p^2\ (^3$P$)\ 3d^1\ ^4$P + 15% $2s^2\ 2p^2\ (^3$P$)\ 3d^1\ ^4$D

Table 1. continued.

Index	Configuration	*LS*	*J*	*E* (cm^{-1})	Composition
54	$2s^1\ 2p^3\ (^5S)\ 3s^1$	^4S	1.5	7760467.	59% + 13% $2s^2\ 2p^2\ (^3P)\ 3p^1\ ^4S$
55	$2s^2\ 2p^2\ (^1S)\ 3p^1$	^2P	0.5	7778931.	78% + 13% $2s^2\ 2p^2\ (^3P)\ 3p^1\ ^2P$
56	$2s^2\ 2p^2\ (^3P)\ 3d^1$	^4P	2.5	7785892.	44% + 34% $2s^2\ 2p^2\ (^3P)\ 3d^1\ ^4D$ + 15% $2s^2\ 2p^2\ (^1D)\ 3d^1\ ^2D$
57	$2s^2\ 2p^2\ (^1S)\ 3p^1$	^2P	1.5	7792929.	73%
58	$2s^2\ 2p^2\ (^3P)\ 3d^1$	^4P	1.5	7798298.	72% + 10% $2s^2\ 2p^2\ (^3P)\ 3d^1\ ^4D$
59	$2s^2\ 2p^2\ (^3P)\ 3d^1$	^2P	0.5	7799638.	59% + 23% $2s^2\ 2p^2\ (^3P)\ 3d^1\ ^4P$
60	$2s^2\ 2p^2\ (^3P)\ 3d^1$	^4P	0.5	7807843.	60% + 22% $2s^2\ 2p^2\ (^3P)\ 3d^1\ ^2P$
61	$2s^2\ 2p^2\ (^3P)\ 3d^1$	^2F	3.5	7819869.	43% + 25% $2s^2\ 2p^2\ (^3P)\ 3d^1\ ^4D$ + 23% $2s^2\ 2p^2\ (^1D)\ 3d^1\ ^2G$
62	$2s^2\ 2p^2\ (^3P)\ 3d^1$	^2D	1.5	7844676.	68%
63	$2s^2\ 2p^2\ (^3P)\ 3d^1$	^2D	2.5	7846514.	62% + 14% $2s^2\ 2p^2\ (^1D)\ 3d^1\ ^2F$ + 11% $2s^2\ 2p^2\ (^1D)\ 3d^1\ ^2D$
64	$2s^1\ 2p^3\ (^5S)\ 3p^1$	^6P	1.5	7851456.	94%
65	$2s^1\ 2p^3\ (^5S)\ 3p^1$	^6P	2.5	7858264.	90%
66	$2s^1\ 2p^3\ (^5S)\ 3p^1$	^6P	3.5	7875859.	89%
67	$2s^2\ 2p^2\ (^1D)\ 3d^1$	^2G	3.5	7883951.	44% + 36% $2s^2\ 2p^2\ (^1D)\ 3d^1\ ^2F$
68	$2s^2\ 2p^2\ (^1D)\ 3d^1$	^2G	4.5	7900299.	83% + 15% $2s^2\ 2p^2\ (^3P)\ 3d^1\ ^4F$
69	$2s^2\ 2p^2\ (^1D)\ 3d^1$	^2D	1.5	7915116.	75%
70	$2s^2\ 2p^2\ (^1D)\ 3d^1$	^2D	2.5	7919464.	50% + 24% $2s^2\ 2p^2\ (^1D)\ 3d^1\ ^2F$
71	$2s^2\ 2p^2\ (^1D)\ 3d^1$	^2P	0.5	7936656.	87%
72	$2s^2\ 2p^2\ (^3P)\ 3d^1$	^2F	3.5	7941761.	36% + 35% $2s^2\ 2p^2\ (^1D)\ 3d^1\ ^2F$ + 21% $2s^2\ 2p^2\ (^1D)\ 3d^1\ ^2G$
73	$2s^1\ 2p^3\ (^5S)\ 3p^1$	^4P	1.5	7941831.	86%
74	$2s^1\ 2p^3\ (^5S)\ 3p^1$	^4P	2.5	7942381.	84%
75	$2s^1\ 2p^3\ (^3D)\ 3s^1$	^4D	1.5	7948577.	83% + 11% $2s^1\ 2p^3\ (^3P)\ 3s^1\ ^4P$
76	$2s^1\ 2p^3\ (^5S)\ 3p^1$	^4P	0.5	7949929.	90%
77	$2s^1\ 2p^3\ (^3D)\ 3s^1$	^4D	0.5	7950408.	88%
78	$2s^1\ 2p^3\ (^3D)\ 3s^1$	^4D	2.5	7950442.	81% + 15% $2s^1\ 2p^3\ (^3P)\ 3s^1\ ^4P$
79	$2s^2\ 2p^2\ (^1D)\ 3d^1$	^2S	0.5	7969218.	81% + 10% $2s^2\ 2p^2\ (^3P)\ 3d^1\ ^4P$
80	$2s^2\ 2p^2\ (^3P)\ 3d^1$	^2D	2.5	7971406.	31% + 26% $2s^2\ 2p^2\ (^1D)\ 3d^1\ ^2F$ + 21% $2s^2\ 2p^2\ (^1D)\ 3d^1\ ^2D$
81	$2s^1\ 2p^3\ (^3D)\ 3s^1$	^4D	3.5	7972586.	98%
82	$2s^2\ 2p^2\ (^1D)\ 3d^1$	^2P	1.5	7974014.	71% + 11% $2s^2\ 2p^2\ (^3P)\ 3d^1\ ^2P$
83	$2s^1\ 2p^3\ (^3D)\ 3s^1$	^2D	1.5	8022125.	78% + 13% $2s^1\ 2p^3\ (^3P)\ 3s^1\ ^2P$
84	$2s^1\ 2p^3\ (^3D)\ 3s^1$	^2D	2.5	8037734.	80%
85	$2s^2\ 2p^2\ (^1S)\ 3d^1$	^2D	2.5	8051967.	80%
86	$2s^2\ 2p^2\ (^1S)\ 3d^1$	^2D	1.5	8063693.	76% + 14% $2s^2\ 2p^2\ (^3P)\ 3d^1\ ^2D$
87	$2s^1\ 2p^3\ (^3P)\ 3s^1$	^4P	0.5	8088857.	93%
88	$2s^1\ 2p^3\ (^3P)\ 3s^1$	^4P	1.5	8100269.	78% + 11% $2s^1\ 2p^3\ (^3D)\ 3s^1\ ^4D$
89	$2s^1\ 2p^3\ (^5S)\ 3d^1$	^6D	0.5	8107989.	97%
90	$2s^1\ 2p^3\ (^5S)\ 3d^1$	^6D	1.5	8108247.	97%
91	$2s^1\ 2p^3\ (^5S)\ 3d^1$	^6D	2.5	8108618.	96%
92	$2s^1\ 2p^3\ (^5S)\ 3d^1$	^6D	3.5	8109382.	96%
93	$2s^1\ 2p^3\ (^5S)\ 3d^1$	^6D	4.5	8111483.	97%
94	$2s^1\ 2p^3\ (^3P)\ 3s^1$	^4P	2.5	8120216.	66% + 16% $2s^1\ 2p^3\ (^3D)\ 3s^1\ ^2D$ + 10% $2s^1\ 2p^3\ (^3D)\ 3s^1\ ^4D$
95	$2s^1\ 2p^3\ (^3D)\ 3p^1$	^4D	0.5	8146165.	67% + 14% $2s^1\ 2p^3\ (^3D)\ 3p^1\ ^2P$
96	$2s^1\ 2p^3\ (^3D)\ 3p^1$	^4D	1.5	8148253.	53% + 16% $2s^1\ 2p^3\ (^3D)\ 3p^1\ ^2P$
97	$2s^1\ 2p^3\ (^3P)\ 3s^1$	^2P	0.5	8159507.	88%
98	$2s^1\ 2p^3\ (^3D)\ 3p^1$	^4F	2.5	8161933.	50% + 32% $2s^1\ 2p^3\ (^3D)\ 3p^1\ ^4D$ + 11% $2s^1\ 2p^3\ (^3P)\ 3p^1\ ^4D$
99	$2s^1\ 2p^3\ (^3D)\ 3p^1$	^4F	1.5	8164556.	61% + 14% $2s^1\ 2p^3\ (^3D)\ 3p^1\ ^2P$
100	$2s^1\ 2p^3\ (^3P)\ 3s^1$	^2P	1.5	8173327.	69% + 11% $2s^1\ 2p^3\ (^1D)\ 3s^1\ ^2D$ + 11% $2s^1\ 2p^3\ (^3D)\ 3s^1\ ^2D$
101	$2s^1\ 2p^3\ (^3D)\ 3p^1$	^4F	3.5	8182113.	65% + 26% $2s^1\ 2p^3\ (^3D)\ 3p^1\ ^4D$
102	$2s^1\ 2p^3\ (^3D)\ 3p^1$	^4D	2.5	8187364.	58% + 30% $2s^1\ 2p^3\ (^3D)\ 3p^1\ ^4F$
103	$2s^1\ 2p^3\ (^3D)\ 3p^1$	^2P	1.5	8197506.	33% + 33% $2s^1\ 2p^3\ (^3D)\ 3p^1\ ^4D$ + 16% $2s^1\ 2p^3\ (^3D)\ 3p^1\ ^4F$
104	$2s^1\ 2p^3\ (^3D)\ 3p^1$	^4D	3.5	8199598.	60% + 21% $2s^1\ 2p^3\ (^3D)\ 3p^1\ ^4F$ + 12% $2s^1\ 2p^3\ (^3D)\ 3p^1\ ^2F$
105	$2s^1\ 2p^3\ (^3D)\ 3p^1$	^2P	0.5	8207601.	74% + 15% $2s^1\ 2p^3\ (^3D)\ 3p^1\ ^4D$
106	$2s^1\ 2p^3\ (^3D)\ 3p^1$	^2F	2.5	8212124.	80%
107	$2s^1\ 2p^3\ (^3D)\ 3p^1$	^4F	4.5	8214081.	99%

Table 1. continued.

Index	Configuration	*LS*	*J*	E (cm^{-1})	Composition
108	$2s^1\ 2p^3\ (^5S)\ 3d^1$	^4D	2.5	8220814.	86%
109	$2s^1\ 2p^3\ (^3D)\ 3p^1$	^2F	3.5	8222998.	79% + 14% $2s^1\ 2p^3\ (^3D)\ 3p^1\ ^4D$
110	$2s^1\ 2p^3\ (^5S)\ 3d^1$	^4D	1.5	8223557.	88%
111	$2s^1\ 2p^3\ (^5S)\ 3d^1$	^4D	3.5	8227372.	89%
112	$2s^1\ 2p^3\ (^5S)\ 3d^1$	^4D	0.5	8228189.	91%
113	$2s^1\ 2p^3\ (^3D)\ 3p^1$	^4P	1.5	8251590.	50% + 27% $2s^1\ 2p^3\ (^3P)\ 3p^1\ ^4S$
114	$2s^1\ 2p^3\ (^3D)\ 3p^1$	^4P	0.5	8258722.	74% + 18% $2s^1\ 2p^3\ (^3P)\ 3p^1\ ^4P$
115	$2s^1\ 2p^3\ (^3D)\ 3p^1$	^4P	2.5	8272663.	79%
116	$2s^1\ 2p^3\ (^3D)\ 3p^1$	^2D	1.5	8278129.	55% + 16% $2s^1\ 2p^3\ (^3D)\ 3p^1\ ^2P$ + 11% $2s^1\ 2p^3\ (^3P)\ 3p^1\ ^2P$
117	$2s^1\ 2p^3\ (^3S)\ 3s^1$	^4S	1.5	8279560.	79% + 14% $2s^1\ 2p^3\ (^1P)\ 3s^1\ ^2P$
118	$2s^1\ 2p^3\ (^3D)\ 3p^1$	^2D	2.5	8299597.	68%
119	$2s^1\ 2p^3\ (^3P)\ 3p^1$	^4D	0.5	8306291.	67% + 24% $2s^1\ 2p^3\ (^3P)\ 3p^1\ ^2P$
120	$2s^1\ 2p^3\ (^3S)\ 3s^1$	^2S	0.5	8312866.	72% + 19% $2s^1\ 2p^3\ (^1P)\ 3s^1\ ^2P$
121	$2s^1\ 2p^3\ (^3P)\ 3p^1$	^4D	1.5	8319106.	73%
122	$2s^1\ 2p^3\ (^1D)\ 3s^1$	^2D	2.5	8321423.	92%
123	$2s^1\ 2p^3\ (^1D)\ 3s^1$	^2D	1.5	8328453.	85%
124	$2s^1\ 2p^3\ (^3P)\ 3p^1$	^4D	2.5	8331131.	72% + 11% $2s^1\ 2p^3\ (^3D)\ 3p^1\ ^4F$
125	$2s^1\ 2p^3\ (^3P)\ 3p^1$	^4S	1.5	8340622.	56% + 26% $2s^1\ 2p^3\ (^3D)\ 3p^1\ ^4P$
126	$2s^1\ 2p^3\ (^3P)\ 3p^1$	^4D	3.5	8350838.	74% + 11% $2s^1\ 2p^3\ (^3D)\ 3p^1\ ^4F$
127	$2s^1\ 2p^3\ (^3P)\ 3p^1$	^2P	0.5	8352991.	53% + 17% $2s^1\ 2p^3\ (^3P)\ 3p^1\ ^4D$
128	$2s^1\ 2p^3\ (^3P)\ 3p^1$	^4P	0.5	8361583.	51% + 11% $2s^1\ 2p^3\ (^3P)\ 3p^1\ ^2P$ + 11% $2s^1\ 2p^3\ (^3S)\ 3p^1\ ^4P$
129	$2s^1\ 2p^3\ (^3P)\ 3p^1$	^4P	1.5	8368276.	43% + 27% $2s^1\ 2p^3\ (^3P)\ 3p^1\ ^2D$
130	$2s^1\ 2p^3\ (^3P)\ 3p^1$	^4P	2.5	8371183.	58% + 13% $2s^1\ 2p^3\ (^3P)\ 3p^1\ ^2D$
131	$2s^1\ 2p^3\ (^3P)\ 3p^1$	^2D	1.5	8377003.	45% + 31% $2s^1\ 2p^3\ (^3P)\ 3p^1\ ^4P$
132	$2s^1\ 2p^3\ (^3D)\ 3d^1$	^4F	1.5	8397488.	78% + 15% $2s^1\ 2p^3\ (^3P)\ 3d^1\ ^4F$
133	$2s^1\ 2p^3\ (^3P)\ 3p^1$	^2P	1.5	8398723.	51% + 24% $2s^1\ 2p^3\ (^3D)\ 3p^1\ ^2D$
134	$2s^1\ 2p^3\ (^3P)\ 3p^1$	^2D	2.5	8401303.	50% + 20% $2s^1\ 2p^3\ (^3P)\ 3p^1\ ^4P$
135	$2s^1\ 2p^3\ (^3D)\ 3d^1$	^4F	2.5	8405191.	68% + 13% $2s^1\ 2p^3\ (^3P)\ 3d^1\ ^4F$ + 12% $2s^1\ 2p^3\ (^3D)\ 3d^1\ ^4G$
136	$2s^1\ 2p^3\ (^3D)\ 3d^1$	^4F	3.5	8415482.	52% + 30% $2s^1\ 2p^3\ (^3D)\ 3d^1\ ^4G$ + 13% $2s^1\ 2p^3\ (^3P)\ 3d^1\ ^4F$
137	$2s^1\ 2p^3\ (^3D)\ 3d^1$	^4G	2.5	8429183.	75% + 15% $2s^1\ 2p^3\ (^3D)\ 3d^1\ ^4F$
138	$2s^1\ 2p^3\ (^3D)\ 3d^1$	^4G	4.5	8430501.	75% + 13% $2s^1\ 2p^3\ (^3P)\ 3d^1\ ^4F$
139	$2s^1\ 2p^3\ (^3D)\ 3d^1$	^4G	3.5	8431993.	54% + 35% $2s^1\ 2p^3\ (^3D)\ 3d^1\ ^4F$
140	$2s^1\ 2p^3\ (^3D)\ 3d^1$	^4F	4.5	8442788.	91%
141	$2s^1\ 2p^3\ (^3P)\ 3p^1$	^2S	0.5	8446089.	57% + 12% $2s^1\ 2p^3\ (^1P)\ 3p^1\ ^2S$
142	$2s^1\ 2p^3\ (^3D)\ 3d^1$	^4D	0.5	8447449.	75% + 12% $2s^1\ 2p^3\ (^3P)\ 3d^1\ ^4D$
143	$2s^1\ 2p^3\ (^3D)\ 3d^1$	^4G	5.5	8452492.	100%
144	$2s^1\ 2p^3\ (^3D)\ 3d^1$	^4D	1.5	8452551.	62%
145	$2s^1\ 2p^3\ (^1P)\ 3s^1$	^2P	1.5	8456329.	74% + 12% $2s^1\ 2p^3\ (^3S)\ 3s^1\ ^4S$
146	$2s^1\ 2p^3\ (^1P)\ 3s^1$	^2P	0.5	8459323.	71% + 18% $2s^1\ 2p^3\ (^3S)\ 3s^1\ ^2S$
147	$2s^1\ 2p^3\ (^3D)\ 3d^1$	^4D	2.5	8464145.	57% + 17% $2s^1\ 2p^3\ (^3D)\ 3d^1\ ^4P$ + 15% $2s^1\ 2p^3\ (^3P)\ 3d^1\ ^4P$
148	$2s^1\ 2p^3\ (^3D)\ 3d^1$	^2S	0.5	8465650.	56% + 15% $2s^1\ 2p^3\ (^3D)\ 3d^1\ ^4P$ + 12% $2s^1\ 2p^3\ (^3P)\ 3d^1\ ^4P$
149	$2s^1\ 2p^3\ (^3D)\ 3d^1$	^4D	3.5	8472462.	50% + 35% $2s^1\ 2p^3\ (^3D)\ 3d^1\ ^2G$
150	$2s^1\ 2p^3\ (^3D)\ 3d^1$	^2G	3.5	8483011.	52% + 36% $2s^1\ 2p^3\ (^3D)\ 3d^1\ ^4D$
151	$2s^1\ 2p^3\ (^3D)\ 3d^1$	^2G	4.5	8486955.	86%
152	$2s^1\ 2p^3\ (^3S)\ 3p^1$	^4P	1.5	8490594.	46% + 17% $2s^1\ 2p^3\ (^3S)\ 3p^1\ ^2P$ + 10% $2s^1\ 2p^3\ (^1D)\ 3p^1\ ^2P$
153	$2s^1\ 2p^3\ (^3S)\ 3p^1$	^4P	0.5	8493073.	36% + 23% $2s^1\ 2p^3\ (^3S)\ 3p^1\ ^2P$ + 15% $2s^1\ 2p^3\ (^1P)\ 3p^1\ ^2P$
154	$2s^1\ 2p^3\ (^3D)\ 3d^1$	^4P	2.5	8493591.	58% + 29% $2s^1\ 2p^3\ (^3D)\ 3d^1\ ^4D$
155	$2s^1\ 2p^3\ (^3D)\ 3d^1$	^4P	1.5	8499405.	48% + 17% $2s^1\ 2p^3\ (^3D)\ 3d^1\ ^4S$ + 16% $2s^1\ 2p^3\ (^3P)\ 3d^1\ ^4P$
156	$2s^1\ 2p^3\ (^3D)\ 3d^1$	^4P	0.5	8500312.	65% + 25% $2s^1\ 2p^3\ (^3D)\ 3d^1\ ^2S$
157	$2s^1\ 2p^3\ (^3D)\ 3d^1$	^2P	1.5	8504331.	35% + 34% $2s^1\ 2p^3\ (^3D)\ 3d^1\ ^4P$ + 16% $2s^1\ 2p^3\ (^3D)\ 3d^1\ ^4D$
158	$2s^1\ 2p^3\ (^3D)\ 3d^1$	^2D	2.5	8505415.	36% + 31% $2s^1\ 2p^3\ (^3P)\ 3d^1\ ^2D$ + 18% $2s^1\ 2p^3\ (^3D)\ 3d^1\ ^2F$
159	$2s^1\ 2p^3\ (^3S)\ 3p^1$	^4P	2.5	8513802.	77% + 12% $2s^1\ 2p^3\ (^1P)\ 3p^1\ ^2D$
160	$2s^1\ 2p^3\ (^3D)\ 3d^1$	^4S	1.5	8522664.	51% + 23% $2s^1\ 2p^3\ (^3D)\ 3d^1\ ^2P$
161	$2s^1\ 2p^3\ (^3D)\ 3d^1$	^2P	0.5	8524941.	83%

Table 1. continued.

Index	Configuration	*LS*	*J*	E (cm^{-1})	Composition
162	$2s^1\ 2p^3\ (^1D)\ 3p^1$	^2P	1.5	8530459.	37% + 32% $2s^1\ 2p^3\ (^3S)\ 3p^1\ ^4P$ + 19% $2s^1\ 2p^3\ (^3S)\ 3p^1\ ^2P$
163	$2s^1\ 2p^3\ (^3S)\ 3p^1$	^4P	0.5	8531112.	38% + 27% $2s^1\ 2p^3\ (^3S)\ 3p^1\ ^2P$ + 15% $2s^1\ 2p^3\ (^3P)\ 3p^1\ ^2S$
164	$2s^1\ 2p^3\ (^1D)\ 3p^1$	^2F	2.5	8537267.	84% + 11% $2s^1\ 2p^3\ (^3P)\ 3p^1\ ^2D$
165	$2s^1\ 2p^3\ (^1D)\ 3p^1$	^2F	3.5	8553704.	93%
166	$2s^1\ 2p^3\ (^3D)\ 3d^1$	^2D	1.5	8555751.	73%
167	$2s^1\ 2p^3\ (^3D)\ 3d^1$	^2F	3.5	8561610.	74%
168	$2s^1\ 2p^3\ (^3D)\ 3d^1$	^2F	2.5	8566321.	54% + 27% $2s^1\ 2p^3\ (^3D)\ 3d^1\ ^2D$
169	$2s^1\ 2p^3\ (^3P)\ 3d^1$	^4F	1.5	8576738.	74% + 12% $2s^1\ 2p^3\ (^3D)\ 3d^1\ ^4F$
170	$2s^1\ 2p^3\ (^3P)\ 3d^1$	^4F	2.5	8576893.	67% + 14% $2s^1\ 2p^3\ (^3P)\ 3d^1\ ^4D$
171	$2s^1\ 2p^3\ (^3P)\ 3d^1$	^4F	3.5	8578774.	62% + 16% $2s^1\ 2p^3\ (^3P)\ 3d^1\ ^4D$
172	$2s^1\ 2p^3\ (^1D)\ 3p^1$	^2D	1.5	8583365.	81%
173	$2s^1\ 2p^3\ (^1D)\ 3p^1$	^2D	2.5	8589182.	82%
174	$2s^1\ 2p^3\ (^3P)\ 3d^1$	^4F	4.5	8589924.	71% + 12% $2s^1\ 2p^3\ (^3D)\ 3d^1\ ^2G$ + 11% $2s^1\ 2p^3\ (^3D)\ 3d^1\ ^4G$
175	$2s^1\ 2p^3\ (^3P)\ 3d^1$	^4P	2.5	8598500.	58% + 12% $2s^1\ 2p^3\ (^3P)\ 3d^1\ ^4D$
176	$2s^1\ 2p^3\ (^3P)\ 3d^1$	^4P	0.5	8602160.	57% + 14% $2s^1\ 2p^3\ (^3D)\ 3d^1\ ^4P$ + 14% $2s^1\ 2p^3\ (^3P)\ 3d^1\ ^4D$
177	$2s^1\ 2p^3\ (^3P)\ 3d^1$	^4P	1.5	8603763.	42% + 23% $2s^1\ 2p^3\ (^3P)\ 3d^1\ ^4D$ + 15% $2s^1\ 2p^3\ (^3D)\ 3d^1\ ^4S$
178	$2s^1\ 2p^3\ (^3P)\ 3d^1$	^4D	0.5	8616026.	57% + 13% $2s^1\ 2p^3\ (^3P)\ 3d^1\ ^4P$
179	$2s^1\ 2p^3\ (^3P)\ 3d^1$	^2D	1.5	8616973.	47% + 16% $2s^1\ 2p^3\ (^3P)\ 3d^1\ ^4D$ + 16% $2s^1\ 2p^3\ (^3P)\ 3d^1\ ^4P$
180	$2s^1\ 2p^3\ (^1P)\ 3p^1$	^2D	1.5	8622572.	41% + 33% $2s^1\ 2p^3\ (^1D)\ 3p^1\ ^2P$ + 16% $2s^1\ 2p^3\ (^3S)\ 3p^1\ ^2P$
181	$2s^1\ 2p^3\ (^3P)\ 3d^1$	^4D	3.5	8622902.	60% + 11% $2s^1\ 2p^3\ (^3D)\ 3d^1\ ^2F$
182	$2s^1\ 2p^3\ (^3P)\ 3d^1$	^4D	2.5	8625379.	52%
183	$2s^1\ 2p^3\ (^3P)\ 3d^1$	^4D	1.5	8629349.	34% + 23% $2s^1\ 2p^3\ (^3P)\ 3d^1\ ^2D$
184	$2s^1\ 2p^3\ (^1D)\ 3p^1$	^2P	0.5	8631964.	59% + 18% $2s^1\ 2p^3\ (^1P)\ 3p^1\ ^2P$ + 10% $2s^1\ 2p^3\ (^3S)\ 3p^1\ ^2P$
185	$2s^1\ 2p^3\ (^3P)\ 3d^1$	^2F	2.5	8648168.	78%
186	$2s^1\ 2p^3\ (^3P)\ 3d^1$	^2F	3.5	8667774.	65% + 13% $2s^1\ 2p^3\ (^1D)\ 3d^1\ ^2G$
187	$2s^1\ 2p^3\ (^3P)\ 3d^1$	^2D	2.5	8683490.	51% + 23% $2s^1\ 2p^3\ (^3D)\ 3d^1\ ^2D$ + 12% $2s^1\ 2p^3\ (^3D)\ 3d^1\ ^2F$
188	$2s^1\ 2p^3\ (^1P)\ 3p^1$	^2D	2.5	8692983.	83% + 11% $2s^1\ 2p^3\ (^3S)\ 3p^1\ ^4P$
189	$2s^1\ 2p^3\ (^3P)\ 3d^1$	^2P	0.5	8697378.	66% + 11% $2s^1\ 2p^3\ (^1D)\ 3d^1\ ^2P$
190	$2s^1\ 2p^3\ (^1P)\ 3p^1$	^2P	1.5	8701479.	83%
191	$2s^1\ 2p^3\ (^1P)\ 3p^1$	^2S	0.5	8706548.	43% + 33% $2s^1\ 2p^3\ (^1P)\ 3p^1\ ^2P$
192	$2s^1\ 2p^3\ (^1P)\ 3p^1$	^2D	1.5	8706613.	45% + 38% $2s^1\ 2p^3\ (^3S)\ 3p^1\ ^2P$
193	$2s^1\ 2p^3\ (^3P)\ 3d^1$	^2P	1.5	8729610.	67%
194	$2s^1\ 2p^3\ (^3S)\ 3d^1$	^4D	2.5	8757015.	69%
195	$2s^1\ 2p^3\ (^3S)\ 3d^1$	^4D	1.5	8759672.	45% + 15% $2s^1\ 2p^3\ (^1P)\ 3d^1\ ^2D$ + 15% $2s^1\ 2p^3\ (^3S)\ 3d^1\ ^2D$
196	$2s^1\ 2p^3\ (^3S)\ 3d^1$	^4D	3.5	8762783.	77% + 13% $2s^1\ 2p^3\ (^1P)\ 3d^1\ ^2F$
197	$2s^1\ 2p^3\ (^3S)\ 3p^1$	^2P	0.5	8766585.	29% + 28% $2s^1\ 2p^3\ (^1P)\ 3p^1\ ^2S$ + 26% $2s^1\ 2p^3\ (^1P)\ 3p^1\ ^2P$
198	$2s^1\ 2p^3\ (^3S)\ 3d^1$	^4D	0.5	8769067.	75%
199	$2s^1\ 2p^3\ (^3S)\ 3d^1$	^2D	1.5	8786010.	35% + 28% $2s^1\ 2p^3\ (^3S)\ 3d^1\ ^4D$ + 12% $2s^1\ 2p^3\ (^1D)\ 3d^1\ ^2D$
200	$2s^1\ 2p^3\ (^1D)\ 3d^1$	^2D	2.5	8796532.	43% + 28% $2s^1\ 2p^3\ (^3S)\ 3d^1\ ^2D$ + 13% $2s^1\ 2p^3\ (^3S)\ 3d^1\ ^4D$
201	$2s^1\ 2p^3\ (^1D)\ 3d^1$	^2G	4.5	8799526.	94%
202	$2s^1\ 2p^3\ (^1D)\ 3d^1$	^2G	3.5	8802647.	75% + 10% $2s^1\ 2p^3\ (^3P)\ 3d^1\ ^2F$
203	$2s^1\ 2p^3\ (^1D)\ 3d^1$	^2F	3.5	8822215.	74%
204	$2s^1\ 2p^3\ (^1D)\ 3d^1$	^2F	2.5	8825252.	74%
205	$2s^1\ 2p^3\ (^1D)\ 3d^1$	^2P	1.5	8845989.	75% + 10% $2s^1\ 2p^3\ (^1D)\ 3d^1\ ^2D$
206	$2s^1\ 2p^3\ (^1D)\ 3d^1$	^2P	0.5	8854370.	55% + 34% $2s^1\ 2p^3\ (^1D)\ 3d^1\ ^2S$
207	$2p^4\ (^3P)\ 3s^1$	^4P	2.5	8867169.	87%
208	$2s^1\ 2p^3\ (^1D)\ 3d^1$	^2D	1.5	8868115.	50% + 16% $2s^1\ 2p^3\ (^1D)\ 3d^1\ ^2P$ + 10% $2s^1\ 2p^3\ (^1P)\ 3d^1\ ^2D$
209	$2s^1\ 2p^3\ (^1D)\ 3d^1$	^2D	2.5	8871774.	33% + 28% $2s^1\ 2p^3\ (^1P)\ 3d^1\ ^2F$ + 26% $2s^1\ 2p^3\ (^3S)\ 3d^1\ ^2D$
210	$2s^1\ 2p^3\ (^1D)\ 3d^1$	^2S	0.5	8882194.	55% + 24% $2s^1\ 2p^3\ (^1D)\ 3d^1\ ^2P$ + 12% $2s^1\ 2p^3\ (^3P)\ 3d^1\ ^2P$
211	$2p^4\ (^3P)\ 3s^1$	^4P	1.5	8903799.	42% + 42% $2p^4\ (^3P)\ 3s^1\ ^2P$ + 11% $2p^4\ (^1D)\ 3s^1\ ^2D$
212	$2s^1\ 2p^3\ (^1P)\ 3d^1$	^2F	3.5	8942683.	82% + 12% $2s^1\ 2p^3\ (^3S)\ 3d^1\ ^4D$
213	$2s^1\ 2p^3\ (^1P)\ 3d^1$	^2D	2.5	8945446.	52% + 23% $2s^1\ 2p^3\ (^1P)\ 3d^1\ ^2F$ + 13% $2s^1\ 2p^3\ (^3S)\ 3d^1\ ^2D$
214	$2p^4\ (^3P)\ 3s^1$	^4P	0.5	8954636.	89%
215	$2s^1\ 2p^3\ (^1P)\ 3d^1$	^2P	1.5	8963481.	62% + 20% $2s^1\ 2p^3\ (^1P)\ 3d^1\ ^2D$

Table 1. continued.

Index	Configuration	*LS*	*J*	E (cm^{-1})	Composition
216	$2s^1\ 2p^3\ (^1P)\ 3d^1$	^2P	0.5	8965728.	80%
217	$2s^1\ 2p^3\ (^1P)\ 3d^1$	^2F	2.5	8970107.	34% + 34% $2s^1\ 2p^3\ (^1P)\ 3d^1\ ^2D$ + 17% $2s^1\ 2p^3\ (^3S)\ 3d^1\ ^2D$
218	$2p^4\ (^3P)\ 3s^1$	^4P	1.5	8973008.	54% + 36% $2p^4\ (^3P)\ 3s^1\ ^2P$
219	$2s^1\ 2p^3\ (^1P)\ 3d^1$	^2D	1.5	9010001.	45% + 31% $2s^1\ 2p^3\ (^3S)\ 3d^1\ ^2D$ + 14% $2s^1\ 2p^3\ (^1P)\ 3d^1\ ^2P$
220	$2p^4\ (^3P)\ 3s^1$	^2P	0.5	9014309.	87%
221	$2p^4\ (^1D)\ 3s^1$	^2D	2.5	9053851.	87%
222	$2p^4\ (^3P)\ 3p^1$	^4P	1.5	9056767.	60% + 11% $2p^4\ (^3P)\ 3p^1\ ^4S$
223	$2p^4\ (^1D)\ 3s^1$	^2D	1.5	9059219.	81% + 14% $2p^4\ (^3P)\ 3s^1\ ^2P$
224	$2p^4\ (^3P)\ 3p^1$	^4P	2.5	9060667.	65% + 23% $2p^4\ (^3P)\ 3p^1\ ^4D$
225	$2p^4\ (^3P)\ 3p^1$	^4P	0.5	9091685.	42% + 20% $2p^4\ (^3P)\ 3p^1\ ^2P$ + 20% $2p^4\ (^1D)\ 3p^1\ ^2P$
226	$2p^4\ (^3P)\ 3p^1$	^4D	3.5	9095350.	86%
227	$2p^4\ (^3P)\ 3p^1$	^2D	2.5	9097318.	56% + 15% $2p^4\ (^3P)\ 3p^1\ ^4P$ + 13% $2p^4\ (^3P)\ 3p^1\ ^4D$
228	$2p^4\ (^3P)\ 3p^1$	^4P	0.5	9149940.	43% + 15% $2p^4\ (^3P)\ 3p^1\ ^4D$ + 14% $2p^4\ (^3P)\ 3p^1\ ^2P$
229	$2p^4\ (^3P)\ 3p^1$	^4D	1.5	9152602.	50% + 18% $2p^4\ (^3P)\ 3p^1\ ^2D$ + 12% $2p^4\ (^3P)\ 3p^1\ ^4S$
230	$2p^4\ (^3P)\ 3p^1$	^4D	0.5	9159360.	66% + 12% $2p^4\ (^3P)\ 3p^1\ ^2S$
231	$2p^4\ (^3P)\ 3p^1$	^2P	1.5	9172087.	35% + 28% $2p^4\ (^3P)\ 3p^1\ ^4D$ + 15% $2p^4\ (^1D)\ 3p^1\ ^2P$
232	$2p^4\ (^3P)\ 3p^1$	^4D	2.5	9186205.	55% + 25% $2p^4\ (^3P)\ 3p^1\ ^2D$ + 15% $2p^4\ (^3P)\ 3p^1\ ^4P$
233	$2p^4\ (^3P)\ 3p^1$	^4S	1.5	9195185.	39% + 25% $2p^4\ (^3P)\ 3p^1\ ^4P$ + 12% $2p^4\ (^1D)\ 3p^1\ ^2P$
234	$2p^4\ (^3P)\ 3p^1$	^2S	0.5	9210584.	56% + 17% $2p^4\ (^3P)\ 3p^1\ ^2P$ + 11% $2p^4\ (^1D)\ 3p^1\ ^2P$
235	$2p^4\ (^3P)\ 3p^1$	^2D	1.5	9215095.	61% + 22% $2p^4\ (^3P)\ 3p^1\ ^4S$
236	$2p^4\ (^1D)\ 3p^1$	^2F	2.5	9241982.	77%
237	$2p^4\ (^1D)\ 3p^1$	^2F	3.5	9265703.	86%
238	$2p^4\ (^1S)\ 3s^1$	^2S	0.5	9284859.	79%
239	$2p^4\ (^1D)\ 3p^1$	^2D	1.5	9286502.	80% + 11% $2p^4\ (^1D)\ 3p^1\ ^2P$
240	$2p^4\ (^1D)\ 3p^1$	^2D	2.5	9299763.	81%
241	$2p^4\ (^3P)\ 3d^1$	^4D	3.5	9304629.	75% + 16% $2p^4\ (^3P)\ 3d^1\ ^4F$
242	$2p^4\ (^3P)\ 3d^1$	^4D	2.5	9304925.	74%
243	$2p^4\ (^3P)\ 3d^1$	^4D	1.5	9311808.	65% + 15% $2p^4\ (^3P)\ 3d^1\ ^4P$
244	$2p^4\ (^3P)\ 3d^1$	^4D	0.5	9322315.	52% + 16% $2p^4\ (^3P)\ 3d^1\ ^2P$ + 16% $2p^4\ (^3P)\ 3d^1\ ^4P$
245	$2p^4\ (^3P)\ 3d^1$	^4F	4.5	9329589.	87% + 11% $2p^4\ (^1D)\ 3d^1\ ^2G$
246	$2p^4\ (^3P)\ 3d^1$	^2F	3.5	9342724.	55% + 28% $2p^4\ (^3P)\ 3d^1\ ^4F$ + 14% $2p^4\ (^1D)\ 3d^1\ ^2G$
247	$2p^4\ (^1D)\ 3p^1$	^2P	1.5	9356849.	48% + 41% $2p^4\ (^3P)\ 3p^1\ ^2P$
248	$2p^4\ (^3P)\ 3d^1$	^4P	0.5	9367939.	67% + 17% $2p^4\ (^3P)\ 3d^1\ ^2P$
249	$2p^4\ (^3P)\ 3d^1$	^4P	1.5	9386677.	53% + 23% $2p^4\ (^3P)\ 3d^1\ ^2D$ + 11% $2p^4\ (^1D)\ 3d^1\ ^2D$
250	$2p^4\ (^3P)\ 3d^1$	^4F	2.5	9391122.	37% + 24% $2p^4\ (^3P)\ 3d^1\ ^2F$ + 15% $2p^4\ (^3P)\ 3d^1\ ^4P$
251	$2p^4\ (^1D)\ 3p^1$	^2P	0.5	9392437.	52% + 29% $2p^4\ (^3P)\ 3p^1\ ^2P$ + 12% $2p^4\ (^1S)\ 3p^1\ ^2P$
252	$2p^4\ (^3P)\ 3d^1$	^4D	0.5	9404882.	44% + 29% $2p^4\ (^3P)\ 3d^1\ ^2P$ + 18% $2p^4\ (^1D)\ 3d^1\ ^2P$
253	$2p^4\ (^3P)\ 3d^1$	^4F	1.5	9414304.	82%
254	$2p^4\ (^3P)\ 3d^1$	^4F	2.5	9419137.	40% + 26% $2p^4\ (^3P)\ 3d^1\ ^4P$
255	$2p^4\ (^3P)\ 3d^1$	^4F	3.5	9420080.	50% + 27% $2p^4\ (^3P)\ 3d^1\ ^2F$ + 18% $2p^4\ (^3P)\ 3d^1\ ^4D$
256	$2p^4\ (^3P)\ 3d^1$	^4D	1.5	9427958.	25% + 19% $2p^4\ (^3P)\ 3d^1\ ^2D$ + 17% $2p^4\ (^3P)\ 3d^1\ ^4P$
257	$2p^4\ (^3P)\ 3d^1$	^4P	2.5	9446510.	42% + 37% $2p^4\ (^3P)\ 3d^1\ ^2F$
258	$2p^4\ (^3P)\ 3d^1$	^2P	1.5	9461162.	46% + 26% $2p^4\ (^1D)\ 3d^1\ ^2P$
259	$2p^4\ (^3P)\ 3d^1$	^2D	2.5	9473025.	38% + 25% $2p^4\ (^3P)\ 3d^1\ ^2F$ + 18% $2p^4\ (^1D)\ 3d^1\ ^2D$
260	$2p^4\ (^1D)\ 3d^1$	^2G	3.5	9489956.	83% + 11% $2p^4\ (^3P)\ 3d^1\ ^2F$
261	$2p^4\ (^1D)\ 3d^1$	^2G	4.5	9493374.	88% + 11% $2p^4\ (^3P)\ 3d^1\ ^4F$
262	$2p^4\ (^1S)\ 3p^1$	^2P	1.5	9515048.	83%
263	$2p^4\ (^1S)\ 3p^1$	^2P	0.5	9517054.	69% + 17% $2p^4\ (^3P)\ 3p^1\ ^2P$
264	$2p^4\ (^1D)\ 3d^1$	^2F	2.5	9527645.	68% + 25% $2p^4\ (^1D)\ 3d^1\ ^2D$
265	$2p^4\ (^1D)\ 3d^1$	^2S	0.5	9538103.	84%
266	$2p^4\ (^1D)\ 3d^1$	^2F	3.5	9539118.	88%
267	$2p^4\ (^1D)\ 3d^1$	^2D	2.5	9574187.	46% + 32% $2p^4\ (^3P)\ 3d^1\ ^2D$ + 13% $2p^4\ (^1D)\ 3d^1\ ^2F$
268	$2p^4\ (^1D)\ 3d^1$	^2P	1.5	9576251.	59% + 28% $2p^4\ (^3P)\ 3d^1\ ^2P$
269	$2p^4\ (^1D)\ 3d^1$	^2D	1.5	9602493.	59% + 32% $2p^4\ (^3P)\ 3d^1\ ^2D$

Table 1. continued.

Index	Configuration	*LS*	*J*	*E* (cm^{-1})	Composition
270	$2p^4$ (^{1}D) $3d^1$	^{2}P	0.5	9614864.	58% + 35% $2p^4$ (^{3}P) $3d^1$ ^{2}P
271	$2s^2$ $2p^2$ (^{3}P) $4s^1$	^{4}P	0.5	9700316.	66% + 23% $2s^2$ $2p^2$ (^{3}P) $4s^1$ ^{2}P
272	$2p^4$ (^{1}S) $3d^1$	^{2}D	2.5	9753548.	84%
273	$2p^4$ (^{1}S) $3d^1$	^{2}D	1.5	9772076.	75% + 10% $2p^4$ (^{3}P) $3d^1$ ^{2}D
274	$2s^2$ $2p^2$ (^{3}P) $4s^1$	^{4}P	1.5	9772436.	88% + 11% $2s^2$ $2p^2$ (^{3}P) $4s^1$ ^{2}P
275	$2s^2$ $2p^2$ (^{3}P) $4p^1$	^{4}D	0.5	9775269.	53% + 13% $2s^2$ $2p^2$ (^{3}P) $4p^1$ ^{2}P + 12% $2s^2$ $2p^2$ (^{3}P) $4p^1$ ^{2}S
276	$2s^2$ $2p^2$ (^{3}P) $4s^1$	^{2}P	0.5	9780715.	73% + 26% $2s^2$ $2p^2$ (^{3}P) $4s^1$ ^{4}P
277	$2s^2$ $2p^2$ (^{3}P) $4p^1$	^{4}D	1.5	9795820.	37% + 28% $2s^2$ $2p^2$ (^{3}P) $4p^1$ ^{4}P + 16% $2s^2$ $2p^2$ (^{3}P) $4p^1$ ^{2}D
278	$2s^2$ $2p^2$ (^{3}P) $4s^1$	^{4}P	2.5	9815055.	76% + 22% $2s^2$ $2p^2$ (^{1}D) $4s^1$ ^{2}D
279	$2s^2$ $2p^2$ (^{3}P) $4s^1$	^{2}P	1.5	9824894.	66% + 26% $2s^2$ $2p^2$ (^{1}D) $4s^1$ ^{2}D
280	$2s^2$ $2p^2$ (^{3}P) $4p^1$	^{2}S	0.5	9845073.	35% + 32% $2s^2$ $2p^2$ (^{3}P) $4p^1$ ^{4}D + 31% $2s^2$ $2p^2$ (^{3}P) $4p^1$ ^{4}P
281	$2s^2$ $2p^2$ (^{3}P) $4p^1$	^{4}D	1.5	9857186.	53% + 12% $2s^2$ $2p^2$ (^{3}P) $4p^1$ ^{2}D + 12% $2s^2$ $2p^2$ (^{3}P) $4p^1$ ^{2}P
282	$2s^2$ $2p^2$ (^{3}P) $4p^1$	^{4}D	2.5	9861589.	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	9870105.	50% + 23% $2s^2$ $2p^2$ (^{3}P) $4p^1$ ^{2}P + 20% $2s^2$ $2p^2$ (^{3}P) $4p^1$ ^{2}S
284	$2s^2$ $2p^2$ (^{3}P) $4d^1$	^{4}F	1.5	9874082.	51% + 15% $2s^2$ $2p^2$ (^{3}P) $4d^1$ ^{4}D + 12% $2s^2$ $2p^2$ (^{3}P) $4d^1$ ^{2}P
285	$2s^2$ $2p^2$ (^{3}P) $4p^1$	^{2}D	1.5	9876625.	59% + 23% $2s^2$ $2p^2$ (^{3}P) $4p^1$ ^{4}P + 14% $2s^2$ $2p^2$ (^{3}P) $4p^1$ ^{4}S
286	$2s^2$ $2p^2$ (^{3}P) $4d^1$	^{4}F	2.5	9885726.	29% + 28% $2s^2$ $2p^2$ (^{3}P) $4d^1$ ^{4}D + 15% $2s^2$ $2p^2$ (^{3}P) $4d^1$ ^{2}F
287	$2s^2$ $2p^2$ (^{3}P) $4p^1$	^{4}P	2.5	9893049.	32% + 23% $2s^2$ $2p^2$ (^{3}P) $4p^1$ ^{4}D + 18% $2s^2$ $2p^2$ (^{3}P) $4p^1$ ^{2}D
288	$2s^2$ $2p^2$ (^{3}P) $4p^1$	^{4}D	3.5	9902966.	78% + 21% $2s^2$ $2p^2$ (^{1}D) $4p^1$ ^{2}F
289	$2s^2$ $2p^2$ (^{3}P) $4p^1$	^{4}S	1.5	9911632.	52% + 25% $2s^2$ $2p^2$ (^{3}P) $4p^1$ ^{4}P + 16% $2s^2$ $2p^2$ (^{1}D) $4p^1$ ^{2}P
290	$2s^2$ $2p^2$ (^{3}P) $4p^1$	^{2}P	1.5	9918196.	61% + 22% $2s^2$ $2p^2$ (^{1}D) $4p^1$ ^{2}D
291	$2s^2$ $2p^2$ (^{3}P) $4p^1$	^{2}D	2.5	9926739.	49% + 26% $2s^2$ $2p^2$ (^{3}P) $4p^1$ ^{4}P + 17% $2s^2$ $2p^2$ (^{1}D) $4p^1$ ^{2}F
292	$2s^2$ $2p^2$ (^{3}P) $4p^1$	^{2}P	0.5	9930018.	56% + 22% $2s^2$ $2p^2$ (^{3}P) $4p^1$ ^{2}S + 10% $2s^2$ $2p^2$ (^{1}D) $4p^1$ ^{2}P
293	$2s^2$ $2p^2$ (^{3}P) $4f^1$	^{4}G	2.5	9943424.	41% + 17% $2s^2$ $2p^2$ (^{3}P) $4f^1$ ^{2}D + 15% $2s^2$ $2p^2$ (^{3}P) $4f^1$ ^{4}F
294	$2s^2$ $2p^2$ (^{1}D) $4s^1$	^{2}D	2.5	9944210.	75% + 22% $2s^2$ $2p^2$ (^{3}P) $4s^1$ ^{4}P
295	$2s^2$ $2p^2$ (^{3}P) $4f^1$	^{2}G	3.5	9945010.	23% + 22% $2s^2$ $2p^2$ (^{3}P) $4f^1$ ^{4}D + 21% $2s^2$ $2p^2$ (^{3}P) $4f^1$ ^{4}F
296	$2s^2$ $2p^2$ (^{1}D) $4s^1$	^{2}D	1.5	9946178.	26% + 25% $2s^2$ $2p^2$ (^{3}P) $4d^1$ ^{4}F + 25% $2s^2$ $2p^2$ (^{3}P) $4d^1$ ^{2}P
297	$2s^2$ $2p^2$ (^{1}D) $4s^1$	^{2}D	1.5	9948208.	45% + 14% $2s^2$ $2p^2$ (^{3}P) $4s^1$ ^{2}P + 13% $2s^2$ $2p^2$ (^{3}P) $4d^1$ ^{4}F
298	$2s^2$ $2p^2$ (^{3}P) $4d^1$	^{4}F	3.5	9948701.	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	9949293.	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	9953010.	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	9965152.	37% + 27% $2s^2$ $2p^2$ (^{3}P) $4d^1$ ^{2}P + 17% $2s^2$ $2p^2$ (^{3}P) $4d^1$ ^{2}D
302	$2s^2$ $2p^2$ (^{3}P) $4d^1$	^{2}F	2.5	9966900.	66% + 18% $2s^2$ $2p^2$ (^{3}P) $4d^1$ ^{4}P
303	$2s^2$ $2p^2$ (^{3}P) $4d^1$	^{4}D	3.5	9987555.	33% + 31% $2s^2$ $2p^2$ (^{3}P) $4d^1$ ^{4}F + 16% $2s^2$ $2p^2$ (^{1}D) $4d^1$ ^{2}F
304	$2s^2$ $2p^2$ (^{3}P) $4d^1$	^{4}F	4.5	9989108.	79% + 20% $2s^2$ $2p^2$ (^{1}D) $4d^1$ ^{2}G
305	$2s^2$ $2p^2$ (^{3}P) $4d^1$	^{4}D	2.5	9998297.	46% + 24% $2s^2$ $2p^2$ (^{3}P) $4d^1$ ^{4}P + 14% $2s^2$ $2p^2$ (^{1}D) $4d^1$ ^{2}D
306	$2s^2$ $2p^2$ (^{3}P) $4d^1$	^{4}P	1.5	10003563.	59% + 20% $2s^2$ $2p^2$ (^{3}P) $4d^1$ ^{4}D + 13% $2s^2$ $2p^2$ (^{1}D) $4d^1$ ^{2}P
307	$2s^2$ $2p^2$ (^{3}P) $4d^1$	^{4}P	0.5	10006223.	71% + 16% $2s^2$ $2p^2$ (^{1}D) $4d^1$ ^{2}S
308	$2s^2$ $2p^2$ (^{3}P) $4d^1$	^{2}P	0.5	10010790.	66% + 14% $2s^2$ $2p^2$ (^{3}P) $4d^1$ ^{4}D + 11% $2s^2$ $2p^2$ (^{1}D) $4d^1$ ^{2}P
309	$2s^2$ $2p^2$ (^{3}P) $4f^1$	^{4}G	2.5	10015339.	45% + 35% $2s^2$ $2p^2$ (^{3}P) $4f^1$ ^{2}D + 14% $2s^2$ $2p^2$ (^{3}P) $4f^1$ ^{4}D
310	$2s^2$ $2p^2$ (^{3}P) $4f^1$	^{4}D	3.5	10016569.	45% + 38% $2s^2$ $2p^2$ (^{3}P) $4f^1$ ^{4}G
311	$2s^2$ $2p^2$ (^{3}P) $4d^1$	^{2}D	2.5	10016661.	62% + 20% $2s^2$ $2p^2$ (^{1}D) $4d^1$ ^{2}F
312	$2s^2$ $2p^2$ (^{3}P) $4d^1$	^{2}D	1.5	10016978.	58% + 14% $2s^2$ $2p^2$ (^{1}D) $4d^1$ ^{2}D + 12% $2s^2$ $2p^2$ (^{3}P) $4d^1$ ^{2}P
313	$2s^2$ $2p^2$ (^{3}P) $4d^1$	^{2}F	3.5	10018677.	58% + 19% $2s^2$ $2p^2$ (^{1}D) $4d^1$ ^{2}G + 17% $2s^2$ $2p^2$ (^{3}P) $4d^1$ ^{4}D
314	$2s^2$ $2p^2$ (^{3}P) $4f^1$	^{4}G	4.5	10019025.	51% + 31% $2s^2$ $2p^2$ (^{3}P) $4f^1$ ^{4}F + 17% $2s^2$ $2p^2$ (^{3}P) $4f^1$ ^{2}G
315	$2s^2$ $2p^2$ (^{3}P) $4f^1$	^{2}G	3.5	10019043.	47% + 21% $2s^2$ $2p^2$ (^{3}P) $4f^1$ ^{4}G + 17% $2s^2$ $2p^2$ (^{3}P) $4f^1$ ^{2}F
316	$2s^2$ $2p^2$ (^{3}P) $4f^1$	^{4}F	1.5	10020503.	59% + 20% $2s^2$ $2p^2$ (^{3}P) $4f^1$ ^{4}D + 19% $2s^2$ $2p^2$ (^{3}P) $4f^1$ ^{2}D
317	$2s^2$ $2p^2$ (^{3}P) $4f^1$	^{2}F	2.5	10022637.	32% + 29% $2s^2$ $2p^2$ (^{3}P) $4f^1$ ^{4}D + 24% $2s^2$ $2p^2$ (^{3}P) $4f^1$ ^{4}F
318	$2s^2$ $2p^2$ (^{1}D) $4p^1$	^{2}F	2.5	10030316.	55% + 20% $2s^2$ $2p^2$ (^{1}D) $4p^1$ ^{2}D + 17% $2s^2$ $2p^2$ (^{3}P) $4p^1$ ^{2}D
319	$2s^2$ $2p^2$ (^{1}D) $4p^1$	^{2}D	1.5	10033855.	45% + 31% $2s^2$ $2p^2$ (^{1}D) $4p^1$ ^{2}P
320	$2s^2$ $2p^2$ (^{1}D) $4p^1$	^{2}F	3.5	10035410.	78% + 21% $2s^2$ $2p^2$ (^{3}P) $4p^1$ ^{4}D
321	$2s^2$ $2p^2$ (^{1}D) $4p^1$	^{2}D	2.5	10036881.	59% + 16% $2s^2$ $2p^2$ (^{1}D) $4p^1$ ^{2}F
322	$2s^2$ $2p^2$ (^{1}D) $4p^1$	^{2}P	0.5	10041748.	85%
323	$2s^2$ $2p^2$ (^{3}P) $4f^1$	^{2}G	4.5	10060629.	39% + 30% $2s^2$ $2p^2$ (^{3}P) $4f^1$ ^{4}G + 19% $2s^2$ $2p^2$ (^{1}D) $4f^1$ ^{2}H

Table 1. continued.

Index	Configuration	*LS*	*J*	E (cm^{-1})	Composition
324	$2s^2\ 2p^2\ (^3P)\ 4f^1$	^4G	5.5	10060896.	77% + 22% $2s^2\ 2p^2\ (^1D)\ 4f^1\ ^2H$
325	$2s^2\ 2p^2\ (^3P)\ 4f^1$	^4D	0.5	10062472.	79% + 19% $2s^2\ 2p^2\ (^1D)\ 4f^1\ ^2P$
326	$2s^2\ 2p^2\ (^3P)\ 4f^1$	^4F	3.5	10062959.	41% + 18% $2s^2\ 2p^2\ (^1D)\ 4f^1\ ^2G$ + 14% $2s^2\ 2p^2\ (^3P)\ 4f^1\ ^4G$
327	$2s^2\ 2p^2\ (^3P)\ 4f^1$	^4D	1.5	10062983.	61% + 14% $2s^2\ 2p^2\ (^3P)\ 4f^1\ ^4F$ + 11% $2s^2\ 2p^2\ (^1D)\ 4f^1\ ^2P$
328	$2s^2\ 2p^2\ (^3P)\ 4f^1$	^4F	2.5	10063442.	42% + 28% $2s^2\ 2p^2\ (^3P)\ 4f^1\ ^4D$ + 14% $2s^2\ 2p^2\ (^1D)\ 4f^1\ ^2F$
329	$2s^2\ 2p^2\ (^3P)\ 4f^1$	^4F	4.5	10064404.	45% + 24% $2s^2\ 2p^2\ (^3P)\ 4f^1\ ^2G$ + 22% $2s^2\ 2p^2\ (^1D)\ 4f^1\ ^2G$
330	$2s^2\ 2p^2\ (^3P)\ 4f^1$	^2D	1.5	10064764.	55% + 16% $2s^2\ 2p^2\ (^3P)\ 4f^1\ ^4F$ + 11% $2s^2\ 2p^2\ (^1D)\ 4f^1\ ^2D$
331	$2s^2\ 2p^2\ (^3P)\ 4f^1$	^2F	3.5	10065319.	41% + 18% $2s^2\ 2p^2\ (^1D)\ 4f^1\ ^2F$ + 12% $2s^2\ 2p^2\ (^3P)\ 4f^1\ ^4D$
332	$2s^2\ 2p^2\ (^1S)\ 4s^1$	^2S	0.5	10065547.	85%
333	$2s^2\ 2p^2\ (^3P)\ 4f^1$	^2F	2.5	10065706.	42% + 21% $2s^2\ 2p^2\ (^3P)\ 4f^1\ ^2D$ + 13% $2s^2\ 2p^2\ (^1D)\ 4f^1\ ^2D$
334	$2s^2\ 2p^2\ (^1D)\ 4p^1$	^2P	1.5	10067992.	38% + 23% $2s^2\ 2p^2\ (^1D)\ 4p^1\ ^2D$ + 18% $2s^2\ 2p^2\ (^3P)\ 4p^1\ ^2P$
335	$2s^2\ 2p^2\ (^1D)\ 4d^1$	^2F	3.5	10117039.	54% + 24% $2s^2\ 2p^2\ (^1D)\ 4d^1\ ^2G$ + 12% $2s^2\ 2p^2\ (^3P)\ 4d^1\ ^4D$
336	$2s^2\ 2p^2\ (^1D)\ 4d^1$	^2G	4.5	10123780.	79% + 20% $2s^2\ 2p^2\ (^3P)\ 4d^1\ ^4F$
337	$2s^2\ 2p^2\ (^1D)\ 4d^1$	^2D	2.5	10128905.	47% + 29% $2s^2\ 2p^2\ (^1D)\ 4d^1\ ^2F$ + 10% $2s^2\ 2p^2\ (^3P)\ 4d^1\ ^4D$
338	$2s^2\ 2p^2\ (^1D)\ 4d^1$	^2D	1.5	10129336.	71%
339	$2s^2\ 2p^2\ (^1D)\ 4d^1$	^2G	3.5	10132201.	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	10132444.	81%
341	$2s^2\ 2p^2\ (^1D)\ 4d^1$	^2F	2.5	10146039.	37% + 28% $2s^2\ 2p^2\ (^1D)\ 4d^1\ ^2D$ + 21% $2s^2\ 2p^2\ (^3P)\ 4d^1\ ^2D$
342	$2s^2\ 2p^2\ (^1D)\ 4d^1$	^2S	0.5	10147331.	76% + 14% $2s^2\ 2p^2\ (^3P)\ 4d^1\ ^4P$
343	$2s^2\ 2p^2\ (^1D)\ 4d^1$	^2P	1.5	10149370.	69%
344	$2s^2\ 2p^2\ (^1S)\ 4p^1$	^2P	0.5	10156263.	85%
345	$2s^2\ 2p^2\ (^1S)\ 4p^1$	^2P	1.5	10163204.	86%
346	$2s^1\ 2p^3\ (^5S)\ 4s^1$	^6S	2.5	10176177.	97%
347	$2s^2\ 2p^2\ (^1D)\ 4f^1$	^2G	3.5	10187009.	63%
348	$2s^2\ 2p^2\ (^1D)\ 4f^1$	^2G	4.5	10187088.	73% + 16% $2s^2\ 2p^2\ (^3P)\ 4f^1\ ^4F$
349	$2s^2\ 2p^2\ (^1D)\ 4f^1$	^2F	2.5	10188324.	72%
350	$2s^2\ 2p^2\ (^1D)\ 4f^1$	^2F	3.5	10189775.	64%
351	$2s^2\ 2p^2\ (^1D)\ 4f^1$	^2H	4.5	10191538.	77% + 16% $2s^2\ 2p^2\ (^3P)\ 4f^1\ ^2G$
352	$2s^2\ 2p^2\ (^1D)\ 4f^1$	^2H	5.5	10192299.	77% + 21% $2s^2\ 2p^2\ (^3P)\ 4f^1\ ^4G$
353	$2s^2\ 2p^2\ (^1D)\ 4f^1$	^2D	1.5	10193834.	77%
354	$2s^2\ 2p^2\ (^1D)\ 4f^1$	^2D	2.5	10195712.	76%
355	$2s^2\ 2p^2\ (^1D)\ 4f^1$	^2P	0.5	10199792.	79% + 19% $2s^2\ 2p^2\ (^3P)\ 4f^1\ ^4D$
356	$2s^2\ 2p^2\ (^1D)\ 4f^1$	^2P	1.5	10200883.	79% + 10% $2s^2\ 2p^2\ (^3P)\ 4f^1\ ^2D$
357	$2s^1\ 2p^3\ (^5S)\ 4s^1$	^4S	1.5	10209913.	95%
358	$2s^1\ 2p^3\ (^5S)\ 4p^1$	^6P	1.5	10253565.	94%
359	$2s^2\ 2p^2\ (^1S)\ 4d^1$	^2D	2.5	10255906.	87%
360	$2s^1\ 2p^3\ (^5S)\ 4p^1$	^6P	2.5	10256281.	91%
361	$2s^2\ 2p^2\ (^1S)\ 4d^1$	^2D	1.5	10258343.	85%
362	$2s^1\ 2p^3\ (^5S)\ 4p^1$	^6P	3.5	10263545.	97%
363	$2s^1\ 2p^3\ (^5S)\ 4p^1$	^4P	2.5	10291663.	90%
364	$2s^1\ 2p^3\ (^5S)\ 4p^1$	^4P	1.5	10291679.	93%
365	$2s^1\ 2p^3\ (^5S)\ 4p^1$	^4P	0.5	10294709.	96%
366	$2s^2\ 2p^2\ (^1S)\ 4f^1$	^2F	2.5	10311855.	86%
367	$2s^2\ 2p^2\ (^1S)\ 4f^1$	^2F	3.5	10312862.	86%
368	$2s^1\ 2p^3\ (^5S)\ 4d^1$	^6D	0.5	10349579.	97%
369	$2s^1\ 2p^3\ (^5S)\ 4d^1$	^6D	1.5	10349721.	96%
370	$2s^1\ 2p^3\ (^5S)\ 4d^1$	^6D	2.5	10349966.	96%
371	$2s^1\ 2p^3\ (^5S)\ 4d^1$	^6D	3.5	10350401.	96%
372	$2s^1\ 2p^3\ (^5S)\ 4d^1$	^6D	4.5	10351404.	97%
373	$2s^1\ 2p^3\ (^5S)\ 4d^1$	^4D	2.5	10394282.	94%
374	$2s^1\ 2p^3\ (^5S)\ 4d^1$	^4D	1.5	10395051.	95%
375	$2s^1\ 2p^3\ (^5S)\ 4d^1$	^4D	3.5	10396068.	95%
376	$2s^1\ 2p^3\ (^5S)\ 4d^1$	^4D	0.5	10396325.	95%
377	$2s^1\ 2p^3\ (^5S)\ 4f^1$	^6F	2.5	10417346.	95%

Table 1. continued.

Index	Configuration	*LS*	*J*	*E* (cm^{-1})	Composition
378	$2s^1\ 2p^3\ (^5S)\ 4f^1$	^6F	3.5	10417361.	94%
379	$2s^1\ 2p^3\ (^5S)\ 4f^1$	^6F	1.5	10417386.	96%
380	$2s^1\ 2p^3\ (^5S)\ 4f^1$	^6F	0.5	10417430.	97%
381	$2s^1\ 2p^3\ (^5S)\ 4f^1$	^6F	4.5	10417522.	94%
382	$2s^1\ 2p^3\ (^5S)\ 4f^1$	^6F	5.5	10417982.	96%
383	$2s^1\ 2p^3\ (^5S)\ 4f^1$	^4F	4.5	10422412.	94%
384	$2s^1\ 2p^3\ (^5S)\ 4f^1$	^4F	3.5	10422696.	94%
385	$2s^1\ 2p^3\ (^5S)\ 4f^1$	^4F	2.5	10423094.	95%
386	$2s^1\ 2p^3\ (^5S)\ 4f^1$	^4F	1.5	10423479.	96%
387	$2s^1\ 2p^3\ (^3D)\ 4s^1$	^4D	1.5	10481215.	83% + 13% $2s^1\ 2p^3\ (^3P)\ 4s^1\ ^4P$
388	$2s^1\ 2p^3\ (^3D)\ 4s^1$	^4D	0.5	10482158.	86%
389	$2s^1\ 2p^3\ (^3D)\ 4s^1$	^4D	2.5	10482963.	75% + 17% $2s^1\ 2p^3\ (^3P)\ 4s^1\ ^4P$
390	$2s^1\ 2p^3\ (^3D)\ 4s^1$	^2D	1.5	10504608.	82% + 14% $2s^1\ 2p^3\ (^3P)\ 4s^1\ ^2P$
391	$2s^1\ 2p^3\ (^3D)\ 4s^1$	^4D	3.5	10507560.	99%
392	$2s^1\ 2p^3\ (^3D)\ 4s^1$	^2D	2.5	10527509.	87% + 10% $2s^1\ 2p^3\ (^3D)\ 4s^1\ ^4D$
393	$2s^1\ 2p^3\ (^3D)\ 4p^1$	^4D	0.5	10555626.	72% + 11% $2s^1\ 2p^3\ (^3D)\ 4p^1\ ^2P$
394	$2s^1\ 2p^3\ (^3D)\ 4p^1$	^4D	1.5	10556298.	53% + 17% $2s^1\ 2p^3\ (^3D)\ 4p^1\ ^4F$
395	$2s^1\ 2p^3\ (^3D)\ 4p^1$	^4F	2.5	10562459.	67% + 11% $2s^1\ 2p^3\ (^3P)\ 4p^1\ ^4D$ + 11% $2s^1\ 2p^3\ (^3D)\ 4p^1\ ^4D$
396	$2s^1\ 2p^3\ (^3D)\ 4p^1$	^4F	1.5	10562548.	61%
397	$2s^1\ 2p^3\ (^3D)\ 4p^1$	^4D	2.5	10572436.	71% + 10% $2s^1\ 2p^3\ (^3D)\ 4p^1\ ^4F$
398	$2s^1\ 2p^3\ (^3D)\ 4p^1$	^4F	3.5	10572824.	72% + 16% $2s^1\ 2p^3\ (^3P)\ 4p^1\ ^4D$
399	$2s^1\ 2p^3\ (^3D)\ 4p^1$	^2F	2.5	10579291.	77%
400	$2s^1\ 2p^3\ (^3D)\ 4p^1$	^4P	1.5	10582055.	28% + 26% $2s^1\ 2p^3\ (^3D)\ 4p^1\ ^2P$ + 20% $2s^1\ 2p^3\ (^3D)\ 4p^1\ ^4D$
401	$2s^1\ 2p^3\ (^3D)\ 4p^1$	^2P	0.5	10583649.	73% + 11% $2s^1\ 2p^3\ (^3D)\ 4p^1\ ^4D$
402	$2s^1\ 2p^3\ (^3D)\ 4p^1$	^4D	3.5	10587041.	68% + 19% $2s^1\ 2p^3\ (^3D)\ 4p^1\ ^2F$ + 12% $2s^1\ 2p^3\ (^3D)\ 4p^1\ ^4F$
403	$2s^1\ 2p^3\ (^3D)\ 4p^1$	^4P	0.5	10592870.	81%
404	$2s^1\ 2p^3\ (^3D)\ 4p^1$	^4F	4.5	10597134.	100%
405	$2s^1\ 2p^3\ (^3D)\ 4p^1$	^4P	1.5	10597732.	41% + 21% $2s^1\ 2p^3\ (^3D)\ 4p^1\ ^2D$ + 14% $2s^1\ 2p^3\ (^3D)\ 4p^1\ ^2P$
406	$2s^1\ 2p^3\ (^3D)\ 4p^1$	^2F	3.5	10600064.	67% + 28% $2s^1\ 2p^3\ (^3D)\ 4p^1\ ^4D$
407	$2s^1\ 2p^3\ (^3D)\ 4p^1$	^4P	2.5	10607449.	82%
408	$2s^1\ 2p^3\ (^3D)\ 4p^1$	^2D	1.5	10616153.	48% + 33% $2s^1\ 2p^3\ (^3D)\ 4p^1\ ^2P$
409	$2s^1\ 2p^3\ (^3P)\ 4s^1$	^4P	0.5	10618682.	91%
410	$2s^1\ 2p^3\ (^3P)\ 4s^1$	^4P	1.5	10628402.	78% + 10% $2s^1\ 2p^3\ (^3D)\ 4s^1\ ^4D$
411	$2s^1\ 2p^3\ (^3D)\ 4p^1$	^2D	2.5	10631079.	78% + 11% $2s^1\ 2p^3\ (^3D)\ 4p^1\ ^4P$
412	$2s^1\ 2p^3\ (^3P)\ 4s^1$	^2P	0.5	10644516.	83%
413	$2s^1\ 2p^3\ (^3P)\ 4s^1$	^4P	2.5	10644872.	68% + 13% $2s^1\ 2p^3\ (^3D)\ 4s^1\ ^4D$
414	$2s^1\ 2p^3\ (^3D)\ 4d^1$	^4F	1.5	10649828.	81%
415	$2s^1\ 2p^3\ (^3D)\ 4d^1$	^4F	2.5	10653430.	60% + 19% $2s^1\ 2p^3\ (^3D)\ 4d^1\ ^4G$
416	$2s^1\ 2p^3\ (^3D)\ 4d^1$	^4G	3.5	10658672.	61% + 14% $2s^1\ 2p^3\ (^3D)\ 4d^1\ ^4F$ + 13% $2s^1\ 2p^3\ (^3P)\ 4d^1\ ^4F$
417	$2s^1\ 2p^3\ (^3D)\ 4d^1$	^4G	2.5	10660128.	66% + 19% $2s^1\ 2p^3\ (^3D)\ 4d^1\ ^4F$
418	$2s^1\ 2p^3\ (^3P)\ 4s^1$	^2P	1.5	10661387.	61%
419	$2s^1\ 2p^3\ (^3D)\ 4d^1$	^4F	3.5	10661620.	54% + 21% $2s^1\ 2p^3\ (^3D)\ 4d^1\ ^4G$ + 11% $2s^1\ 2p^3\ (^3D)\ 4d^1\ ^4D$
420	$2s^1\ 2p^3\ (^3D)\ 4d^1$	^4G	4.5	10663038.	67% + 16% $2s^1\ 2p^3\ (^3P)\ 4d^1\ ^4F$
421	$2s^1\ 2p^3\ (^3D)\ 4d^1$	^4D	0.5	10664362.	78% + 12% $2s^1\ 2p^3\ (^3P)\ 4d^1\ ^4D$
422	$2s^1\ 2p^3\ (^3D)\ 4d^1$	^4D	1.5	10667404.	62%
423	$2s^1\ 2p^3\ (^3D)\ 4d^1$	^4D	2.5	10672650.	55% + 22% $2s^1\ 2p^3\ (^3D)\ 4d^1\ ^4P$ + 12% $2s^1\ 2p^3\ (^3P)\ 4d^1\ ^4P$
424	$2s^1\ 2p^3\ (^3D)\ 4d^1$	^4P	0.5	10674278.	43% + 36% $2s^1\ 2p^3\ (^3D)\ 4d^1\ ^2S$ + 14% $2s^1\ 2p^3\ (^3P)\ 4d^1\ ^4P$
425	$2s^1\ 2p^3\ (^3D)\ 4d^1$	^2G	3.5	10677890.	79% + 11% $2s^1\ 2p^3\ (^3P)\ 4d^1\ ^2F$
426	$2s^1\ 2p^3\ (^3D)\ 4d^1$	^4F	4.5	10681677.	89% + 11% $2s^1\ 2p^3\ (^3D)\ 4d^1\ ^4G$
427	$2s^1\ 2p^3\ (^3D)\ 4d^1$	^4P	1.5	10684779.	44% + 31% $2s^1\ 2p^3\ (^3D)\ 4d^1\ ^4S$ + 11% $2s^1\ 2p^3\ (^3P)\ 4d^1\ ^4P$
428	$2s^1\ 2p^3\ (^3D)\ 4d^1$	^4G	5.5	10685596.	100%
429	$2s^1\ 2p^3\ (^3D)\ 4d^1$	^4D	3.5	10688890.	76% + 20% $2s^1\ 2p^3\ (^3D)\ 4d^1\ ^4F$
430	$2s^1\ 2p^3\ (^3D)\ 4d^1$	^2S	0.5	10691231.	36% + 29% $2s^1\ 2p^3\ (^3D)\ 4d^1\ ^4P$ + 22% $2s^1\ 2p^3\ (^3D)\ 4d^1\ ^2P$
431	$2s^1\ 2p^3\ (^3D)\ 4d^1$	^2F	2.5	10694178.	44% + 29% $2s^1\ 2p^3\ (^3D)\ 4d^1\ ^2D$ + 16% $2s^1\ 2p^3\ (^3P)\ 4d^1\ ^2D$

Table 1. continued.

Index	Configuration	*LS*	*J*	*E* (cm^{-1})	Composition
432	$2s^1\ 2p^3\ (^3D)\ 4d^1$	^2P	1.5	10694436.	46% + 21% $2s^1\ 2p^3\ (^3D)\ 4d^1\ ^2D$ + 11% $2s^1\ 2p^3\ (^3D)\ 4d^1\ ^4D$
433	$2s^1\ 2p^3\ (^3D)\ 4d^1$	^2G	4.5	10696754.	86% + 10% $2s^1\ 2p^3\ (^3D)\ 4d^1\ ^4G$
434	$2s^1\ 2p^3\ (^3D)\ 4d^1$	^4P	2.5	10697445.	59% + 33% $2s^1\ 2p^3\ (^3D)\ 4d^1\ ^4D$
435	$2s^1\ 2p^3\ (^3P)\ 4p^1$	^4D	0.5	10698935.	72% + 23% $2s^1\ 2p^3\ (^3P)\ 4p^1\ ^2P$
436	$2s^1\ 2p^3\ (^3D)\ 4d^1$	^4S	1.5	10705865.	45% + 37% $2s^1\ 2p^3\ (^3D)\ 4d^1\ ^4P$
437	$2s^1\ 2p^3\ (^3D)\ 4d^1$	^2P	0.5	10708047.	63% + 17% $2s^1\ 2p^3\ (^3D)\ 4d^1\ ^2S$ + 11% $2s^1\ 2p^3\ (^3D)\ 4d^1\ ^4P$
438	$2s^1\ 2p^3\ (^3P)\ 4p^1$	^4D	1.5	10708325.	78%
439	$2s^1\ 2p^3\ (^3D)\ 4f^1$	^4G	2.5	10715225.	72%
440	$2s^1\ 2p^3\ (^3D)\ 4f^1$	^4G	3.5	10716228.	47% + 15% $2s^1\ 2p^3\ (^3D)\ 4f^1\ ^4F$ + 14% $2s^1\ 2p^3\ (^3D)\ 4f^1\ ^4H$
441	$2s^1\ 2p^3\ (^3P)\ 4p^1$	^4S	1.5	10716514.	50% + 21% $2s^1\ 2p^3\ (^3P)\ 4p^1\ ^4P$
442	$2s^1\ 2p^3\ (^3D)\ 4f^1$	^4F	4.5	10717811.	28% + 26% $2s^1\ 2p^3\ (^3D)\ 4f^1\ ^4G$ + 12% $2s^1\ 2p^3\ (^3D)\ 4f^1\ ^4H$
443	$2s^1\ 2p^3\ (^3P)\ 4p^1$	^4D	2.5	10718045.	72% + 12% $2s^1\ 2p^3\ (^3D)\ 4p^1\ ^4F$
444	$2s^1\ 2p^3\ (^3D)\ 4f^1$	^4D	3.5	10719440.	31% + 19% $2s^1\ 2p^3\ (^3D)\ 4f^1\ ^4H$ + 14% $2s^1\ 2p^3\ (^3D)\ 4f^1\ ^4F$
445	$2s^1\ 2p^3\ (^3D)\ 4f^1$	^2D	2.5	10720227.	29% + 27% $2s^1\ 2p^3\ (^3D)\ 4f^1\ ^4F$ + 16% $2s^1\ 2p^3\ (^3D)\ 4f^1\ ^4D$
446	$2s^1\ 2p^3\ (^3D)\ 4f^1$	^4H	3.5	10720310.	40% + 19% $2s^1\ 2p^3\ (^3D)\ 4f^1\ ^4D$ + 15% $2s^1\ 2p^3\ (^3D)\ 4f^1\ ^4G$
447	$2s^1\ 2p^3\ (^3D)\ 4d^1$	^2D	1.5	10720523.	57% + 25% $2s^1\ 2p^3\ (^3D)\ 4d^1\ ^2P$
448	$2s^1\ 2p^3\ (^3P)\ 4p^1$	^4P	0.5	10721016.	70%
449	$2s^1\ 2p^3\ (^3D)\ 4f^1$	^4H	4.5	10721491.	66% + 14% $2s^1\ 2p^3\ (^3D)\ 4f^1\ ^4G$
450	$2s^1\ 2p^3\ (^3D)\ 4f^1$	^2G	3.5	10722037.	52% + 14% $2s^1\ 2p^3\ (^3D)\ 4f^1\ ^2F$ + 12% $2s^1\ 2p^3\ (^3P)\ 4f^1\ ^2F$
451	$2s^1\ 2p^3\ (^3D)\ 4f^1$	^4H	5.5	10722816.	56% + 18% $2s^1\ 2p^3\ (^3D)\ 4f^1\ ^2H$ + 16% $2s^1\ 2p^3\ (^3P)\ 4f^1\ ^4G$
452	$2s^1\ 2p^3\ (^3D)\ 4f^1$	^4F	1.5	10723304.	67% + 10% $2s^1\ 2p^3\ (^3P)\ 4f^1\ ^4F$
453	$2s^1\ 2p^3\ (^3D)\ 4d^1$	^2F	3.5	10723858.	86%
454	$2s^1\ 2p^3\ (^3D)\ 4f^1$	^2H	4.5	10723935.	73% + 12% $2s^1\ 2p^3\ (^3P)\ 4f^1\ ^2G$
455	$2s^1\ 2p^3\ (^3D)\ 4d^1$	^2D	2.5	10725368.	53% + 36% $2s^1\ 2p^3\ (^3D)\ 4d^1\ ^2F$
456	$2s^1\ 2p^3\ (^3P)\ 4p^1$	^2P	0.5	10726597.	57% + 16% $2s^1\ 2p^3\ (^3P)\ 4p^1\ ^4D$ + 12% $2s^1\ 2p^3\ (^3D)\ 4p^1\ ^4D$
457	$2s^1\ 2p^3\ (^3D)\ 4f^1$	^2F	2.5	10726763.	38% + 19% $2s^1\ 2p^3\ (^3D)\ 4f^1\ ^4P$ + 14% $2s^1\ 2p^3\ (^3D)\ 4f^1\ ^4F$
458	$2s^1\ 2p^3\ (^3P)\ 4p^1$	^2D	1.5	10727872.	58% + 13% $2s^1\ 2p^3\ (^3P)\ 4p^1\ ^4S$
459	$2s^1\ 2p^3\ (^3D)\ 4f^1$	^2P	1.5	10728393.	35% + 24% $2s^1\ 2p^3\ (^3D)\ 4f^1\ ^4P$ + 21% $2s^1\ 2p^3\ (^3D)\ 4f^1\ ^4D$
460	$2s^1\ 2p^3\ (^3D)\ 4f^1$	^4P	2.5	10729081.	50% + 18% $2s^1\ 2p^3\ (^3D)\ 4f^1\ ^4D$
461	$2s^1\ 2p^3\ (^3D)\ 4f^1$	^4D	0.5	10729885.	49% + 21% $2s^1\ 2p^3\ (^3D)\ 4f^1\ ^2P$ + 14% $2s^1\ 2p^3\ (^3P)\ 4f^1\ ^4D$
462	$2s^1\ 2p^3\ (^3D)\ 4f^1$	^2D	1.5	10732751.	26% + 25% $2s^1\ 2p^3\ (^3D)\ 4f^1\ ^2P$ + 14% $2s^1\ 2p^3\ (^3D)\ 4f^1\ ^4P$
463	$2s^1\ 2p^3\ (^3P)\ 4p^1$	^4D	3.5	10733476.	73% + 12% $2s^1\ 2p^3\ (^3D)\ 4p^1\ ^4F$
464	$2s^1\ 2p^3\ (^3P)\ 4p^1$	^4P	1.5	10735477.	54%
465	$2s^1\ 2p^3\ (^3P)\ 4p^1$	^4P	2.5	10737530.	51% + 16% $2s^1\ 2p^3\ (^3P)\ 4p^1\ ^2D$
466	$2s^1\ 2p^3\ (^3D)\ 4f^1$	^4G	5.5	10746623.	47% + 30% $2s^1\ 2p^3\ (^3D)\ 4f^1\ ^4H$ + 22% $2s^1\ 2p^3\ (^3D)\ 4f^1\ ^2H$
467	$2s^1\ 2p^3\ (^3D)\ 4f^1$	^4H	6.5	10746802.	100%
468	$2s^1\ 2p^3\ (^3D)\ 4f^1$	^4G	4.5	10747285.	51% + 40% $2s^1\ 2p^3\ (^3D)\ 4f^1\ ^4F$
469	$2s^1\ 2p^3\ (^3D)\ 4f^1$	^2H	5.5	10747961.	55% + 42% $2s^1\ 2p^3\ (^3D)\ 4f^1\ ^4G$
470	$2s^1\ 2p^3\ (^3D)\ 4f^1$	^4F	3.5	10748233.	55% + 20% $2s^1\ 2p^3\ (^3D)\ 4f^1\ ^4G$ + 18% $2s^1\ 2p^3\ (^3D)\ 4f^1\ ^4D$
471	$2s^1\ 2p^3\ (^3P)\ 4p^1$	^2P	1.5	10748584.	49% + 13% $2s^1\ 2p^3\ (^3D)\ 4p^1\ ^2D$
472	$2s^1\ 2p^3\ (^3D)\ 4f^1$	^4D	2.5	10749378.	45% + 38% $2s^1\ 2p^3\ (^3D)\ 4f^1\ ^4F$
473	$2s^1\ 2p^3\ (^3P)\ 4p^1$	^2D	2.5	10750591.	49% + 15% $2s^1\ 2p^3\ (^3P)\ 4p^1\ ^4P$
474	$2s^1\ 2p^3\ (^3D)\ 4f^1$	^4D	1.5	10750709.	47% + 29% $2s^1\ 2p^3\ (^3D)\ 4f^1\ ^4P$ + 11% $2s^1\ 2p^3\ (^3D)\ 4f^1\ ^4F$
475	$2s^1\ 2p^3\ (^3D)\ 4f^1$	^2G	4.5	10751108.	74% + 19% $2s^1\ 2p^3\ (^3D)\ 4f^1\ ^4F$
476	$2s^1\ 2p^3\ (^3D)\ 4f^1$	^4P	0.5	10751363.	71% + 26% $2s^1\ 2p^3\ (^3D)\ 4f^1\ ^4D$
477	$2s^1\ 2p^3\ (^3D)\ 4f^1$	^2F	3.5	10752629.	57% + 20% $2s^1\ 2p^3\ (^3D)\ 4f^1\ ^2G$ + 15% $2s^1\ 2p^3\ (^3D)\ 4f^1\ ^4D$
478	$2s^1\ 2p^3\ (^3D)\ 4f^1$	^2P	0.5	10753854.	71% + 14% $2s^1\ 2p^3\ (^3D)\ 4f^1\ ^4P$ + 14% $2s^1\ 2p^3\ (^3D)\ 4f^1\ ^4D$
479	$2s^1\ 2p^3\ (^3D)\ 4f^1$	^2D	2.5	10753910.	34% + 32% $2s^1\ 2p^3\ (^3D)\ 4f^1\ ^2F$ + 11% $2s^1\ 2p^3\ (^3D)\ 4f^1\ ^4D$
480	$2s^1\ 2p^3\ (^3D)\ 4f^1$	^2D	1.5	10754020.	51% + 21% $2s^1\ 2p^3\ (^3D)\ 4f^1\ ^2P$ + 19% $2s^1\ 2p^3\ (^3D)\ 4f^1\ ^4P$
481	$2s^1\ 2p^3\ (^3P)\ 4p^1$	^2S	0.5	10770912.	72%
482	$2s^1\ 2p^3\ (^3P)\ 4d^1$	^4F	1.5	10800304.	75%
483	$2s^1\ 2p^3\ (^3P)\ 4d^1$	^4F	2.5	10802782.	56% + 24% $2s^1\ 2p^3\ (^3P)\ 4d^1\ ^4D$ + 12% $2s^1\ 2p^3\ (^3P)\ 4d^1\ ^4P$
484	$2s^1\ 2p^3\ (^3P)\ 4d^1$	^4F	3.5	10808767.	63% + 19% $2s^1\ 2p^3\ (^3P)\ 4d^1\ ^4D$ + 10% $2s^1\ 2p^3\ (^3D)\ 4d^1\ ^4G$
485	$2s^2\ 2p^2\ (^3P)\ 5s^1$	^4P	0.5	10809581.	61% + 26% $2s^2\ 2p^2\ (^3P)\ 5s^1\ ^2P$

Table 1. continued.

Index	Configuration	*LS*	*J*	E (cm^{-1})	Composition
486	$2s^1\ 2p^3\ (^3P)\ 4d^1$	^4P	2.5	10812807.	49% + 20% $2s^1\ 2p^3\ (^3P)\ 4d^1\ ^4F$
487	$2s^1\ 2p^3\ (^3S)\ 4s^1$	^4S	1.5	10812975.	49% + 15% $2s^1\ 2p^3\ (^3P)\ 4d^1\ ^4P$ + 12% $2s^1\ 2p^3\ (^3P)\ 4d^1\ ^4D$
488	$2s^1\ 2p^3\ (^3S)\ 4s^1$	^4S	1.5	10815587.	29% + 23% $2s^1\ 2p^3\ (^3P)\ 4d^1\ ^4D$ + 19% $2s^1\ 2p^3\ (^3P)\ 4d^1\ ^4P$
489	$2s^1\ 2p^3\ (^3P)\ 4d^1$	^4D	0.5	10815594.	56% + 15% $2s^1\ 2p^3\ (^3P)\ 4d^1\ ^4P$
490	$2s^1\ 2p^3\ (^3S)\ 4s^1$	^2S	0.5	10820577.	66% + 15% $2s^1\ 2p^3\ (^1P)\ 4s^1\ ^2P$
491	$2s^1\ 2p^3\ (^3P)\ 4d^1$	^4F	4.5	10821900.	74% + 11% $2s^1\ 2p^3\ (^3D)\ 4d^1\ ^4G$
492	$2s^1\ 2p^3\ (^3P)\ 4d^1$	^2D	1.5	10826349.	64%
493	$2s^1\ 2p^3\ (^3P)\ 4d^1$	^2F	2.5	10828119.	62% + 15% $2s^1\ 2p^3\ (^3P)\ 4d^1\ ^2D$
494	$2s^1\ 2p^3\ (^3P)\ 4d^1$	^4P	0.5	10829417.	58% + 11% $2s^1\ 2p^3\ (^3P)\ 4d^1\ ^4D$
495	$2s^1\ 2p^3\ (^3P)\ 4d^1$	^4D	1.5	10832027.	35% + 34% $2s^1\ 2p^3\ (^3P)\ 4d^1\ ^4P$
496	$2s^1\ 2p^3\ (^3P)\ 4d^1$	^4D	3.5	10832715.	56% + 15% $2s^1\ 2p^3\ (^3P)\ 4d^1\ ^4F$
497	$2s^1\ 2p^3\ (^3P)\ 4d^1$	^4D	2.5	10834714.	46% + 12% $2s^1\ 2p^3\ (^3P)\ 4d^1\ ^4P$
498	$2s^1\ 2p^3\ (^1D)\ 4s^1$	^2D	2.5	10847004.	76%
499	$2s^1\ 2p^3\ (^1D)\ 4s^1$	^2D	1.5	10849165.	84%
500	$2s^1\ 2p^3\ (^3P)\ 4d^1$	^2F	3.5	10849735.	73%
501	$2s^1\ 2p^3\ (^3P)\ 4d^1$	^2D	2.5	10851580.	45% + 16% $2s^1\ 2p^3\ (^1D)\ 4s^1\ ^2D$ + 10% $2s^1\ 2p^3\ (^3P)\ 4d^1\ ^2F$
502	$2s^2\ 2p^2\ (^3P)\ 5p^1$	^4D	0.5	10853489.	49% + 14% $2s^2\ 2p^2\ (^3P)\ 5p^1\ ^2P$
503	$2s^1\ 2p^3\ (^3P)\ 4f^1$	^4G	2.5	10858183.	49% + 25% $2s^1\ 2p^3\ (^3P)\ 4f^1\ ^4F$ + 13% $2s^1\ 2p^3\ (^3P)\ 4f^1\ ^2F$
504	$2s^1\ 2p^3\ (^3P)\ 4d^1$	^2P	0.5	10859018.	71%
505	$2s^1\ 2p^3\ (^3P)\ 4f^1$	^4F	3.5	10859563.	36% + 27% $2s^1\ 2p^3\ (^3P)\ 4f^1\ ^4G$ + 15% $2s^1\ 2p^3\ (^3P)\ 4f^1\ ^2G$
506	$2s^2\ 2p^2\ (^3P)\ 5p^1$	^4D	1.5	10862601.	28% + 25% $2s^2\ 2p^2\ (^3P)\ 5p^1\ ^4P$ + 19% $2s^2\ 2p^2\ (^3P)\ 5p^1\ ^2D$
507	$2s^1\ 2p^3\ (^3P)\ 4f^1$	^4F	1.5	10865794.	60% + 14% $2s^1\ 2p^3\ (^3P)\ 4f^1\ ^4D$
508	$2s^1\ 2p^3\ (^3P)\ 4f^1$	^2G	3.5	10866170.	27% + 26% $2s^1\ 2p^3\ (^3P)\ 4f^1\ ^2F$ + 26% $2s^1\ 2p^3\ (^3P)\ 4f^1\ ^4G$
509	$2s^1\ 2p^3\ (^3P)\ 4f^1$	^4G	4.5	10866307.	43% + 29% $2s^1\ 2p^3\ (^3P)\ 4f^1\ ^4F$
510	$2s^1\ 2p^3\ (^3P)\ 4d^1$	^2P	1.5	10866834.	70%
511	$2s^1\ 2p^3\ (^3P)\ 4f^1$	^2F	2.5	10867233.	30% + 25% $2s^1\ 2p^3\ (^3P)\ 4f^1\ ^4F$ + 24% $2s^1\ 2p^3\ (^3P)\ 4f^1\ ^4D$
512	$2s^1\ 2p^3\ (^3P)\ 4f^1$	^2D	2.5	10874227.	31% + 29% $2s^1\ 2p^3\ (^3P)\ 4f^1\ ^4G$ + 13% $2s^1\ 2p^3\ (^3P)\ 4f^1\ ^2F$
513	$2s^1\ 2p^3\ (^3P)\ 4f^1$	^4D	3.5	10874239.	38% + 24% $2s^1\ 2p^3\ (^3P)\ 4f^1\ ^2G$ + 12% $2s^1\ 2p^3\ (^3P)\ 4f^1\ ^4G$
514	$2s^2\ 2p^2\ (^3P)\ 5s^1$	^4P	1.5	10879092.	72% + 13% $2s^1\ 2p^3\ (^3S)\ 4p^1\ ^4P$
515	$2s^2\ 2p^2\ (^3P)\ 5s^1$	^2P	0.5	10879899.	52% + 22% $2s^2\ 2p^2\ (^3P)\ 5s^1\ ^4P$
516	$2s^1\ 2p^3\ (^3P)\ 4f^1$	^4D	0.5	10881387.	76%
517	$2s^1\ 2p^3\ (^3P)\ 4f^1$	^4G	5.5	10882481.	74% + 11% $2s^1\ 2p^3\ (^3D)\ 4f^1\ ^4H$
518	$2s^1\ 2p^3\ (^3P)\ 4f^1$	^4D	1.5	10883227.	58% + 12% $2s^1\ 2p^3\ (^3P)\ 4f^1\ ^2D$
519	$2s^1\ 2p^3\ (^3P)\ 4f^1$	^2G	4.5	10883609.	51% + 21% $2s^1\ 2p^3\ (^3P)\ 4f^1\ ^4G$
520	$2s^1\ 2p^3\ (^3P)\ 4f^1$	^4D	2.5	10886888.	44% + 22% $2s^1\ 2p^3\ (^3P)\ 4f^1\ ^4F$
521	$2s^1\ 2p^3\ (^3P)\ 4f^1$	^2D	1.5	10888089.	54% + 15% $2s^1\ 2p^3\ (^3P)\ 4f^1\ ^4F$
522	$2s^1\ 2p^3\ (^3P)\ 4f^1$	^4F	3.5	10889627.	36% + 15% $2s^1\ 2p^3\ (^3P)\ 4f^1\ ^4G$ + 14% $2s^1\ 2p^3\ (^3P)\ 4f^1\ ^4D$
523	$2s^1\ 2p^3\ (^3P)\ 4f^1$	^4F	4.5	10890447.	44% + 14% $2s^1\ 2p^3\ (^3P)\ 4f^1\ ^2G$ + 14% $2s^1\ 2p^3\ (^3P)\ 4f^1\ ^4G$
524	$2s^1\ 2p^3\ (^3S)\ 4p^1$	^4P	1.5	10891493.	39% + 20% $2s^1\ 2p^3\ (^3S)\ 4p^1\ ^2P$ + 11% $2s^2\ 2p^2\ (^3P)\ 5s^1\ ^2P$
525	$2s^1\ 2p^3\ (^3P)\ 4f^1$	^2D	2.5	10891847.	37% + 22% $2s^1\ 2p^3\ (^3P)\ 4f^1\ ^2F$
526	$2s^1\ 2p^3\ (^3P)\ 4f^1$	^2F	3.5	10891879.	40% + 16% $2s^1\ 2p^3\ (^3P)\ 4f^1\ ^2G$ + 12% $2s^1\ 2p^3\ (^3P)\ 4f^1\ ^4D$
527	$2s^1\ 2p^3\ (^3S)\ 4p^1$	^4P	2.5	10896381.	66% + 13% $2s^1\ 2p^3\ (^1P)\ 4p^1\ ^2D$ + 12% $2s^2\ 2p^2\ (^3P)\ 5s^1\ ^4P$
528	$2s^1\ 2p^3\ (^3S)\ 4p^1$	^4P	0.5	10896451.	58% + 11% $2s^2\ 2p^2\ (^3P)\ 5s^1\ ^2P$
529	$2s^1\ 2p^3\ (^3S)\ 4p^1$	^2P	0.5	10909985.	53% + 12% $2s^1\ 2p^3\ (^3S)\ 4p^1\ ^4P$ + 11% $2s^1\ 2p^3\ (^1D)\ 4p^1\ ^2P$
530	$2s^2\ 2p^2\ (^3P)\ 5d^1$	^4F	1.5	10913123.	45% + 15% $2s^2\ 2p^2\ (^3P)\ 5d^1\ ^4D$ + 13% $2s^2\ 2p^2\ (^3P)\ 5d^1\ ^2P$
531	$2s^1\ 2p^3\ (^3S)\ 4p^1$	^2P	1.5	10914728.	28% + 26% $2s^1\ 2p^3\ (^3S)\ 4p^1\ ^4P$ + 11% $2s^1\ 2p^3\ (^1D)\ 4p^1\ ^2P$
532	$2s^2\ 2p^2\ (^3P)\ 5d^1$	^4D	2.5	10919342.	26% + 23% $2s^2\ 2p^2\ (^3P)\ 5d^1\ ^4F$ + 19% $2s^2\ 2p^2\ (^3P)\ 5d^1\ ^2F$
533	$2s^2\ 2p^2\ (^3P)\ 5p^1$	^4P	0.5	10924532.	41% + 29% $2s^2\ 2p^2\ (^3P)\ 5p^1\ ^4D$ + 27% $2s^2\ 2p^2\ (^3P)\ 5p^1\ ^2S$
534	$2s^2\ 2p^2\ (^3P)\ 5s^1$	^4P	2.5	10927446.	37% + 17% $2s^1\ 2p^3\ (^1D)\ 4p^1\ ^2F$ + 15% $2s^2\ 2p^2\ (^1D)\ 5s^1\ ^2D$
535	$2s^1\ 2p^3\ (^1D)\ 4p^1$	^2F	2.5	10928289.	72% + 14% $2s^2\ 2p^2\ (^3P)\ 5s^1\ ^4P$
536	$2s^2\ 2p^2\ (^3P)\ 5p^1$	^4D	1.5	10929513.	56% + 17% $2s^2\ 2p^2\ (^3P)\ 5p^1\ ^2P$ + 10% $2s^2\ 2p^2\ (^3P)\ 5p^1\ ^4S$
537	$2s^2\ 2p^2\ (^3P)\ 5s^1$	^2P	1.5	10929942.	39% + 18% $2s^1\ 2p^3\ (^1D)\ 4p^1\ ^2P$ + 17% $2s^2\ 2p^2\ (^1D)\ 5s^1\ ^2D$
538	$2s^2\ 2p^2\ (^3P)\ 5p^1$	^4D	2.5	10931869.	62% + 24% $2s^2\ 2p^2\ (^3P)\ 5p^1\ ^4P$ + 11% $2s^2\ 2p^2\ (^3P)\ 5p^1\ ^2D$
539	$2s^1\ 2p^3\ (^1D)\ 4p^1$	^2F	3.5	10935161.	93%

Table 1. continued.

Index	Configuration	*LS*	*J*	*E* (cm^{-1})	Composition
540	$2s^1\ 2p^3\ (^1D)\ 4p^1$	^2D	1.5	10937511.	70% + 11% $2s^1\ 2p^3\ (^1D)\ 4p^1\ ^2P$
541	$2s^2\ 2p^2\ (^3P)\ 5p^1$	^2P	0.5	10938376.	37% + 37% $2s^2\ 2p^2\ (^3P)\ 5p^1\ ^4P$ + 16% $2s^2\ 2p^2\ (^3P)\ 5p^1\ ^2S$
542	$2s^2\ 2p^2\ (^3P)\ 5p^1$	^2D	1.5	10939248.	56% + 23% $2s^2\ 2p^2\ (^3P)\ 5p^1\ ^4P$ + 17% $2s^2\ 2p^2\ (^3P)\ 5p^1\ ^4S$
543	$2s^2\ 2p^2\ (^3P)\ 5f^1$	^4G	2.5	10942251.	39% + 17% $2s^2\ 2p^2\ (^3P)\ 5f^1\ ^2D$ + 15% $2s^2\ 2p^2\ (^3P)\ 5f^1\ ^4F$
544	$2s^1\ 2p^3\ (^1D)\ 4p^1$	^2D	2.5	10942640.	76% + 13% $2s^2\ 2p^2\ (^3P)\ 5s^1\ ^4P$
545	$2s^2\ 2p^2\ (^3P)\ 5f^1$	^4D	3.5	10943468.	22% + 22% $2s^2\ 2p^2\ (^3P)\ 5f^1\ ^2G$ + 21% $2s^2\ 2p^2\ (^3P)\ 5f^1\ ^4F$
546	$2s^2\ 2p^2\ (^3P)\ 5g^1$	^4H	3.5	10947479.	36% + 18% $2s^2\ 2p^2\ (^3P)\ 5g^1\ ^2F$ + 16% $2s^2\ 2p^2\ (^3P)\ 5g^1\ ^4G$
547	$2s^2\ 2p^2\ (^3P)\ 5g^1$	^4F	4.5	10947869.	24% + 22% $2s^2\ 2p^2\ (^3P)\ 5g^1\ ^2H$ + 20% $2s^2\ 2p^2\ (^3P)\ 5g^1\ ^4G$
548	$2s^1\ 2p^3\ (^1D)\ 4p^1$	^2P	1.5	10957689.	50% + 16% $2s^1\ 2p^3\ (^3S)\ 4p^1\ ^2P$
549	$2s^1\ 2p^3\ (^1D)\ 4p^1$	^2P	0.5	10962297.	76%
550	$2s^2\ 2p^2\ (^3P)\ 5p^1$	^4P	2.5	10967369.	26% + 22% $2s^2\ 2p^2\ (^3P)\ 5p^1\ ^4D$ + 19% $2s^2\ 2p^2\ (^3P)\ 5p^1\ ^2D$
551	$2s^2\ 2p^2\ (^3P)\ 5p^1$	^4D	3.5	10970170.	65% + 19% $2s^2\ 2p^2\ (^1D)\ 5p^1\ ^2F$ + 11% $2s^1\ 2p^3\ (^3S)\ 4d^1\ ^4D$
552	$2s^2\ 2p^2\ (^3P)\ 5p^1$	^2P	1.5	10974814.	33% + 28% $2s^1\ 2p^3\ (^1P)\ 4s^1\ ^2P$ + 14% $2s^2\ 2p^2\ (^1D)\ 5p^1\ ^2D$
553	$2s^1\ 2p^3\ (^1P)\ 4s^1$	^2P	0.5	10976690.	54% + 12% $2s^2\ 2p^2\ (^3P)\ 5p^1\ ^2P$ + 11% $2s^2\ 2p^2\ (^3P)\ 5p^1\ ^2S$
554	$2s^2\ 2p^2\ (^3P)\ 5p^1$	^4S	1.5	10977211.	44% + 25% $2s^2\ 2p^2\ (^3P)\ 5p^1\ ^4P$ + 20% $2s^2\ 2p^2\ (^1D)\ 5p^1\ ^2P$
555	$2s^2\ 2p^2\ (^3P)\ 5p^1$	^2D	2.5	10983807.	40% + 30% $2s^2\ 2p^2\ (^3P)\ 5p^1\ ^4P$ + 11% $2s^2\ 2p^2\ (^1D)\ 5p^1\ ^2F$
556	$2s^1\ 2p^3\ (^1P)\ 4s^1$	^2P	1.5	10984651.	44% + 19% $2s^2\ 2p^2\ (^3P)\ 5p^1\ ^2P$
557	$2s^2\ 2p^2\ (^3P)\ 5d^1$	^4F	1.5	10987448.	41% + 31% $2s^2\ 2p^2\ (^3P)\ 5d^1\ ^2P$ + 15% $2s^2\ 2p^2\ (^3P)\ 5d^1\ ^4D$
558	$2s^2\ 2p^2\ (^3P)\ 5p^1$	^2P	0.5	10987578.	23% + 23% $2s^1\ 2p^3\ (^1P)\ 4s^1\ ^2P$ + 19% $2s^2\ 2p^2\ (^3P)\ 5p^1\ ^2S$
559	$2s^2\ 2p^2\ (^3P)\ 5d^1$	^4D	0.5	10988609.	77% + 15% $2s^2\ 2p^2\ (^3P)\ 5d^1\ ^2P$
560	$2s^2\ 2p^2\ (^3P)\ 5d^1$	^4F	3.5	10988721.	54% + 34% $2s^2\ 2p^2\ (^3P)\ 5d^1\ ^4D$ + 10% $2s^2\ 2p^2\ (^3P)\ 5d^1\ ^2F$
561	$2s^2\ 2p^2\ (^3P)\ 5d^1$	^4F	2.5	10990820.	58% + 26% $2s^2\ 2p^2\ (^3P)\ 5d^1\ ^4P$ + 13% $2s^2\ 2p^2\ (^3P)\ 5d^1\ ^2D$
562	$2s^1\ 2p^3\ (^3S)\ 4d^1$	^4D	2.5	10991134.	66%
563	$2s^1\ 2p^3\ (^3S)\ 4d^1$	^4D	1.5	10991396.	58% + 11% $2s^1\ 2p^3\ (^1P)\ 4d^1\ ^2D$
564	$2s^1\ 2p^3\ (^3S)\ 4d^1$	^4D	0.5	10992911.	72% + 13% $2s^1\ 2p^3\ (^1P)\ 4d^1\ ^2P$
565	$2s^1\ 2p^3\ (^3S)\ 4d^1$	^4D	3.5	10994535.	64% + 12% $2s^1\ 2p^3\ (^1P)\ 4d^1\ ^2F$
566	$2s^2\ 2p^2\ (^3P)\ 5d^1$	^4D	1.5	10997512.	33% + 29% $2s^2\ 2p^2\ (^3P)\ 5d^1\ ^2D$ + 20% $2s^2\ 2p^2\ (^3P)\ 5d^1\ ^2P$
567	$2s^2\ 2p^2\ (^3P)\ 5d^1$	^2F	2.5	10997771.	64% + 18% $2s^2\ 2p^2\ (^3P)\ 5d^1\ ^4P$ + 10% $2s^2\ 2p^2\ (^3P)\ 5d^1\ ^4D$
568	$2s^1\ 2p^3\ (^3S)\ 4d^1$	^2D	1.5	11001640.	52% + 13% $2s^1\ 2p^3\ (^3S)\ 4d^1\ ^4D$ + 11% $2s^1\ 2p^3\ (^1P)\ 4d^1\ ^2P$
569	$2s^1\ 2p^3\ (^3S)\ 4d^1$	^2D	2.5	11008900.	29% + 23% $2s^2\ 2p^2\ (^3P)\ 5f^1\ ^2D$ + 16% $2s^2\ 2p^2\ (^3P)\ 5f^1\ ^4G$
570	$2s^2\ 2p^2\ (^3P)\ 5f^1$	^4G	3.5	11017831.	44% + 23% $2s^2\ 2p^2\ (^3P)\ 5f^1\ ^2F$ + 20% $2s^2\ 2p^2\ (^3P)\ 5f^1\ ^2G$
571	$2s^2\ 2p^2\ (^3P)\ 5f^1$	^4D	3.5	11017955.	43% + 30% $2s^2\ 2p^2\ (^3P)\ 5f^1\ ^2G$ + 13% $2s^2\ 2p^2\ (^3P)\ 5f^1\ ^4G$
572	$2s^2\ 2p^2\ (^3P)\ 5g^1$	^4H	3.5	11017997.	43% + 31% $2s^2\ 2p^2\ (^3P)\ 5g^1\ ^2F$ + 14% $2s^2\ 2p^2\ (^3P)\ 5g^1\ ^4F$
573	$2s^2\ 2p^2\ (^3P)\ 5f^1$	^4G	4.5	11018323.	48% + 34% $2s^2\ 2p^2\ (^3P)\ 5f^1\ ^4F$ + 16% $2s^2\ 2p^2\ (^3P)\ 5f^1\ ^2G$
574	$2s^2\ 2p^2\ (^3P)\ 5g^1$	^4F	4.5	11018334.	45% + 25% $2s^2\ 2p^2\ (^3P)\ 5g^1\ ^2H$ + 18% $2s^2\ 2p^2\ (^3P)\ 5g^1\ ^4H$
575	$2s^2\ 2p^2\ (^3P)\ 5f^1$	^4D	2.5	11018653.	31% + 24% $2s^2\ 2p^2\ (^3P)\ 5f^1\ ^4G$ + 19% $2s^2\ 2p^2\ (^3P)\ 5f^1\ ^4F$
576	$2s^2\ 2p^2\ (^3P)\ 5g^1$	^4G	2.5	11019807.	42% + 25% $2s^2\ 2p^2\ (^3P)\ 5g^1\ ^4F$ + 20% $2s^2\ 2p^2\ (^3P)\ 5g^1\ ^2F$
577	$2s^2\ 2p^2\ (^3P)\ 5f^1$	^4F	1.5	11019860.	62% + 17% $2s^2\ 2p^2\ (^3P)\ 5f^1\ ^4D$ + 15% $2s^2\ 2p^2\ (^3P)\ 5f^1\ ^2D$
578	$2s^2\ 2p^2\ (^3P)\ 5g^1$	^4F	3.5	11020326.	31% + 25% $2s^2\ 2p^2\ (^3P)\ 5g^1\ ^2G$ + 17% $2s^2\ 2p^2\ (^3P)\ 5g^1\ ^4G$
579	$2s^2\ 2p^2\ (^3P)\ 5f^1$	^2F	2.5	11022222.	28% + 14% $2s^2\ 2p^2\ (^3P)\ 5f^1\ ^2D$ + 14% $2s^1\ 2p^3\ (^1D)\ 4d^1\ ^2D$
580	$2s^2\ 2p^2\ (^3P)\ 5g^1$	^4H	4.5	11022661.	36% + 27% $2s^2\ 2p^2\ (^3P)\ 5g^1\ ^2G$ + 26% $2s^2\ 2p^2\ (^3P)\ 5g^1\ ^2H$
581	$2s^2\ 2p^2\ (^3P)\ 5g^1$	^4H	5.5	11023010.	45% + 37% $2s^2\ 2p^2\ (^3P)\ 5g^1\ ^4G$ + 17% $2s^2\ 2p^2\ (^3P)\ 5g^1\ ^2H$
582	$2s^1\ 2p^3\ (^1D)\ 4d^1$	^2G	4.5	11024244.	92%
583	$2s^1\ 2p^3\ (^1D)\ 4d^1$	^2G	3.5	11025472.	80%
584	$2s^2\ 2p^2\ (^3P)\ 5d^1$	^4F	3.5	11029403.	34% + 31% $2s^2\ 2p^2\ (^3P)\ 5d^1\ ^4D$ + 15% $2s^2\ 2p^2\ (^1D)\ 5d^1\ ^2F$
585	$2s^2\ 2p^2\ (^3P)\ 5d^1$	^4F	4.5	11030231.	76% + 22% $2s^2\ 2p^2\ (^1D)\ 5d^1\ ^2G$
586	$2s^1\ 2p^3\ (^1D)\ 4d^1$	^2F	3.5	11030310.	86%
587	$2s^1\ 2p^3\ (^1D)\ 4d^1$	^2F	2.5	11030798.	80%
588	$2s^2\ 2p^2\ (^3P)\ 5d^1$	^4D	2.5	11033880.	45% + 19% $2s^2\ 2p^2\ (^3P)\ 5d^1\ ^4P$ + 14% $2s^2\ 2p^2\ (^1D)\ 5d^1\ ^2D$
589	$2s^2\ 2p^2\ (^3P)\ 5d^1$	^4P	1.5	11036484.	52% + 23% $2s^2\ 2p^2\ (^3P)\ 5d^1\ ^4D$ + 15% $2s^2\ 2p^2\ (^1D)\ 5d^1\ ^2P$
590	$2s^1\ 2p^3\ (^3S)\ 4f^1$	^4F	1.5	11037809.	49% + 29% $2s^2\ 2p^2\ (^3P)\ 5g^1\ ^4F$
591	$2s^2\ 2p^2\ (^3P)\ 5d^1$	^4P	0.5	11038395.	72% + 17% $2s^2\ 2p^2\ (^1D)\ 5d^1\ ^2S$
592	$2s^1\ 2p^3\ (^3S)\ 4f^1$	^4F	2.5	11038706.	21% + 20% $2s^1\ 2p^3\ (^3S)\ 4f^1\ ^2F$ + 15% $2s^2\ 2p^2\ (^3P)\ 5g^1\ ^2F$
593	$2s^1\ 2p^3\ (^1D)\ 4d^1$	^2P	1.5	11038726.	60% + 25% $2s^1\ 2p^3\ (^1D)\ 4d^1\ ^2D$

Table 1. continued.

Index	Configuration	*LS*	*J*	*E* (cm^{-1})	Composition
594	$2s^1\ 2p^3\ (^1D)\ 4d^1$	^2P	0.5	11040537.	52% + 39% $2s^1\ 2p^3\ (^1D)\ 4d^1\ ^2S$
595	$2s^2\ 2p^2\ (^3P)\ 5d^1$	^2P	0.5	11041102.	65% + 15% $2s^2\ 2p^2\ (^1D)\ 5d^1\ ^2P$ + 14% $2s^2\ 2p^2\ (^3P)\ 5d^1\ ^4D$
596	$2s^2\ 2p^2\ (^3P)\ 5d^1$	^2D	2.5	11041252.	44% + 14% $2s^2\ 2p^2\ (^1D)\ 5d^1\ ^2F$
597	$2s^2\ 2p^2\ (^3P)\ 5d^1$	^2D	1.5	11042133.	45% + 21% $2s^2\ 2p^2\ (^3P)\ 5d^1\ ^2P$ + 16% $2s^2\ 2p^2\ (^1D)\ 5d^1\ ^2D$
598	$2s^1\ 2p^3\ (^1D)\ 4d^1$	^2D	2.5	11044216.	56% + 20% $2s^1\ 2p^3\ (^3S)\ 4d^1\ ^2D$
599	$2s^2\ 2p^2\ (^3P)\ 5d^1$	^2F	3.5	11044289.	56% + 18% $2s^2\ 2p^2\ (^3P)\ 5d^1\ ^4D$ + 16% $2s^2\ 2p^2\ (^1D)\ 5d^1\ ^2G$
600	$2s^1\ 2p^3\ (^1D)\ 4d^1$	^2D	1.5	11044482.	44% + 29% $2s^1\ 2p^3\ (^1D)\ 4d^1\ ^2P$
601	$2s^2\ 2p^2\ (^3P)\ 5g^1$	^4G	2.5	11045335.	34% + 22% $2s^1\ 2p^3\ (^3S)\ 4f^1\ ^2F$ + 19% $2s^1\ 2p^3\ (^3S)\ 4f^1\ ^4F$
602	$2s^1\ 2p^3\ (^3S)\ 4f^1$	^4F	3.5	11046199.	36% + 18% $2s^2\ 2p^2\ (^3P)\ 5g^1\ ^4G$ + 16% $2s^2\ 2p^2\ (^3P)\ 5g^1\ ^2G$
603	$2s^2\ 2p^2\ (^1D)\ 5s^1$	^2D	1.5	11049365.	52% + 22% $2s^1\ 2p^3\ (^1P)\ 4p^1\ ^2D$ + 13% $2s^2\ 2p^2\ (^3P)\ 5s^1\ ^2P$
604	$2s^1\ 2p^3\ (^3S)\ 4f^1$	^4F	4.5	11050241.	42% + 17% $2s^2\ 2p^2\ (^3P)\ 5g^1\ ^4G$
605	$2s^1\ 2p^3\ (^3S)\ 4f^1$	^2F	3.5	11050286.	35% + 14% $2s^2\ 2p^2\ (^3P)\ 5g^1\ ^2G$
606	$2s^2\ 2p^2\ (^1D)\ 5s^1$	^2D	2.5	11050373.	52% + 19% $2s^1\ 2p^3\ (^1P)\ 4p^1\ ^2D$ + 15% $2s^2\ 2p^2\ (^3P)\ 5s^1\ ^4P$
607	$2s^1\ 2p^3\ (^1D)\ 4d^1$	^2S	0.5	11050776.	52% + 32% $2s^1\ 2p^3\ (^1D)\ 4d^1\ ^2P$
608	$2s^2\ 2p^2\ (^3P)\ 5f^1$	^4G	5.5	11060816.	76% + 23% $2s^2\ 2p^2\ (^1D)\ 5f^1\ ^2H$
609	$2s^2\ 2p^2\ (^3P)\ 5f^1$	^4G	4.5	11060995.	34% + 31% $2s^2\ 2p^2\ (^3P)\ 5f^1\ ^2G$ + 19% $2s^2\ 2p^2\ (^1D)\ 5f^1\ ^2H$
610	$2s^2\ 2p^2\ (^3P)\ 5f^1$	^4F	3.5	11062369.	38% + 17% $2s^2\ 2p^2\ (^1D)\ 5f^1\ ^2G$ + 16% $2s^2\ 2p^2\ (^3P)\ 5f^1\ ^4G$
611	$2s^2\ 2p^2\ (^3P)\ 5f^1$	^4F	4.5	11063010.	39% + 32% $2s^2\ 2p^2\ (^3P)\ 5f^1\ ^2G$ + 20% $2s^2\ 2p^2\ (^1D)\ 5f^1\ ^2G$
612	$2s^2\ 2p^2\ (^3P)\ 5f^1$	^4F	2.5	11063142.	36% + 34% $2s^2\ 2p^2\ (^3P)\ 5f^1\ ^4D$ + 11% $2s^2\ 2p^2\ (^1D)\ 5f^1\ ^2F$
613	$2s^2\ 2p^2\ (^3P)\ 5f^1$	^4D	1.5	11063426.	60% + 13% $2s^2\ 2p^2\ (^3P)\ 5f^1\ ^4F$ + 11% $2s^2\ 2p^2\ (^1D)\ 5f^1\ ^2D$
614	$2s^2\ 2p^2\ (^3P)\ 5f^1$	^4D	0.5	11063661.	73% + 20% $2s^2\ 2p^2\ (^1D)\ 5f^1\ ^2P$
615	$2s^2\ 2p^2\ (^3P)\ 5f^1$	^2F	3.5	11063914.	39% + 17% $2s^2\ 2p^2\ (^1D)\ 5f^1\ ^2F$ + 14% $2s^2\ 2p^2\ (^3P)\ 5f^1\ ^4D$
616	$2s^2\ 2p^2\ (^3P)\ 5g^1$	^2G	4.5	11064364.	30% + 26% $2s^2\ 2p^2\ (^1D)\ 5g^1\ ^2H$ + 13% $2s^2\ 2p^2\ (^3P)\ 5g^1\ ^4H$
617	$2s^2\ 2p^2\ (^3P)\ 5g^1$	^4G	5.5	11064762.	39% + 25% $2s^2\ 2p^2\ (^3P)\ 5g^1\ ^4H$ + 24% $2s^2\ 2p^2\ (^1D)\ 5g^1\ ^2H$
618	$2s^2\ 2p^2\ (^3P)\ 5f^1$	^2F	2.5	11064979.	35% + 25% $2s^2\ 2p^2\ (^3P)\ 5f^1\ ^2D$ + 12% $2s^2\ 2p^2\ (^1D)\ 5f^1\ ^2D$
619	$2s^1\ 2p^3\ (^1P)\ 4p^1$	^2S	0.5	11065233.	52% + 27% $2s^1\ 2p^3\ (^1P)\ 4p^1\ ^2P$ + 14% $2s^1\ 2p^3\ (^3S)\ 4p^1\ ^4P$
620	$2s^2\ 2p^2\ (^3P)\ 5g^1$	^2H	5.5	11065617.	60% + 22% $2s^2\ 2p^2\ (^1D)\ 5g^1\ ^2I$ + 12% $2s^2\ 2p^2\ (^3P)\ 5g^1\ ^4H$
621	$2s^2\ 2p^2\ (^3P)\ 5g^1$	^4H	6.5	11065927.	75% + 23% $2s^2\ 2p^2\ (^1D)\ 5g^1\ ^2I$
622	$2s^2\ 2p^2\ (^3P)\ 5f^1$	^2D	1.5	11066627.	55% + 11% $2s^2\ 2p^2\ (^3P)\ 5f^1\ ^4F$
623	$2s^1\ 2p^3\ (^1P)\ 4p^1$	^2P	1.5	11070097.	66% + 13% $2s^1\ 2p^3\ (^3S)\ 4p^1\ ^4P$
624	$2s^1\ 2p^3\ (^3S)\ 4f^1$	^2F	3.5	11071838.	18% + 16% $2s^2\ 2p^2\ (^1D)\ 5g^1\ ^2G$ + 14% $2s^2\ 2p^2\ (^3P)\ 5g^1\ ^4G$
625	$2s^1\ 2p^3\ (^3S)\ 4f^1$	^4F	4.5	11072192.	29% + 18% $2s^2\ 2p^2\ (^3P)\ 5g^1\ ^4F$ + 17% $2s^2\ 2p^2\ (^1D)\ 5g^1\ ^2G$
626	$2s^1\ 2p^3\ (^1D)\ 4f^1$	^2F	2.5	11074208.	18% + 16% $2s^2\ 2p^2\ (^3P)\ 5g^1\ ^4F$ + 15% $2s^2\ 2p^2\ (^1D)\ 5g^1\ ^2F$
627	$2s^1\ 2p^3\ (^1P)\ 4p^1$	^2D	1.5	11075203.	33% + 14% $2s^1\ 2p^3\ (^1P)\ 4p^1\ ^2P$ + 14% $2s^2\ 2p^2\ (^1D)\ 5s^1\ ^2D$
628	$2s^2\ 2p^2\ (^3P)\ 5g^1$	^4F	3.5	11075650.	15% + 15% $2s^1\ 2p^3\ (^1D)\ 4f^1\ ^2F$ + 15% $2s^2\ 2p^2\ (^1D)\ 5g^1\ ^2F$
629	$2s^1\ 2p^3\ (^1P)\ 4p^1$	^2D	2.5	11075952.	44% + 13% $2s^2\ 2p^2\ (^1D)\ 5s^1\ ^2D$ + 11% $2s^1\ 2p^3\ (^1D)\ 4f^1\ ^2D$
630	$2s^2\ 2p^2\ (^3P)\ 5g^1$	^4F	1.5	11077740.	27% + 18% $2s^1\ 2p^3\ (^3S)\ 4f^1\ ^4F$ + 16% $2s^1\ 2p^3\ (^1D)\ 4f^1\ ^2D$
631	$2s^1\ 2p^3\ (^1P)\ 4p^1$	^2D	2.5	11078751.	17% + 14% $2s^1\ 2p^3\ (^1D)\ 4f^1\ ^2D$ + 14% $2s^2\ 2p^2\ (^3P)\ 5g^1\ ^2F$
632	$2s^1\ 2p^3\ (^1D)\ 4f^1$	^2H	4.5	11082423.	81%
633	$2s^1\ 2p^3\ (^1D)\ 4f^1$	^2H	5.5	11083138.	83%
634	$2s^1\ 2p^3\ (^1D)\ 4f^1$	^2P	0.5	11084255.	60% + 15% $2s^1\ 2p^3\ (^1P)\ 4p^1\ ^2P$ + 11% $2s^1\ 2p^3\ (^1P)\ 4p^1\ ^2S$
635	$2s^1\ 2p^3\ (^1D)\ 4f^1$	^2G	3.5	11084490.	81%
636	$2s^1\ 2p^3\ (^1D)\ 4f^1$	^2G	4.5	11085248.	81%
637	$2s^1\ 2p^3\ (^1D)\ 4f^1$	^2P	1.5	11087099.	82%
638	$2s^1\ 2p^3\ (^1D)\ 4f^1$	^2F	2.5	11087827.	63%
639	$2s^1\ 2p^3\ (^1D)\ 4f^1$	^2F	3.5	11088071.	74%
640	$2s^1\ 2p^3\ (^1D)\ 4f^1$	^2P	0.5	11088597.	33% + 33% $2s^1\ 2p^3\ (^1P)\ 4p^1\ ^2P$ + 14% $2s^1\ 2p^3\ (^3S)\ 4p^1\ ^2P$
641	$2s^1\ 2p^3\ (^1D)\ 4f^1$	^2D	1.5	11089307.	61% + 12% $2s^2\ 2p^2\ (^3P)\ 5g^1\ ^4F$
642	$2s^1\ 2p^3\ (^1D)\ 4f^1$	^2D	2.5	11090214.	58% + 11% $2s^2\ 2p^2\ (^3P)\ 5g^1\ ^2F$
643	$2s^2\ 2p^2\ (^1D)\ 5p^1$	^2F	2.5	11101608.	69% + 20% $2s^2\ 2p^2\ (^3P)\ 5p^1\ ^2D$
644	$2s^2\ 2p^2\ (^1D)\ 5p^1$	^2F	3.5	11103648.	73% + 21% $2s^2\ 2p^2\ (^3P)\ 5p^1\ ^4D$
645	$2s^2\ 2p^2\ (^1D)\ 5p^1$	^2D	1.5	11104235.	43% + 31% $2s^2\ 2p^2\ (^1D)\ 5p^1\ ^2P$
646	$2s^2\ 2p^2\ (^1D)\ 5p^1$	^2D	2.5	11104918.	74% + 15% $2s^2\ 2p^2\ (^3P)\ 5p^1\ ^4P$
647	$2s^2\ 2p^2\ (^1D)\ 5p^1$	^2P	0.5	11108924.	77% + 11% $2s^2\ 2p^2\ (^3P)\ 5p^1\ ^2S$

Table 1. continued.

Index	Configuration	*LS*	*J*	*E* (cm^{-1})	Composition
648	$2s^2\ 2p^2\ (^1D)\ 5p^1$	^2P	1.5	11119121.	43% + 27% $2s^2\ 2p^2\ (^1D)\ 5p^1\ ^2D$ + 15% $2s^2\ 2p^2\ (^3P)\ 5p^1\ ^2P$
649	$2s^2\ 2p^2\ (^1D)\ 5d^1$	^2F	3.5	11157237.	56% + 20% $2s^2\ 2p^2\ (^1D)\ 5d^1\ ^2G$ + 12% $2s^2\ 2p^2\ (^3P)\ 5d^1\ ^4D$
650	$2s^1\ 2p^3\ (^1P)\ 4d^1$	^2D	2.5	11159476.	55% + 18% $2s^1\ 2p^3\ (^1P)\ 4d^1\ ^2F$
651	$2s^2\ 2p^2\ (^1D)\ 5d^1$	^2G	4.5	11160269.	77% + 22% $2s^2\ 2p^2\ (^3P)\ 5d^1\ ^4F$
652	$2s^1\ 2p^3\ (^1P)\ 4d^1$	^2F	3.5	11161476.	76% + 14% $2s^1\ 2p^3\ (^3S)\ 4d^1\ ^4D$
653	$2s^1\ 2p^3\ (^1P)\ 4d^1$	^2P	0.5	11161755.	69% + 12% $2s^1\ 2p^3\ (^3S)\ 4d^1\ ^4D$ + 11% $2s^2\ 2p^2\ (^1D)\ 5f^1\ ^2P$
654	$2s^1\ 2p^3\ (^1P)\ 4d^1$	^2P	1.5	11162251.	53% + 17% $2s^1\ 2p^3\ (^1P)\ 4d^1\ ^2D$ + 11% $2s^1\ 2p^3\ (^3S)\ 4d^1\ ^4D$
655	$2s^2\ 2p^2\ (^1D)\ 5d^1$	^2D	2.5	11162688.	43% + 33% $2s^2\ 2p^2\ (^1D)\ 5d^1\ ^2F$ + 12% $2s^2\ 2p^2\ (^3P)\ 5d^1\ ^4D$
656	$2s^2\ 2p^2\ (^1D)\ 5d^1$	^2D	1.5	11163216.	69%
657	$2s^2\ 2p^2\ (^1D)\ 5d^1$	^2G	3.5	11163625.	53% + 21% $2s^2\ 2p^2\ (^1D)\ 5d^1\ ^2F$ + 12% $2s^2\ 2p^2\ (^3P)\ 5d^1\ ^2F$
658	$2s^2\ 2p^2\ (^1D)\ 5d^1$	^2P	0.5	11163952.	76% + 11% $2s^2\ 2p^2\ (^3P)\ 5d^1\ ^2P$
659	$2s^1\ 2p^3\ (^1P)\ 4d^1$	^2F	2.5	11165464.	49% + 19% $2s^1\ 2p^3\ (^1P)\ 4d^1\ ^2D$
660	$2s^2\ 2p^2\ (^1D)\ 5d^1$	^2S	0.5	11170444.	68% + 16% $2s^2\ 2p^2\ (^3P)\ 5d^1\ ^4P$
661	$2s^2\ 2p^2\ (^1D)\ 5d^1$	^2F	2.5	11170610.	38% + 32% $2s^2\ 2p^2\ (^1D)\ 5d^1\ ^2D$ + 18% $2s^2\ 2p^2\ (^3P)\ 5d^1\ ^2D$
662	$2s^2\ 2p^2\ (^1D)\ 5d^1$	^2P	1.5	11172397.	68%
663	$2s^1\ 2p^3\ (^1P)\ 4d^1$	^2D	1.5	11173750.	38% + 18% $2s^2\ 2p^2\ (^1D)\ 5f^1\ ^2D$ + 14% $2s^1\ 2p^3\ (^3S)\ 4d^1\ ^2D$
664	$2s^2\ 2p^2\ (^1S)\ 5s^1$	^2S	0.5	11181732.	78%
665	$2s^2\ 2p^2\ (^1D)\ 5g^1$	^2D	1.5	11183000.	58% + 19% $2s^1\ 2p^3\ (^1P)\ 4f^1\ ^2D$ + 18% $2s^2\ 2p^2\ (^3P)\ 5g^1\ ^4F$
666	$2s^2\ 2p^2\ (^1D)\ 5g^1$	^2D	2.5	11183533.	58% + 18% $2s^1\ 2p^3\ (^1P)\ 4f^1\ ^2D$
667	$2s^2\ 2p^2\ (^1D)\ 5g^1$	^2F	2.5	11186227.	59% + 16% $2s^1\ 2p^3\ (^1P)\ 4f^1\ ^2F$
668	$2s^2\ 2p^2\ (^1D)\ 5g^1$	^2F	3.5	11186534.	59% + 16% $2s^1\ 2p^3\ (^1P)\ 4f^1\ ^2F$
669	$2s^2\ 2p^2\ (^1D)\ 5f^1$	^2G	4.5	11187419.	74% + 16% $2s^2\ 2p^2\ (^3P)\ 5f^1\ ^4F$
670	$2s^2\ 2p^2\ (^1D)\ 5f^1$	^2G	3.5	11187825.	71%
671	$2s^2\ 2p^2\ (^1D)\ 5f^1$	^2H	4.5	11189376.	75% + 17% $2s^2\ 2p^2\ (^3P)\ 5f^1\ ^2G$
672	$2s^2\ 2p^2\ (^1D)\ 5f^1$	^2H	5.5	11189620.	76% + 23% $2s^2\ 2p^2\ (^3P)\ 5f^1\ ^4G$
673	$2s^2\ 2p^2\ (^1D)\ 5f^1$	^2F	3.5	11190006.	69%
674	$2s^2\ 2p^2\ (^1D)\ 5f^1$	^2F	2.5	11190380.	66%
675	$2s^2\ 2p^2\ (^1D)\ 5g^1$	^2G	3.5	11191058.	64%
676	$2s^2\ 2p^2\ (^1D)\ 5g^1$	^2G	4.5	11191531.	64%
677	$2s^2\ 2p^2\ (^1D)\ 5g^1$	^2I	5.5	11193423.	75% + 16% $2s^2\ 2p^2\ (^3P)\ 5g^1\ ^2H$
678	$2s^2\ 2p^2\ (^1D)\ 5g^1$	^2I	6.5	11193780.	76% + 23% $2s^2\ 2p^2\ (^3P)\ 5g^1\ ^4H$
679	$2s^2\ 2p^2\ (^1D)\ 5g^1$	^2H	4.5	11194213.	73% + 11% $2s^2\ 2p^2\ (^3P)\ 5g^1\ ^2G$
680	$2s^2\ 2p^2\ (^1D)\ 5f^1$	^2D	2.5	11194402.	68%
681	$2s^2\ 2p^2\ (^1D)\ 5g^1$	^2H	5.5	11194538.	73% + 14% $2s^2\ 2p^2\ (^3P)\ 5g^1\ ^4G$
682	$2s^2\ 2p^2\ (^1D)\ 5f^1$	^2D	1.5	11195205.	48% + 14% $2s^2\ 2p^2\ (^1D)\ 5f^1\ ^2P$ + 13% $2s^1\ 2p^3\ (^1P)\ 4d^1\ ^2D$
683	$2s^2\ 2p^2\ (^1D)\ 5f^1$	^2P	0.5	11197527.	66% + 18% $2s^2\ 2p^2\ (^3P)\ 5f^1\ ^4D$ + 11% $2s^1\ 2p^3\ (^1P)\ 4d^1\ ^2P$
684	$2s^2\ 2p^2\ (^1D)\ 5f^1$	^2P	1.5	11199728.	47% + 13% $2s^1\ 2p^3\ (^1P)\ 4d^1\ ^2P$ + 12% $2s^2\ 2p^2\ (^3P)\ 5f^1\ ^2D$
685	$2s^1\ 2p^3\ (^1P)\ 4f^1$	^2G	3.5	11219101.	69% + 11% $2s^1\ 2p^3\ (^3S)\ 4f^1\ ^2F$
686	$2s^1\ 2p^3\ (^1P)\ 4f^1$	^2G	4.5	11219848.	70% + 15% $2s^1\ 2p^3\ (^3S)\ 4f^1\ ^4F$
687	$2s^2\ 2p^2\ (^1S)\ 5p^1$	^2P	0.5	11226682.	84%
688	$2s^1\ 2p^3\ (^1P)\ 4f^1$	^2F	2.5	11226746.	64% + 15% $2s^2\ 2p^2\ (^1D)\ 5g^1\ ^2F$
689	$2s^1\ 2p^3\ (^1P)\ 4f^1$	^2F	3.5	11227196.	64% + 15% $2s^2\ 2p^2\ (^1D)\ 5g^1\ ^2F$
690	$2s^2\ 2p^2\ (^1S)\ 5p^1$	^2P	1.5	11230571.	84%
691	$2s^1\ 2p^3\ (^1P)\ 4f^1$	^2D	1.5	11232199.	62% + 18% $2s^2\ 2p^2\ (^1D)\ 5g^1\ ^2D$ + 12% $2s^1\ 2p^3\ (^3S)\ 4f^1\ ^4F$
692	$2s^1\ 2p^3\ (^1P)\ 4f^1$	^2D	2.5	11233192.	62% + 17% $2s^2\ 2p^2\ (^1D)\ 5g^1\ ^2D$
693	$2s^2\ 2p^2\ (^1S)\ 5d^1$	^2D	2.5	11281692.	87%
694	$2s^2\ 2p^2\ (^1S)\ 5d^1$	^2D	1.5	11282508.	86%
695	$2s^1\ 2p^3\ (^5S)\ 5s^1$	^6S	2.5	11295480.	97%
696	$2s^2\ 2p^2\ (^1S)\ 5f^1$	^2F	2.5	11307621.	86%
697	$2s^2\ 2p^2\ (^1S)\ 5f^1$	^2F	3.5	11308064.	86%
698	$2s^1\ 2p^3\ (^5S)\ 5s^1$	^4S	1.5	11310454.	96%
699	$2s^2\ 2p^2\ (^1S)\ 5g^1$	^2G	3.5	11313231.	84%
700	$2s^2\ 2p^2\ (^1S)\ 5g^1$	^2G	4.5	11313609.	84%

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

Table 2. continued.

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

Table 2. continued.

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

Table 2. continued.

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

Table 2. continued.

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

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

Table 2. continued.

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

Table 2. continued.

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

Table 2. continued.

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

Table 2. continued.

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

Table 2. continued.

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

Table 3. Comparison of calculated energies for Fe XX levels with data compiled by NIST ($E^{\rm NIST}$). $E^{\rm SS}$ – energies calculated by Mason & Bhatia (1983) with SUPERSTRUCTURE, $E^{\rm BPRM}$ – values obtained by Nahar (2004) with Breit-Pauli R-matrix code, $E^{\rm GRASP}$ and $E^{\rm CITRO}$ – our values. Indexes of levels in the first column and CSFs in the second column are taken from Table 1. Energies are in cm^{-1}.

Index	CSF	$E^{\rm NIST}$	$E^{\rm SS}$	$E^{\rm BPRM}$	$E^{\rm CITRO}$	$E^{\rm GRASP}$
2	$2s^2\ 2p^3\ ^2D_{1.5}$	138620	140598	140903	138856	141715
3	$2s^2\ 2p^3\ ^2D_{2.5}$	176130	178989	181615	175952	179537
4	$2s^2\ 2p^3\ ^2P_{0.5}$	260270	257573	264577	260471	263209
5	$2s^2\ 2p^3\ ^2P_{1.5}$	323340	319877	328554	322368	325962
6	$2s^1\ 2p^4\ ^4P_{2.5}$	752730	747101	757407	750386	753649
7	$2s^1\ 2p^4\ ^4P_{1.5}$	820820	812698	824127	817703	821409
8	$2s^1\ 2p^4\ ^4P_{0.5}$	842740	834443	846184	839423	843536
9	$2s^1\ 2p^4\ ^2D_{1.5}$	1042570	1044277	1050625	1039244	1050924
10	$2s^1\ 2p^4\ ^2D_{2.5}$	1058360	1061216	1068073	1055467	1066222
11	$2s^1\ 2p^4\ ^2S_{0.5}$	1195260	1195284	1205245	1192125	1205489
12	$2s^1\ 2p^4\ ^2P_{1.5}$	1242430	1251404	1253310	1239208	1255768
13	$2s^1\ 2p^4\ ^2P_{0.5}$	1340040	1345312	1351305	1336259	1352396
14	$2p^5\ ^2P_{1.5}$	1954520		1966690	1948441	1971784
15	$2p^5\ ^2P_{0.5}$	2062200		2076076	2055642	2079179
16	$2s^2\ 2p^2\ (^3P)\ 3s^1\ ^4P_{0.5}$	7194000	7193289	7162927	7182452	7155228
17	$2s^2\ 2p^2\ (^3P)\ 3s^1\ ^4P_{1.5}$	7255000	7256327	7229209	7247014	7221726
18	$2s^2\ 2p^2\ (^3P)\ 3s^1\ ^2P_{0.5}$	7287000	7286360	7259935	7277194	7252311
19	$2s^2\ 2p^2\ (^3P)\ 3s^1\ ^4P_{2.5}$	7299000	7299603	7274815	7288611	7264310
20	$2s^2\ 2p^2\ (^3P)\ 3s^1\ ^2P_{1.5}$	7331000	7330953	7306639	7320048	7296115
23	$2s^2\ 2p^2\ (^1D)\ 3s^1\ ^2D_{2.5}$	7430000	7430336	7411460	7422476	7400563
24	$2s^2\ 2p^2\ (^1D)\ 3s^1\ ^2D_{1.5}$	7440000	7439775	7421293	7432236	7410643
33	$2s^2\ 2p^2\ (^1S)\ 3s^1\ ^2S_{0.5}$	7554000	7551182	7545340	7555745	7530985
39	$2s^2\ 2p^2\ (^3P)\ 3d^1\ ^4F_{1.5}$	7672000	7650500	7646562	7663219	7638491
46	$2s^2\ 2p^2\ (^3P)\ 3d^1\ ^4F_{3.5}$	7740000	7714100	7722324	7736076	7712951
47	$2s^2\ 2p^2\ (^3P)\ 3d^1\ ^4D_{0.5}$	7752000	7721000	7727811	7743115	7720580
56	$2s^2\ 2p^2\ (^3P)\ 3d^1\ ^4P_{2.5}$	7802000	7790100	7796375	7806999	7785892
58	$2s^2\ 2p^2\ (^3P)\ 3d^1\ ^4P_{1.5}$	7802000	7803000	7808139	7818763	7798298
61	$2s^2\ 2p^2\ (^3P)\ 3d^1\ ^2F_{3.5}$	7820000	7818200	7830306	7839918	7819869
62	$2s^2\ 2p^2\ (^3P)\ 3d^1\ ^2D_{1.5}$	7859000	7850700	7853131	7864123	7844676
63	$2s^2\ 2p^2\ (^3P)\ 3d^1\ ^2D_{2.5}$	7843000	7854500	7854097	7865251	7846514
69	$2s^2\ 2p^2\ (^1D)\ 3d^1\ ^2D_{1.5}$	7919000	7909800	7925646	7933796	7915116
70	$2s^2\ 2p^2\ (^1D)\ 3d^1\ ^2D_{2.5}$	7913000	7918200	7929859	7937908	7919464
71	$2s^2\ 2p^2\ (^1D)\ 3d^1\ ^2P_{0.5}$	7964000	7931300	7947242	7953974	7936656
72	$2s^2\ 2p^2\ (^3P)\ 3d^1\ ^2F_{3.5}$	7935000	7944100	7950051	7958832	7941761
79	$2s^2\ 2p^2\ (^1D)\ 3d^1\ ^2S_{0.5}$	7995000	7960100	7979856	7986462	7969218
80	$2s^2\ 2p^2\ (^3P)\ 3d^1\ ^2D_{2.5}$	7983000	7969000	7980602	7988008	7971406
82	$2s^2\ 2p^2\ (^1D)\ 3d^1\ ^2P_{1.5}$	7967000	7966700	7984157	7989830	7974014
85	$2s^2\ 2p^2\ (^1S)\ 3d^1\ ^2D_{2.5}$	8047000	8069800	8065978	8072444	8051967
86	$2s^2\ 2p^2\ (^1S)\ 3d^1\ ^2D_{1.5}$	8061000	8080900	8075722	8083172	8063693

Table 4. Estimation of contribution spin-orbit (s-o), spin-other-orbit (s-o-o), spin-spin (s-s) and orbit-orbit (o-o) within shell interactions to energies for Fe XX levels within $n = 2$ complex. $E_1 = E^{\mathrm{s-o}}$, $E_2 = E^{\mathrm{s-o}} + E^{\mathrm{s-o-o}}$, $E_3 = E^{\mathrm{s-o}} + E^{\mathrm{s-o-o}} + E^{\mathrm{s-s}}$ and $E_4 = E^{\mathrm{s-o}} + E^{\mathrm{s-o-o}} + E^{\mathrm{s-s}} + E^{\mathrm{o-o}}$.

Index	E_1	E_2	E_3	E_4
2	141857	143122	143444	141910
3	182708	181082	181201	179270
4	264047	264411	264530	263975
5	327447	326489	326519	325670
6	755194	754560	754597	754662
7	821273	821367	821849	821936
8	843083	844242	843812	843945
9	1050595	1050928	1051144	1049976
10	1068168	1067125	1067206	1065988
11	1204074	1204221	1204372	1204963
12	1253448	1252420	1252540	1252569
13	1350217	1349293	1349347	1349601
14	1970331	1970400	1970517	1971268
15	2078969	2077652	2077773	2078527

Table 5. Suggested change of spectroscopic identifications of levels to ensure the completeness of spectroscopic dataset. The indexes of levels for which spectroscopic identifications are changed are presented in the first column. The second column contains index of level with the same highest contribution of configuration state function (Table 1) as level from the first column before change. Indexes of levels in the first two columns are taken from Table 1.

Index	Index	Changed CSF
26	22	$2s^2\ 2p^2\ (^3P)\ 3p^1\ ^4P_{3/2}$
42	48	$2s^2\ 2p^2\ (^3P)\ 3d^1\ ^4D_{5/2}$
72	61	$2s^2\ 2p^2\ (^1D)\ 3d^1\ ^2F_{7/2}$
80	63	$2s^2\ 2p^2\ (^1D)\ 3d^1\ ^2F_{5/2}$
153	163	$2s^1\ 2p^3\ (^1P)\ 3p^1\ ^2P_{1/2}$
180	192	$2s^1\ 2p^3\ (^3S)\ 3p^1\ ^2P_{3/2}$
200	209	$2s^1\ 2p^3\ (^3S)\ 3d^1\ ^2D_{5/2}$
211	218	$2p^4\ (^3P)\ 3s^1\ ^2P_{3/2}$
225	228	$2p^4\ (^3P)\ 3p^1\ ^2P_{1/2}$
250	254	$2p^4\ (^3P)\ 3d^1\ ^2F_{5/2}$
252	242	$2p^4\ (^3P)\ 3d^1\ ^2P_{1/2}$
256	243	$2p^4\ (^3P)\ 3d^1\ ^2D_{3/2}$
277	281	$2s^2\ 2p^2\ (^3P)\ 4p^1\ ^4P_{3/2}$
293	309	$2s^2\ 2p^2\ (^3P)\ 4f^1\ ^2D_{5/2}$
296	297	$2s^2\ 2p^2\ (^3P)\ 4d^1\ ^2P_{3/2}$
300	286	$2s^2\ 2p^2\ (^3P)\ 4d^1\ ^4P_{5/2}$
315	295	$2s^2\ 2p^2\ (^3P)\ 4f^1\ ^4G_{7/2}$
317	333	$2s^2\ 2p^2\ (^3P)\ 4f^1\ ^4D_{5/2}$
400	405	$2s^1\ 2p^3\ (^3D)\ 4p^1\ ^2P_{3/2}$
445	479	$2s^1\ 2p^3\ (^3D)\ 4f^1\ ^4F_{5/2}$
462	480	$2s^1\ 2p^3\ (^3D)\ 4f^1\ ^4P_{3/2}$
488	487	$2s^1\ 2p^3\ (^3P)\ 4d^1\ ^4P_{3/2}$
505	522	$2s^1\ 2p^3\ (^3P)\ 4f^1\ ^4G_{7/2}$
506	536	$2s^2\ 2p^2\ (^3P)\ 5p^1\ ^4P_{3/2}$
525	512	$2s^1\ 2p^3\ (^3P)\ 4f^1\ ^4F_{5/2}$
545	571	$2s^2\ 2p^2\ (^3P)\ 5f^1\ ^2G_{7/2}$
546	572	$2s^2\ 2p^2\ (^3P)\ 5g^1\ ^2F_{7/2}$
547	574	$2s^2\ 2p^2\ (^3P)\ 5g^1\ ^2H_{9/2}$
557	530	$2s^2\ 2p^2\ (^3P)\ 5d^1\ ^2P_{3/2}$
558	541	$2s^2\ 2p^2\ (^3P)\ 5p^1\ ^2S_{1/2}$
578	628	$2s^2\ 2p^2\ (^3P)\ 5g^1\ ^2G_{7/2}$
579	618	$2s^2\ 2p^2\ (^3P)\ 5f^1\ ^2D_{5/2}$
584	560	$2s^2\ 2p^2\ (^3P)\ 5d^1\ ^4D_{7/2}$
588	532	$2s^2\ 2p^2\ (^3P)\ 5d^1\ ^4P_{5/2}$
601	576	$2s^1\ 2p^3\ (^3S)\ 4f^1\ ^2F_{5/2}$
604	625	$2s^2\ 2p^2\ (^3P)\ 5g^1\ ^4G_{9/2}$
609	573	$2s^2\ 2p^2\ (^3P)\ 5f^1\ ^2G_{9/2}$
624	605	$2s^2\ 2p^2\ (^3P)\ 5g^1\ ^4G_{7/2}$
626	638	$2s^2\ 2p^2\ (^3P)\ 5g^1\ ^4F_{5/2}$
631	629	$2s^2\ 2p^2\ (^3P)\ 5g^1\ ^2F_{5/2}$
640	634	$2s^1\ 2p^3\ (^1P)\ 4p^1\ ^2P_{1/2}$

Table 6. Comparison of calculated Fe XX wavelengths λ and line strengths S with values presented by NIST. BPRM – data from Nahar (2004), GRASP and CITRO – our values. Indexes of levels in the first two columns are taken from Table 1.

			λ (Å)				S			
k	i	Type	NIST	BPRM	CITRO	GRASP	NIST	BPRM	CITRO	GRASP
1	6		132.85	132.03	133.27	132.69	9.03E-02	8.24E-02	8.41E-02	8.45E-02
1	7		121.829	121.34	122.29	121.74	6.64E-02	4.88E-02	6.09E-02	6.11E-02
1	8		118.661	118.16	119.13	118.55	3.45E-02	2.12E-02	3.14E-02	3.16E-02
1	9		95.917	95.18	96.22	95.15	3.30E-03	5.01E-03	2.64E-03	2.58E-03
1	11		83.664	82.97	83.88	82.95	1.10E-03	8.58E-03	9.44E-04	9.50E-04
1	12		80.487	79.79	80.70	79.63	4.70E-03	9.02E-03	4.16E-03	4.14E-03
1	16		13.9	13.96	13.92	13.98	3.20E-03	9.59E-04	3.42E-03	3.49E-03
1	17		13.784	13.83	13.80	13.85	5.20E-03	4.51E-03	5.46E-03	5.67E-03
1	19		13.701	13.75	13.72	13.77	8.40E-03	8.82E-03	8.17E-03	8.54E-03
1	23		13.46	13.49	13.47	13.51	2.82E-04	3.01E-04	2.79E-04	3.10E-04
1	39		13.034	13.08	13.05	13.09	2.93E-03	1.78E-04	3.41E-03	3.39E-03
1	47		12.9	12.94	12.91	12.95	1.31E-03	1.05E-03	1.41E-03	1.41E-03
1	58		12.817	12.81	12.79	12.82	8.70E-02	5.73E-02	8.40E-02	8.53E-02
1	62		12.724	12.73	12.72	12.75	8.54E-04	2.44E-03	1.04E-03	1.05E-03
1	69		12.628	12.62	12.60	12.63	5.17E-04	7.63E-03	7.28E-04	9.06E-04
1	70		12.637	12.61	12.60	12.63	7.20E-03	7.42E-04	5.82E-04	7.60E-04
1	79		12.508	12.53	12.52	12.55	3.86E-04	1.42E-02	7.24E-04	5.88E-04
1	82		12.552	12.53	12.52	12.54	4.69E-04	1.65E-02	5.52E-04	4.64E-04
2	6		162.837	162.21	163.53	163.42	8.20E-03	6.63E-03	6.95E-03	6.74E-03
2	7		146.585	146.37	147.31	147.12	8.10E-04	1.13E-02	4.62E-04	5.14E-04
2	8		142.021	141.77	142.74	142.49	9.60E-04	4.31E-03	7.86E-04	7.71E-04
2	9		110.626	109.92	111.06	109.99	1.15E-01	6.57E-02	1.05E-01	1.04E-01
2	10		108.726	107.86	109.10	108.17	1.00E-04	4.14E-05	4.98E-05	5.20E-05
2	11		94.64	93.96	94.94	94.01	3.77E-02	2.85E-02	3.53E-02	3.50E-02
2	12		90.595	89.90	90.88	89.76	2.16E-02	2.12E-02	2.05E-02	2.10E-02
2	13		83.235	82.62	83.51	82.60	1.66E-02	1.80E-02	1.55E-02	1.59E-02
2	16		14.174	14.24	14.20	14.26	4.78E-04	2.57E-03	5.63E-04	6.02E-04
2	17		14.052	14.11	14.07	14.12	4.82E-04	2.73E-04	5.93E-04	5.77E-04
2	18		13.989	14.05	14.01	14.06	5.90E-03	5.29E-03	6.68E-03	6.91E-03
2	20		13.904	13.96	13.93	13.98	1.75E-03	2.39E-03	1.90E-03	1.99E-03
2	23		13.71	13.75	13.73	13.78	3.82E-03	4.09E-03	3.70E-03	3.92E-03
2	24		13.7	13.74	13.71	13.76	2.18E-03	5.13E-03	2.13E-03	2.21E-03
2	39		13.274	13.32	13.29	13.34	2.82E-03	5.29E-03	3.38E-03	3.44E-03
2	47		13.135	13.18	13.15	13.20	5.37E-04	1.72E-05	6.06E-04	5.94E-04
2	69		12.853	12.85	12.83	12.86	4.60E-02	1.89E-02	4.87E-02	4.89E-02
2	70		12.863	12.84	12.82	12.86	1.00E-01	5.69E-02	5.95E-02	6.10E-02
2	71		12.779	12.81	12.80	12.83	1.40E-02	8.69E-03	1.40E-02	1.40E-02
2	79		12.729	12.76	12.74	12.78	8.10E-03	2.41E-03	8.61E-03	8.99E-03
2	82		12.774	12.75	12.74	12.77	1.36E-03	3.05E-04	1.21E-03	1.35E-03
2	85		12.645	12.62	12.60	12.64	2.51E-04	2.99E-04	3.20E-04	1.89E-04
2	86		12.622	12.60	12.59	12.62	4.37E-04	1.54E-02	6.08E-04	6.74E-04
3	6		173.43	173.67	174.09	174.18	4.20E-03	3.69E-03	3.72E-03	3.50E-03
3	7		155.113	155.64	155.83	155.79	3.40E-04	3.43E-04	3.74E-04	3.31E-04
3	9		115.415	115.07	115.84	114.76	1.30E-04	7.50E-05	9.66E-05	1.48E-04
3	10		113.349	112.81	113.70	112.78	1.42E-01	1.26E-01	1.29E-01	1.29E-01
3	12		93.782	93.31	94.05	92.92	1.63E-01	1.51E-01	1.55E-01	1.54E-01
3	17		14.127	14.19	14.14	14.20	4.45E-04	5.25E-04	4.94E-04	5.11E-04
3	19		14.039	14.10	14.06	14.12	1.89E-03	2.33E-03	2.29E-03	2.36E-03
3	20		13.976	14.04	14.00	14.05	8.60E-03	1.03E-02	9.83E-03	1.02E-02
3	23		13.79	13.83	13.80	13.85	9.30E-03	1.01E-02	9.42E-03	9.81E-03
3	24		13.77	13.81	13.78	13.83	7.73E-04	9.04E-04	7.61E-04	8.45E-04
3	46		13.22	13.26	13.23	13.27	2.83E-03	3.08E-03	2.86E-03	2.85E-03

Table 6. continued.

			λ (Å)				S			
k	i	Type	NIST	BPRM	CITRO	GRASP	NIST	BPRM	CITRO	GRASP
3	58		13.113	13.11	13.08	13.13	3.65E-03	3.64E-03	3.82E-03	3.86E-03
3	62		13.016	13.04	13.01	13.05	4.80E-03	4.74E-03	4.64E-03	4.68E-03
3	69		12.915	12.91	12.89	12.93	1.10E-02	1.20E-02	1.20E-02	1.20E-02
3	70		12.925	12.91	12.88	12.92	3.30E-02	6.93E-02	6.82E-02	6.79E-02
3	82		12.836	12.82	12.80	12.83	7.10E-03	6.45E-03	6.49E-03	6.76E-03
3	85		12.705	12.68	12.66	12.70	6.10E-03	5.11E-03	5.28E-03	5.97E-03
3	86		12.683	12.67	12.65	12.68	3.79E-04	3.26E-04	3.44E-04	3.72E-04
4	8		171.683	171.91	172.73	172.32	1.20E-03	1.08E-03	1.09E-03	1.03E-03
4	9		127.828	127.22	128.41	126.95	1.23E-02	1.09E-02	1.13E-02	1.13E-02
4	11		106.953	106.31	107.34	106.13	4.47E-02	4.14E-02	4.23E-02	4.19E-02
4	12		101.816	101.14	102.17	100.75	1.90E-02	1.75E-02	1.78E-02	1.74E-02
4	13		92.612	92.02	92.96	91.81	3.50E-03	2.74E-03	2.99E-03	3.17E-03
4	18		14.231	14.30	14.25	14.31	1.79E-03	2.27E-03	2.16E-03	2.17E-03
4	20		14.143	14.20	14.17	14.22	3.07E-03	3.74E-03	3.64E-03	3.69E-03
4	24		13.93	13.97	13.94	13.99	4.96E-04	5.41E-04	5.24E-04	5.22E-04
4	33		13.71	13.74	13.71	13.76	2.52E-03	2.78E-03	2.56E-03	2.72E-03
4	39		13.492	13.55	13.51	13.56	1.16E-04	1.89E-04	1.68E-04	1.62E-04
4	47		13.348	13.40	13.36	13.41	1.06E-03	1.20E-03	1.29E-03	1.27E-03
4	62		13.16	13.18	13.15	13.19	4.00E-02	4.32E-02	4.42E-02	4.38E-02
4	69		13.057	13.05	13.03	13.07	1.30E-02	1.21E-02	1.21E-02	1.27E-02
4	71		12.981	13.02	13.00	13.03	1.40E-02	1.47E-02	1.51E-02	1.56E-02
4	79		12.929	12.96	12.94	12.98	2.60E-03	2.27E-03	2.19E-03	2.03E-03
4	82		12.976	12.95	12.94	12.97	7.30E-03	6.51E-03	6.26E-03	6.76E-03
4	86		12.819	12.80	12.78	12.82	5.80E-02	5.49E-02	5.61E-02	5.70E-02
5	6		232.89	233.18	233.64	233.82	1.00E-03	8.25E-04	8.44E-04	8.64E-04
5	7		201.01	201.79	201.89	201.84	2.90E-03	1.80E-03	2.51E-03	2.49E-03
5	9		139.038	138.49	139.50	137.94	3.70E-03	2.48E-02	2.68E-03	2.91E-03
5	10		136.051	135.22	136.41	135.09	4.50E-02	4.02E-02	4.13E-02	4.09E-02
5	11		114.689	114.07	114.98	113.70	4.50E-03	1.72E-03	3.26E-03	3.73E-03
5	12		108.803	108.14	109.07	107.55	2.40E-02	2.90E-02	2.36E-02	2.30E-02
5	13		98.357	97.78	98.63	97.43	9.02E-02	7.77E-02	8.44E-02	8.40E-02
5	20		14.27	14.33	14.29	14.35	1.43E-03	3.62E-03	1.75E-03	1.74E-03
5	23		14.07	14.12	14.08	14.14	2.06E-03	2.57E-03	2.47E-03	2.49E-03
5	24		14.05	14.10	14.07	14.12	9.30E-03	4.12E-03	1.04E-02	1.06E-02
5	33		13.83	13.86	13.82	13.88	2.56E-03	2.24E-03	2.64E-03	2.75E-03
5	47		13.461	13.52	13.48	13.52	4.82E-04	1.47E-03	5.54E-04	5.53E-04
5	62		13.27	13.29	13.26	13.30	5.50E-03	4.82E-03	5.72E-03	5.64E-03
5	69		13.165	13.16	13.14	13.18	1.94E-03	2.50E-02	1.86E-03	1.89E-03
5	70		13.176	13.16	13.13	13.17	1.08E-03	6.35E-03	6.97E-03	7.45E-03
5	79		13.035	13.07	13.05	13.08	1.90E-02	1.14E-02	1.94E-02	1.95E-02
5	82		13.083	13.06	13.04	13.08	6.20E-02	4.27E-02	6.59E-02	6.59E-02
5	85		12.947	12.92	12.90	12.94	9.00E-02	7.94E-02	8.12E-02	8.64E-02
5	86		12.924	12.91	12.89	12.92	1.90E-02	3.39E-03	1.66E-02	1.79E-02
6	14		83.209	82.69	83.47	82.09	3.40E-03	3.25E-03	3.14E-03	3.05E-03
7	14		88.207	87.52	88.44	86.93	2.20E-03	4.88E-04	2.04E-03	1.92E-03
7	15		80.56	79.88	80.78	79.51	1.40E-04	1.50E-04	1.37E-04	1.28E-04
8	14		89.946	89.25	90.17	88.63	7.80E-04	6.44E-04	6.77E-04	6.53E-04
8	15		82.035	81.31	82.22	80.93	5.20E-04	4.64E-04	4.59E-04	4.53E-04
9	14		109.655	109.16	109.99	108.59	4.58E-02	1.36E-04	4.06E-02	4.01E-02
9	15		98.07	97.52	98.39	97.25	4.30E-02	3.79E-02	3.90E-02	3.94E-02
10	14		111.587	111.28	111.99	110.43	1.18E-01	1.06E-01	1.08E-01	1.08E-01
11	14		131.707	131.33	132.22	130.50	4.10E-02	3.75E-02	3.80E-02	3.72E-02
11	15		115.35	114.83	115.81	114.46	3.50E-03	3.93E-03	3.68E-03	3.38E-03

Table 6. continued.

			λ (Å)				S			
k	i	Type	NIST	BPRM	CITRO	GRASP	NIST	BPRM	CITRO	GRASP
12	14		140.432	140.18	141.00	139.66	1.69E-01	1.89E-01	1.51E-01	1.51E-01
12	15		121.99	121.54	122.49	121.45	6.63E-02	5.77E-02	5.85E-02	5.82E-02
13	14		162.739	162.50	163.35	161.45	1.52E-02	1.16E-02	1.22E-02	1.28E-02
13	15		138.47	137.97	139.01	137.59	8.39E-02	7.32E-02	7.50E-02	7.53E-02
1	2	M1	723.22	702.37	720.17	705.64	8.90E-01	7.98E-01	8.51E-01	8.26E-01
1	3	M1	567.76	555.46	568.34	556.99	5.29E-02	4.55E-02	5.05E-02	4.72E-02
1	4	M1	384.22	382.80	383.92	379.93	1.40E-01	1.25E-01	1.29E-01	1.27E-01
1	5	M1	309.27	309.95	310.20	306.78	1.30E-01	1.28E-01	1.29E-01	1.28E-01
2	3	M1	2665.1	2655.59	2695.71	2644.00	1.76E+00	1.78E+00	1.79E+00	1.79E+00
2	4	M1	820.88	841.34	822.27	823.09	2.51E-01	2.50E-01	2.39E-01	2.43E-01
2	5	M1	541.36	554.77	544.92	542.75	1.10E+00	1.02E+00	1.02E+00	1.01E+00
3	5	M1	679.3	701.27	682.99	682.94	6.00E-01	5.74E-01	5.60E-01	5.65E-01
4	5	M1	1585.5	1628.75	1615.59	1593.50	9.46E-01	9.59E-01	9.64E-01	9.58E-01
14	15	M1	929.54	947.07	932.83	931.15	1.33E+00	1.33E+00	1.33E+00	1.33E+00
2	3	E2	2665.1	2655.59	2695.71	2644.00	1.90E-03	1.37E-03	1.97E-03	1.97E-03
2	4	E2	820.88	841.34	822.27	823.09	3.50E-03	2.41E-03	3.62E-03	3.60E-03
3	4	E2	1188.5	1231.51	1183.17	1195.10	3.20E-03	2.13E-03	3.20E-03	3.18E-03
3	5	E2	679.3	701.27	682.99	682.94	7.70E-03	5.30E-03	7.95E-03	7.85E-03
14	15	E2	929.54	947.07	932.83	931.15	2.70E-03	1.77E-03	2.62E-03	2.60E-03

Table 7. The five major spontaneous radiative transition probabilities A^r and total transition probabilities $\sum A^r$ for each level. Arrow marks the final level to which radiative transition happens from the level. The sum of all radiative probabilities from the corresponding level is given in the last column.

Index	A^r (s^{-1})	final level	A^r (s^{-1})	final level	A^r (s^{-1})	final level	A^r (s^{-1})	final level	A^r (s^{-1})	final level	$\sum A^r$ (s^{-1})
2	1.59E+04	→ 1									1.59E+04
3	1.23E+03	→ 1	4.34E+02	→ 2							1.66E+03
4	3.13E+04	→ 1	5.88E+03	→ 2	7.31E-01	→ 3					3.71E+04
5	4.28E+04	→ 2	2.99E+04	→ 1	1.20E+04	→ 3	1.60E+03	→ 4			8.62E+04
6	1.22E+10	→ 1	5.21E+08	→ 2	2.24E+08	→ 3	2.28E+07	→ 5	1.15E+00	→ 4	1.30E+10
7	1.72E+10	→ 1	1.53E+08	→ 5	8.18E+07	→ 2	4.44E+07	→ 3	3.07E+06	→ 4	1.74E+10
8	1.92E+10	→ 1	2.70E+08	→ 2	2.04E+08	→ 4	6.51E+06	→ 5	4.55E+02	→ 7	1.97E+10
9	3.97E+10	→ 2	2.81E+09	→ 4	1.52E+09	→ 1	5.62E+08	→ 5	4.95E+07	→ 3	4.46E+10
10	3.04E+10	→ 3	5.61E+09	→ 5	1.40E+07	→ 1	1.39E+07	→ 2	3.07E+04	→ 6	3.60E+10
11	4.27E+10	→ 2	3.55E+10	→ 4	2.57E+09	→ 5	1.69E+09	→ 1	1.10E+05	→ 7	8.24E+10
12	9.74E+10	→ 3	1.47E+10	→ 2	9.36E+09	→ 5	8.64E+09	→ 4	4.16E+09	→ 1	1.34E+11
13	9.20E+10	→ 5	2.85E+10	→ 2	4.14E+09	→ 4	1.32E+08	→ 1	3.13E+04	→ 7	1.25E+11
14	4.06E+10	→ 10	2.82E+10	→ 12	1.59E+10	→ 9	8.48E+09	→ 11	2.79E+09	→ 6	9.94E+10
15	4.34E+10	→ 9	3.29E+10	→ 12	2.93E+10	→ 13	2.28E+09	→ 11	8.66E+08	→ 8	1.09E+11
16	1.30E+12	→ 1	2.10E+11	→ 2	1.66E+10	→ 4	2.76E+09	→ 5	1.14E+07	→ 6	1.52E+12
17	1.08E+12	→ 1	1.04E+11	→ 2	9.04E+10	→ 3	1.37E+10	→ 5	4.82E+09	→ 4	1.29E+12
18	2.52E+12	→ 2	7.50E+11	→ 4	5.73E+09	→ 5	6.04E+08	→ 1	6.15E+06	→ 12	3.27E+12
19	1.11E+12	→ 1	2.83E+11	→ 3	4.56E+08	→ 5	1.93E+08	→ 2	5.27E+06	→ 7	1.39E+12
20	1.86E+12	→ 3	6.50E+11	→ 4	3.69E+11	→ 2	2.98E+11	→ 5	1.60E+10	→ 1	3.19E+12
21	6.71E+09	→ 8	3.67E+09	→ 9	3.37E+09	→ 7	2.32E+09	→ 11	1.50E+09	→ 1	2.14E+10
22	2.02E+10	→ 6	5.16E+09	→ 8	2.61E+09	→ 7	2.52E+09	→ 16	1.29E+09	→ 1	3.33E+10
23	1.25E+12	→ 3	5.07E+11	→ 2	2.97E+11	→ 5	4.24E+10	→ 1	1.62E+07	→ 14	2.09E+12
24	1.91E+12	→ 5	4.30E+11	→ 2	1.62E+11	→ 3	9.66E+10	→ 4	8.07E+09	→ 1	2.60E+12
25	1.36E+10	→ 7	1.00E+09	→ 3	9.34E+08	→ 2	8.03E+08	→ 17	3.53E+08	→ 1	1.76E+10
26	3.50E+10	→ 6	2.03E+09	→ 11	1.78E+09	→ 10	1.59E+09	→ 13	1.17E+09	→ 17	4.52E+10
27	8.53E+09	→ 7	2.37E+09	→ 17	1.82E+09	→ 6	1.32E+09	→ 1	8.98E+08	→ 9	1.53E+10
28	2.96E+10	→ 7	7.43E+09	→ 9	7.03E+09	→ 8	1.89E+09	→ 12	1.33E+09	→ 17	5.10E+10
29	2.82E+10	→ 6	6.33E+09	→ 7	4.30E+09	→ 12	1.30E+09	→ 19	1.26E+09	→ 3	4.30E+10
30	5.05E+10	→ 6	2.81E+09	→ 7	2.34E+09	→ 12	2.30E+09	→ 10	1.24E+09	→ 18	6.47E+10
31	4.43E+09	→ 10	2.62E+09	→ 19	2.48E+09	→ 6	2.46E+08	→ 3	1.06E+05	→ 23	1.13E+10
32	1.69E+11	→ 6	1.29E+11	→ 7	8.66E+10	→ 8	8.28E+09	→ 10	2.55E+09	→ 19	4.00E+11
33	1.06E+12	→ 4	1.04E+12	→ 5	5.16E+10	→ 2	3.95E+08	→ 1	7.43E+07	→ 14	2.15E+12
34	2.97E+10	→ 12	2.39E+10	→ 7	1.11E+10	→ 8	8.53E+09	→ 10	7.14E+09	→ 9	9.28E+10
35	2.83E+10	→ 6	4.63E+09	→ 9	4.20E+09	→ 10	3.47E+09	→ 7	2.15E+09	→ 20	4.72E+10
36	2.47E+10	→ 11	1.49E+10	→ 13	1.12E+10	→ 12	2.39E+09	→ 9	2.32E+09	→ 7	6.38E+10
37	1.28E+10	→ 9	9.99E+09	→ 6	9.20E+09	→ 10	5.38E+09	→ 7	1.70E+09	→ 12	4.32E+10
38	1.92E+10	→ 6	2.12E+09	→ 7	1.13E+09	→ 9	8.09E+08	→ 10	1.80E+08	→ 24	2.41E+10
39	7.65E+11	→ 1	7.34E+11	→ 2	3.30E+10	→ 4	2.59E+10	→ 5	1.99E+10	→ 3	1.58E+12
40	2.50E+10	→ 10	2.92E+09	→ 23	2.18E+09	→ 6	6.84E+08	→ 2	3.94E+08	→ 5	3.25E+10
41	6.99E+10	→ 9	2.60E+10	→ 6	2.33E+10	→ 7	2.02E+10	→ 10	1.46E+10	→ 8	1.65E+11
42	2.71E+12	→ 1	5.89E+11	→ 2	1.06E+11	→ 3	2.95E+09	→ 22	1.02E+08	→ 5	3.41E+12
43	4.34E+10	→ 10	9.99E+09	→ 9	4.10E+09	→ 12	2.67E+09	→ 23	2.35E+09	→ 20	6.52E+10
44	9.76E+10	→ 9	4.27E+10	→ 11	1.17E+10	→ 12	6.90E+09	→ 7	3.62E+09	→ 20	1.72E+11
45	2.05E+12	→ 1	7.55E+11	→ 3	5.46E+11	→ 2	5.07E+11	→ 5	4.81E+11	→ 4	4.34E+12
46	3.08E+11	→ 3	2.74E+09	→ 27	5.56E+07	→ 29	2.00E+07	→ 7	1.09E+07	→ 31	3.11E+11
47	6.59E+11	→ 1	5.32E+11	→ 4	2.62E+11	→ 2	2.26E+11	→ 5	2.36E+09	→ 25	1.68E+12
48	3.07E+12	→ 1	2.05E+11	→ 2	3.63E+10	→ 3	1.52E+10	→ 5	2.38E+09	→ 26	3.33E+12
49	3.01E+11	→ 6	2.11E+11	→ 7	8.64E+10	→ 8	6.91E+10	→ 10	2.36E+10	→ 12	7.30E+11
50	4.12E+12	→ 2	6.58E+11	→ 1	5.01E+11	→ 4	2.69E+11	→ 5	1.69E+11	→ 3	5.72E+12
51	2.35E+09	→ 29	7.63E+08	→ 31	4.81E+08	→ 3	3.18E+07	→ 27	2.56E+07	→ 6	3.67E+09
52	2.71E+09	→ 31	9.36E+06	→ 3	7.34E+06	→ 6	6.62E+06	→ 10	9.90E+05	→ 1	2.73E+09

Table 7. continued.

Index	A^r (s^{-1})	final level	A^r (s^{-1})	final level	A^r (s^{-1})	final level	A^r (s^{-1})	final level	A^r (s^{-1})	final level	$\sum A^r$ (s^{-1})
53	5.07E+12	→ 1	2.74E+12	→ 2	5.97E+11	→ 3	1.13E+11	→ 5	2.42E+09	→ 30	8.52E+12
54	1.18E+12	→ 6	4.91E+11	→ 7	3.14E+11	→ 8	1.27E+10	→ 11	7.74E+09	→ 13	2.01E+12
55	3.10E+10	→ 13	2.92E+10	→ 9	1.79E+10	→ 12	3.06E+09	→ 33	1.97E+09	→ 11	8.66E+10
56	1.34E+13	→ 1	2.16E+12	→ 3	3.13E+10	→ 5	1.63E+10	→ 2	1.99E+09	→ 29	1.56E+13
57	4.64E+10	→ 10	3.43E+10	→ 6	1.93E+10	→ 7	1.54E+10	→ 11	1.22E+10	→ 12	1.44E+11
58	2.05E+13	→ 1	8.65E+11	→ 3	1.86E+10	→ 4	1.37E+10	→ 5	8.75E+09	→ 2	2.14E+13
59	5.61E+12	→ 4	5.14E+12	→ 1	1.52E+12	→ 5	2.17E+09	→ 2	1.16E+09	→ 28	1.23E+13
60	1.82E+13	→ 1	2.15E+12	→ 4	3.11E+11	→ 5	5.06E+10	→ 2	1.63E+09	→ 32	2.07E+13
61	6.96E+12	→ 3	2.76E+09	→ 35	3.02E+08	→ 31	1.74E+08	→ 29	7.05E+07	→ 40	6.96E+12
62	9.67E+12	→ 4	1.21E+12	→ 5	1.07E+12	→ 3	2.56E+11	→ 1	9.84E+09	→ 2	1.22E+13
63	1.68E+13	→ 2	5.10E+12	→ 3	1.41E+12	→ 1	1.98E+11	→ 5	2.98E+09	→ 34	2.35E+13
64	3.87E+10	→ 4	1.13E+10	→ 2	1.07E+10	→ 1	7.89E+09	→ 5	2.20E+09	→ 3	7.34E+10
65	3.23E+11	→ 2	7.07E+10	→ 1	1.18E+10	→ 5	3.56E+09	→ 3	2.18E+09	→ 38	4.12E+11
66	3.70E+11	→ 3	2.32E+09	→ 38	9.09E+08	→ 37	3.93E+07	→ 31	3.01E+07	→ 6	3.74E+11
67	2.33E+12	→ 3	1.77E+09	→ 37	9.20E+08	→ 38	1.49E+08	→ 40	1.41E+08	→ 35	2.33E+12
68	3.04E+09	→ 40	3.47E+07	→ 10	1.52E+07	→ 31	6.05E+06	→ 6	6.41E+05	→ 3	3.10E+09
69	1.16E+13	→ 2	2.87E+12	→ 4	2.80E+12	→ 3	4.19E+11	→ 5	2.28E+11	→ 1	1.80E+13
70	1.06E+13	→ 3	9.69E+12	→ 2	1.10E+12	→ 5	1.28E+11	→ 1	1.05E+09	→ 41	2.16E+13
71	7.13E+12	→ 4	6.72E+12	→ 2	1.19E+11	→ 1	1.14E+10	→ 5	1.78E+09	→ 44	1.40E+13
72	2.65E+13	→ 3	2.56E+09	→ 43	8.84E+08	→ 40	2.60E+08	→ 37	6.49E+07	→ 29	2.65E+13
73	4.45E+12	→ 1	4.84E+10	→ 2	3.28E+10	→ 5	1.76E+09	→ 32	1.74E+09	→ 6	4.54E+12
74	4.47E+12	→ 1	6.12E+11	→ 2	5.76E+10	→ 5	2.33E+09	→ 3	1.80E+09	→ 32	5.15E+12
75	1.13E+12	→ 7	2.15E+11	→ 6	2.12E+11	→ 8	1.30E+10	→ 10	1.11E+10	→ 16	1.60E+12
76	4.27E+12	→ 1	6.21E+10	→ 4	4.61E+09	→ 5	2.50E+09	→ 6	2.41E+09	→ 32	4.35E+12
77	1.05E+12	→ 8	5.46E+11	→ 7	5.95E+10	→ 9	1.62E+10	→ 16	9.14E+09	→ 11	1.68E+12
78	1.10E+12	→ 6	4.97E+11	→ 7	1.80E+10	→ 9	1.37E+10	→ 17	3.18E+09	→ 10	1.63E+12
79	8.82E+12	→ 5	4.37E+12	→ 2	9.42E+11	→ 4	3.02E+11	→ 1	1.46E+09	→ 34	1.44E+13
80	1.60E+13	→ 5	3.01E+12	→ 2	3.20E+11	→ 3	1.72E+11	→ 1	1.56E+09	→ 37	1.95E+13
81	1.69E+12	→ 6	3.63E+10	→ 10	1.01E+10	→ 19	1.42E+09	→ 23	4.84E+07	→ 1	1.74E+12
82	1.49E+13	→ 5	1.62E+12	→ 3	1.57E+12	→ 4	3.28E+11	→ 2	1.19E+11	→ 1	1.86E+13
83	1.86E+12	→ 9	1.00E+11	→ 11	8.02E+10	→ 6	3.49E+10	→ 8	6.18E+09	→ 10	2.11E+12
84	1.77E+12	→ 10	2.36E+11	→ 7	1.37E+11	→ 6	1.11E+11	→ 12	6.38E+10	→ 9	2.33E+12
85	1.35E+13	→ 5	9.83E+11	→ 3	3.15E+10	→ 2	5.94E+09	→ 1	2.81E+09	→ 57	1.45E+13
86	1.37E+13	→ 4	4.19E+12	→ 5	1.70E+11	→ 2	9.24E+10	→ 3	3.22E+09	→ 55	1.82E+13
87	9.44E+11	→ 7	5.56E+11	→ 8	2.95E+10	→ 9	2.82E+10	→ 17	1.30E+10	→ 12	1.59E+12
88	1.05E+12	→ 8	3.69E+11	→ 6	6.19E+10	→ 9	5.83E+10	→ 10	2.70E+10	→ 11	1.60E+12
89	8.27E+10	→ 7	4.85E+09	→ 8	3.11E+09	→ 64	9.86E+07	→ 12	5.45E+07	→ 9	9.10E+10
90	6.82E+10	→ 6	2.30E+10	→ 7	6.13E+09	→ 8	2.21E+09	→ 64	8.27E+08	→ 65	1.01E+11
91	1.06E+11	→ 6	4.16E+09	→ 7	1.73E+09	→ 65	1.01E+09	→ 64	1.76E+08	→ 66	1.13E+11
92	2.40E+10	→ 6	1.89E+09	→ 65	7.91E+08	→ 66	3.23E+08	→ 10	6.29E+07	→ 1	2.72E+10
93	2.30E+09	→ 66	1.75E+08	→ 67	2.60E+07	→ 52	7.21E+06	→ 6	5.92E+06	→ 61	2.52E+09
94	9.79E+11	→ 7	2.88E+11	→ 6	1.91E+11	→ 10	9.03E+10	→ 12	2.06E+10	→ 19	1.59E+12
95	4.82E+11	→ 2	1.86E+11	→ 5	1.63E+11	→ 1	1.09E+11	→ 4	1.36E+10	→ 21	9.66E+11
96	7.50E+11	→ 3	4.52E+11	→ 2	2.38E+10	→ 5	1.49E+10	→ 1	1.34E+10	→ 4	1.28E+12
97	1.32E+12	→ 11	1.11E+12	→ 9	2.26E+10	→ 18	5.05E+09	→ 12	1.53E+09	→ 16	2.46E+12
98	1.65E+11	→ 2	1.99E+10	→ 1	5.78E+09	→ 26	3.50E+09	→ 3	3.41E+09	→ 22	2.05E+11
99	6.85E+11	→ 2	5.98E+11	→ 3	8.79E+10	→ 1	3.18E+10	→ 4	1.21E+10	→ 21	1.43E+12
100	1.43E+12	→ 10	6.85E+11	→ 11	2.21E+11	→ 12	1.93E+11	→ 9	1.54E+11	→ 13	2.73E+12
101	1.02E+11	→ 3	4.82E+09	→ 27	2.25E+09	→ 29	1.27E+09	→ 6	1.20E+09	→ 81	1.15E+11
102	1.80E+11	→ 2	1.11E+10	→ 3	4.65E+09	→ 27	2.93E+09	→ 22	2.34E+09	→ 75	2.09E+11
103	1.65E+12	→ 3	7.71E+11	→ 2	1.40E+11	→ 1	1.63E+10	→ 14	8.09E+09	→ 22	2.60E+12
104	5.18E+11	→ 3	3.90E+09	→ 29	3.19E+09	→ 27	2.30E+09	→ 78	8.75E+08	→ 31	5.31E+11
105	4.39E+12	→ 2	4.26E+11	→ 5	1.71E+11	→ 1	6.74E+10	→ 4	3.44E+10	→ 14	5.12E+12

Table 7. continued.

Index	A^r (s^{-1})	final level	A^r (s^{-1})	final level	A^r (s^{-1})	final level	A^r (s^{-1})	final level	A^r (s^{-1})	final level	$\sum A^r$ (s^{-1})
106	4.35E+12	→ 2	2.69E+11	→ 1	1.27E+11	→ 3	7.67E+10	→ 5	4.79E+09	→ 14	4.85E+12
107	5.69E+09	→ 31	3.30E+09	→ 81	1.74E+09	→ 6	4.88E+08	→ 40	4.35E+07	→ 10	1.13E+10
108	4.34E+12	→ 7	2.86E+12	→ 6	1.97E+10	→ 10	7.81E+09	→ 1	2.87E+09	→ 73	7.23E+12
109	3.74E+12	→ 3	4.54E+09	→ 35	3.31E+09	→ 43	2.18E+09	→ 31	1.41E+09	→ 10	3.75E+12
110	3.87E+12	→ 7	2.96E+12	→ 8	5.22E+11	→ 6	1.21E+10	→ 10	7.80E+09	→ 1	7.38E+12
111	8.49E+12	→ 6	1.54E+10	→ 10	8.13E+09	→ 1	4.19E+09	→ 74	3.09E+08	→ 65	8.52E+12
112	6.61E+12	→ 8	1.33E+12	→ 7	9.48E+09	→ 9	8.00E+09	→ 1	3.42E+09	→ 12	7.97E+12
113	5.03E+11	→ 2	3.12E+11	→ 3	1.52E+11	→ 1	4.72E+10	→ 4	2.26E+10	→ 5	1.07E+12
114	6.75E+10	→ 4	3.69E+10	→ 2	1.42E+10	→ 1	1.04E+10	→ 22	3.61E+09	→ 77	1.47E+11
115	5.02E+11	→ 3	3.38E+11	→ 1	1.84E+11	→ 2	2.01E+10	→ 5	4.32E+09	→ 81	1.07E+12
116	3.43E+12	→ 2	2.34E+12	→ 3	4.00E+11	→ 1	1.81E+10	→ 15	4.56E+09	→ 36	6.21E+12
117	3.53E+11	→ 7	2.58E+11	→ 8	2.19E+11	→ 6	1.24E+11	→ 11	1.05E+11	→ 12	1.26E+12
118	4.62E+12	→ 3	1.86E+11	→ 2	9.56E+10	→ 5	3.64E+10	→ 14	1.87E+10	→ 1	4.97E+12
119	7.59E+11	→ 4	2.53E+11	→ 5	2.40E+11	→ 2	1.22E+11	→ 1	1.33E+10	→ 25	1.40E+12
120	3.33E+12	→ 12	3.00E+11	→ 13	2.65E+11	→ 9	2.26E+11	→ 11	8.04E+10	→ 20	4.24E+12
121	4.24E+11	→ 2	2.65E+11	→ 4	8.26E+10	→ 5	3.47E+10	→ 3	1.43E+10	→ 26	8.43E+11
122	1.38E+12	→ 10	7.48E+11	→ 12	3.21E+11	→ 9	5.32E+10	→ 23	1.97E+10	→ 7	2.53E+12
123	1.03E+12	→ 9	8.75E+11	→ 13	2.39E+11	→ 12	4.06E+10	→ 24	1.15E+10	→ 11	2.23E+12
124	6.35E+11	→ 3	1.64E+11	→ 2	4.46E+10	→ 5	3.59E+10	→ 1	1.07E+10	→ 27	9.06E+11
125	2.05E+11	→ 3	1.76E+11	→ 4	8.80E+10	→ 2	8.75E+10	→ 5	1.28E+10	→ 29	5.96E+11
126	7.61E+11	→ 3	1.77E+10	→ 31	2.62E+09	→ 94	2.43E+09	→ 35	9.91E+08	→ 7	7.87E+11
127	1.51E+12	→ 4	9.09E+11	→ 5	5.05E+11	→ 2	3.88E+11	→ 1	1.41E+10	→ 30	3.35E+12
128	1.08E+12	→ 4	8.57E+11	→ 1	5.36E+11	→ 2	3.51E+10	→ 5	1.62E+10	→ 26	2.57E+12
129	1.59E+12	→ 4	2.44E+11	→ 2	2.37E+11	→ 1	2.22E+11	→ 3	7.77E+09	→ 27	2.33E+12
130	9.86E+11	→ 5	9.32E+11	→ 3	1.63E+10	→ 29	4.69E+09	→ 31	2.76E+09	→ 32	1.95E+12
131	2.77E+12	→ 4	2.98E+11	→ 1	2.33E+11	→ 3	2.06E+10	→ 15	6.29E+09	→ 27	3.36E+12
132	2.71E+11	→ 7	1.96E+11	→ 8	4.00E+10	→ 6	9.31E+09	→ 39	4.95E+09	→ 9	5.31E+11
133	4.27E+12	→ 5	4.67E+10	→ 3	2.96E+10	→ 4	2.75E+10	→ 2	1.80E+10	→ 14	4.45E+12
134	2.66E+12	→ 5	1.94E+11	→ 1	1.48E+11	→ 2	1.17E+11	→ 3	1.59E+10	→ 35	3.16E+12
135	4.91E+11	→ 7	3.99E+11	→ 6	9.23E+09	→ 10	4.54E+09	→ 42	2.78E+09	→ 9	9.16E+11
136	1.07E+12	→ 6	1.54E+10	→ 10	3.65E+09	→ 46	2.58E+09	→ 48	1.52E+09	→ 98	1.10E+12
137	1.32E+11	→ 9	1.29E+11	→ 6	1.18E+11	→ 7	3.12E+10	→ 10	5.37E+09	→ 39	4.21E+11
138	3.85E+09	→ 46	2.06E+09	→ 101	1.05E+09	→ 52	7.95E+08	→ 51	3.54E+08	→ 61	8.87E+09
139	1.03E+12	→ 6	8.32E+10	→ 10	4.11E+09	→ 42	2.32E+09	→ 102	2.25E+09	→ 46	1.12E+12
140	2.58E+09	→ 52	2.02E+09	→ 104	1.62E+09	→ 51	1.43E+09	→ 46	5.80E+08	→ 61	9.34E+09
141	2.53E+12	→ 4	2.25E+12	→ 5	5.34E+11	→ 2	1.19E+11	→ 14	1.05E+11	→ 1	5.61E+12
142	3.65E+12	→ 8	3.36E+11	→ 9	1.50E+11	→ 11	9.59E+10	→ 7	8.07E+10	→ 12	4.33E+12
143	3.89E+09	→ 52	2.63E+09	→ 107	2.40E+08	→ 68	1.02E+06	→ 6	5.61E+04	→ 81	6.75E+09
144	3.97E+12	→ 8	1.83E+12	→ 7	6.52E+11	→ 6	6.10E+11	→ 11	2.44E+11	→ 10	7.53E+12
145	7.14E+11	→ 12	5.85E+11	→ 8	5.68E+11	→ 11	4.94E+11	→ 10	6.30E+10	→ 23	2.51E+12
146	2.21E+12	→ 13	5.18E+11	→ 12	3.83E+11	→ 9	7.59E+10	→ 24	7.18E+10	→ 8	3.28E+12
147	1.31E+13	→ 7	9.67E+11	→ 6	4.71E+10	→ 10	4.12E+09	→ 42	3.19E+09	→ 53	1.41E+13
148	6.05E+11	→ 7	3.54E+11	→ 12	1.47E+11	→ 8	1.03E+11	→ 9	1.00E+11	→ 11	1.35E+12
149	8.09E+12	→ 6	9.61E+09	→ 10	3.74E+09	→ 2	1.78E+09	→ 51	1.74E+09	→ 56	8.12E+12
150	9.30E+12	→ 6	1.97E+11	→ 10	6.03E+09	→ 2	2.24E+09	→ 56	1.92E+09	→ 106	9.51E+12
151	8.69E+09	→ 3	3.04E+09	→ 109	1.41E+09	→ 51	1.07E+09	→ 61	1.04E+09	→ 52	1.68E+10
152	7.78E+11	→ 1	2.36E+11	→ 3	9.98E+10	→ 4	7.17E+10	→ 2	4.50E+10	→ 29	1.30E+12
153	4.80E+11	→ 1	4.44E+11	→ 4	2.84E+11	→ 2	1.61E+11	→ 5	3.74E+10	→ 26	1.48E+12
154	2.19E+13	→ 6	4.37E+10	→ 10	3.29E+10	→ 7	5.12E+09	→ 58	2.97E+09	→ 56	2.20E+13
155	4.49E+12	→ 7	4.13E+12	→ 8	7.12E+11	→ 10	2.14E+11	→ 9	1.43E+11	→ 12	9.80E+12
156	7.31E+12	→ 7	7.55E+11	→ 8	5.79E+11	→ 9	4.33E+11	→ 12	2.17E+11	→ 11	9.37E+12
157	1.09E+13	→ 6	2.38E+12	→ 7	1.28E+12	→ 9	1.11E+12	→ 10	8.18E+11	→ 11	1.76E+13
158	4.88E+12	→ 9	1.02E+12	→ 10	3.21E+11	→ 12	1.92E+11	→ 7	3.06E+10	→ 6	6.47E+12

Table 7. continued.

Index	A^r (s^{-1})	final level	A^r (s^{-1})	final level	A^r (s^{-1})	final level	A^r (s^{-1})	final level	A^r (s^{-1})	final level	$\sum A^r$ (s^{-1})
159	1.55E+12	→ 1	1.98E+11	→ 2	6.42E+10	→ 3	5.70E+10	→ 31	2.02E+10	→ 27	1.92E+12
160	1.30E+13	→ 6	2.44E+12	→ 10	2.21E+12	→ 9	1.45E+12	→ 7	1.19E+12	→ 11	2.10E+13
161	5.64E+12	→ 9	2.52E+12	→ 7	1.20E+12	→ 12	9.72E+11	→ 13	2.94E+11	→ 8	1.07E+13
162	6.11E+11	→ 3	5.45E+11	→ 1	2.18E+11	→ 4	1.43E+11	→ 2	3.21E+10	→ 35	1.63E+12
163	1.60E+12	→ 5	4.91E+11	→ 1	3.38E+10	→ 2	3.36E+10	→ 30	2.77E+10	→ 36	2.26E+12
164	1.70E+12	→ 5	5.02E+11	→ 2	5.41E+10	→ 1	2.72E+10	→ 37	1.69E+10	→ 3	2.34E+12
165	1.28E+12	→ 3	4.76E+10	→ 40	5.71E+09	→ 31	4.18E+09	→ 37	2.74E+09	→ 122	1.35E+12
166	6.22E+12	→ 9	2.33E+12	→ 7	2.27E+12	→ 10	5.36E+11	→ 12	3.58E+11	→ 11	1.23E+13
167	7.11E+12	→ 10	1.68E+12	→ 6	8.38E+09	→ 3	2.89E+09	→ 63	2.14E+09	→ 118	8.81E+12
168	7.60E+12	→ 10	4.91E+12	→ 9	9.37E+11	→ 7	5.57E+11	→ 12	2.22E+11	→ 6	1.42E+13
169	9.60E+11	→ 9	4.40E+11	→ 8	4.30E+11	→ 10	5.16E+10	→ 12	2.57E+10	→ 11	1.96E+12
170	2.32E+12	→ 7	1.97E+11	→ 9	1.78E+11	→ 6	3.10E+10	→ 12	6.60E+09	→ 48	2.75E+12
171	1.81E+12	→ 6	1.55E+11	→ 10	6.35E+09	→ 46	3.20E+09	→ 53	2.46E+09	→ 124	1.99E+12
172	8.40E+11	→ 5	1.03E+11	→ 4	6.87E+10	→ 2	2.60E+10	→ 41	2.19E+10	→ 3	1.11E+12
173	2.59E+11	→ 3	1.09E+11	→ 2	7.25E+10	→ 5	2.43E+10	→ 43	1.07E+10	→ 40	5.08E+11
174	1.18E+10	→ 52	2.57E+09	→ 126	2.55E+09	→ 3	1.80E+09	→ 61	5.56E+08	→ 51	2.01E+10
175	8.01E+11	→ 7	2.70E+11	→ 9	9.27E+10	→ 10	1.54E+10	→ 46	5.05E+09	→ 51	1.20E+12
176	8.28E+12	→ 8	7.16E+12	→ 7	4.80E+11	→ 12	2.09E+11	→ 9	4.26E+10	→ 11	1.62E+13
177	1.20E+13	→ 8	6.14E+11	→ 7	4.86E+11	→ 11	4.69E+11	→ 10	1.28E+11	→ 12	1.39E+13
178	8.73E+12	→ 8	7.17E+12	→ 7	6.69E+11	→ 12	4.16E+11	→ 9	3.47E+11	→ 13	1.74E+13
179	5.46E+12	→ 7	5.79E+11	→ 12	2.10E+11	→ 13	1.40E+11	→ 8	7.76E+10	→ 9	6.66E+12
180	8.90E+11	→ 4	6.31E+11	→ 3	2.53E+11	→ 2	1.67E+11	→ 5	1.37E+11	→ 14	2.23E+12
181	4.54E+12	→ 6	8.61E+11	→ 10	9.65E+09	→ 51	6.68E+09	→ 52	3.04E+09	→ 3	5.43E+12
182	7.94E+12	→ 7	1.58E+12	→ 6	1.40E+12	→ 9	2.90E+11	→ 12	1.28E+11	→ 10	1.14E+13
183	6.09E+12	→ 7	1.95E+12	→ 8	1.37E+12	→ 9	7.68E+11	→ 10	2.43E+11	→ 12	1.06E+13
184	8.12E+11	→ 5	5.98E+11	→ 2	2.14E+11	→ 4	7.73E+10	→ 15	4.88E+10	→ 44	1.79E+12
185	3.10E+12	→ 9	1.83E+11	→ 7	7.20E+10	→ 10	3.55E+10	→ 12	1.45E+10	→ 6	3.43E+12
186	1.07E+13	→ 10	3.52E+10	→ 6	1.39E+10	→ 61	6.97E+09	→ 5	5.75E+09	→ 51	1.08E+13
187	6.44E+12	→ 10	4.62E+12	→ 9	2.37E+11	→ 7	1.30E+11	→ 12	8.61E+09	→ 61	1.15E+13
188	1.13E+12	→ 5	2.37E+11	→ 2	9.96E+10	→ 3	6.79E+10	→ 40	2.08E+10	→ 1	1.61E+12
189	1.16E+13	→ 11	2.11E+12	→ 13	1.70E+12	→ 8	3.62E+11	→ 12	3.07E+11	→ 7	1.61E+13
190	1.38E+12	→ 5	2.68E+11	→ 4	1.34E+11	→ 2	2.07E+10	→ 43	1.93E+10	→ 49	1.91E+12
191	7.99E+11	→ 5	2.23E+11	→ 4	5.74E+10	→ 41	2.20E+10	→ 55	2.00E+10	→ 15	1.17E+12
192	3.89E+11	→ 5	3.33E+11	→ 3	1.09E+11	→ 4	5.03E+10	→ 14	4.63E+10	→ 43	1.05E+12
193	1.24E+13	→ 11	2.10E+12	→ 9	1.29E+12	→ 12	7.68E+11	→ 7	5.00E+11	→ 13	1.79E+13
194	2.62E+12	→ 7	1.16E+12	→ 9	5.01E+11	→ 6	5.52E+10	→ 12	4.02E+10	→ 51	4.46E+12
195	1.85E+12	→ 8	1.49E+12	→ 7	1.10E+12	→ 11	8.96E+11	→ 9	1.27E+11	→ 13	5.65E+12
196	2.23E+12	→ 10	1.12E+12	→ 6	5.44E+10	→ 52	1.72E+10	→ 46	6.93E+09	→ 61	3.45E+12
197	5.12E+11	→ 4	3.40E+11	→ 5	8.79E+10	→ 15	5.98E+10	→ 2	4.19E+10	→ 14	1.15E+12
198	4.89E+12	→ 8	3.51E+12	→ 11	6.62E+11	→ 7	2.48E+11	→ 12	2.63E+10	→ 13	9.43E+12
199	3.62E+12	→ 11	1.22E+12	→ 12	9.53E+11	→ 9	8.29E+11	→ 10	4.89E+11	→ 8	7.57E+12
200	3.75E+12	→ 10	3.52E+12	→ 9	6.60E+11	→ 12	5.61E+10	→ 6	3.30E+10	→ 7	8.10E+12
201	3.86E+10	→ 68	4.72E+09	→ 3	4.63E+09	→ 52	3.65E+09	→ 67	2.81E+09	→ 165	5.57E+10
202	2.67E+10	→ 6	2.43E+10	→ 67	6.04E+09	→ 72	4.74E+09	→ 10	4.65E+09	→ 5	8.85E+10
203	1.83E+13	→ 10	4.12E+10	→ 6	2.14E+10	→ 72	5.25E+09	→ 68	3.93E+09	→ 70	1.84E+13
204	1.37E+13	→ 9	5.54E+12	→ 10	8.77E+10	→ 12	1.76E+10	→ 7	1.49E+10	→ 70	1.94E+13
205	1.38E+13	→ 12	2.38E+12	→ 10	2.21E+12	→ 9	5.69E+11	→ 13	1.90E+11	→ 11	1.92E+13
206	1.33E+13	→ 12	4.04E+12	→ 9	1.44E+12	→ 13	1.38E+11	→ 11	3.90E+10	→ 69	1.90E+13
207	9.81E+10	→ 14	5.14E+10	→ 1	3.29E+10	→ 81	1.63E+10	→ 78	1.09E+10	→ 117	2.50E+11
208	7.32E+12	→ 9	5.64E+12	→ 13	1.21E+12	→ 11	1.81E+11	→ 12	1.35E+11	→ 10	1.46E+13
209	1.67E+13	→ 12	2.45E+12	→ 10	9.58E+11	→ 9	2.94E+10	→ 7	2.61E+10	→ 61	2.02E+13
210	1.70E+13	→ 13	1.89E+12	→ 12	7.12E+11	→ 11	2.39E+11	→ 9	3.32E+10	→ 82	1.99E+13
211	1.50E+12	→ 14	5.22E+10	→ 3	3.34E+10	→ 1	3.25E+10	→ 84	3.01E+10	→ 2	1.73E+12

Table 7. continued.

Index	A^r (s^{-1})	final level	A^r (s^{-1})	final level	A^r (s^{-1})	final level	A^r (s^{-1})	final level	A^r (s^{-1})	final level	$\sum A^r$ (s^{-1})
212	2.13E+12	→ 10	7.01E+10	→ 68	5.85E+10	→ 6	1.07E+10	→ 85	7.26E+09	→ 67	2.29E+12
213	1.25E+12	→ 9	1.08E+12	→ 10	2.21E+11	→ 12	5.78E+10	→ 7	2.77E+10	→ 67	2.69E+12
214	6.88E+10	→ 14	3.27E+10	→ 1	3.12E+10	→ 15	2.45E+10	→ 77	2.23E+10	→ 117	2.27E+11
215	8.66E+12	→ 11	2.71E+12	→ 12	6.59E+11	→ 10	5.83E+11	→ 13	2.68E+11	→ 9	1.31E+13
216	1.37E+13	→ 11	8.25E+11	→ 12	6.69E+11	→ 9	5.45E+11	→ 13	9.73E+10	→ 8	1.59E+13
217	1.86E+13	→ 12	6.12E+11	→ 9	2.80E+11	→ 10	6.42E+10	→ 7	6.23E+10	→ 72	1.97E+13
218	1.29E+12	→ 14	5.33E+10	→ 15	4.05E+10	→ 2	3.25E+10	→ 3	2.99E+10	→ 5	1.55E+12
219	2.61E+13	→ 13	2.48E+12	→ 12	5.23E+11	→ 11	1.17E+11	→ 9	2.62E+10	→ 10	2.93E+13
220	1.60E+12	→ 15	1.50E+12	→ 14	8.41E+10	→ 5	7.11E+10	→ 4	4.71E+10	→ 83	3.40E+12
221	1.38E+12	→ 14	4.12E+10	→ 122	3.46E+10	→ 3	2.92E+10	→ 5	6.51E+09	→ 145	1.50E+12
222	1.95E+12	→ 6	2.39E+11	→ 7	1.43E+11	→ 8	1.18E+11	→ 10	1.14E+11	→ 12	2.73E+12
223	1.59E+12	→ 15	4.79E+10	→ 14	3.59E+10	→ 123	2.35E+10	→ 3	1.91E+10	→ 4	1.77E+12
224	2.49E+12	→ 6	2.77E+10	→ 101	2.37E+10	→ 9	8.92E+09	→ 7	8.67E+09	→ 98	2.61E+12
225	1.45E+12	→ 7	8.73E+11	→ 12	8.26E+11	→ 9	1.06E+11	→ 8	2.44E+10	→ 116	3.35E+12
226	2.35E+12	→ 6	5.10E+10	→ 10	3.22E+10	→ 107	1.36E+10	→ 104	6.04E+09	→ 159	2.47E+12
227	9.43E+11	→ 7	7.69E+11	→ 12	4.98E+11	→ 9	6.00E+10	→ 6	3.97E+10	→ 10	2.39E+12
228	1.17E+12	→ 7	1.06E+12	→ 12	9.79E+11	→ 9	1.91E+10	→ 96	1.67E+10	→ 11	3.33E+12
229	1.08E+12	→ 7	6.12E+11	→ 8	3.06E+11	→ 12	1.63E+11	→ 6	5.22E+10	→ 9	2.38E+12
230	2.08E+12	→ 8	4.35E+11	→ 12	1.26E+11	→ 13	1.12E+11	→ 11	6.19E+10	→ 9	2.91E+12
231	1.45E+12	→ 12	6.76E+11	→ 10	3.24E+11	→ 8	2.25E+11	→ 6	1.61E+11	→ 7	3.07E+12
232	1.55E+12	→ 7	7.94E+11	→ 12	2.88E+11	→ 9	6.10E+10	→ 10	2.36E+10	→ 6	2.80E+12
233	1.41E+12	→ 8	4.33E+11	→ 7	3.63E+11	→ 10	2.32E+11	→ 13	1.66E+11	→ 11	2.85E+12
234	1.95E+12	→ 13	1.31E+12	→ 12	1.03E+12	→ 11	2.26E+11	→ 8	1.41E+11	→ 9	4.73E+12
235	1.17E+12	→ 13	7.96E+11	→ 11	4.95E+11	→ 7	1.62E+11	→ 10	7.93E+10	→ 6	2.92E+12
236	1.01E+12	→ 9	7.49E+11	→ 10	5.53E+11	→ 12	3.04E+10	→ 164	6.47E+09	→ 6	2.38E+12
237	2.25E+12	→ 10	6.06E+10	→ 6	3.41E+10	→ 165	6.01E+09	→ 107	4.58E+09	→ 188	2.37E+12
238	1.31E+12	→ 15	7.62E+11	→ 14	6.33E+10	→ 145	4.06E+10	→ 5	2.77E+10	→ 146	2.23E+12
239	2.38E+12	→ 9	4.07E+11	→ 12	1.66E+10	→ 10	1.63E+10	→ 172	1.40E+10	→ 13	2.89E+12
240	1.92E+12	→ 10	4.76E+11	→ 9	9.55E+10	→ 12	2.04E+10	→ 173	9.92E+09	→ 6	2.57E+12
241	1.88E+10	→ 138	1.06E+10	→ 140	7.78E+09	→ 6	5.76E+09	→ 149	4.65E+09	→ 147	7.43E+10
242	2.29E+10	→ 136	1.59E+10	→ 3	1.10E+10	→ 1	7.61E+09	→ 6	7.56E+09	→ 2	1.09E+11
243	4.22E+10	→ 15	2.30E+10	→ 2	2.16E+10	→ 135	2.11E+10	→ 1	8.99E+09	→ 3	1.72E+11
244	2.45E+10	→ 132	2.33E+10	→ 2	2.25E+10	→ 1	1.80E+10	→ 15	5.48E+09	→ 178	1.37E+11
245	3.14E+10	→ 143	9.01E+09	→ 140	8.00E+09	→ 6	4.00E+09	→ 174	3.57E+09	→ 138	6.95E+10
246	9.64E+10	→ 3	2.63E+10	→ 151	5.58E+09	→ 139	5.21E+09	→ 167	2.98E+09	→ 227	1.62E+11
247	2.16E+12	→ 10	1.65E+12	→ 12	3.55E+11	→ 11	2.69E+11	→ 13	1.81E+11	→ 9	4.70E+12
248	2.65E+12	→ 14	1.25E+11	→ 1	9.53E+09	→ 142	8.68E+09	→ 179	7.26E+09	→ 166	2.85E+12
249	3.56E+12	→ 14	4.53E+11	→ 15	1.17E+11	→ 1	1.98E+10	→ 2	1.42E+10	→ 168	4.24E+12
250	3.79E+12	→ 14	4.62E+10	→ 2	4.47E+10	→ 1	2.29E+10	→ 3	1.22E+10	→ 150	3.99E+12
251	1.37E+12	→ 12	1.34E+12	→ 9	6.19E+11	→ 11	2.22E+11	→ 13	1.62E+10	→ 180	3.65E+12
252	1.44E+11	→ 14	6.79E+10	→ 15	2.11E+10	→ 2	1.85E+10	→ 183	1.43E+10	→ 132	3.14E+11
253	2.15E+11	→ 14	7.27E+10	→ 15	3.40E+10	→ 137	1.18E+10	→ 4	7.87E+09	→ 170	3.84E+11
254	4.87E+11	→ 14	6.03E+10	→ 1	1.23E+10	→ 139	1.03E+10	→ 171	8.83E+09	→ 2	6.46E+11
255	2.79E+10	→ 3	1.35E+10	→ 174	1.13E+10	→ 138	8.76E+09	→ 140	8.43E+09	→ 139	1.06E+11
256	9.38E+11	→ 14	7.31E+11	→ 15	5.25E+10	→ 2	1.71E+10	→ 3	1.31E+10	→ 1	1.83E+12
257	3.45E+11	→ 14	7.79E+10	→ 2	4.03E+10	→ 1	2.37E+10	→ 3	1.08E+10	→ 149	5.65E+11
258	8.64E+11	→ 15	7.16E+10	→ 14	3.01E+10	→ 2	1.63E+10	→ 200	1.34E+10	→ 4	1.07E+12
259	5.62E+12	→ 14	5.00E+10	→ 3	2.73E+10	→ 5	1.12E+10	→ 186	7.56E+09	→ 2	5.78E+12
260	1.81E+10	→ 202	6.13E+09	→ 151	5.32E+09	→ 3	4.42E+09	→ 9	3.98E+09	→ 203	5.69E+10
261	2.57E+10	→ 201	7.82E+09	→ 10	6.49E+09	→ 143	2.55E+09	→ 237	1.54E+09	→ 212	5.06E+10
262	1.69E+12	→ 11	9.46E+11	→ 13	9.37E+10	→ 12	5.03E+10	→ 188	2.24E+10	→ 190	2.84E+12
263	2.94E+12	→ 13	7.13E+11	→ 11	2.74E+11	→ 12	9.53E+10	→ 9	4.07E+10	→ 192	4.12E+12
264	6.81E+11	→ 14	7.12E+10	→ 2	1.66E+10	→ 5	1.33E+10	→ 202	9.11E+09	→ 3	8.32E+11

Table 7. continued.

Index	A^r (s^{-1})	final level	A^r (s^{-1})	final level	A^r (s^{-1})	final level	A^r (s^{-1})	final level	A^r (s^{-1})	final level	$\sum A^r$ (s^{-1})
265	1.72E+13	→ 14	3.05E+12	→ 15	5.11E+10	→ 5	2.72E+10	→ 205	1.33E+10	→ 206	2.03E+13
266	1.45E+11	→ 3	1.24E+10	→ 201	8.35E+09	→ 203	6.19E+09	→ 10	4.27E+09	→ 212	2.00E+11
267	2.71E+13	→ 14	7.49E+10	→ 5	1.51E+10	→ 3	1.45E+10	→ 203	6.85E+09	→ 217	2.73E+13
268	2.60E+13	→ 14	2.55E+12	→ 15	5.19E+10	→ 5	2.29E+10	→ 4	1.76E+10	→ 3	2.87E+13
269	2.01E+13	→ 15	2.80E+12	→ 14	8.47E+10	→ 4	2.80E+10	→ 5	1.46E+10	→ 204	2.31E+13
270	2.55E+13	→ 15	5.69E+12	→ 14	5.91E+10	→ 4	3.22E+10	→ 5	2.12E+10	→ 208	3.13E+13
271	3.65E+11	→ 1	2.92E+11	→ 22	1.68E+11	→ 21	1.54E+11	→ 2	3.72E+10	→ 26	1.09E+12
272	2.62E+12	→ 14	7.21E+10	→ 5	4.42E+10	→ 212	1.76E+10	→ 213	5.32E+09	→ 2	2.79E+12
273	1.46E+13	→ 15	2.31E+11	→ 14	3.35E+10	→ 217	1.49E+10	→ 4	1.44E+10	→ 5	1.50E+13
274	3.25E+11	→ 1	2.33E+11	→ 27	8.73E+10	→ 26	6.97E+10	→ 3	5.21E+10	→ 30	9.95E+11
275	4.82E+11	→ 16	1.10E+11	→ 39	1.24E+10	→ 8	1.22E+10	→ 18	6.07E+09	→ 20	6.43E+11
276	7.29E+11	→ 2	2.31E+11	→ 4	1.62E+11	→ 30	7.07E+10	→ 34	6.56E+10	→ 28	1.52E+12
277	4.59E+11	→ 16	9.05E+10	→ 42	1.47E+10	→ 8	9.77E+09	→ 39	7.41E+09	→ 17	6.15E+11
278	3.97E+11	→ 1	2.37E+11	→ 31	1.19E+11	→ 29	1.02E+11	→ 32	9.88E+10	→ 3	1.06E+12
279	5.92E+11	→ 3	1.93E+11	→ 4	1.49E+11	→ 35	1.20E+11	→ 5	1.07E+11	→ 2	1.57E+12
280	3.36E+11	→ 17	1.18E+11	→ 18	6.76E+10	→ 45	4.32E+10	→ 47	3.89E+10	→ 20	6.48E+11
281	3.47E+11	→ 17	1.20E+11	→ 18	5.82E+10	→ 48	2.48E+10	→ 19	2.29E+10	→ 45	6.35E+11
282	4.77E+11	→ 17	8.32E+10	→ 46	1.53E+10	→ 7	9.87E+09	→ 48	7.35E+09	→ 53	6.14E+11
283	2.77E+11	→ 18	1.43E+11	→ 17	8.53E+10	→ 50	3.66E+10	→ 20	1.54E+10	→ 47	6.26E+11
284	9.17E+11	→ 21	4.11E+11	→ 1	2.77E+11	→ 2	1.60E+11	→ 22	1.32E+11	→ 4	1.98E+12
285	3.24E+11	→ 18	1.01E+11	→ 17	7.54E+10	→ 53	3.70E+10	→ 20	1.36E+10	→ 62	6.20E+11
286	2.12E+12	→ 1	1.02E+12	→ 22	8.40E+11	→ 2	6.88E+10	→ 26	2.09E+10	→ 34	4.11E+12
287	3.69E+11	→ 19	1.24E+11	→ 20	5.77E+10	→ 51	3.25E+10	→ 56	1.35E+10	→ 6	6.50E+11
288	4.84E+11	→ 19	7.70E+10	→ 52	2.05E+10	→ 51	9.10E+09	→ 6	6.43E+09	→ 10	6.12E+11
289	4.37E+11	→ 19	4.39E+10	→ 58	2.66E+10	→ 60	2.45E+10	→ 56	1.67E+10	→ 17	5.88E+11
290	4.22E+11	→ 20	6.52E+10	→ 63	2.41E+10	→ 18	2.37E+10	→ 62	1.77E+10	→ 12	6.18E+11
291	3.50E+11	→ 20	1.08E+11	→ 19	6.59E+10	→ 61	2.27E+10	→ 12	1.33E+10	→ 56	6.29E+11
292	3.47E+11	→ 20	5.56E+10	→ 62	5.50E+10	→ 18	3.53E+10	→ 59	2.77E+10	→ 24	5.72E+11
293	2.14E+12	→ 39	1.26E+11	→ 42	5.06E+10	→ 45	4.95E+10	→ 62	1.59E+10	→ 63	2.43E+12
294	4.69E+11	→ 3	4.03E+11	→ 2	2.16E+11	→ 40	1.44E+11	→ 43	9.87E+10	→ 5	1.61E+12
295	1.93E+12	→ 42	1.96E+11	→ 48	1.47E+11	→ 63	6.33E+10	→ 56	1.32E+10	→ 70	2.38E+12
296	7.21E+11	→ 1	3.92E+11	→ 25	3.29E+11	→ 4	2.83E+11	→ 2	1.58E+11	→ 26	2.43E+12
297	7.22E+11	→ 5	4.49E+11	→ 1	1.69E+11	→ 25	1.45E+11	→ 26	1.20E+11	→ 37	2.02E+12
298	1.04E+12	→ 27	4.09E+11	→ 3	9.07E+10	→ 29	7.73E+09	→ 78	7.10E+09	→ 43	1.57E+12
299	5.83E+11	→ 25	4.81E+11	→ 1	3.39E+11	→ 28	2.49E+11	→ 4	1.07E+11	→ 26	2.00E+12
300	2.66E+12	→ 1	6.51E+11	→ 26	3.12E+11	→ 27	1.19E+11	→ 3	5.77E+10	→ 2	4.02E+12
301	1.44E+12	→ 2	1.04E+12	→ 4	6.24E+11	→ 28	5.99E+11	→ 1	1.34E+11	→ 30	4.24E+12
302	3.77E+12	→ 2	8.50E+11	→ 30	6.81E+11	→ 1	1.79E+11	→ 3	1.32E+11	→ 5	5.89E+12
303	7.22E+11	→ 29	3.54E+11	→ 31	6.23E+10	→ 27	4.83E+09	→ 40	2.90E+09	→ 35	1.16E+12
304	1.15E+12	→ 31	7.23E+09	→ 81	2.09E+09	→ 40	7.80E+08	→ 181	7.59E+08	→ 196	1.16E+12
305	3.06E+12	→ 1	5.20E+11	→ 29	4.86E+11	→ 3	3.08E+11	→ 2	2.29E+11	→ 32	5.04E+12
306	5.91E+12	→ 1	5.67E+11	→ 32	3.87E+11	→ 3	2.43E+11	→ 29	8.81E+10	→ 26	7.44E+12
307	6.66E+12	→ 1	7.77E+11	→ 32	3.86E+11	→ 4	1.15E+11	→ 26	5.28E+10	→ 36	8.20E+12
308	3.70E+12	→ 4	8.26E+11	→ 1	4.30E+11	→ 36	3.72E+11	→ 5	1.97E+11	→ 28	6.15E+12
309	1.77E+12	→ 45	2.00E+11	→ 48	9.72E+10	→ 58	7.58E+10	→ 42	6.28E+10	→ 39	2.46E+12
310	1.12E+12	→ 53	6.17E+11	→ 48	3.14E+11	→ 46	1.44E+11	→ 56	1.22E+11	→ 42	2.42E+12
311	3.56E+12	→ 2	2.09E+12	→ 3	7.41E+11	→ 5	5.40E+11	→ 34	2.29E+11	→ 35	7.49E+12
312	3.83E+12	→ 4	8.94E+11	→ 5	3.84E+11	→ 3	3.38E+11	→ 36	2.26E+11	→ 34	6.40E+12
313	6.64E+12	→ 3	8.67E+11	→ 35	1.29E+11	→ 43	5.32E+10	→ 31	2.77E+10	→ 29	7.75E+12
314	2.19E+12	→ 46	6.50E+10	→ 72	6.38E+10	→ 61	5.64E+10	→ 51	1.29E+10	→ 67	2.40E+12
315	7.02E+11	→ 53	6.03E+11	→ 48	5.78E+11	→ 63	2.86E+11	→ 42	8.41E+10	→ 70	2.35E+12
316	1.62E+12	→ 47	4.09E+11	→ 45	1.31E+11	→ 50	8.28E+10	→ 58	7.50E+10	→ 60	2.46E+12
317	1.47E+12	→ 50	4.50E+11	→ 62	2.22E+11	→ 53	7.67E+10	→ 58	2.94E+10	→ 56	2.40E+12

Table 7. continued.

Index	A^r (s^{-1})	final level	A^r (s^{-1})	final level	A^r (s^{-1})	final level	A^r (s^{-1})	final level	A^r (s^{-1})	final level	$\sum A^r$ (s^{-1})
318	4.47E+11	→ 24	6.58E+10	→ 67	3.84E+10	→ 23	2.41E+10	→ 80	1.75E+10	→ 9	6.43E+11
319	3.36E+11	→ 23	1.29E+11	→ 24	3.46E+10	→ 69	3.29E+10	→ 70	1.67E+10	→ 79	6.31E+11
320	4.84E+11	→ 23	7.71E+10	→ 68	1.74E+10	→ 10	1.36E+10	→ 72	7.04E+09	→ 6	6.29E+11
321	4.28E+11	→ 23	5.13E+10	→ 72	4.65E+10	→ 24	3.00E+10	→ 70	1.01E+10	→ 69	6.16E+11
322	4.22E+11	→ 24	4.16E+10	→ 71	3.94E+10	→ 9	3.76E+10	→ 82	3.30E+10	→ 69	6.27E+11
323	1.50E+12	→ 51	3.64E+11	→ 61	1.94E+11	→ 52	1.45E+11	→ 46	1.04E+11	→ 72	2.38E+12
324	2.38E+12	→ 52	1.43E+10	→ 68	8.40E+09	→ 107	6.51E+08	→ 31	2.06E+08	→ 304	2.41E+12
325	1.41E+12	→ 60	4.94E+11	→ 58	4.12E+11	→ 59	5.25E+10	→ 47	3.42E+10	→ 45	2.46E+12
326	8.05E+11	→ 56	7.04E+11	→ 51	4.96E+11	→ 48	2.60E+11	→ 63	3.71E+10	→ 52	2.43E+12
327	1.21E+12	→ 58	3.83E+11	→ 60	3.49E+11	→ 59	2.47E+11	→ 56	1.10E+11	→ 45	2.46E+12
328	9.30E+11	→ 58	8.41E+11	→ 56	2.57E+11	→ 48	1.31E+11	→ 50	1.26E+11	→ 51	2.45E+12
329	1.23E+12	→ 61	4.55E+11	→ 51	2.75E+11	→ 72	2.61E+11	→ 52	5.55E+10	→ 46	2.35E+12
330	9.27E+11	→ 59	4.02E+11	→ 60	3.68E+11	→ 62	2.35E+11	→ 50	1.63E+11	→ 71	2.30E+12
331	9.41E+11	→ 63	5.40E+11	→ 56	3.11E+11	→ 61	1.75E+11	→ 53	1.30E+11	→ 48	2.37E+12
332	5.40E+11	→ 5	3.32E+11	→ 57	2.08E+11	→ 4	1.54E+11	→ 55	3.52E+10	→ 2	1.35E+12
333	1.18E+12	→ 62	3.50E+11	→ 50	2.80E+11	→ 63	1.05E+11	→ 56	9.90E+10	→ 48	2.40E+12
334	2.94E+11	→ 24	9.33E+10	→ 23	6.91E+10	→ 59	5.55E+10	→ 80	4.84E+10	→ 60	7.02E+11
335	8.55E+11	→ 37	8.07E+11	→ 3	1.65E+11	→ 40	9.36E+10	→ 38	2.79E+10	→ 43	1.97E+12
336	1.14E+12	→ 40	3.73E+09	→ 81	2.37E+09	→ 31	9.34E+08	→ 212	9.06E+08	→ 203	1.15E+12
337	3.76E+12	→ 3	2.04E+12	→ 2	4.79E+11	→ 43	3.00E+11	→ 41	1.29E+11	→ 35	7.08E+12
338	3.70E+12	→ 2	1.14E+12	→ 3	5.69E+11	→ 41	3.45E+11	→ 4	1.65E+11	→ 43	6.56E+12
339	5.07E+12	→ 3	6.56E+11	→ 43	2.33E+11	→ 40	1.25E+11	→ 37	8.23E+10	→ 35	6.20E+12
340	2.32E+12	→ 2	1.31E+12	→ 4	5.86E+11	→ 44	3.39E+11	→ 41	1.10E+11	→ 36	4.83E+12
341	6.90E+12	→ 5	1.11E+12	→ 2	4.62E+11	→ 49	2.95E+11	→ 37	1.11E+11	→ 41	9.18E+12
342	2.90E+12	→ 5	1.47E+12	→ 2	2.96E+11	→ 41	2.74E+11	→ 49	2.33E+11	→ 4	5.91E+12
343	5.75E+12	→ 5	5.47E+11	→ 3	4.12E+11	→ 49	3.44E+11	→ 4	1.89E+11	→ 44	7.89E+12
344	4.78E+11	→ 33	1.11E+11	→ 86	5.32E+10	→ 11	1.95E+10	→ 13	1.25E+10	→ 79	6.89E+11
345	4.58E+11	→ 33	9.47E+10	→ 85	4.80E+10	→ 11	2.46E+10	→ 13	1.16E+10	→ 86	6.67E+11
346	2.35E+11	→ 66	1.74E+11	→ 65	1.20E+11	→ 64	1.91E+10	→ 67	1.19E+10	→ 74	5.77E+11
347	1.06E+12	→ 70	5.05E+11	→ 72	3.76E+11	→ 80	1.52E+11	→ 53	1.39E+11	→ 61	2.40E+12
348	1.06E+12	→ 67	4.45E+11	→ 72	4.19E+11	→ 61	4.11E+11	→ 68	7.49E+10	→ 66	2.44E+12
349	1.39E+12	→ 69	6.41E+11	→ 70	1.17E+11	→ 80	7.36E+10	→ 53	6.63E+10	→ 72	2.46E+12
350	1.28E+12	→ 80	4.15E+11	→ 67	3.47E+11	→ 70	7.93E+10	→ 61	7.63E+10	→ 63	2.42E+12
351	1.13E+12	→ 72	9.59E+11	→ 67	1.01E+11	→ 61	8.08E+10	→ 66	5.29E+10	→ 68	2.34E+12
352	2.33E+12	→ 68	1.89E+10	→ 52	4.80E+09	→ 107	6.45E+08	→ 40	1.80E+08	→ 336	2.35E+12
353	1.02E+12	→ 69	9.13E+11	→ 71	1.86E+11	→ 70	8.79E+10	→ 59	7.71E+10	→ 82	2.49E+12
354	1.37E+12	→ 82	4.23E+11	→ 80	3.95E+11	→ 70	4.56E+10	→ 67	4.14E+10	→ 63	2.43E+12
355	1.38E+12	→ 79	4.18E+11	→ 71	2.86E+11	→ 69	2.50E+11	→ 82	3.64E+10	→ 60	2.46E+12
356	9.12E+11	→ 79	8.93E+11	→ 82	3.54E+11	→ 71	8.72E+10	→ 70	5.73E+10	→ 59	2.46E+12
357	5.84E+11	→ 6	3.23E+11	→ 7	2.35E+11	→ 74	1.74E+11	→ 8	1.66E+11	→ 73	1.65E+12
358	4.36E+11	→ 38	5.14E+10	→ 1	4.74E+10	→ 37	4.70E+10	→ 90	3.35E+10	→ 89	6.66E+11
359	2.98E+12	→ 5	9.77E+11	→ 57	9.06E+10	→ 2	9.01E+10	→ 54	3.41E+10	→ 49	4.25E+12
360	4.16E+11	→ 38	1.36E+11	→ 1	5.68E+10	→ 92	4.54E+10	→ 37	3.92E+10	→ 91	7.52E+11
361	4.20E+12	→ 4	8.84E+11	→ 55	6.80E+11	→ 5	1.71E+11	→ 57	2.69E+10	→ 36	6.01E+12
362	4.30E+11	→ 38	8.13E+10	→ 93	4.61E+10	→ 37	2.30E+10	→ 92	3.93E+09	→ 91	5.88E+11
363	2.37E+12	→ 1	2.82E+11	→ 54	9.34E+10	→ 111	9.06E+10	→ 49	6.66E+10	→ 2	3.06E+12
364	2.39E+12	→ 1	2.92E+11	→ 54	9.30E+10	→ 49	7.44E+10	→ 108	5.83E+10	→ 2	3.06E+12
365	2.41E+12	→ 1	2.91E+11	→ 54	9.55E+10	→ 49	6.95E+10	→ 2	6.05E+10	→ 112	3.09E+12
366	2.00E+12	→ 86	1.50E+11	→ 85	9.52E+10	→ 62	4.44E+10	→ 69	4.12E+10	→ 82	2.37E+12
367	2.14E+12	→ 85	1.59E+11	→ 80	3.98E+10	→ 70	2.91E+10	→ 63	3.68E+09	→ 188	2.38E+12
368	1.13E+12	→ 64	3.06E+10	→ 7	2.51E+10	→ 73	3.27E+09	→ 58	2.97E+09	→ 62	1.20E+12
369	7.96E+11	→ 64	3.27E+11	→ 65	3.12E+10	→ 6	1.78E+10	→ 74	1.10E+10	→ 73	1.21E+12
370	6.72E+11	→ 65	3.60E+11	→ 64	8.53E+10	→ 66	3.68E+10	→ 6	2.72E+10	→ 74	1.20E+12

Table 7. continued.

Index	A^r (s^{-1})	final level	A^r (s^{-1})	final level	A^r (s^{-1})	final level	A^r (s^{-1})	final level	A^r (s^{-1})	final level	$\sum A^r$ (s^{-1})
371	7.26E+11	→ 65	3.82E+11	→ 66	3.08E+10	→ 67	1.55E+10	→ 74	8.07E+09	→ 6	1.17E+12
372	1.08E+12	→ 66	8.67E+10	→ 67	2.39E+09	→ 61	1.15E+09	→ 51	6.51E+08	→ 46	1.17E+12
373	3.41E+12	→ 7	1.87E+12	→ 6	7.24E+11	→ 73	3.01E+11	→ 74	1.65E+10	→ 113	6.39E+12
374	2.71E+12	→ 7	2.14E+12	→ 8	5.48E+11	→ 73	4.32E+11	→ 76	3.17E+11	→ 6	6.28E+12
375	6.00E+12	→ 6	9.85E+11	→ 74	4.34E+10	→ 115	3.01E+10	→ 65	1.56E+10	→ 10	7.12E+12
376	4.41E+12	→ 8	8.68E+11	→ 7	8.57E+11	→ 76	1.70E+11	→ 73	2.53E+10	→ 114	6.38E+12
377	1.15E+12	→ 90	1.11E+12	→ 91	1.36E+11	→ 92	8.90E+09	→ 110	3.12E+09	→ 88	2.41E+12
378	1.54E+12	→ 91	8.06E+11	→ 92	4.37E+10	→ 93	1.30E+10	→ 108	1.43E+09	→ 147	2.41E+12
379	1.37E+12	→ 90	7.49E+11	→ 89	2.88E+11	→ 91	4.40E+09	→ 112	3.34E+09	→ 88	2.41E+12
380	1.87E+12	→ 89	5.34E+11	→ 90	1.52E+09	→ 87	1.24E+09	→ 88	9.80E+08	→ 110	2.41E+12
381	1.96E+12	→ 92	4.35E+11	→ 93	1.43E+10	→ 111	6.96E+08	→ 149	5.67E+08	→ 150	2.41E+12
382	2.41E+12	→ 93	5.96E+08	→ 66	2.90E+08	→ 140	1.66E+08	→ 372	4.69E+07	→ 67	2.41E+12
383	2.07E+12	→ 111	5.85E+10	→ 149	5.24E+10	→ 150	1.09E+10	→ 93	1.08E+10	→ 136	2.23E+12
384	1.79E+12	→ 108	3.01E+11	→ 111	5.09E+10	→ 147	2.77E+10	→ 154	1.28E+10	→ 182	2.24E+12
385	1.57E+12	→ 110	5.16E+11	→ 108	3.55E+10	→ 144	2.03E+10	→ 111	1.50E+10	→ 147	2.25E+12
386	1.49E+12	→ 112	5.95E+11	→ 110	4.25E+10	→ 108	2.89E+10	→ 142	2.18E+10	→ 178	2.24E+12
387	1.96E+11	→ 102	1.87E+11	→ 7	6.30E+10	→ 96	6.27E+10	→ 113	4.40E+10	→ 95	8.46E+11
388	1.82E+11	→ 99	1.42E+11	→ 103	1.37E+11	→ 8	1.04E+11	→ 114	9.87E+10	→ 7	8.68E+11
389	2.14E+11	→ 6	1.55E+11	→ 104	1.21E+11	→ 98	7.77E+10	→ 101	5.94E+10	→ 96	8.69E+11
390	7.09E+11	→ 9	2.19E+11	→ 106	1.12E+11	→ 116	6.02E+10	→ 105	5.12E+10	→ 11	1.36E+12
391	2.49E+11	→ 6	2.28E+11	→ 107	1.16E+11	→ 115	1.08E+11	→ 101	4.67E+10	→ 104	8.35E+11
392	6.54E+11	→ 10	1.96E+11	→ 109	1.76E+11	→ 118	7.41E+10	→ 12	4.93E+10	→ 116	1.38E+12
393	2.62E+11	→ 75	2.28E+11	→ 2	1.81E+11	→ 77	6.06E+10	→ 1	5.50E+10	→ 132	1.03E+12
394	2.31E+11	→ 78	2.26E+11	→ 75	2.25E+11	→ 3	1.06E+11	→ 2	3.93E+10	→ 135	9.88E+11
395	2.84E+11	→ 78	1.78E+11	→ 75	1.61E+11	→ 2	3.16E+10	→ 136	3.10E+10	→ 3	8.32E+11
396	3.51E+11	→ 77	2.90E+11	→ 2	1.25E+11	→ 3	8.20E+10	→ 137	6.91E+10	→ 4	1.15E+12
397	2.59E+11	→ 75	1.65E+11	→ 78	1.54E+11	→ 2	5.14E+10	→ 139	2.63E+10	→ 83	7.77E+11
398	4.57E+11	→ 78	1.70E+11	→ 3	5.06E+10	→ 138	2.55E+10	→ 140	1.80E+10	→ 136	7.83E+11
399	2.42E+12	→ 2	4.19E+11	→ 83	1.44E+11	→ 1	4.76E+10	→ 150	4.19E+10	→ 75	3.27E+12
400	5.03E+11	→ 3	4.06E+11	→ 2	1.35E+11	→ 75	1.31E+11	→ 77	8.69E+10	→ 1	1.62E+12
401	2.54E+12	→ 2	3.66E+11	→ 83	1.22E+11	→ 1	6.16E+10	→ 77	5.84E+10	→ 5	3.37E+12
402	5.40E+11	→ 3	3.91E+11	→ 81	9.07E+10	→ 84	2.48E+10	→ 149	2.27E+10	→ 140	1.18E+12
403	2.04E+11	→ 77	1.85E+11	→ 75	1.54E+11	→ 2	5.90E+10	→ 155	4.64E+10	→ 4	7.72E+11
404	4.88E+11	→ 81	7.34E+10	→ 143	1.36E+10	→ 140	9.93E+09	→ 138	6.26E+09	→ 288	6.08E+11
405	1.39E+12	→ 2	1.82E+11	→ 83	1.52E+11	→ 3	1.47E+11	→ 78	5.39E+10	→ 75	2.15E+12
406	1.85E+12	→ 3	3.71E+11	→ 84	7.80E+10	→ 81	5.71E+10	→ 151	2.52E+10	→ 78	2.48E+12
407	3.74E+11	→ 81	2.32E+11	→ 3	3.54E+10	→ 154	3.28E+10	→ 84	2.71E+10	→ 78	8.32E+11
408	1.78E+12	→ 3	8.69E+11	→ 2	2.79E+11	→ 84	1.19E+11	→ 83	7.49E+10	→ 1	3.32E+12
409	3.70E+11	→ 7	1.59E+11	→ 8	1.42E+11	→ 129	1.23E+11	→ 121	1.06E+11	→ 119	1.19E+12
410	3.89E+11	→ 8	1.75E+11	→ 6	1.67E+11	→ 124	1.04E+11	→ 130	7.94E+10	→ 128	1.26E+12
411	2.44E+12	→ 3	3.67E+11	→ 84	4.93E+10	→ 167	2.97E+10	→ 168	2.54E+10	→ 81	3.03E+12
412	5.86E+11	→ 11	5.47E+11	→ 9	2.06E+11	→ 131	8.42E+10	→ 129	6.52E+10	→ 127	1.79E+12
413	7.64E+11	→ 7	3.36E+11	→ 6	2.22E+11	→ 126	1.04E+11	→ 130	6.46E+10	→ 129	1.77E+12
414	5.04E+11	→ 95	3.11E+11	→ 96	2.01E+11	→ 99	1.75E+11	→ 7	1.13E+11	→ 8	1.52E+12
415	4.79E+11	→ 96	4.72E+11	→ 98	3.59E+11	→ 7	3.48E+11	→ 6	6.23E+10	→ 103	1.91E+12
416	6.96E+11	→ 98	6.51E+11	→ 6	2.16E+11	→ 101	1.34E+11	→ 104	6.88E+10	→ 106	1.84E+12
417	8.15E+11	→ 99	2.72E+11	→ 103	9.90E+10	→ 6	9.53E+10	→ 7	6.01E+10	→ 9	1.44E+12
418	8.71E+11	→ 10	2.13E+11	→ 12	1.83E+11	→ 134	1.76E+11	→ 8	1.21E+11	→ 133	2.20E+12
419	1.30E+12	→ 6	9.99E+11	→ 102	1.01E+11	→ 10	5.88E+10	→ 115	4.77E+10	→ 101	2.57E+12
420	6.69E+11	→ 104	4.53E+11	→ 101	1.75E+10	→ 109	8.74E+09	→ 107	6.12E+09	→ 298	1.16E+12
421	8.77E+11	→ 8	4.43E+11	→ 96	3.19E+11	→ 95	2.74E+11	→ 114	6.97E+10	→ 11	2.24E+12
422	9.77E+11	→ 8	4.76E+11	→ 7	2.91E+11	→ 96	2.81E+11	→ 6	2.79E+11	→ 11	3.13E+12
423	3.50E+12	→ 7	6.06E+11	→ 6	4.12E+11	→ 113	2.85E+11	→ 102	1.25E+11	→ 98	5.34E+12

Table 7. continued.

Index	A^r (s^{-1})	final level	A^r (s^{-1})	final level	A^r (s^{-1})	final level	A^r (s^{-1})	final level	A^r (s^{-1})	final level	$\sum A^r$ (s^{-1})
424	1.13E+12	→ 7	2.47E+11	→ 96	2.34E+11	→ 95	2.31E+11	→ 12	2.01E+11	→ 113	2.76E+12
425	1.02E+12	→ 106	6.43E+10	→ 6	5.12E+10	→ 98	2.57E+10	→ 101	1.63E+10	→ 10	1.22E+12
426	4.43E+11	→ 107	3.33E+11	→ 104	3.23E+11	→ 101	6.25E+10	→ 109	3.51E+09	→ 303	1.17E+12
427	2.45E+12	→ 7	1.98E+12	→ 8	4.97E+11	→ 114	2.34E+11	→ 113	1.71E+11	→ 6	5.93E+12
428	1.15E+12	→ 107	4.26E+09	→ 304	3.03E+09	→ 52	1.65E+09	→ 68	8.74E+08	→ 245	1.16E+12
429	3.60E+12	→ 6	3.25E+11	→ 104	3.11E+11	→ 115	3.02E+11	→ 101	9.96E+10	→ 107	4.76E+12
430	1.01E+12	→ 9	8.72E+11	→ 7	6.16E+11	→ 11	5.34E+11	→ 105	2.65E+11	→ 8	4.19E+12
431	5.41E+12	→ 9	3.10E+11	→ 116	2.37E+11	→ 106	2.26E+11	→ 103	1.83E+11	→ 10	7.04E+12
432	3.31E+12	→ 9	7.84E+11	→ 11	4.45E+11	→ 7	3.16E+11	→ 12	2.79E+11	→ 105	6.45E+12
433	1.01E+12	→ 109	1.05E+11	→ 101	9.74E+09	→ 104	3.30E+09	→ 313	2.23E+09	→ 3	1.14E+12
434	5.87E+12	→ 6	5.81E+11	→ 115	1.90E+11	→ 101	1.49E+11	→ 104	1.04E+11	→ 9	7.12E+12
435	5.13E+11	→ 4	3.46E+11	→ 87	1.36E+11	→ 5	7.88E+10	→ 169	6.67E+10	→ 97	1.35E+12
436	7.35E+12	→ 6	7.52E+11	→ 115	4.33E+11	→ 9	8.68E+10	→ 98	5.63E+10	→ 102	9.02E+12
437	1.39E+12	→ 12	1.17E+12	→ 7	9.06E+11	→ 9	5.14E+11	→ 116	2.34E+11	→ 103	4.72E+12
438	2.81E+11	→ 87	1.70E+11	→ 88	8.48E+10	→ 170	6.51E+10	→ 5	4.65E+10	→ 4	8.37E+11
439	1.73E+12	→ 132	2.74E+11	→ 135	1.81E+11	→ 137	8.10E+10	→ 144	3.36E+10	→ 166	2.44E+12
440	1.51E+12	→ 135	2.55E+11	→ 136	1.94E+11	→ 139	1.89E+11	→ 147	6.08E+10	→ 108	2.41E+12
441	3.73E+11	→ 4	2.20E+11	→ 88	1.46E+11	→ 87	1.05E+11	→ 5	8.81E+10	→ 2	1.29E+12
442	1.19E+12	→ 136	3.72E+11	→ 149	2.44E+11	→ 138	1.59E+11	→ 140	1.05E+11	→ 167	2.39E+12
443	4.08E+11	→ 88	9.09E+10	→ 2	7.85E+10	→ 171	4.28E+10	→ 94	4.23E+10	→ 1	8.46E+11
444	1.04E+12	→ 147	4.15E+11	→ 137	2.36E+11	→ 158	1.50E+11	→ 136	1.40E+11	→ 150	2.38E+12
445	1.07E+12	→ 144	3.91E+11	→ 135	1.81E+11	→ 157	1.37E+11	→ 158	1.16E+11	→ 154	2.44E+12
446	1.36E+12	→ 137	3.44E+11	→ 147	1.15E+11	→ 139	9.65E+10	→ 136	7.80E+10	→ 149	2.35E+12
447	2.13E+12	→ 10	1.72E+12	→ 9	8.53E+11	→ 12	6.83E+11	→ 7	4.86E+11	→ 116	6.75E+12
448	3.17E+11	→ 5	3.12E+11	→ 88	2.05E+11	→ 1	8.59E+10	→ 87	5.20E+10	→ 177	1.19E+12
449	2.10E+12	→ 139	1.69E+11	→ 136	1.94E+10	→ 138	8.67E+09	→ 150	6.53E+09	→ 111	2.33E+12
450	1.05E+12	→ 158	4.36E+11	→ 137	2.83E+11	→ 168	1.44E+11	→ 149	1.16E+11	→ 150	2.30E+12
451	1.42E+12	→ 138	6.70E+11	→ 140	2.11E+11	→ 151	6.29E+09	→ 143	5.63E+09	→ 314	2.31E+12
452	1.15E+12	→ 142	5.54E+11	→ 132	3.65E+11	→ 144	1.18E+11	→ 135	4.59E+10	→ 157	2.44E+12
453	5.20E+12	→ 10	6.34E+11	→ 118	3.45E+11	→ 109	1.98E+11	→ 6	2.95E+10	→ 115	6.50E+12
454	1.45E+12	→ 150	6.67E+11	→ 149	9.99E+10	→ 167	1.08E+10	→ 136	9.09E+09	→ 140	2.27E+12
455	5.13E+12	→ 10	8.70E+11	→ 9	5.59E+11	→ 12	5.24E+11	→ 118	2.49E+11	→ 7	7.92E+12
456	1.59E+12	→ 4	2.74E+11	→ 97	1.85E+11	→ 5	1.47E+11	→ 2	7.48E+10	→ 88	2.62E+12
457	5.91E+11	→ 160	3.71E+11	→ 166	2.79E+11	→ 158	2.51E+11	→ 157	1.92E+11	→ 147	2.34E+12
458	1.82E+12	→ 4	2.99E+11	→ 97	6.42E+10	→ 94	6.20E+10	→ 161	6.15E+10	→ 185	2.69E+12
459	9.46E+11	→ 148	3.80E+11	→ 155	3.09E+11	→ 144	1.29E+11	→ 161	1.24E+11	→ 142	2.43E+12
460	1.55E+12	→ 155	2.71E+11	→ 147	9.28E+10	→ 144	7.75E+10	→ 166	3.88E+10	→ 158	2.38E+12
461	6.62E+11	→ 142	6.39E+11	→ 148	4.06E+11	→ 156	2.71E+11	→ 144	7.71E+10	→ 132	2.42E+12
462	6.80E+11	→ 156	4.75E+11	→ 161	3.23E+11	→ 160	1.53E+11	→ 166	1.13E+11	→ 157	2.37E+12
463	4.62E+11	→ 94	3.52E+11	→ 3	7.79E+10	→ 174	2.41E+10	→ 181	1.88E+10	→ 288	9.93E+11
464	3.37E+11	→ 94	2.92E+11	→ 3	2.73E+11	→ 4	5.04E+10	→ 97	2.97E+10	→ 1	1.26E+12
465	5.29E+11	→ 5	4.12E+11	→ 3	3.12E+11	→ 94	9.94E+10	→ 100	4.75E+10	→ 181	1.64E+12
466	7.07E+11	→ 151	6.62E+11	→ 138	5.78E+11	→ 140	3.94E+11	→ 143	3.38E+09	→ 323	2.35E+12
467	2.32E+12	→ 143	4.07E+09	→ 324	6.62E+08	→ 352	6.28E+08	→ 107	1.28E+08	→ 428	2.32E+12
468	6.19E+11	→ 149	4.31E+11	→ 140	4.01E+11	→ 138	3.46E+11	→ 136	2.27E+11	→ 150	2.41E+12
469	1.30E+12	→ 151	8.05E+11	→ 140	1.21E+11	→ 143	7.35E+10	→ 174	1.72E+10	→ 138	2.33E+12
470	6.75E+11	→ 154	5.43E+11	→ 149	3.71E+11	→ 136	1.85E+11	→ 150	1.02E+11	→ 147	2.42E+12
471	1.78E+12	→ 5	3.58E+11	→ 100	1.11E+11	→ 157	4.91E+10	→ 187	4.39E+10	→ 2	2.71E+12
472	1.04E+12	→ 154	3.30E+11	→ 157	1.94E+11	→ 149	1.47E+11	→ 135	1.42E+11	→ 136	2.44E+12
473	1.36E+12	→ 5	2.83E+11	→ 100	1.17E+11	→ 168	9.39E+10	→ 166	7.85E+10	→ 2	2.41E+12
474	7.42E+11	→ 157	6.68E+11	→ 154	3.72E+11	→ 160	1.64E+11	→ 5	8.77E+10	→ 135	2.45E+12
475	1.29E+12	→ 167	3.39E+11	→ 151	1.67E+11	→ 150	1.09E+11	→ 140	6.72E+10	→ 186	2.28E+12
476	1.18E+12	→ 157	8.55E+11	→ 160	6.91E+10	→ 155	5.83E+10	→ 144	4.29E+10	→ 156	2.44E+12

Table 7. continued.

Index	A^r (s^{-1})	final level	A^r (s^{-1})	final level	A^r (s^{-1})	final level	A^r (s^{-1})	final level	A^r (s^{-1})	final level	$\sum A^r$ (s^{-1})
477	9.34E+11	→ 168	5.24E+11	→ 167	2.24E+11	→ 158	1.67E+11	→ 150	7.26E+10	→ 187	2.30E+12
478	7.29E+11	→ 161	6.94E+11	→ 156	2.74E+11	→ 160	2.38E+11	→ 148	2.24E+11	→ 166	2.45E+12
479	6.41E+11	→ 168	4.08E+11	→ 166	2.22E+11	→ 160	1.55E+11	→ 5	1.25E+11	→ 158	2.32E+12
480	5.79E+11	→ 166	4.13E+11	→ 160	3.68E+11	→ 161	2.02E+11	→ 168	1.74E+11	→ 156	2.40E+12
481	1.43E+12	→ 5	7.39E+11	→ 4	2.88E+11	→ 100	1.79E+11	→ 2	8.84E+10	→ 97	3.02E+12
482	7.70E+11	→ 119	5.05E+11	→ 8	1.68E+11	→ 7	1.41E+11	→ 121	7.18E+10	→ 127	1.92E+12
483	1.18E+12	→ 7	7.16E+11	→ 121	2.18E+11	→ 129	1.33E+11	→ 125	3.94E+10	→ 124	2.43E+12
484	9.09E+11	→ 124	5.45E+11	→ 6	2.02E+11	→ 130	1.27E+11	→ 10	1.89E+10	→ 126	1.85E+12
485	1.82E+11	→ 1	1.28E+11	→ 22	1.08E+11	→ 277	7.67E+10	→ 21	5.82E+10	→ 2	6.82E+11
486	5.25E+11	→ 125	4.11E+11	→ 9	2.22E+11	→ 7	1.90E+11	→ 124	1.43E+11	→ 121	2.06E+12
487	1.67E+12	→ 8	1.68E+11	→ 159	1.19E+11	→ 125	8.47E+10	→ 10	8.26E+10	→ 152	2.79E+12
488	2.14E+12	→ 8	2.11E+11	→ 11	1.98E+11	→ 125	1.89E+11	→ 128	1.40E+11	→ 127	3.50E+12
489	5.11E+12	→ 8	5.88E+11	→ 128	2.25E+11	→ 13	1.77E+11	→ 119	1.16E+11	→ 125	6.64E+12
490	1.09E+12	→ 12	2.53E+11	→ 7	2.11E+11	→ 8	1.67E+11	→ 180	9.33E+10	→ 11	2.50E+12
491	1.15E+12	→ 126	1.44E+10	→ 304	3.55E+09	→ 104	3.20E+09	→ 109	2.03E+09	→ 101	1.18E+12
492	6.46E+11	→ 11	4.69E+11	→ 127	2.70E+11	→ 13	2.06E+11	→ 128	1.47E+11	→ 133	2.46E+12
493	2.42E+12	→ 9	4.79E+11	→ 131	4.30E+11	→ 129	1.73E+11	→ 7	1.29E+11	→ 6	3.98E+12
494	4.58E+12	→ 7	3.76E+11	→ 129	2.85E+11	→ 12	2.70E+11	→ 131	2.46E+11	→ 125	6.18E+12
495	3.68E+12	→ 7	4.27E+11	→ 12	3.20E+11	→ 129	2.29E+11	→ 6	1.85E+11	→ 131	5.76E+12
496	1.21E+12	→ 6	5.77E+11	→ 130	4.27E+11	→ 10	3.75E+11	→ 126	8.87E+10	→ 134	2.80E+12
497	1.79E+12	→ 7	5.81E+11	→ 6	3.04E+11	→ 131	2.88E+11	→ 130	1.61E+11	→ 124	3.88E+12
498	8.34E+11	→ 10	1.96E+11	→ 165	1.89E+11	→ 9	1.67E+11	→ 173	1.29E+11	→ 133	1.79E+12
499	2.69E+11	→ 13	2.44E+11	→ 9	2.20E+11	→ 164	1.55E+11	→ 172	1.48E+11	→ 11	1.43E+12
500	4.77E+12	→ 10	8.64E+11	→ 134	1.04E+11	→ 130	5.42E+10	→ 118	3.29E+10	→ 124	5.90E+12
501	1.08E+12	→ 10	5.94E+11	→ 133	5.45E+11	→ 12	4.46E+11	→ 9	2.12E+11	→ 134	3.16E+12
502	2.42E+11	→ 16	1.46E+11	→ 11	1.13E+11	→ 8	8.11E+10	→ 271	4.46E+10	→ 284	8.52E+11
503	1.38E+12	→ 169	2.78E+11	→ 166	2.12E+11	→ 183	1.21E+11	→ 177	6.91E+10	→ 170	2.35E+12
504	4.77E+12	→ 11	1.81E+12	→ 13	4.99E+11	→ 141	4.05E+11	→ 8	2.28E+11	→ 127	8.24E+12
505	1.32E+12	→ 170	3.10E+11	→ 185	2.99E+11	→ 182	2.95E+11	→ 175	3.71E+10	→ 135	2.35E+12
506	2.39E+11	→ 16	1.09E+11	→ 11	8.40E+10	→ 271	6.89E+10	→ 13	4.08E+10	→ 286	7.29E+11
507	8.53E+11	→ 178	7.00E+11	→ 176	4.27E+11	→ 177	1.22E+11	→ 169	5.01E+10	→ 183	2.41E+12
508	8.19E+11	→ 185	6.47E+11	→ 170	2.15E+11	→ 187	1.90E+11	→ 158	1.44E+11	→ 175	2.30E+12
509	1.83E+12	→ 171	2.21E+11	→ 186	1.68E+11	→ 181	3.95E+10	→ 136	1.90E+10	→ 203	2.33E+12
510	5.97E+12	→ 11	5.24E+11	→ 9	4.44E+11	→ 13	4.44E+11	→ 141	3.49E+11	→ 133	8.73E+12
511	1.28E+12	→ 177	4.11E+11	→ 179	2.62E+11	→ 175	9.07E+10	→ 185	8.20E+10	→ 193	2.40E+12
512	5.33E+11	→ 193	4.71E+11	→ 183	3.76E+11	→ 169	3.54E+11	→ 179	1.31E+11	→ 170	2.32E+12
513	1.33E+12	→ 175	6.73E+11	→ 185	1.79E+11	→ 171	4.43E+10	→ 187	2.35E+10	→ 186	2.35E+12
514	5.71E+11	→ 1	9.13E+10	→ 27	8.31E+10	→ 282	7.98E+10	→ 117	5.02E+10	→ 281	1.15E+12
515	3.23E+11	→ 2	1.57E+11	→ 1	8.58E+10	→ 285	6.14E+10	→ 30	5.90E+10	→ 117	1.04E+12
516	9.50E+11	→ 176	8.20E+11	→ 178	2.54E+11	→ 183	1.88E+11	→ 179	5.72E+10	→ 177	2.46E+12
517	2.23E+12	→ 174	4.99E+10	→ 140	4.86E+10	→ 151	1.32E+10	→ 138	1.25E+10	→ 324	2.36E+12
518	6.70E+11	→ 179	4.15E+11	→ 176	3.19E+11	→ 183	2.50E+11	→ 178	2.13E+11	→ 182	2.44E+12
519	1.27E+12	→ 186	3.05E+11	→ 171	2.28E+11	→ 181	2.19E+11	→ 167	9.37E+10	→ 174	2.29E+12
520	8.39E+11	→ 182	6.54E+11	→ 179	2.31E+11	→ 183	1.75E+11	→ 177	1.13E+11	→ 181	2.42E+12
521	1.14E+12	→ 189	3.99E+11	→ 183	2.56E+11	→ 193	9.21E+10	→ 161	5.91E+10	→ 178	2.34E+12
522	9.96E+11	→ 182	6.02E+11	→ 181	2.48E+11	→ 187	1.10E+11	→ 170	8.07E+10	→ 171	2.36E+12
523	1.46E+12	→ 181	4.69E+11	→ 186	3.20E+11	→ 174	1.48E+10	→ 140	8.21E+09	→ 171	2.33E+12
524	4.35E+11	→ 1	2.46E+11	→ 117	1.38E+11	→ 3	1.38E+11	→ 4	1.18E+11	→ 120	1.48E+12
525	8.89E+11	→ 193	4.30E+11	→ 187	3.97E+11	→ 183	1.39E+11	→ 179	5.92E+10	→ 182	2.31E+12
526	1.13E+12	→ 187	2.91E+11	→ 175	2.53E+11	→ 186	1.91E+11	→ 185	1.41E+11	→ 182	2.31E+12
527	1.45E+12	→ 1	3.85E+11	→ 117	1.05E+11	→ 288	7.40E+10	→ 196	3.11E+10	→ 2	2.23E+12
528	7.10E+11	→ 1	3.54E+11	→ 117	8.81E+10	→ 4	4.53E+10	→ 198	4.47E+10	→ 195	1.47E+12
529	3.20E+11	→ 120	3.00E+11	→ 4	1.74E+11	→ 5	1.55E+11	→ 1	7.83E+10	→ 199	1.32E+12

Table 7. continued.

Index	A^r (s^{-1})	final level	A^r (s^{-1})	final level	A^r (s^{-1})	final level	A^r (s^{-1})	final level	A^r (s^{-1})	final level	$\sum A^r$ (s^{-1})
530	4.88E+11	→ 21	1.70E+11	→ 275	1.54E+11	→ 2	1.07E+11	→ 1	7.74E+10	→ 22	1.19E+12
531	3.40E+11	→ 1	2.93E+11	→ 4	2.09E+11	→ 3	1.64E+11	→ 120	1.34E+11	→ 117	1.51E+12
532	9.84E+11	→ 1	6.87E+11	→ 2	4.99E+11	→ 22	1.99E+11	→ 277	5.22E+10	→ 26	2.50E+12
533	2.10E+11	→ 17	7.59E+10	→ 274	4.75E+10	→ 18	2.64E+10	→ 45	2.59E+10	→ 296	5.41E+11
534	3.06E+11	→ 3	1.15E+11	→ 5	1.13E+11	→ 122	5.49E+10	→ 123	5.38E+10	→ 117	1.04E+12
535	5.28E+11	→ 5	3.68E+11	→ 123	3.21E+11	→ 2	6.08E+10	→ 202	2.29E+10	→ 318	1.49E+12
536	1.99E+11	→ 17	7.29E+10	→ 274	6.69E+10	→ 18	4.06E+10	→ 11	3.56E+10	→ 300	5.80E+11
537	1.98E+11	→ 2	8.56E+10	→ 123	6.83E+10	→ 290	4.81E+10	→ 5	4.65E+10	→ 35	7.84E+11
538	2.61E+11	→ 17	9.50E+10	→ 274	4.13E+10	→ 298	3.36E+10	→ 46	8.77E+09	→ 300	4.97E+11
539	7.61E+11	→ 3	4.84E+11	→ 122	7.79E+10	→ 201	4.57E+10	→ 320	2.76E+10	→ 203	1.43E+12
540	5.06E+11	→ 5	2.43E+11	→ 123	1.64E+11	→ 3	1.64E+11	→ 2	1.63E+11	→ 122	1.51E+12
541	1.97E+11	→ 18	6.43E+10	→ 276	5.18E+10	→ 17	4.35E+10	→ 301	3.34E+10	→ 50	4.85E+11
542	1.93E+11	→ 18	6.77E+10	→ 276	5.88E+10	→ 17	4.38E+10	→ 302	3.08E+10	→ 53	5.13E+11
543	7.54E+11	→ 39	3.90E+11	→ 284	4.29E+10	→ 42	2.81E+10	→ 286	2.14E+10	→ 45	1.31E+12
544	4.53E+11	→ 3	3.16E+11	→ 122	8.25E+10	→ 2	6.39E+10	→ 123	4.65E+10	→ 5	1.20E+12
545	6.79E+11	→ 42	4.08E+11	→ 286	7.02E+10	→ 48	4.93E+10	→ 63	1.62E+10	→ 56	1.27E+12
546	6.78E+11	→ 293	2.53E+10	→ 295	7.09E+09	→ 170	6.74E+09	→ 209	6.68E+09	→ 185	7.47E+11
547	7.05E+11	→ 295	1.78E+10	→ 196	1.20E+10	→ 171	2.14E+09	→ 150	1.81E+09	→ 139	7.46E+11
548	5.37E+11	→ 3	1.90E+11	→ 5	1.53E+11	→ 122	1.13E+11	→ 123	1.11E+11	→ 120	1.52E+12
549	6.73E+11	→ 5	4.07E+11	→ 2	3.43E+11	→ 123	9.50E+10	→ 4	7.07E+10	→ 208	1.80E+12
550	1.79E+11	→ 19	8.25E+10	→ 20	7.14E+10	→ 7	6.06E+10	→ 278	5.96E+10	→ 152	6.71E+11
551	2.48E+11	→ 19	1.38E+11	→ 159	8.44E+10	→ 278	6.84E+10	→ 304	4.97E+10	→ 10	6.96E+11
552	1.47E+11	→ 20	1.44E+11	→ 12	9.71E+10	→ 188	7.87E+10	→ 10	5.34E+10	→ 279	9.14E+11
553	6.89E+11	→ 13	1.49E+11	→ 192	1.32E+11	→ 197	1.22E+11	→ 9	7.18E+10	→ 20	1.48E+12
554	2.40E+11	→ 19	7.98E+10	→ 278	1.95E+10	→ 58	1.89E+10	→ 306	1.77E+10	→ 10	5.47E+11
555	1.75E+11	→ 20	1.43E+11	→ 12	8.20E+10	→ 19	5.83E+10	→ 279	5.00E+10	→ 313	7.27E+11
556	1.64E+11	→ 12	1.47E+11	→ 188	8.20E+10	→ 20	7.24E+10	→ 190	6.71E+10	→ 153	9.47E+11
557	6.59E+11	→ 1	3.07E+11	→ 25	1.56E+11	→ 26	1.35E+11	→ 4	1.08E+11	→ 280	1.78E+12
558	2.18E+11	→ 13	1.50E+11	→ 20	1.02E+11	→ 12	9.37E+10	→ 192	6.95E+10	→ 8	1.02E+12
559	3.27E+11	→ 25	2.86E+11	→ 1	1.79E+11	→ 28	1.30E+11	→ 280	1.24E+11	→ 4	1.32E+12
560	5.40E+11	→ 27	3.36E+11	→ 3	2.21E+11	→ 282	6.34E+10	→ 29	1.18E+10	→ 314	1.20E+12
561	1.35E+12	→ 1	2.96E+11	→ 26	1.61E+11	→ 27	1.44E+11	→ 281	1.04E+11	→ 3	2.39E+12
562	5.56E+11	→ 152	4.78E+11	→ 7	2.76E+11	→ 159	1.34E+11	→ 9	1.20E+11	→ 162	1.90E+12
563	4.23E+11	→ 8	3.90E+11	→ 152	3.53E+11	→ 7	3.50E+11	→ 153	1.19E+11	→ 11	2.12E+12
564	1.06E+12	→ 8	7.77E+11	→ 11	4.59E+11	→ 153	3.11E+11	→ 163	1.42E+11	→ 7	3.22E+12
565	8.94E+11	→ 159	4.03E+11	→ 10	2.13E+11	→ 6	2.43E+10	→ 19	1.84E+10	→ 286	1.70E+12
566	9.89E+11	→ 4	6.70E+11	→ 2	3.28E+11	→ 1	3.26E+11	→ 28	1.40E+11	→ 283	2.83E+12
567	2.61E+12	→ 2	4.09E+11	→ 30	2.23E+11	→ 1	1.89E+11	→ 285	5.36E+10	→ 34	3.73E+12
568	9.17E+11	→ 12	7.37E+11	→ 11	4.59E+11	→ 163	1.76E+11	→ 13	1.73E+11	→ 162	3.25E+12
569	1.65E+12	→ 12	3.43E+11	→ 9	3.00E+11	→ 162	1.84E+11	→ 45	1.76E+11	→ 10	3.30E+12
570	3.49E+11	→ 48	2.34E+11	→ 300	1.65E+11	→ 63	1.45E+11	→ 42	9.85E+10	→ 302	1.27E+12
571	5.60E+11	→ 53	2.57E+11	→ 302	1.16E+11	→ 300	7.00E+10	→ 46	5.43E+10	→ 48	1.36E+12
572	5.29E+11	→ 309	1.18E+11	→ 194	6.16E+10	→ 209	3.94E+10	→ 310	1.80E+10	→ 200	8.42E+11
573	7.87E+11	→ 46	4.24E+11	→ 298	2.93E+10	→ 51	1.91E+10	→ 72	1.54E+10	→ 61	1.29E+12
574	4.91E+11	→ 310	2.29E+11	→ 196	6.11E+10	→ 315	2.71E+10	→ 314	7.62E+09	→ 171	8.47E+11
575	3.74E+11	→ 45	1.60E+11	→ 9	1.36E+11	→ 296	1.28E+11	→ 50	9.92E+10	→ 297	1.69E+12
576	4.84E+11	→ 316	1.91E+11	→ 195	5.19E+10	→ 309	4.34E+10	→ 194	2.80E+10	→ 317	8.80E+11
577	5.72E+11	→ 47	3.07E+11	→ 299	1.48E+11	→ 45	5.25E+10	→ 50	4.73E+10	→ 296	1.41E+12
578	5.28E+11	→ 317	9.23E+10	→ 194	8.36E+10	→ 200	4.93E+10	→ 209	3.37E+10	→ 310	8.65E+11
579	4.29E+11	→ 9	2.77E+11	→ 50	2.40E+11	→ 301	2.25E+11	→ 10	1.95E+11	→ 12	2.15E+12
580	6.29E+11	→ 315	6.41E+10	→ 310	1.52E+10	→ 314	2.59E+09	→ 202	2.44E+09	→ 326	7.21E+11
581	7.12E+11	→ 314	1.95E+09	→ 201	1.56E+09	→ 138	9.00E+08	→ 140	7.40E+08	→ 323	7.20E+11
582	1.14E+12	→ 165	3.43E+10	→ 336	3.75E+09	→ 51	3.05E+09	→ 304	2.88E+09	→ 266	1.19E+12

Table 7. continued.

Index	A^r (s^{-1})	final level	A^r (s^{-1})	final level	A^r (s^{-1})	final level	A^r (s^{-1})	final level	A^r (s^{-1})	final level	$\sum A^r$ (s^{-1})
583	9.86E+11	→ 164	1.71E+11	→ 10	3.74E+10	→ 302	3.49E+10	→ 63	3.33E+10	→ 53	1.37E+12
584	3.78E+11	→ 29	1.89E+11	→ 31	1.51E+11	→ 287	6.71E+10	→ 288	4.56E+10	→ 27	8.63E+11
585	6.10E+11	→ 31	2.21E+11	→ 288	1.24E+10	→ 324	6.17E+09	→ 310	4.25E+09	→ 81	8.64E+11
586	3.01E+12	→ 10	6.51E+11	→ 173	3.71E+11	→ 165	2.30E+10	→ 6	1.65E+10	→ 336	4.21E+12
587	2.58E+12	→ 9	1.17E+12	→ 10	4.71E+11	→ 172	2.79E+11	→ 164	1.44E+11	→ 173	4.93E+12
588	1.15E+12	→ 1	3.02E+11	→ 29	2.02E+11	→ 3	1.08E+11	→ 287	1.04E+11	→ 2	2.34E+12
589	2.46E+12	→ 1	2.95E+11	→ 32	2.03E+11	→ 3	1.42E+11	→ 289	1.36E+11	→ 29	3.52E+12
590	9.55E+11	→ 198	2.53E+11	→ 195	1.12E+11	→ 199	8.62E+10	→ 325	3.79E+10	→ 193	1.69E+12
591	3.17E+12	→ 1	4.31E+11	→ 32	1.90E+11	→ 289	8.52E+10	→ 26	6.66E+10	→ 4	4.07E+12
592	7.76E+11	→ 199	1.57E+11	→ 3	1.24E+11	→ 2	1.00E+11	→ 194	9.93E+10	→ 208	1.87E+12
593	3.58E+12	→ 12	1.14E+12	→ 9	9.87E+11	→ 10	2.55E+11	→ 162	2.54E+11	→ 180	6.94E+12
594	4.24E+12	→ 12	1.50E+12	→ 9	4.23E+11	→ 162	2.51E+11	→ 180	1.91E+11	→ 13	7.14E+12
595	1.91E+12	→ 4	2.30E+11	→ 36	1.69E+11	→ 5	1.43E+11	→ 292	1.31E+11	→ 1	3.17E+12
596	1.09E+12	→ 3	9.20E+11	→ 2	6.29E+11	→ 5	1.63E+11	→ 34	1.11E+11	→ 290	3.59E+12
597	1.55E+12	→ 4	5.29E+11	→ 5	1.86E+11	→ 2	1.63E+11	→ 3	1.45E+11	→ 34	3.27E+12
598	6.65E+12	→ 12	1.08E+12	→ 10	5.03E+11	→ 180	2.85E+11	→ 173	7.44E+10	→ 192	8.94E+12
599	3.51E+12	→ 3	4.37E+11	→ 35	1.91E+11	→ 291	9.35E+10	→ 43	3.09E+10	→ 31	4.35E+12
600	2.96E+12	→ 13	1.38E+12	→ 9	3.78E+11	→ 172	3.77E+11	→ 184	3.04E+11	→ 12	6.03E+12
601	7.79E+11	→ 195	1.63E+11	→ 194	1.33E+11	→ 208	1.10E+11	→ 316	8.07E+10	→ 330	1.58E+12
602	6.05E+11	→ 194	3.15E+11	→ 200	1.49E+11	→ 196	1.01E+11	→ 317	8.14E+10	→ 333	1.59E+12
603	2.28E+11	→ 5	1.06E+11	→ 146	1.02E+11	→ 318	9.94E+10	→ 4	6.61E+10	→ 37	9.18E+11
604	1.25E+12	→ 196	1.16E+11	→ 331	7.53E+10	→ 310	5.04E+10	→ 186	4.24E+10	→ 326	1.70E+12
605	4.18E+11	→ 194	3.95E+11	→ 209	2.74E+11	→ 200	9.78E+10	→ 333	8.37E+10	→ 309	1.63E+12
606	1.87E+11	→ 5	1.11E+11	→ 320	9.74E+10	→ 145	7.77E+10	→ 40	4.66E+10	→ 34	7.64E+11
607	5.55E+12	→ 13	6.02E+11	→ 12	5.34E+11	→ 184	1.85E+11	→ 11	1.51E+11	→ 163	7.65E+12
608	8.47E+11	→ 52	4.33E+11	→ 304	6.85E+09	→ 68	8.28E+08	→ 107	4.11E+08	→ 336	1.29E+12
609	5.78E+11	→ 51	3.16E+11	→ 303	8.45E+10	→ 52	8.27E+10	→ 61	6.77E+10	→ 313	1.29E+12
610	2.81E+11	→ 56	2.55E+11	→ 51	2.36E+11	→ 305	1.92E+11	→ 48	1.38E+11	→ 303	1.37E+12
611	4.79E+11	→ 61	3.37E+11	→ 313	1.10E+11	→ 51	9.44E+10	→ 72	8.09E+10	→ 52	1.25E+12
612	3.50E+11	→ 58	3.20E+11	→ 56	2.09E+11	→ 306	2.08E+11	→ 305	7.68E+10	→ 48	1.49E+12
613	4.36E+11	→ 58	2.62E+11	→ 306	1.61E+11	→ 60	1.39E+11	→ 307	9.08E+10	→ 59	1.47E+12
614	4.71E+11	→ 60	3.18E+11	→ 307	1.79E+11	→ 13	1.68E+11	→ 58	1.44E+11	→ 59	1.65E+12
615	3.02E+11	→ 63	2.97E+11	→ 311	2.00E+11	→ 56	1.07E+11	→ 61	7.90E+10	→ 313	1.32E+12
616	3.86E+11	→ 326	2.01E+11	→ 202	1.53E+11	→ 331	6.69E+10	→ 323	3.28E+10	→ 203	8.62E+11
617	3.85E+11	→ 329	2.11E+11	→ 201	1.70E+11	→ 323	6.40E+10	→ 324	1.14E+10	→ 174	8.45E+11
618	3.68E+11	→ 62	2.84E+11	→ 312	2.10E+11	→ 12	1.75E+11	→ 50	1.61E+11	→ 9	1.71E+12
619	9.70E+11	→ 5	4.08E+11	→ 145	1.44E+11	→ 2	6.79E+10	→ 319	6.43E+10	→ 216	1.90E+12
620	4.96E+11	→ 323	2.06E+11	→ 329	9.50E+09	→ 201	2.10E+09	→ 151	2.06E+09	→ 324	7.18E+11
621	7.10E+11	→ 324	1.62E+09	→ 143	7.54E+08	→ 52	1.84E+08	→ 352	8.88E+07	→ 304	7.12E+11
622	4.38E+11	→ 13	3.41E+11	→ 59	3.06E+11	→ 9	2.77E+11	→ 308	1.40E+11	→ 11	2.28E+12
623	7.96E+11	→ 5	3.83E+11	→ 145	1.58E+11	→ 2	5.56E+10	→ 217	4.64E+10	→ 215	1.71E+12
624	4.80E+11	→ 194	2.39E+11	→ 328	1.78E+11	→ 209	1.31E+11	→ 326	1.22E+11	→ 204	1.53E+12
625	7.45E+11	→ 196	2.81E+11	→ 331	1.08E+11	→ 203	1.02E+11	→ 329	7.10E+10	→ 326	1.52E+12
626	7.02E+11	→ 195	1.59E+11	→ 204	1.32E+11	→ 328	1.32E+11	→ 194	1.32E+11	→ 327	1.70E+12
627	2.54E+11	→ 4	2.41E+11	→ 146	8.92E+10	→ 5	7.88E+10	→ 198	6.70E+10	→ 213	1.21E+12
628	5.87E+11	→ 209	2.53E+11	→ 333	2.50E+11	→ 194	1.04E+11	→ 331	9.00E+10	→ 203	1.68E+12
629	4.10E+11	→ 5	2.06E+11	→ 145	1.76E+11	→ 205	1.12E+11	→ 199	7.07E+10	→ 209	1.46E+12
630	3.99E+11	→ 198	2.28E+11	→ 325	1.83E+11	→ 195	1.31E+11	→ 327	1.04E+11	→ 205	1.59E+12
631	4.03E+11	→ 199	1.85E+11	→ 205	1.50E+11	→ 330	1.47E+11	→ 5	1.12E+11	→ 145	1.61E+12
632	1.51E+12	→ 202	3.28E+11	→ 203	7.42E+10	→ 201	7.32E+10	→ 186	6.96E+10	→ 326	2.16E+12
633	2.03E+12	→ 201	7.76E+10	→ 329	2.64E+10	→ 324	2.30E+10	→ 352	8.00E+09	→ 323	2.18E+12
634	1.07E+12	→ 206	2.69E+11	→ 205	1.97E+11	→ 4	1.06E+11	→ 146	6.99E+10	→ 210	2.05E+12
635	1.40E+12	→ 204	2.19E+11	→ 203	1.89E+11	→ 202	6.23E+10	→ 328	4.08E+10	→ 168	2.19E+12

Table 7. continued.

Index	A^r (s^{-1})	final level	A^r (s^{-1})	final level	A^r (s^{-1})	final level	A^r (s^{-1})	final level	A^r (s^{-1})	final level	$\sum A^r$ (s^{-1})
636	1.16E+12	→ 203	4.49E+11	→ 202	3.25E+11	→ 201	7.60E+10	→ 331	4.29E+10	→ 186	2.21E+12
637	9.08E+11	→ 205	7.02E+11	→ 210	2.26E+11	→ 206	1.17E+11	→ 208	9.01E+10	→ 200	2.43E+12
638	5.46E+11	→ 204	4.32E+11	→ 205	3.41E+11	→ 208	2.12E+11	→ 199	9.45E+10	→ 327	2.20E+12
639	9.99E+11	→ 200	3.66E+11	→ 203	3.39E+11	→ 209	9.89E+10	→ 202	9.54E+10	→ 333	2.23E+12
640	5.54E+11	→ 206	4.39E+11	→ 4	3.00E+11	→ 146	1.88E+11	→ 205	5.79E+10	→ 210	1.78E+12
641	6.77E+11	→ 210	3.59E+11	→ 206	3.08E+11	→ 208	2.17E+11	→ 199	1.13E+11	→ 325	2.26E+12
642	9.49E+11	→ 208	3.78E+11	→ 200	2.68E+11	→ 205	1.38E+11	→ 330	1.15E+11	→ 209	2.21E+12
643	2.67E+11	→ 24	2.38E+11	→ 9	6.67E+10	→ 12	5.67E+10	→ 297	3.79E+10	→ 296	8.47E+11
644	2.62E+11	→ 23	2.34E+11	→ 10	9.25E+10	→ 294	4.67E+10	→ 336	3.07E+10	→ 68	7.53E+11
645	1.86E+11	→ 23	7.35E+10	→ 24	7.10E+10	→ 9	5.70E+10	→ 294	5.30E+10	→ 10	6.37E+11
646	2.57E+11	→ 23	1.06E+11	→ 10	8.75E+10	→ 294	2.31E+10	→ 173	2.09E+10	→ 12	6.21E+11
647	2.42E+11	→ 24	7.47E+10	→ 9	5.84E+10	→ 13	4.51E+10	→ 297	2.52E+10	→ 296	6.11E+11
648	1.79E+11	→ 24	6.28E+10	→ 23	4.89E+10	→ 9	3.78E+10	→ 297	2.35E+10	→ 80	5.10E+11
649	4.41E+11	→ 37	3.17E+11	→ 3	1.69E+11	→ 318	9.82E+10	→ 40	4.96E+10	→ 38	1.18E+12
650	5.64E+11	→ 190	3.15E+11	→ 9	2.99E+11	→ 192	1.07E+11	→ 10	8.53E+10	→ 188	1.63E+12
651	6.11E+11	→ 40	2.21E+11	→ 320	1.21E+10	→ 352	3.28E+09	→ 31	2.44E+09	→ 81	8.56E+11
652	1.05E+12	→ 188	6.42E+11	→ 10	3.66E+10	→ 336	1.28E+10	→ 6	1.14E+10	→ 70	1.83E+12
653	3.12E+12	→ 11	6.91E+11	→ 191	3.53E+11	→ 12	1.30E+11	→ 190	5.16E+10	→ 79	4.70E+12
654	1.64E+12	→ 11	1.03E+12	→ 12	4.46E+11	→ 190	2.86E+11	→ 191	1.92E+11	→ 13	4.12E+12
655	1.65E+12	→ 3	8.74E+11	→ 2	2.56E+11	→ 43	1.60E+11	→ 41	1.19E+11	→ 321	3.41E+12
656	1.64E+12	→ 2	5.47E+11	→ 3	3.06E+11	→ 41	1.30E+11	→ 319	1.01E+11	→ 4	3.24E+12
657	1.90E+12	→ 3	3.22E+11	→ 43	1.27E+11	→ 321	1.25E+11	→ 40	8.15E+10	→ 37	2.75E+12
658	9.79E+11	→ 2	4.62E+11	→ 4	3.07E+11	→ 44	1.69E+11	→ 41	1.31E+11	→ 322	2.36E+12
659	2.93E+12	→ 12	4.83E+11	→ 192	3.36E+11	→ 9	2.11E+11	→ 188	1.80E+11	→ 190	4.53E+12
660	1.40E+12	→ 5	7.27E+11	→ 2	1.83E+11	→ 41	1.23E+11	→ 1	1.15E+11	→ 4	3.15E+12
661	3.15E+12	→ 5	4.53E+11	→ 2	2.37E+11	→ 49	1.77E+11	→ 37	1.19E+11	→ 334	4.47E+12
662	2.68E+12	→ 5	2.51E+11	→ 3	2.21E+11	→ 49	1.38E+11	→ 4	1.12E+11	→ 44	3.98E+12
663	4.96E+12	→ 13	4.69E+11	→ 197	3.47E+11	→ 12	1.43E+11	→ 11	1.29E+11	→ 71	6.61E+12
664	1.11E+11	→ 57	9.38E+10	→ 345	7.32E+10	→ 55	4.79E+10	→ 344	3.49E+10	→ 54	5.17E+11
665	3.68E+11	→ 216	2.62E+11	→ 355	1.46E+11	→ 215	6.15E+10	→ 353	5.02E+10	→ 356	1.01E+12
666	3.17E+11	→ 356	3.11E+11	→ 215	1.35E+11	→ 219	6.58E+10	→ 354	5.50E+10	→ 213	9.99E+11
667	3.57E+11	→ 353	3.14E+11	→ 219	9.01E+10	→ 349	7.82E+10	→ 215	7.32E+10	→ 217	1.00E+12
668	3.81E+11	→ 354	2.82E+11	→ 213	1.19E+11	→ 217	7.20E+10	→ 350	6.13E+10	→ 212	1.01E+12
669	4.03E+11	→ 67	3.00E+11	→ 335	1.48E+11	→ 61	1.43E+11	→ 68	1.34E+11	→ 72	1.32E+12
670	2.69E+11	→ 70	2.36E+11	→ 80	1.81E+11	→ 337	1.49E+11	→ 341	1.47E+11	→ 72	1.29E+12
671	4.11E+11	→ 72	3.12E+11	→ 339	3.10E+11	→ 67	1.02E+11	→ 335	3.99E+10	→ 61	1.25E+12
672	8.20E+11	→ 68	4.28E+11	→ 336	1.00E+10	→ 52	1.02E+09	→ 107	6.66E+08	→ 304	1.26E+12
673	3.31E+11	→ 80	2.20E+11	→ 341	2.10E+11	→ 70	1.41E+11	→ 67	1.23E+11	→ 10	1.46E+12
674	4.51E+11	→ 69	3.46E+11	→ 12	2.43E+11	→ 338	1.95E+11	→ 70	1.74E+11	→ 9	1.90E+12
675	4.75E+11	→ 349	1.55E+11	→ 217	1.14E+11	→ 347	9.05E+10	→ 213	4.39E+10	→ 209	9.43E+11
676	4.41E+11	→ 350	2.84E+11	→ 212	1.03E+11	→ 348	6.22E+10	→ 347	1.76E+10	→ 203	9.33E+11
677	6.82E+11	→ 351	1.45E+10	→ 352	1.90E+09	→ 348	3.92E+08	→ 72	3.14E+08	→ 323	7.00E+11
678	6.97E+11	→ 352	7.56E+08	→ 68	5.42E+08	→ 324	1.55E+08	→ 143	8.69E+07	→ 336	6.99E+11
679	5.35E+11	→ 347	1.03E+11	→ 350	8.70E+10	→ 351	3.72E+10	→ 202	1.04E+10	→ 348	7.83E+11
680	4.47E+11	→ 82	2.71E+11	→ 343	1.40E+11	→ 70	1.33E+11	→ 80	1.06E+11	→ 341	1.48E+12
681	6.49E+11	→ 348	8.34E+10	→ 352	4.16E+10	→ 201	6.70E+09	→ 351	3.40E+08	→ 67	7.82E+11
682	3.63E+11	→ 13	3.14E+11	→ 11	2.70E+11	→ 12	2.69E+11	→ 69	1.93E+11	→ 338	2.46E+12
683	5.62E+11	→ 11	4.36E+11	→ 79	2.64E+11	→ 342	1.37E+11	→ 71	9.95E+10	→ 340	2.06E+12
684	1.98E+12	→ 13	2.13E+11	→ 71	1.88E+11	→ 197	1.84E+11	→ 79	1.70E+11	→ 82	3.48E+12
685	1.08E+12	→ 217	5.44E+11	→ 213	1.95E+11	→ 209	1.01E+11	→ 349	7.15E+10	→ 212	2.21E+12
686	1.93E+12	→ 212	9.47E+10	→ 350	5.63E+10	→ 348	5.36E+10	→ 352	3.32E+10	→ 203	2.23E+12
687	2.96E+11	→ 11	2.57E+11	→ 33	9.42E+10	→ 332	4.55E+10	→ 86	4.29E+10	→ 361	8.24E+11
688	8.41E+11	→ 219	4.52E+11	→ 215	2.69E+11	→ 217	1.82E+11	→ 353	1.10E+11	→ 349	2.19E+12

Table 7. continued.

Index	A^r (s^{-1})	final level	A^r (s^{-1})	final level	A^r (s^{-1})	final level	A^r (s^{-1})	final level	A^r (s^{-1})	final level	$\sum A^r$ (s^{-1})
689	1.21E+12	→ 213	3.70E+11	→ 217	2.03E+11	→ 354	1.85E+11	→ 212	9.78E+10	→ 350	2.24E+12
690	2.48E+11	→ 33	2.36E+11	→ 13	1.15E+11	→ 11	8.91E+10	→ 332	3.81E+10	→ 85	8.44E+11
691	1.14E+12	→ 216	4.47E+11	→ 215	2.35E+11	→ 355	1.12E+11	→ 353	4.27E+10	→ 356	2.23E+12
692	8.21E+11	→ 215	5.68E+11	→ 219	2.79E+11	→ 356	1.91E+11	→ 213	1.08E+11	→ 354	2.22E+12
693	1.26E+12	→ 5	5.14E+11	→ 57	2.16E+11	→ 345	4.97E+10	→ 54	4.71E+10	→ 2	2.16E+12
694	1.87E+12	→ 4	4.73E+11	→ 55	2.50E+11	→ 5	1.77E+11	→ 344	8.79E+10	→ 57	2.96E+12
695	1.10E+11	→ 66	8.27E+10	→ 362	8.16E+10	→ 65	5.74E+10	→ 360	5.61E+10	→ 64	4.56E+11
696	6.94E+11	→ 86	4.01E+11	→ 361	5.13E+10	→ 85	3.74E+10	→ 62	2.86E+10	→ 359	1.28E+12
697	7.54E+11	→ 85	4.30E+11	→ 359	5.31E+10	→ 80	1.93E+10	→ 70	1.33E+10	→ 63	1.29E+12
698	2.28E+11	→ 6	1.22E+11	→ 7	1.22E+11	→ 74	8.61E+10	→ 363	8.58E+10	→ 73	8.94E+11
699	6.95E+11	→ 366	2.57E+10	→ 367	2.16E+10	→ 217	1.24E+10	→ 213	6.08E+09	→ 209	7.71E+11
700	7.21E+11	→ 367	4.26E+10	→ 212	3.33E+09	→ 350	1.44E+09	→ 352	6.50E+08	→ 85	7.71E+11