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RESEARCH REPORT
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Dielectronic Recombination Rate Coefficients to Excited States of Be-like Oxygen

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Abstract

We have calculated energy levels, radiative transition probabilities, and autoionization rates for Be-like oxygen (O^{4+}) including $1s^2 2lnl'$ ($n = 2 - 8$, $l \leq n - 1$) and $1s^2 3lnl$ ($n = 3 - 6$, $l \leq n - 1$) states by multi-configurational Hartree-Fock method (Cowan code) and perturbation theory Z-expansion method (MZ code).

The state selective dielectronic recombination rate coefficients to excited states of Be-like O ions are obtained. Configuration mixing plays an important role for the principal quantum number n distribution of the dielectronic recombination rate coefficients for $2snl$ ($n \leq 5$) levels at low electron temperature. The orbital angular momentum quantum number l distribution of the rate coefficients shows a peak at $l = 4$. The total dielectronic recombination rate coefficient is derived as a function of electron temperature.

Keywords: Be-like oxygen, dielectronic recombination rate coefficients, state selective rate coefficients, satellite lines

I. INTRODUCTION

Spectral lines of Be-like oxygen ion are observed in laboratory plasmas and are often used for diagnostics of plasmas. Observation and modeling of line intensity ratios of OV multiplet lines for $2s3s\ ^3S_1-2s3p\ ^3P_J$ transitions was presented by Kato *et al.* (1996) [1]. For the analysis of the spectra and various other applications, many atomic quantities are required. Kato, Lang, and Berrington [2] evaluated electron impact excitation rate coefficients of Be-like oxygen and constructed a model for OV line intensities. *Ab initio* close-coupling calculations using R-matrix method were performed by Nahar [3] to obtain the photoionization cross section, oscillator strengths and energy levels for oxygen ions. The measurements of polarization of the emission line corresponding to the $1s^22s6h - 1s^22s7i$ transition of OV produced by the double electron transfer were reported recently by Kano *et al.* [4]. Using high resolution electron spectroscopy, energy levels and lifetime of many Be-like singlet states of the $1s^23lnl'$ Rydberg series ($n=3$ to 5) of oxygen have been measured by Bordenave-Montesquieu *et al.* [5]. Spectra of multiply charged oxygen ions were studied in the region between 1800 and 6000 Å by beam foil method in recent published paper [6].

High temperature plasma experiments have been performed in the LHD (Large Helical Device) of National Institute for Fusion Science and OV resonance line (630 Å) is measured routinely with a monochromator. Other OV lines are also observed by UV spectroscopy. Although oxygen is not main impurity element in the LHD after mounting the Carbon tiles and the Ti-gettering [7], spectral lines of oxygen ions are strong. Plasmas in the LHD are likely to show recombining plasma phase when disappearing.

In order to construct a more reliable model for spectral line intensities both in ionizing and recombining plasmas, we need state-selective recombination rate coefficients for transitions between excited states. The model in Refs. [2] and [1] did not take into account recombining processes. Dielectronic recombination (DR) rate coefficient from Li-like O ions to Be-like O ions has been studied in Refs. [8–11] but the state selective rate coefficients were not published.

Here in this paper we calculate energy levels, transition probabilities, and autoionization rates for excited states of Be-like O, using Cowan's code in section II, and obtain the state selective recombination rate coefficients (§IV). Dielectronic satellite lines are also calculated (§III).

II. ENERGY LEVELS, TRANSITION PROBABILITIES, AND AUTOIONIZATION RATE

Recently, the status and perspectives of calculations and measurements of transition data in the Be isoelectronic sequence were presented in Ref. [12]. Transition energies and rates between the $2s^2\ ^1S_0$, $2s2p\ ^3P_{0,1,2}$, and $2s2p\ ^1P_1$ levels in Be-like ions with $Z=7-28, 30, 36, 42$ were calculated in the valence and core-valence limit using the multi-configuration Dirac-Fock method in [12]. Relativistic many-body perturbation theory method (MBPT) was used to calculate transition energies, oscillator strengths and radiative rates between the $2s^2\ ^1S_0$, $2s2p\ ^1P_1$, $2p^2\ ^{2S+1}L_J$, $2l3l'\ ^{2S+1}L_J$ levels in Be-like ions with $Z=6-100$ in Refs. [13–16].

We have carried out detailed calculations of the radiative and autoionization rates for $2snl$, $2pnl$ levels with $n = 2 - 8$, $l \leq (n - 1)$ and $3snl$, $3pnl$, $3dnl$ levels with $n = 3 - 6$, $l \leq (n - 1)$. The atomic energy levels and bound-state wave functions were obtained by

using the atomic structure code of Cowan [17]. The perturbation theory method (MZ code) was also used for calculating energy and radiative transition probabilities. This method was described in detail in Refs. [18], [19]. The results of our calculations are given in Tables I-VIII.

In Table I, we give energies and sum of weighted radiative transition probabilities for the $2snl$ ($n \leq 8$) and $2pnl$ ($n \leq 5$) levels of Be-like O below the first threshold ($I=918,702 \text{ cm}^{-1}$). Theoretical results for energies obtained from the two codes, Cowan (column 3) and MZ (column 4) are compared with the data from the compilation in recommended NIST data (column 5) [20]. We can see that the perturbation theory method (MZ code) agrees better with [20] than the scaled multi-configuration Hartree-Fock method (Cowan code). The sixth column in Table I lists the Hartree-Fock transition probabilities summed over all the lower levels and multiplied by the statistical weight (g) of the upper level ($g(i) \sum_{j<i} A_r(i, j)$).

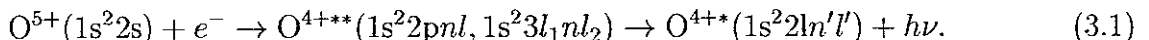
Table II lists the level energy E , sum of weighted radiative transition probabilities $g(i) \sum_{j<i} A_r(i, j)(\text{sec}^{-1})$, autoionization rate A_a to $1s^2 2s^2 S$, and sum of all possible autoionization rates $\sum A_a$ for $1s^2 2pnl(\text{LSJ})$ states ($n = 6 - 8$) and $1s^2 3lnl'(\text{LSJ})$ states ($n = 3 - 6$) which are autoionizing states above the $1s^2 2s^2 S_{1/2}$ threshold. The autoionization rates are calculated with the Cowan code. $1s^2 3lnl'(\text{LSJ})$ states have several possible channels for autoionization, i.e. to $1s^2 2s$, $1s^2 2p$, $1s^2 3s$ (for $3pnl$ and $3dnl$), and $1s^2 3p$ (for $3dnl$). It should be noted that some levels with large total radiative transition probability ($\sum g A_r > 10^9 \text{ s}^{-1}$ for $1s^2 2pnl$ and $\sum g A_r > 10^{10} \text{ s}^{-1}$ for $1s^2 3lnl'$) were chosen for illustration among almost 1000 levels considered in this paper .

Table III lists wavelengths and weighted radiative transition probabilities for $2l_1 n l_2 - 2l n' l'$ transitions under the threshold in Be-like oxygen for selected transitions with $g A_r \geq 10^8 \text{ s}^{-1}$. In Table IV we compare wavelengths and weighted radiative transition probabilities obtained from Cowan's code with recommended NIST data [20] for some transitions. We find good agreements for radiative transition probabilities of dipole transitions. In the table, there are some non allowed transitions which have large transition probabilities. For example, $2p^2 \ ^1D - 2s4f \ ^1F$ and $2p^2 \ ^1D - 2s6f \ ^1F$ have $g A_r$ larger than 10^{10} s^{-1} . This is caused by configuration mixing of $2s4f$ and $2p3d$ states, and $2s6f$ and $2p4d$ states. Table V shows the mixing coefficients for these states. The large interaction of these configurations can be explained by the energy level distribution. The energy levels of $2snl$ and $2pnl$ configurations are very close to each other, as seen in Table I. It should be noted that the effect of configuration mixing on computed dielectronic-recombination rates was discussed by Cowan and Griffin in Ref. [21].

Tables VI and VII list wavelengths and weighted radiative transition probabilities for DR satellite lines, which will be discussed in the next section.

III. DIELECTRONIC SATELLITE SPECTRA

The DR process to bound states of Be-like oxygen is a series of following actions: an electron is captured by Li-like oxygen into a doubly excited state of Be-like oxygen and stabilized by radiative decay to a bound state of Be-like oxygen. That is,



As an initial state we consider the ground state of O^{5+} , $1s^2 2s$. The $1s^2 2pnl$ and $1s^2 3l_1 n l_2$ levels are taken into account as doubly excited states.

During the DR process, DR satellite lines are emitted from doubly excited autoionization states to bound states. Radiative transitions from $1s^2 2pnl$ states to $1s^2 2snl$ states produce

satellite lines of the resonance line $1s^2 2s - 1s^2 2p$ of the Li-like oxygen. Similarly, radiative transitions from the autoionization states $1s^2 3l_1 n l_2$ to the bound states $1s^2 2l' n l_2$ produce satellite lines of $1s^2 3l_1 - 1s^2 2l'$. There also exist DR satellite transitions from autoionizing states $1s^2 2p n l$ to $1s^2 2p n' l'$ with changing principal quantum number n . They appear at a longer wavelength region.

In Tables VI and VII, we list wavelengths (λ [\AA]) and weighted radiative transition probabilities ($gA_r[\text{s}^{-1}]$) for transitions with large values of gA_r . Only the strongest lines are listed here ($gA_r > 10^9 \text{s}^{-1}$ for $2l_1 n l_2 - 3l n' l'$ transitions in Table VI and $gA_r > 10^8 \text{s}^{-1}$ for $2l_1 n l_2 - 2p n' l'$ transitions in Table VII).

The emission rate coefficient of the dielectronic satellite line is

$$C_S^{eff}(i, j) = 3.3 \times 10^{-24} \left(\frac{I_H}{kT_e} \right)^{3/2} \frac{Q_d(i, j)}{g_0} \exp \left(-\frac{E_s(i)}{kT_e} \right) \text{ photons cm}^3 \text{s}^{-1}, \quad (3.2)$$

$$Q_d(i, j) = \frac{g(i) A_a(i, i_0) A_r(i, j)}{\sum_{i_0'} A_a(i, i_0') + \sum_k A_r(i, k)}, \quad (3.3)$$

where I_H is the ionization potential of hydrogen; j denotes a final bound state; i a doubly excited state; i_0 the initial state (which is $1s^2 2s$ ground state); and i_0' a possible final state for autoionization such as $1s^2 2s$ and $1s^2 2p$ states from $3l_1 n l_2$ states. The statistical weight of the initial state i_0 is g_0 ; $g(i)$ the statistical weight for a doubly excited state; $A_a(i, i_0)$ the autoionization rate from i to i_0 state; $A_r(i, j)$ the radiative transition probability from i to j state; and $E_s(i)$ is the energy level of the autoionizing state i measured from $1s^2 2s$ level. T_e is an electron temperature and a Maxwellian distribution is assumed for electron velocities. This is an emission line intensity per electron per O^{5+} ion. For the most case, $A_a \gg A_r$ and then Q_d is roughly estimated as $Q_d(i, j) \approx g(i) A_r(i, j)$.

Figures 1 and 2 show examples of DR satellite line spectra. Fig. 1a-g show DR satellite lines for $T_e = 10\text{eV}$ and Fig. 2a-g show DR satellite lines for $T_e = 100\text{eV}$. As spectral resolution, $R = \lambda/\Delta\lambda = 500$ is assumed to synthesize these spectra. When T_e is low, DR capture to $2p n l$ states is dominant and DR satellite lines from $2p n l$ to $2p n' l'$ are significant. But when T_e is high, DR capture to $3l n l'$ is dominant and DR satellite lines from $3l n l'$ to $2l'' n l'$ are stronger. For example, at $T_e = 10\text{eV}$ Fig. 1b shows strong DR satellite lines of $2s 2p - 2p n l$ transitions at $110 - 130 \text{\AA}$ ($2s - n l$ transitions), and of $2p^2 - 2p n l$ transitions at $130 - 145 \text{\AA}$ ($2p - n l$ transitions). These strong lines are not found in Fig. 2b at $T_e = 100\text{eV}$. Instead, DR satellite lines of $2s n l - 3p n l$ transitions are very strong at $\sim 151 \text{\AA}$.

For other main satellite lines are $2s - 2p$ transitions ($2s n l - 2p n l$) at $\sim 1030 \text{\AA}$ (Figs.1g and 2g), $2p - 3d$ transitions ($2p n l - 3d n l$) at $\sim 180 \text{\AA}$ (Figs.1b and 2b), $3l - n l$ transitions ($2p 3l - 2p n l$) at around $250 - 450 \text{\AA}$ (Figs.1c, 1d, 2c, and 2d), $4l - n l$ transitions ($2p 4l - 2p n l$) at around $700 - 1000 \text{\AA}$ (Figs.1e, 1f, 2e, and 2f), and $5l - n l$ transitions ($2p 5l - 2p n l$) at around $\sim 3000 \text{\AA}$ (Figs.1h and 1h).

Satellite lines from $2p n l$ and $3l n l'$ autoionizing states with higher n to low bound states appear at a shorter wavelength region (Figs.1a and 2a).

IV. DIELECTRONIC RECOMBINATION RATE COEFFICIENTS

A. State-selective rate coefficients

The DR rate coefficients to excited states are obtained by summing the rate coefficients of DR processes through all possible doubly excited states:

$$\alpha_d(i_0, j) = \frac{1}{2} \left(\frac{h^2}{2\pi m k T_e} \right)^{3/2} \frac{1}{g_0} \sum_i Q_d(i, j) \exp \left(-\frac{E_s(i)}{k T_e} \right), \quad (4.1)$$

where $Q_d(i, j)$ is given by eq.(3.3).

As described in Section II, our calculated data are for a limited set of intermediate states and we need to include contributions from autoionizing levels with higher n . For modeling a recombining plasma with a collisional-radiative model, we need the DR rate coefficients to highly excited states $2snl$ with $n > 7$ as well.

In order to estimate contributions from autoionizing states with higher n levels to the rate coefficients and also the rate coefficients of final $2snl$ levels with higher n , we use empirical scaling laws. For transitions through $2pnl$ autoionizing levels, different scaling laws are used for different final states, $2snl$ and $2pn'l'$. For the former, $2pnl - 2snl$ transition has nearly constant A_r with increasing n . For the latter, A_r of $2pnl - 2pn'l'$ transition is estimated by using the hydrogenic approximation, $A_r(p, q) \propto 1/\{(p^2 - q^2)pq\}$, where p and q are principal quantum numbers of upper and lower levels respectively (Ref. [22]). These two different scaling laws are also used to calculate the sum of all A_r from the upper level $2pnl$.

$$A_r(2pnl, 2snl) \simeq A_r(2p8l, 2s8l) \quad \text{for } n > 8, \quad (4.2)$$

$$A_r(2pnl, 2pn'l') \simeq A_r(2p8l, 2pn'l') \frac{(8^2 - n'^2)8}{(n^2 - n'^2)n} \quad \text{for } n > 8, \quad (4.3)$$

$$\sum A_r(2pnl) \simeq \sum_{n''} A_r(2p8l, 2sn'l'') + (8/n)^{2.5} \sum_{n''} A_r(2p8l, 2pn'l'') \quad \text{for } n > 8. \quad (4.4)$$

The second term of the right hand side in eq.(4.4) has $n^{-2.5}$ dependence. This is an approximation form after performing the sum over n' (Ref. [22]). For A_a , the usual n^{-3} scaling law is adopted:

$$A_a(2pnl) \simeq A_a(2p8l)(8/n)^3. \quad (4.5)$$

We adopt the A_r and A_a values of $2p8l$ levels to extrapolate for higher n levels. The weighted radiative transition probabilities (gA_r), sum of weighted radiative transition probabilities ($\sum(gA_r)$) and autoionization rates ($\sum A_a$) for $2s8l - 2p8l$ transitions are included in Table VII. When $n' \ll n$, the scaling factor in eq.(4.3) becomes $(8/n)^3$.

For the $3ln'l'$ levels with $n' > 6$, we only take into account transitions through $3pnl$ to $2snl$. A_r and A_a for $3pnl$ levels with higher n are estimated as below.

$$A_r(3pnl, 2snl) \simeq A_r(3p6l, 2s6l), \quad (4.6)$$

$$\sum A_r(3pnl) \simeq \sum_{n''} A_r(3p6l)(6/n)^3, \quad (4.7)$$

$$A_a(3pnl) \simeq A_a(3p6l)(6/n)^3, \quad (4.8)$$

$$\sum_{i'_0} A_a(3pnl) \simeq \sum_{i'_0} A_a(3p6l)(6/n)^3. \quad (4.9)$$

We adopt the values of $3p6l$ levels to extrapolate values of higher n levels. Table VI also has the atomic data for those transitions.

The energy levels for high n states are estimated with asymptotic formula given by Safronova et al. [23].

$$E(1s^2 2snl) \simeq E(1s^2 2s) - \frac{1}{2n^2} \left(Z - 3 + \frac{b_1(l)}{n} \right)^2, \quad (4.10)$$

$$E(1s^2 2pnl) \simeq E(1s^2 2p) - \frac{1}{2n^2} \left(Z - 3 + \frac{b_2(l)}{n} \right)^2, \quad (4.11)$$

$$E(1s^2 3pnl) \simeq E(1s^2 3p) - \frac{1}{2n^2} \left(Z - 3 + \frac{b_3(l)}{n} \right)^2, \quad (4.12)$$

$$b_1(l) = 2a_0(1s, l) + a_0(2s, l), \quad (4.13)$$

$$b_2(l) = 2a_0(1s, l) + a_0(2p, l), \quad (4.14)$$

$$b_3(l) = 2a_0(1s, l) + a_0(3p, l), \quad (4.15)$$

where $a_0(n'l', l)$ are taken from the Table III in Ref. [23].

Figure 3 shows the electron temperature (T_e) dependence of the DR rate coefficient for each final bound state of Ne^{6+} with n up to 6. The transitions through the intermediate states $2pnl$ ($n \geq 7$) have a maximum at $T_e \sim 2\text{eV}$ for the DR rate coefficients and those through $3lnl'$ states have a maximum at $T_e \sim 30 - 50\text{eV}$.

The DR rate coefficients for $2s^2$, $2s2p$, and $2p^2$ states have only one peak at $T_e \sim 1.5\text{eV}$ (Figs.3a and 3b), because there is no DR transitions through $3lnl'$ states to these states. The $2s3l$ and $2p3l$ states can be reached by DR process through both $2pnl$ and $3lnl'$, and these DR rate coefficients have two peaks (Figs.3b, 3c, 3d, 3g, 3h). The $2snl$ states with $n = 3 - 6$ are, however, not reachable through $2pnl$ states with $n > 6$ by dipole transitions.

Figure 4 shows the n dependence of the DR rate coefficient of the final $2snl$ and $2pnl$ states at $T_e = 10\text{eV}$ and 100eV . The rates of the same nl levels are added. At higher n the rates of $2snl$ states decrease according to n^{-3} law. The n dependences of the rate coefficients at higher n at high temperature are caused by DR transitions through two kinds of autoionizing states, $2pnl$ and $3pnl$ states. The transitions through $3pnl$ states cause faster decrease at relatively lower n (Fig.4b). Figure 5 shows the n dependences of α_d for different temperature and fast decline of α_d at higher temperature is clearly seen at high n .

The DR rate coefficients of $2snl$ levels with $n \leq 6$ are significantly different from those with $n \geq 7$, as seen in Figs.4 and 5, especially at low temperature. As mentioned above, we do not expect any strong dipole transitions from $2pnl$ with $n \geq 7$ to $2snl$ with $n = 4, 5$ simply and actually $\alpha_d(2s5l)$ is small at $T_e = 3$ and 10eV . However, the configuration mixing plays an important role and enhance the DR rate coefficients of these states. Table V shows

the mixing coefficients for $2pnd\ ^1F + 2snf\ ^1F$. As seen in Table V, $2s6f\ ^1F$ configuration has large mixing coefficients of $2p6d\ ^1F$ and this makes transition probabilities from $2pnp$ states to the $2s6f\ ^1F$ state large as a result of mixing of $2p4d - 2pnp$ transitions. Because of the mixing, DR rate coefficient to the $2s6f\ ^1F$ state becomes large even at low temperature (Fig.3e). Similarly, $2p4f\ ^1F$ configuration is largely mixed with $2p3d\ ^1F$ and $\alpha_d(2p4f\ ^1F)$ at low temperature is large (Fig.3e). Configuration $2s5f\ ^1F$, on the other hand, has small configuration mixing coefficients and the DR rate coefficient is small. The similar effect to the DR rate coefficients is seen for Be-like Ne [24].

Table VIII shows other examples of mixing coefficients. The mixing of $2s6g$, $2s6d$, and $2p4f$ configurations is large, but the mixing of $2s5g$, $2s5d$, and $2p4f$ is small for $J = 3$ (Table VIIIa). On the other hand, the mixing of $2s5g$ and $2p4f$ with $J = 4$ is large (Table VIIIb). It should be noted that the even parity complex state with $J=4$, for example, demonstrated in Table VIIIb includes 34 configurations. We present only some blocks of this matrix in order to show the mixing of selected states. For $J = 2$ configuration mixing of $2s6d$, $2p4p$, and $2p4f$ is large, but one of $2s4d$ and $2p4p$ is small (Table VIIIc).

Figure 6 shows the l distribution for the DR rate coefficients, where the rate coefficients of $2snl$ levels with n up to 500 are added for fixed l . The rate coefficients to $2pnl$ levels are not included. The l distribution is peaked at $l = 4$ and decreasing with increasing l . We obtained the similar l distribution for the DR rate coefficients of Be-like Ne, which shows peak at $l = 5$. When the electron temperature is low, especially at $T_e = 1\text{eV}$, the l distribution is not smooth. At low temperature transitions from $2pnl$ to $2pn'l'$ are dominant for the DR process and only $2pnl$ to $2s2p$ transitions make $\sum_n \alpha_d(2snp)$ large. For other l , the configuration mixing of low n levels contributes the l distribution. When electron temperature becomes higher, however, the transitions from $2pnl$ to $2snl$ and transitions from $3pnl$ to $2snl$ become dominant and the effect of the configuration mixing Φ is hidden in the sum $\sum_n \alpha_d(2snl)$.

Chen [10] mentioned that states with $l = 9 - 11$ contribute about 20 % to the total DR rate coefficient for $\Delta n = 0$ transitions, based on his results of Be-like Fe. But for relatively low Z ions, A_o for $2pnl$ autoionization levels decreases faster with higher l . Our result indicates that $l \geq 8$ levels do not contribute as much as he estimated.

B. Total dielectronic recombination rate coefficients

Here we derive the total DR rate coefficients by summing the rate coefficients of all the levels to compare with results previously obtained by other authors. We take into account the levels with n up to 500 for the summation. The contribution of levels with $n > 500$ is negligible, since the DR rate coefficients decrease with n^{-3} at larger n .

Figure 7 shows the total rate coefficients as a function of electron temperature. In the figure the contributions from different transitions classified with intermediate doubly excited states are shown. At low temperature the recombination process through $2pnl$ states dominates. Especially at $T_e \lesssim 2\text{eV}$ the transitions through $2pnl$ to $2pn'l'$ states dominate the recombination rate coefficients. At such low electron temperature only autoionization $2pnl$ levels near the ionization threshold can contribute the DR process. At $T_e \gtrsim 50\text{eV}$, the recombination through $3lnl'$ states dominate the rate coefficients (Moribayashi and Kato [11]). At much higher temperature, $T_e \gtrsim 1\text{keV}$, however, the inner shell excitation such as $\text{O}^{5+}(1s^22s) + e^- \rightarrow \text{O}^{4+*}(1s2s2pnl) \rightarrow \text{O}^{4+*}(1s^22snl) + h\nu$ can contribute to the rate

coefficients [25]. We neglect this process in this paper.

In Fig.7 we compare our total recombination rate coefficients with those from previous work by other authors. Our rate coefficients agree well with those of Chen [10]. The rate coefficient obtained by Romanik [9] is larger than our result at around 10eV. The differences are probably caused by the different method: Coulomb-Born calculation with empirical wave function was used by Romanik who also mentioned that his values of A_a had large uncertainties arising from use of threshold collision strength. At $T_e \lesssim 3\text{eV}$ our result shows the importance of $2pnl-2pn'l'$ transitions, which was suggested in Ref. [8].

V. SUMMARY

Energy levels, wavelengths, weighted radiative transition probabilities, and autoionization rates were calculated for Be-like oxygen ion with two theoretical methods, perturbation theory (MZ-code) and multi-configurational Hartree-Fock method (Cowan's code). Calculated atomic data are used to estimate the dielectronic satellite lines and to obtain dielectronic recombination rate coefficients into the bound states of Be-like oxygen ion.

We take into account doubly excited states $2pnl$ ($n \geq 6$, $l \leq 7$) and $3lnl'$ ($l \leq 5$) as intermediate resonance states with n up to 500 to calculate the DR rate coefficients. The DR rate coefficient for bound states of Be-like O ion (final state) is obtained. These state selective rate coefficients can be used in a collisional-radiative model for investigating population kinetics and plasma diagnostics for recombining plasma. The transitions through intermediate states $2pnl$ make a peak in the rate coefficients at $T \sim 2 - 10\text{eV}$ and those through $3lnl'$ states make a peak at $T \sim 30 - 50\text{eV}$.

Configuration mixing plays an important role for the DR rate coefficients of $2snl$ levels with $n \leq 6$ at low temperature. The l distribution of the DR rate coefficients indicates that $l \geq 8$ levels are not important and the contribution is small for the case of Be-like O ion. The similar result was obtained for Be-like Ne ion [24]. This result is different from large Z ion such as Be-like Fe ion [10].

The total rate coefficients is in good agreement with previous work except by Romanik [9]. At $T_e \lesssim 2\text{eV}$, DR capture near the ionization threshold and $2pnl-2pn'l'$ transitions are important, as Nussbaumer and Storey [8] pointed out.

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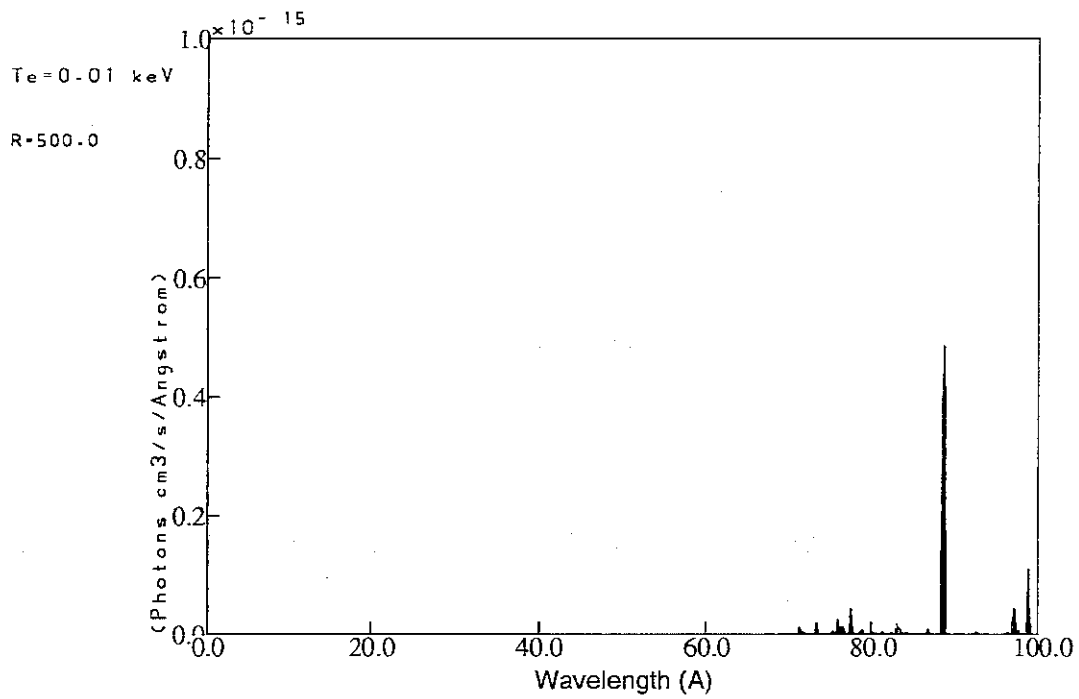


Figure 1: a. Calculated spectrum of dielectronic satellite lines from O^{4+} ion at $T_e = 10\text{eV}$ for $\lambda = 0 - 100 \text{ \AA}$. Resolving power, $R = \lambda/\Delta\lambda = 500$ is assumed to produce Gaussian profile.

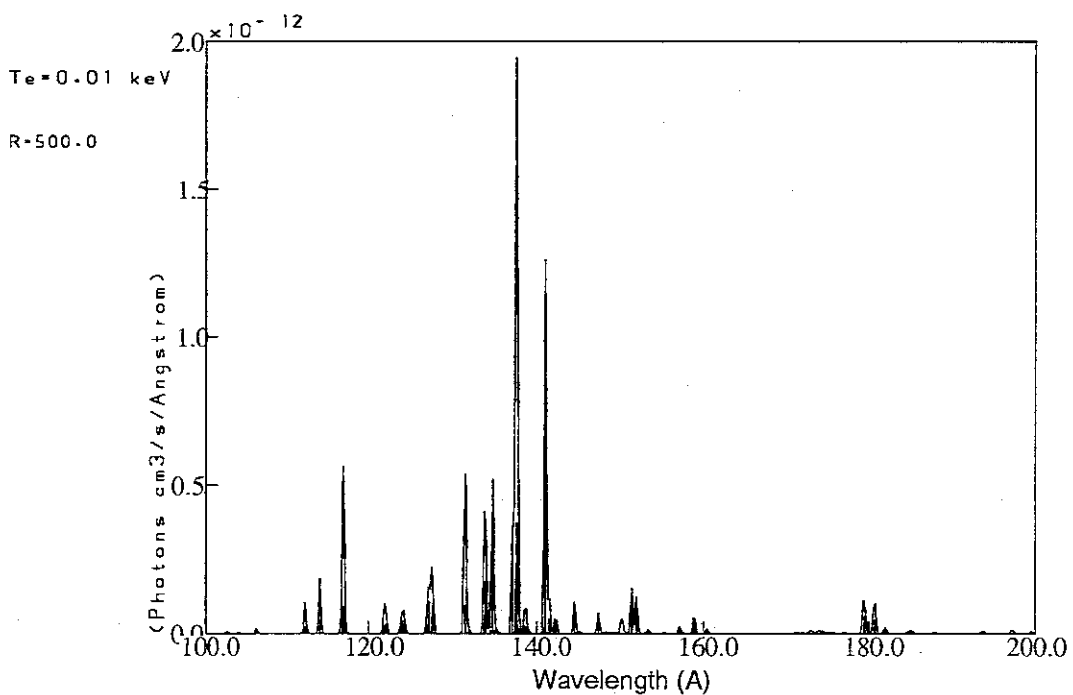


Figure 1: b. Same as (a) but for $\lambda = 100 - 200 \text{ \AA}$.

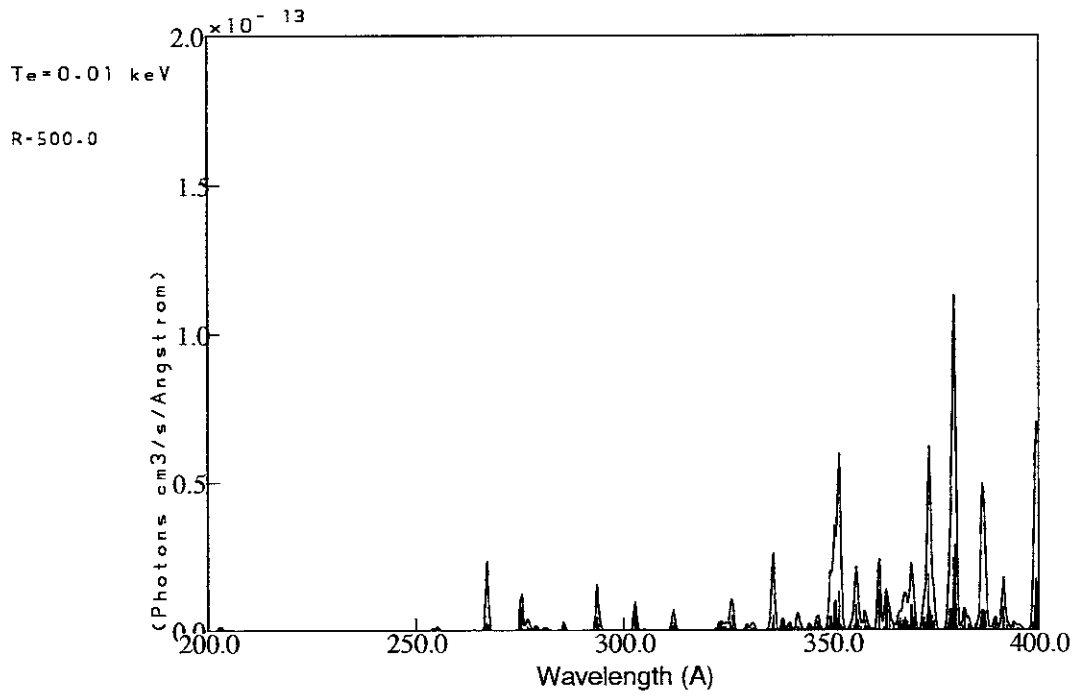


Figure 1: c. Same as (a) but for $\lambda = 200 - 400 \text{ \AA}$.

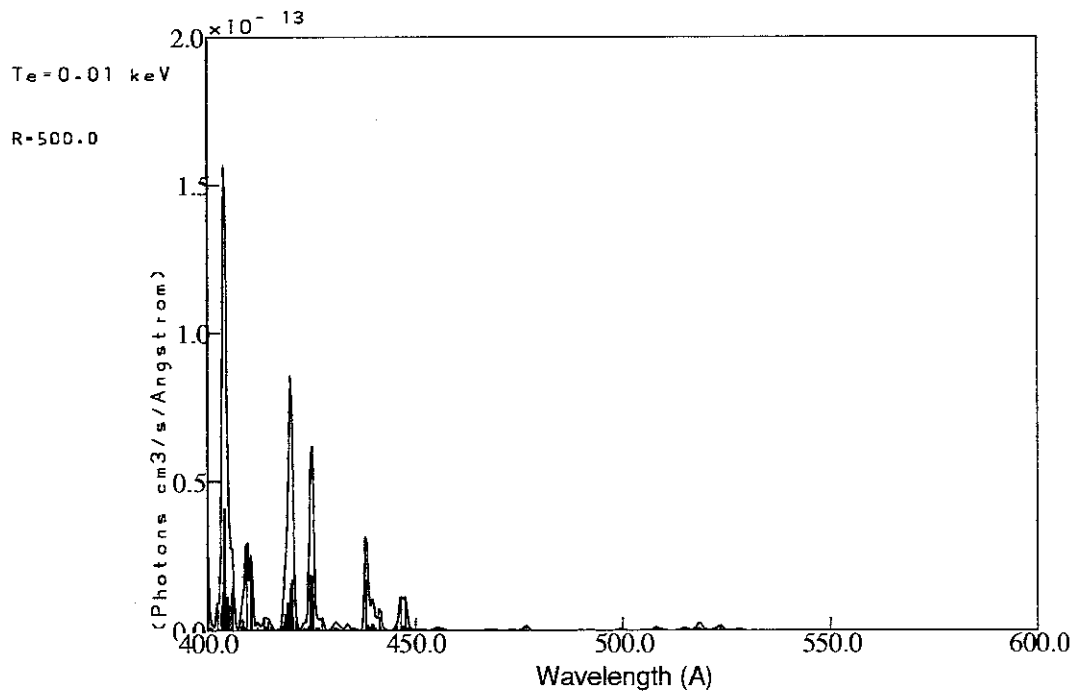
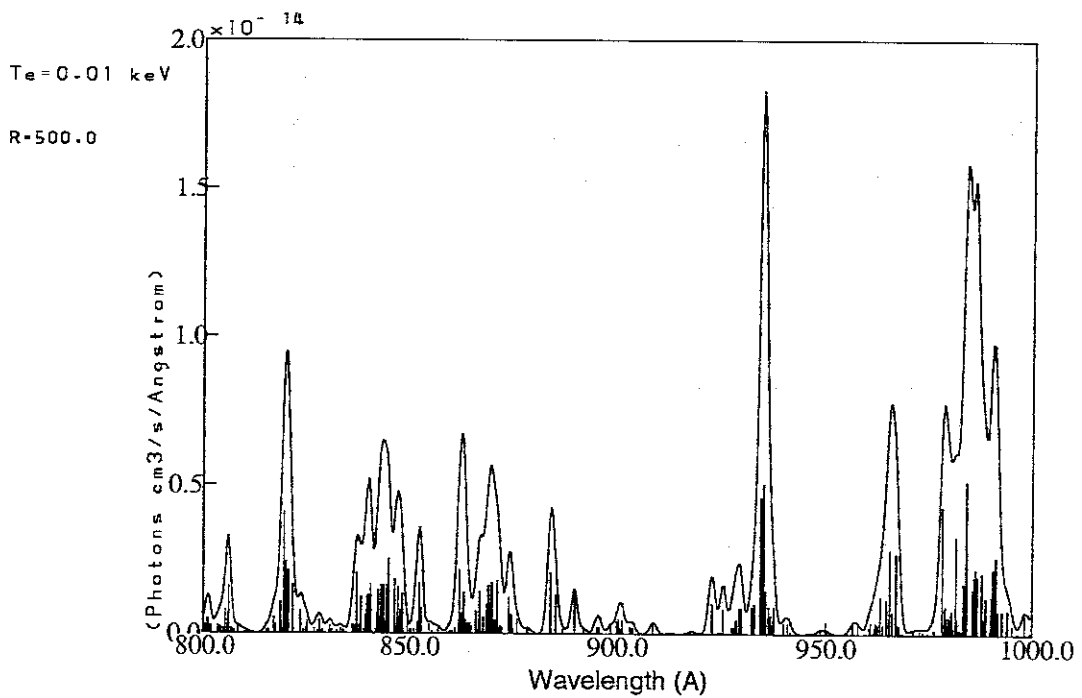
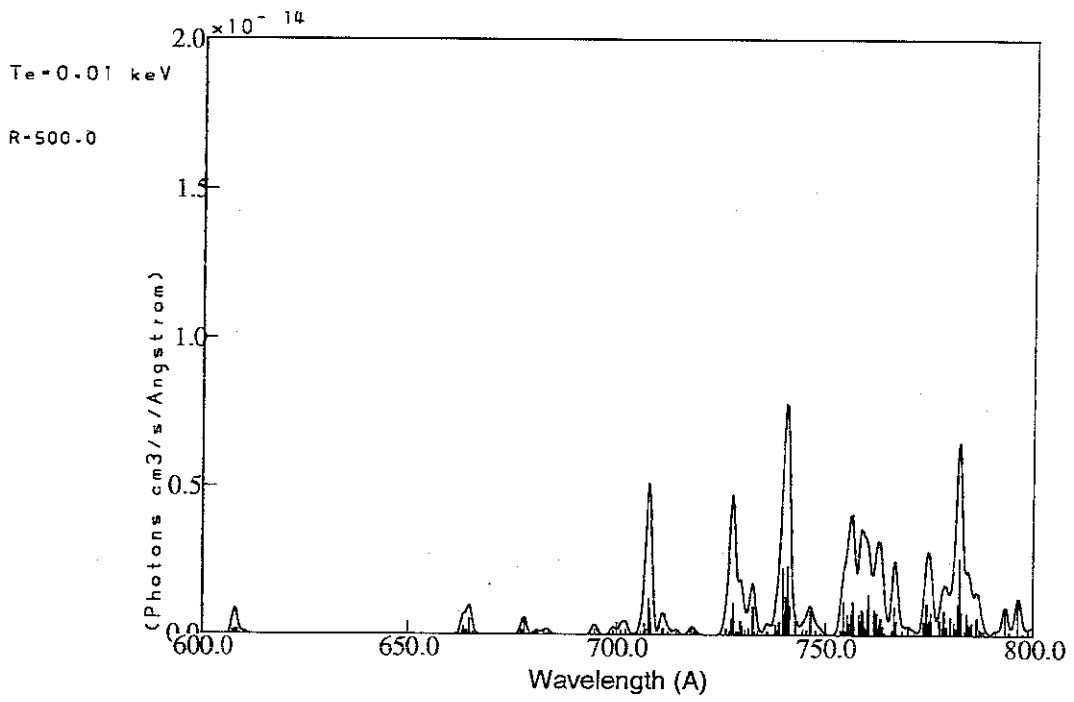


Figure 1: d. Same as (a) but for $\lambda = 400 - 600 \text{ \AA}$.



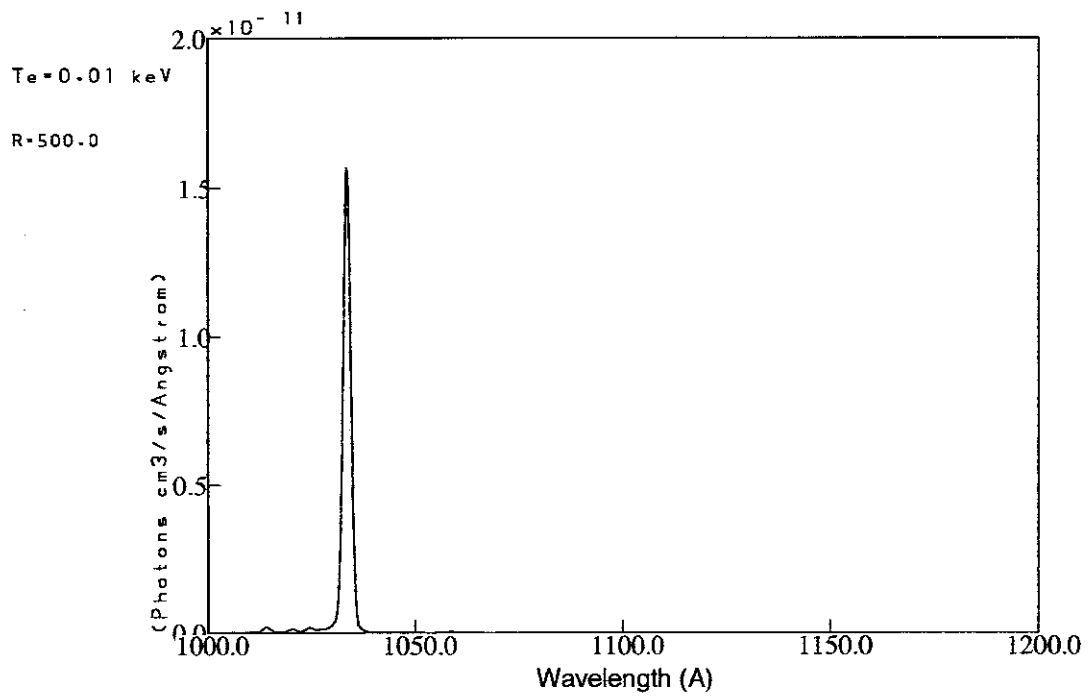


Figure 1: g. Same as (a) but for $\lambda = 1000 - 1200 \text{ \AA}$.

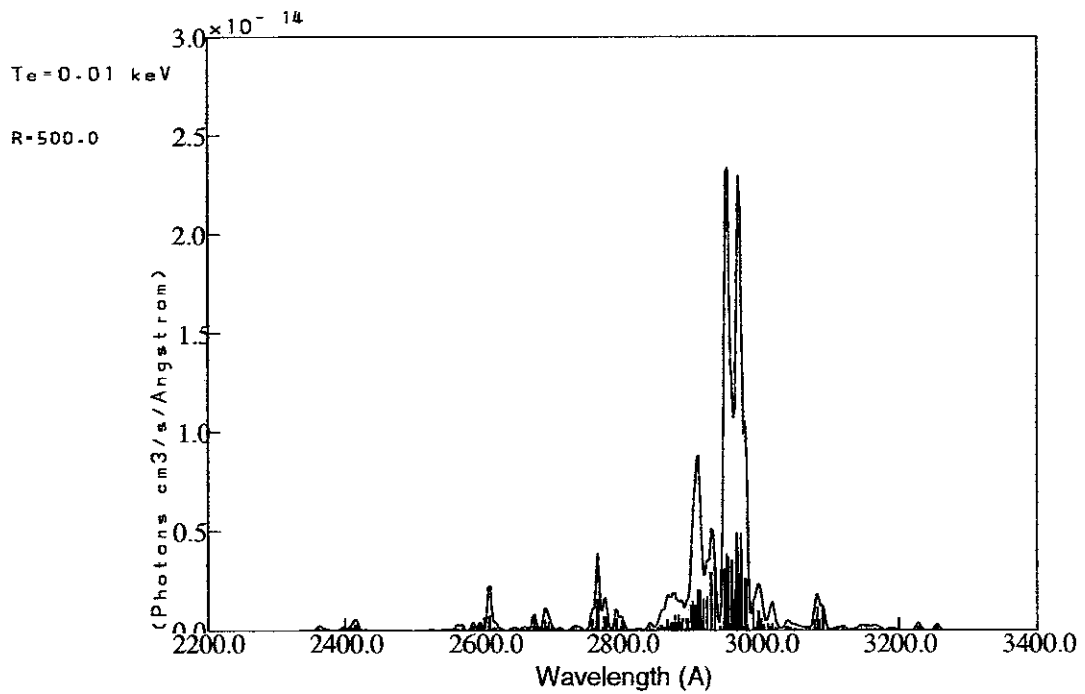


Figure 1: h. Same as (a) but for $\lambda = 2200 - 3400 \text{ \AA}$.

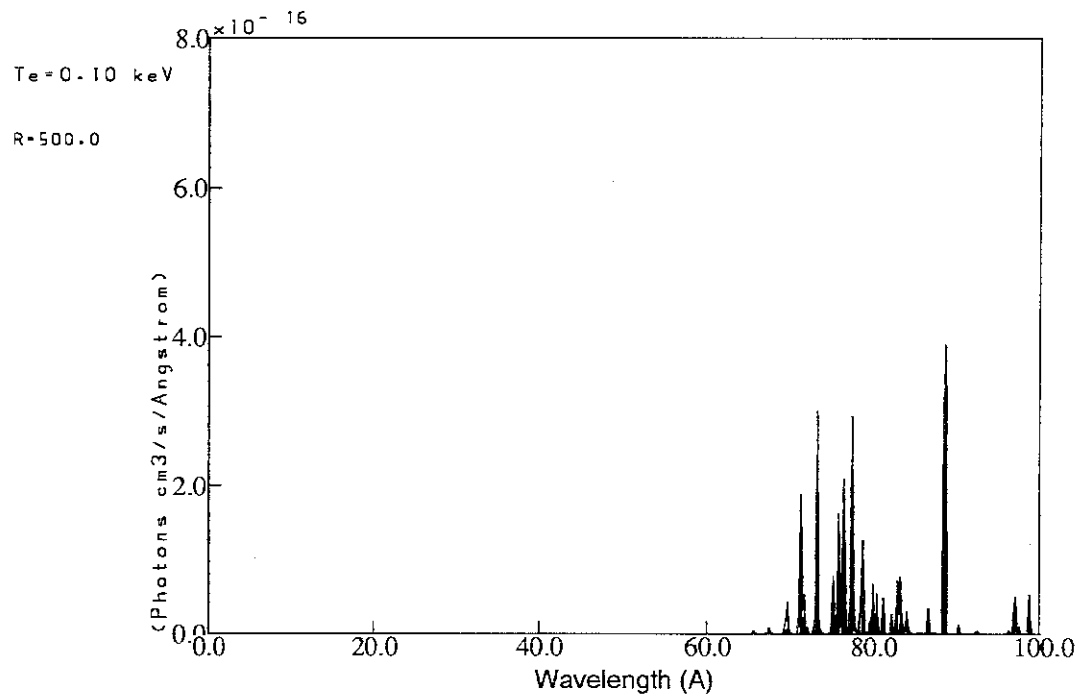


Figure 2: a. Calculated spectrum of dielectronic satellite lines from O^{4+} ion at $T_e = 100\text{eV}$ for $\lambda = 0 - 100 \text{ \AA}$. Resolving power, $R = \lambda/\Delta\lambda = 500$ is assumed to produce Gaussian profile.

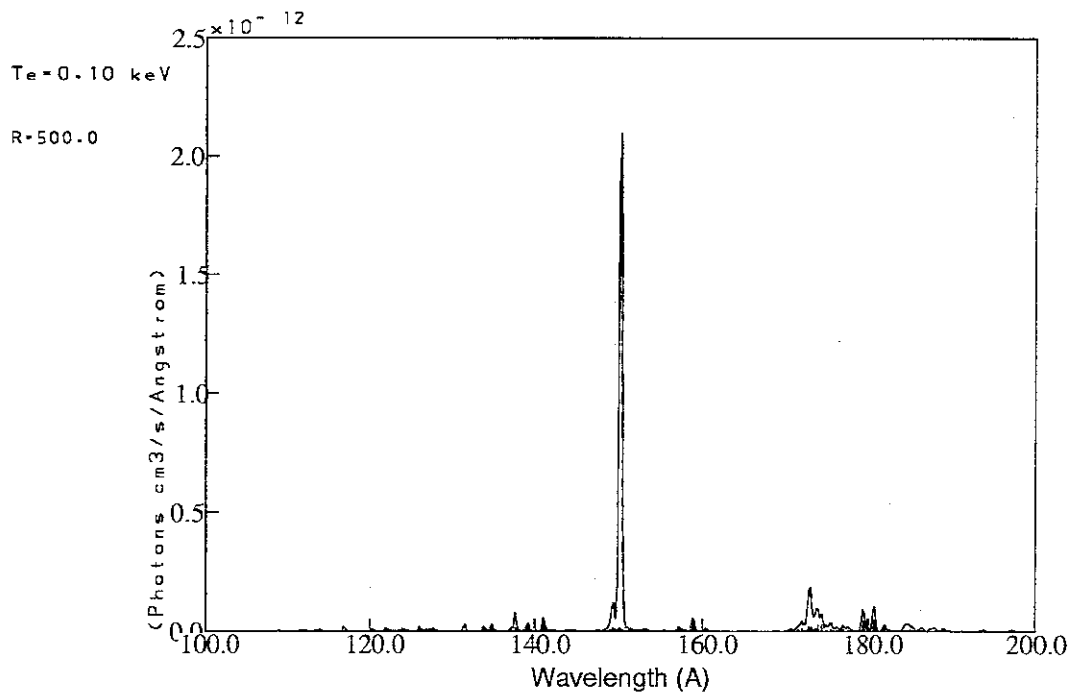


Figure 2: b. Same as (a) but for $\lambda = 100 - 200 \text{ \AA}$.

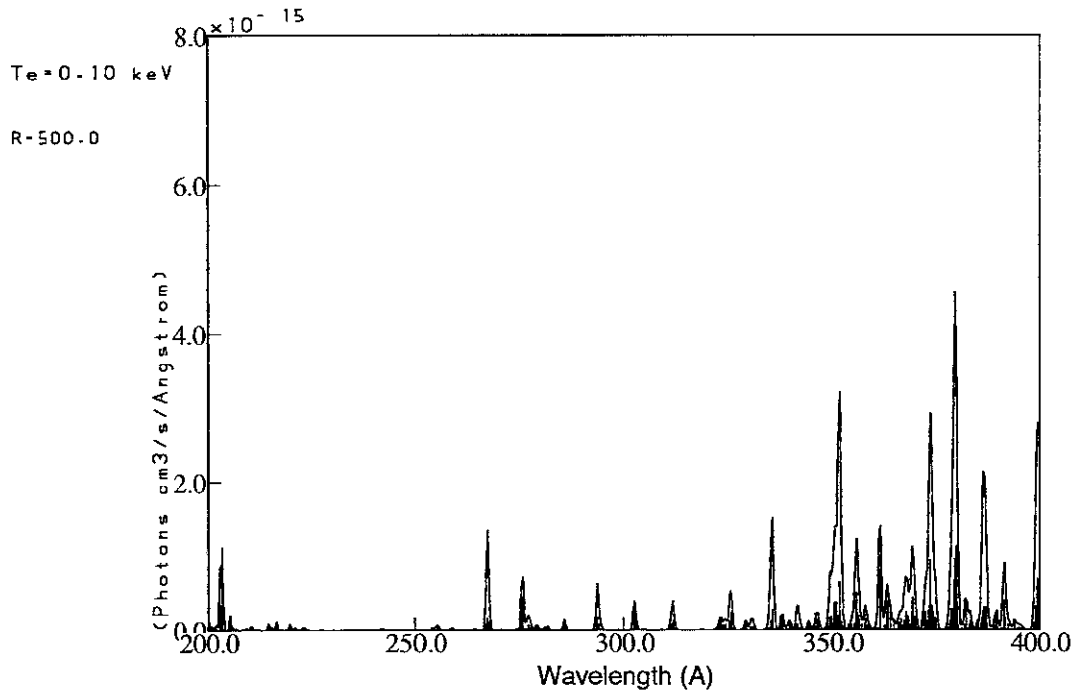


Figure 2: c. Same as (a) but for $\lambda = 200 - 400 \text{ \AA}$.

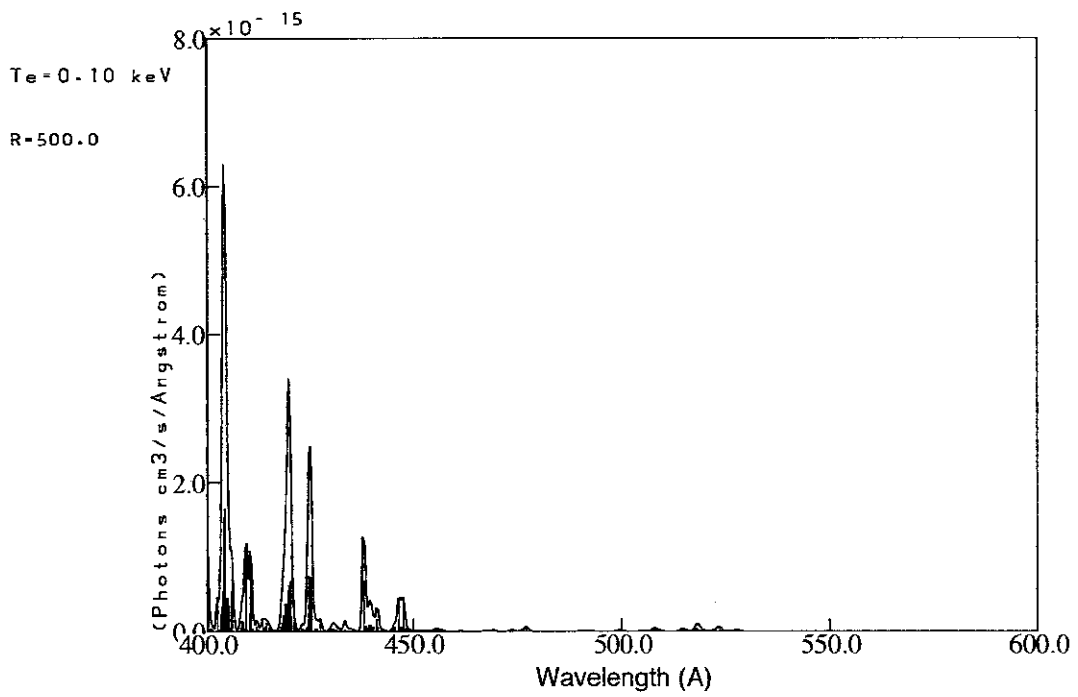


Figure 2: d. Same as (a) but for $\lambda = 400 - 600 \text{ \AA}$.

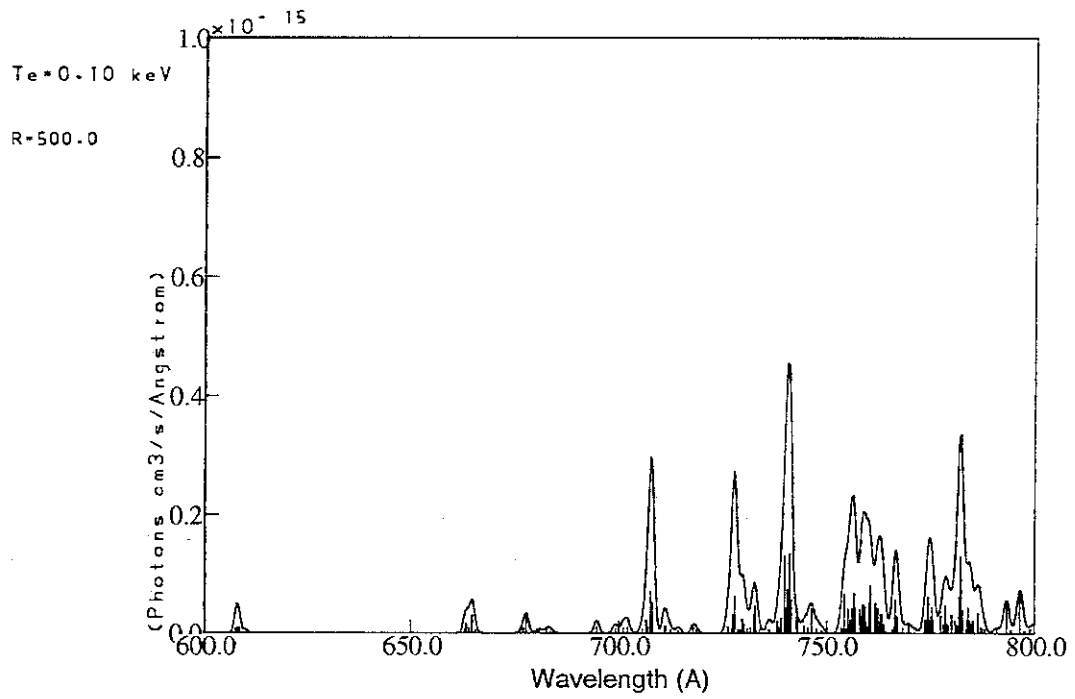


Figure 2: e. Same as (a) but for $\lambda = 600 - 800 \text{ Å}$.

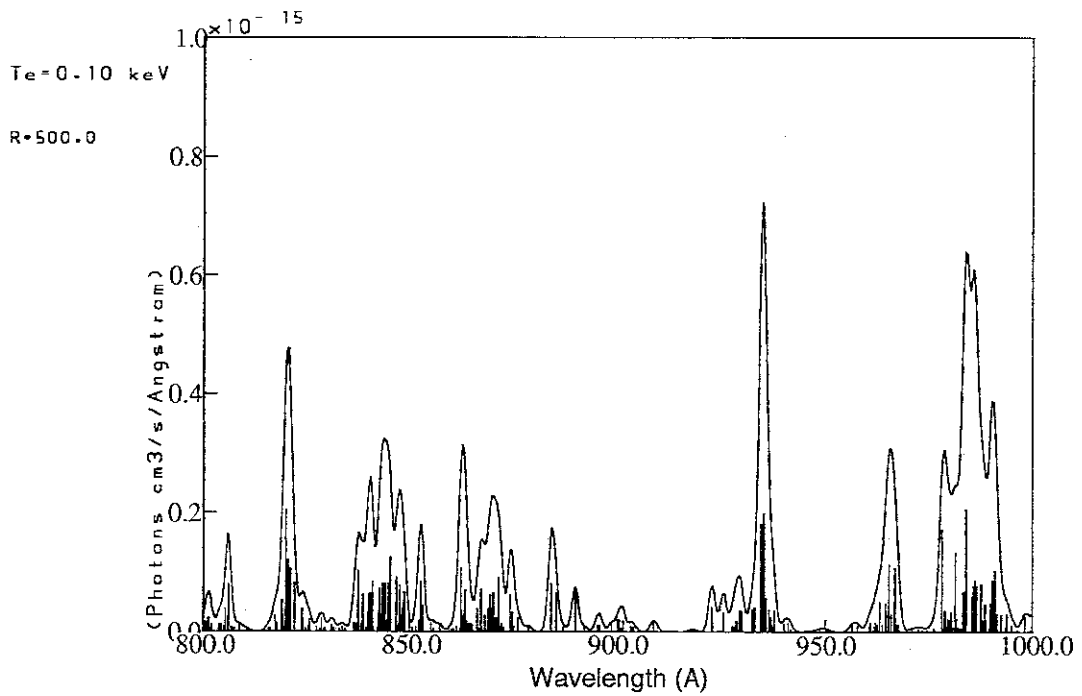


Figure 2: f. Same as (a) but for $\lambda = 800 - 1000 \text{ Å}$.

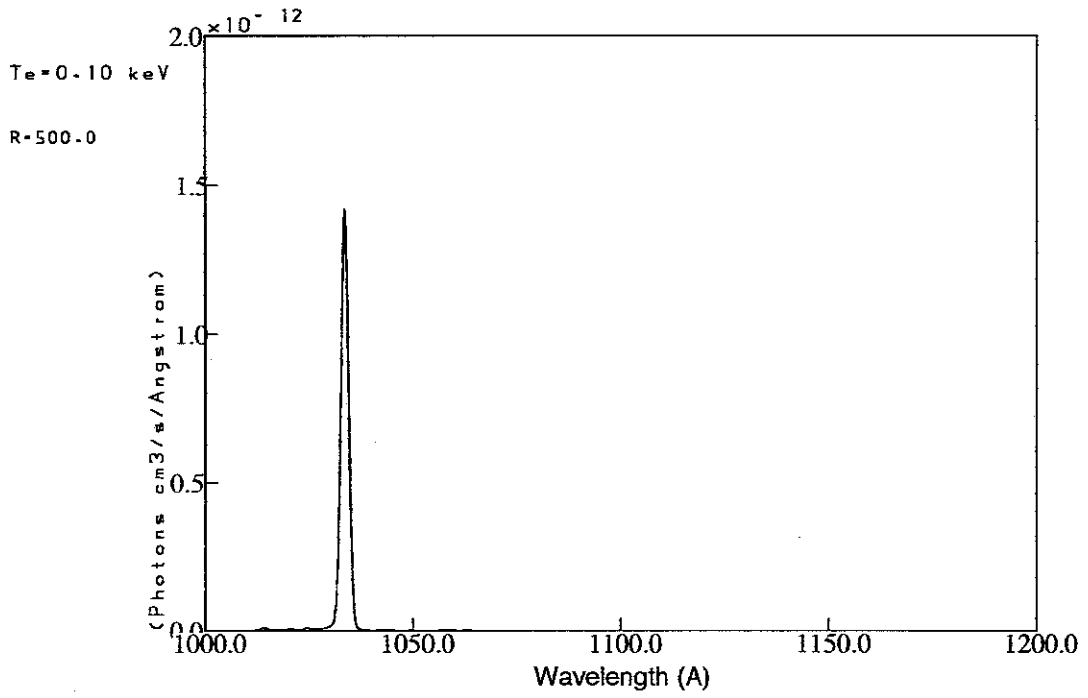


Figure 2: g. Same as (a) but for $\lambda = 1000 - 1200 \text{ \AA}$.

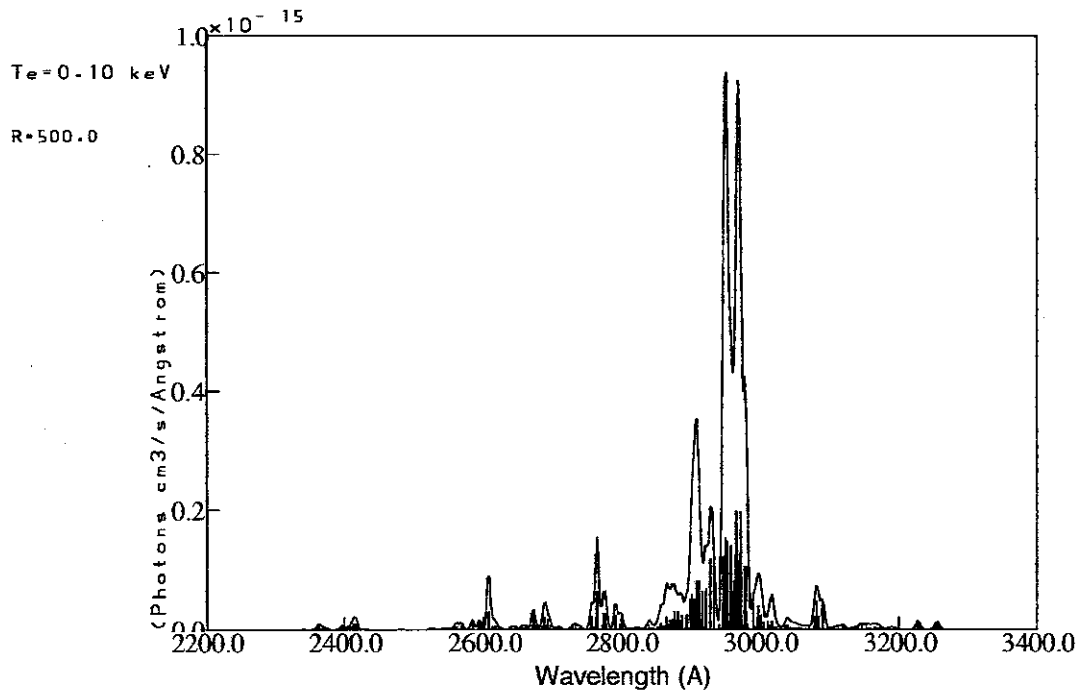


Figure 2: h. Same as (a) but for $\lambda = 2200 - 3400 \text{ \AA}$.

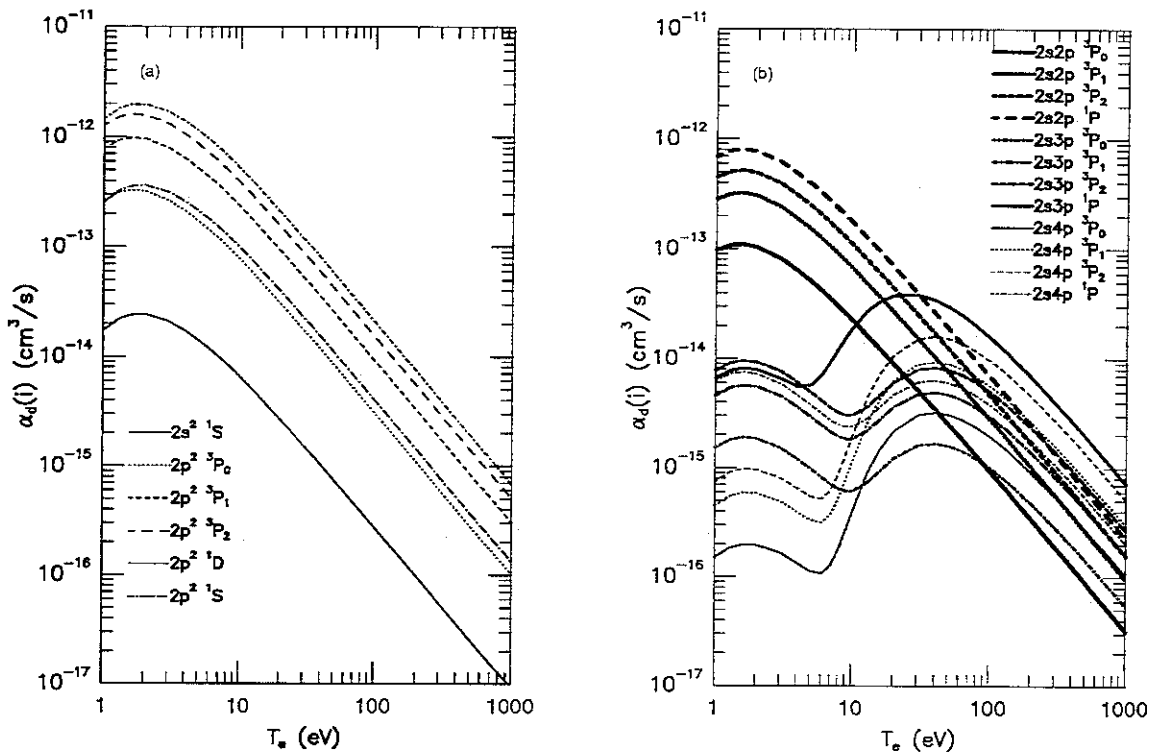


Figure 3: Dielectronic recombination rate coefficients for final bound states $2snl$ and $2pnl$ as a function of electron temperature.

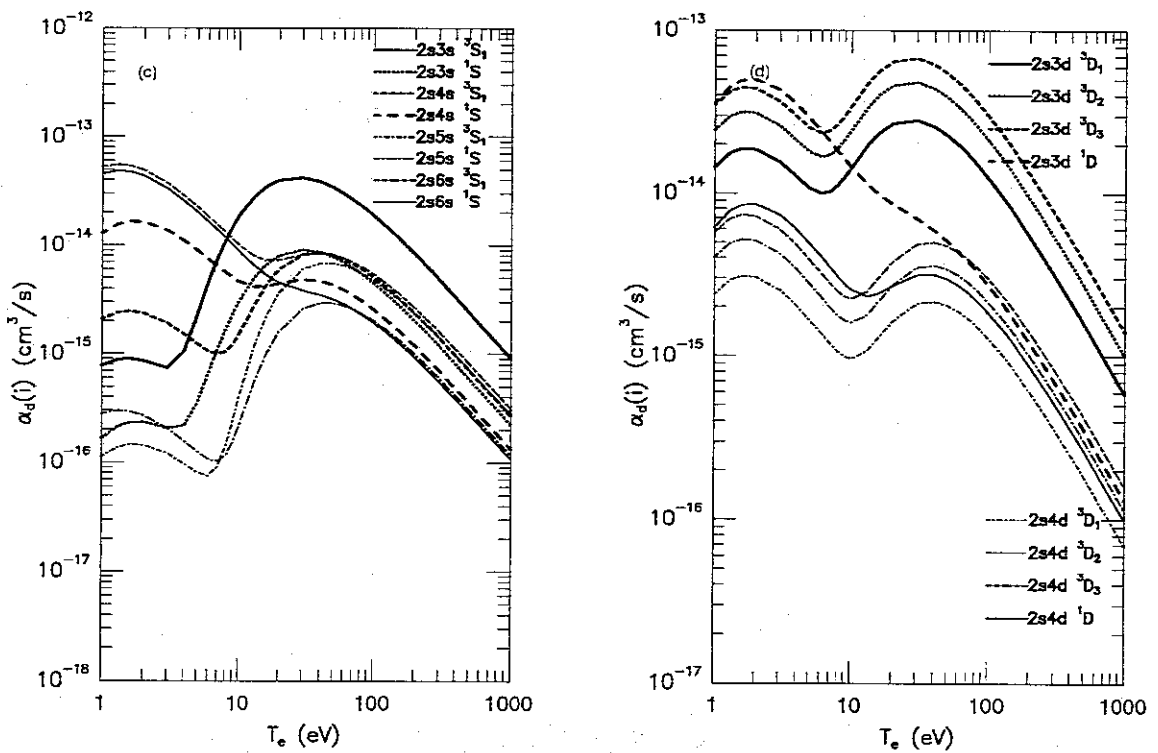


Figure 3: continued.

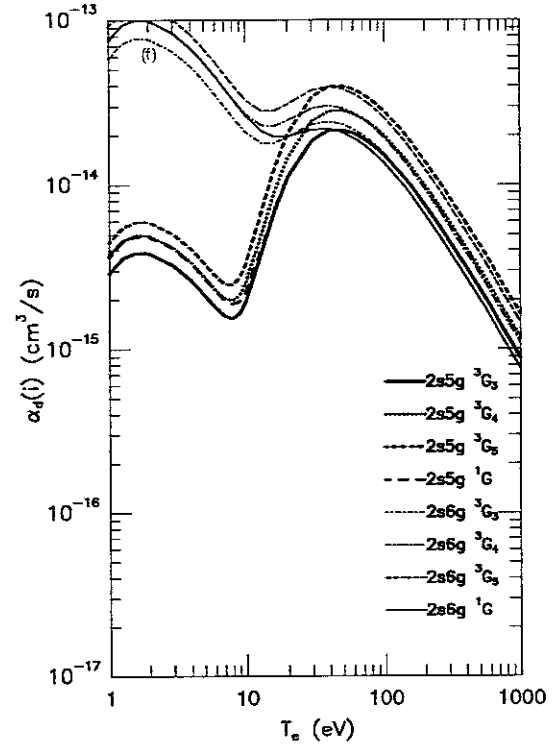
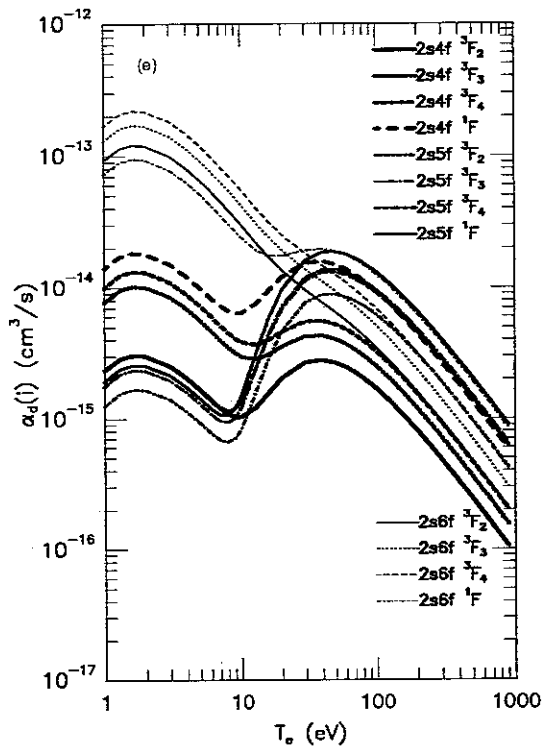


Figure 3: continued.

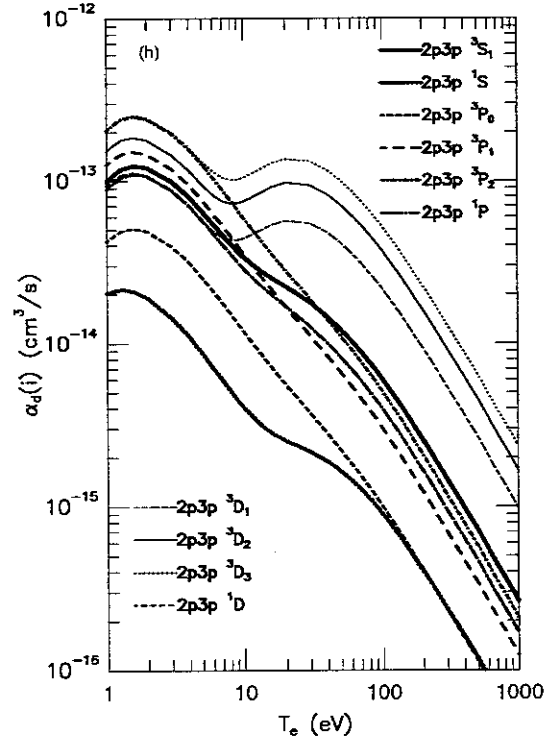
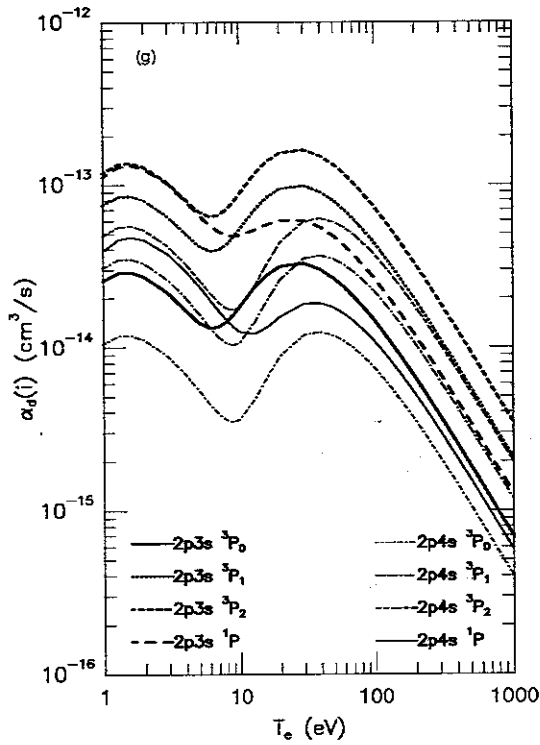


Figure 3: continued.

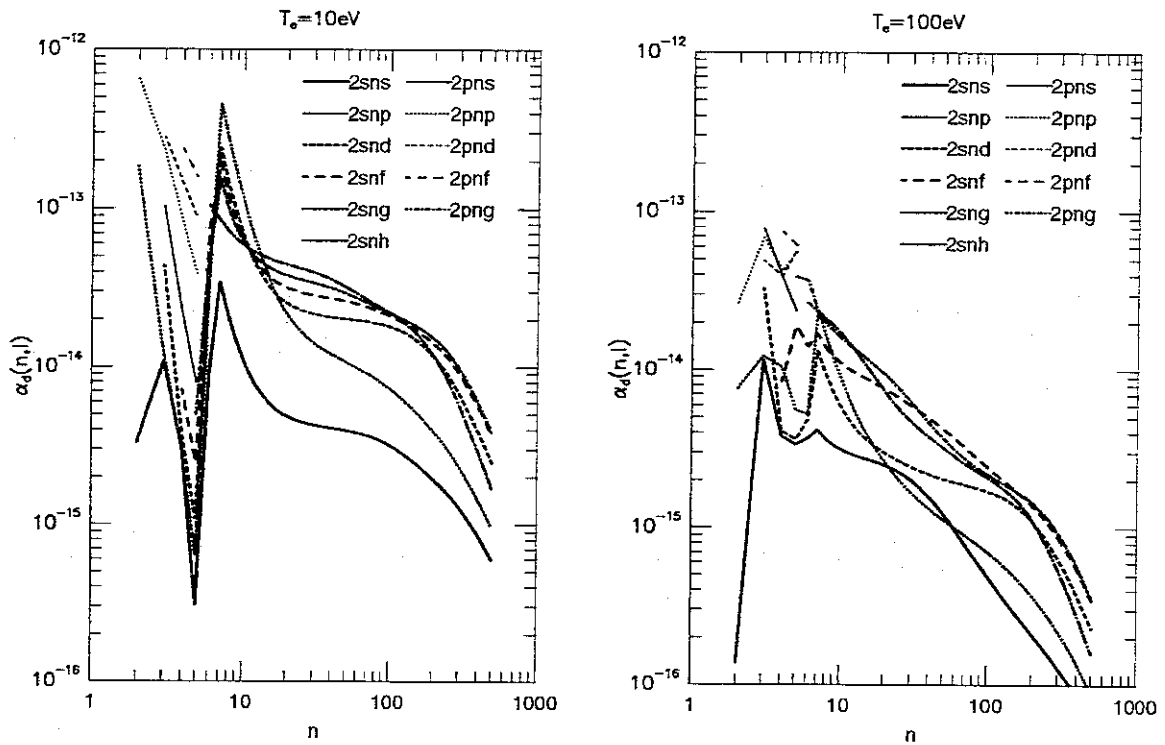


Figure 4: Dielectronic recombination rate coefficients for final bound states $2snl$ and $2pnl$ as a function of principal quantum number n . (a) for $T_e = 10\text{eV}$ and (b) for $T_e = 100\text{eV}$.

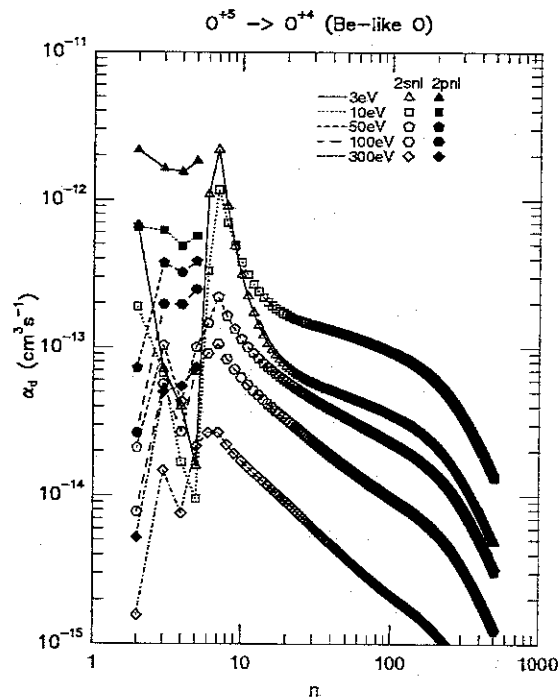


Figure 5: Dielectronic recombination rate coefficients for final bound states $2snl$ and $2pnl$ as a function of principal quantum number n . Rate coefficients are summed with l for the same n .

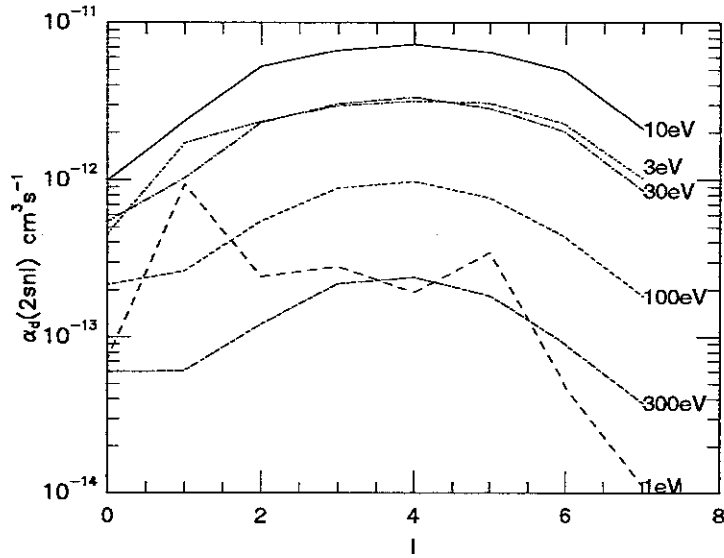


Figure 6: Orbital angular momentum quantum number l dependence of dielectronic recombination rate coefficients for final bound states $2snl$. Rate coefficients are summed with n up to 500 for the same l . Each line represents different electron temperature.

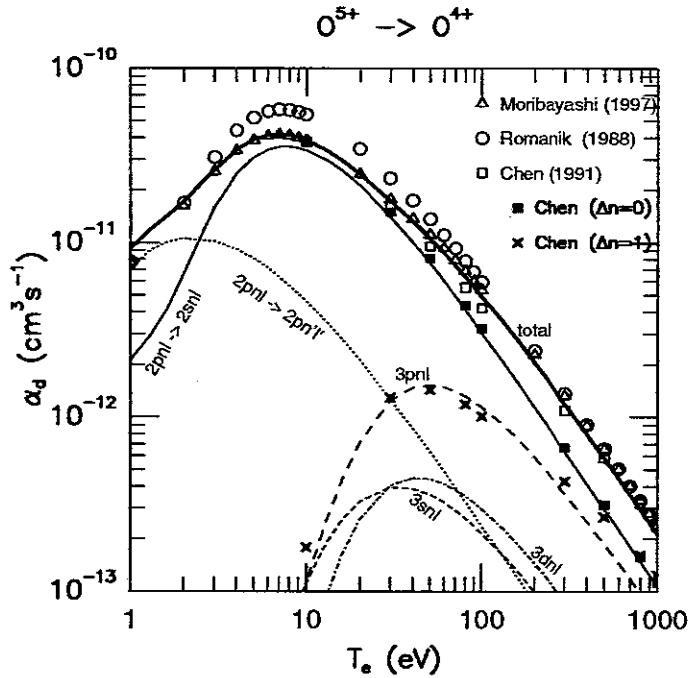


Figure 7: Total dielectronic recombination rate coefficients as a function of electron temperature, with other work done by Romanik (circle), Chen (square), and Moribayashi and Kato (triangle). Solid thick line is our total rate and other lines represent components of different processes: DR process via $2pnl$ to $2snl$ (solid line), via $2pnl$ to $2pn'l'$ (dotted line), via $3snl$ (short dashed line), via $3pnl$ (long dashed line), and via $3dnl$ (dot-dashed line). Rate coefficients through $\Delta n = 0$ transition and $\Delta n = 1$ transitions obtained by Chen are also plotted.

TABLE I. continued.

1	2	3	4	5	6
2p3d	3F ₃	692.183	692.582	692.809	0.5649+09
2p3d	3F ₄	692.423	692.841	693.045	0.4566+09
2p3d	1D ₂	692.865	694.670	694.644	0.1483+12
2p3d	3D ₁	701.152	703.517	704.182	0.2548+12
2p3d	3D ₂	701.218	703.590	704.242	0.4241+12
2p3d	3D ₃	701.325	703.695	704.348	0.5942+12
2p3d	3P ₀	704.923	710.143	708.205	0.4487+11
2p3d	3P ₁	704.855	710.051	708.125	0.1346+12
2p3d	3P ₂	704.719	709.890	707.981	0.2240+12
2p3d	1F ₃	711.851	710.794	712.965	0.6308+12
2p3d	1P ₁	716.536	720.222	719.275	0.1634+12
2s4s	3S ₁	722.675	720.767	722.480	0.2092+11
2s4s	1S ₀	731.377	724.327	731.070	0.9946+10
2s4p	3P ₀	736.117	735.344	735.912	0.2411+10
2s4p	3P ₁	736.131	735.360	735.922	0.7227+10
2s4p	3P ₂	736.160	735.397	735.949	0.1200+11
2s4p	1F ₁	738.291	737.252	737.883	0.5434+11
2s4d	3D ₁	742.672	742.484	742.239	0.7980+11
2s4d	3D ₂	742.676	742.487	742.244	0.1329+12
2s4d	3D ₃	742.684	742.495	742.249	0.1858+12
2s4d	1D ₂	746.903	744.866	746.275	0.1101+12
2s4f	3F ₃	747.099	745.184	746.275	0.5178+11
2s4f	3F ₅	747.105	745.185	746.275	0.5178+11
2s4f	3F ₄	747.112	745.187	746.275	0.7249+11
2s4f	1F ₃	749.100	745.565	749.840	0.1060+12
2p4s	3P ₀	821.174	821.241	821.241	0.7439+10
2p4s	3P ₁	821.331	821.396	821.396	0.2241+11
2p4s	3P ₂	821.685	821.781	821.781	0.3764+11
2p4s	1P ₁	825.371	824.142	824.282	0.3062+11
2p4p	1P ₁	830.100	829.798	829.597	0.3678+11
2p4p	3D ₁	831.211	830.986	830.867	0.2303+11
2p4p	3D ₂	831.365	831.151	831.029	0.3791+11
2p4p	3D ₃	831.655	831.463	831.334	0.5325+11
2p4p	3S ₁	832.806	834.996	832.072	0.3262+11
2p4p	3P ₀	835.362	834.559	834.835	0.8137+10
2p4p	3P ₁	835.496	834.565	834.972	0.2574+11
2p4p	3P ₂	835.674	834.859	835.142	0.4300+11
2p4p	1D ₂	838.720	837.287	837.855	0.5738+11
2p4p	1S ₀	847.823	846.588	846.588	0.7117+10
2p4d	3F ₂	837.894	837.871	837.871	0.3118+11
2p4d	3F ₃	838.119	838.077	838.077	0.3285+11
2p4d	3F ₄	838.348	838.343	838.343	0.4105+11
2p4d	1D ₂	838.330	838.900	837.833	0.6581+11

TABLES

TABLE I. Energy (10^3 cm^{-1}) and sum of weighted radiative transition probabilities ($\sum(g_{4+})$ in sec^{-1}) for excited states of Be-like O. Comparison of theoretical results (Cowan and MZ code) with recommended NIST data (W. L. Wiese, J. R. Fuhr, and T. M. Detters, J. Phys. Chem. Ref. Data, Monograph No. 7 (1996))

Conf.	LSJ	$E(10^3 \text{ cm}^{-1})$		NIST	$g_{4+} \text{ sec}^{-1}$
		Cowan	MZ		
1	2	3	4	5	6
2s ²	1S ₀	0.000	0.000	0.000	0.000+00
2s2p	3P ₀	80.920	81.950	81.942	0.9000+00
2s2p	3P ₁	81.072	82.096	82.079	0.9000+00
2s2p	3P ₂	81.376	82.425	82.386	0.9000+00
2s2p	1P ₁	152.848	158.712	158.798	0.8149+10
2p ²	3P ₀	212.239	213.497	213.642	0.2269+10
2p ²	3P ₁	212.389	213.663	213.797	0.6818+10
2p ²	3P ₂	212.684	213.938	214.066	0.1140+11
2p ²	1D ₂	231.623	231.788	231.722	0.2244+10
2p ²	1S ₀	280.404	287.918	287.909	0.3745+10
2s3s	3S ₁	545.611	546.960	546.973	0.6021+11
2s3s	1S ₀	558.871	561.266	561.276	0.7209+10
2s3p	3P ₀	581.605	582.832	582.806	0.2456+09
2s3p	3P ₁	581.646	582.872	582.843	0.8730+09
2s3p	3P ₂	581.721	582.957	582.920	0.1241+10
2s3p	1P ₁	580.216	580.668	580.825	0.1056+12
2s3d	3D ₁	598.924	600.186	600.749	0.2053+12
2s3d	3D ₂	598.937	600.198	600.759	0.3418+12
2s3d	3D ₃	598.957	600.221	600.779	0.4779+12
2s3d	1D ₂	610.719	613.151	612.616	0.2366+12
2p3s	3P ₀	650.988	652.956	652.918	0.1389+11
2p3s	3P ₁	651.151	653.127	653.080	0.4170+11
2p3s	3P ₂	651.490	653.488	653.423	0.6989+11
2p3s	1P ₁	663.176	664.093	664.486	0.5310+11
2p3p	3D ₁	670.748	672.714	672.694	0.5703+11
2p3p	3D ₂	674.664	677.198	677.151	0.2728+11
2p3p	3D ₃	674.858	677.405	677.348	0.4548+11
2p3p	3S ₁	675.168	677.738	677.665	0.6392+11
2p3p	3P ₀	680.651	691.447	683.943	0.5081+11
2p3p	3P ₁	688.577	689.375	689.403	0.1451+11
2p3p	3P ₂	688.689	689.478	689.518	0.4353+11
2p3p	1D ₂	688.892	689.695	689.708	0.7260+11
2p3p	1P ₁	696.711	697.167	697.170	0.1035+12
2p3d	1S ₀	706.920	716.305	707.636	0.4934+10
2p3d	3F ₂	691.975	692.383	692.626	0.5905+10

TABLE I. continued.

1	2	3	4	5	6
2p5p	³ D ₁	899.905	900.279	900.279	0.1619+11
2p5p	³ D ₂	900.006	900.393	900.393	0.2399+11
2p5p	³ D ₃	900.299	900.708	900.708	0.3359+11
2p5p	³ S ₁	901.191	902.079	902.079	0.2164+11
2p5p	³ F ₀	901.748	902.154	902.154	0.4788+10
2p5p	³ F ₁	901.911	902.464	901.023	0.1493+11
2p5p	³ F ₂	902.032	902.453	901.165	0.2405+11
2p5p	¹ D ₂	903.522	903.638	902.442	0.3482+11
2p5p	¹ S ₀	907.507	908.071	908.071	0.2913+10
2p5d	³ F ₂	903.236	903.753	903.753	0.2530+11
2p5d	³ F ₃	903.508	903.960	903.960	0.2706+11
2p5d	³ F ₄	903.772	904.239	904.239	0.3238+11
2p5d	¹ D ₂	903.570	904.480	902.691	0.3317+11
2p5d	³ D ₁	904.698	906.190	904.027	0.5361+11
2p5d	³ D ₂	904.757	906.174	904.183	0.8585+11
2p5d	³ D ₃	904.908	906.343	904.318	0.1256+12
2p5d	³ F ₀	905.518	906.648	906.648	0.1169+11
2p5d	³ F ₁	905.463	906.628	906.628	0.3590+11
2p5d	³ F ₂	905.352	906.580	906.580	0.6175+11
2p5d	¹ F ₃	907.745	906.624	906.624	0.1799+12
2p5d	¹ F ₁	908.072	909.874	909.874	0.5005+11
2p5f	¹ F ₃	905.171	905.306	905.306	0.3851+11
2p5f	³ F ₂	905.221	905.144	905.144	0.2637+11
2p5f	³ F ₃	905.244	905.612	905.612	0.3712+11
2p5f	³ F ₄	905.282	905.614	905.614	0.4699+11
2p5f	³ G ₃	905.832	904.590	904.590	0.3741+11
2p5f	³ G ₄	905.905	904.744	904.744	0.4680+11
2p5f	³ G ₅	906.123	906.123	906.123	0.5804+11
2p5f	¹ G ₄	906.353	906.875	906.875	0.3874+11
2p5f	³ D ₃	906.474	906.065	906.065	0.3847+11
2p5f	³ D ₂	906.575	906.159	906.159	0.2746+11
2p5f	³ D ₁	906.706	906.244	906.244	0.1652+11
2p5f	¹ D ₂	906.970	906.822	906.822	0.2709+11
2p5g	³ G ₃	905.926	906.970	906.970	0.2276+11
2p5g	³ G ₄	905.926	905.926	905.926	0.2928+11
2p5g	¹ G ₄	905.958	906.958	906.958	0.2883+11
2p5g	¹ F ₃	906.692	906.692	906.692	0.2223+11
2p5g	³ F ₂	906.895	906.895	906.895	0.1581+11
2p5g	³ F ₃	906.897	906.897	906.897	0.2226+11
2p5g	³ F ₄	906.691	906.691	906.691	0.2856+11
2p5g	³ H ₄	906.471	906.471	906.471	0.2796+11
2p5g	³ F ₄	906.691	906.691	906.691	0.2856+11
2p5g	¹ H ₅	906.713	906.713	906.713	0.3332+11

TABLE I. continued.

1	2	3	4	5	6
2p4d	³ D ₁	841.119	842.488	841.102	0.1037+12
2p4d	³ D ₂	841.182	842.505	841.195	0.1741+12
2p4d	³ D ₃	841.277	842.624	841.318	0.2432+12
2p4d	³ F ₀	843.306	843.158	843.270	0.1780+11
2p4d	³ F ₁	843.246	843.109	843.218	0.5321+11
2p4d	³ F ₂	843.129	843.006	843.111	0.8758+11
2p4d	¹ F ₁	847.869	849.503	847.460	0.8108+11
2p4d	¹ F ₃	848.504	842.959	847.136	0.2791+12
2p4f	¹ F ₃	841.825	840.718	841.825	0.7209+11
2p4f	³ F ₂	841.888	840.999	841.888	0.4877+11
2p4f	³ F ₃	841.993	841.093	841.993	0.6989+11
2p4f	³ F ₄	842.039	841.124	842.039	0.8896+11
2p4f	³ D ₃	844.474	842.014	842.014	0.6856+11
2p4f	³ D ₂	844.597	842.145	842.145	0.4909+11
2p4f	³ D ₁	844.730	842.250	842.250	0.2942+11
2p4f	¹ D ₂	845.158	843.438	843.438	0.4954+11
2p4f	³ G ₃	845.067	839.456	845.482	0.4614+11
2p4f	³ G ₄	845.729	839.632	845.547	0.5944+11
2p4f	³ G ₅	845.874	839.632	845.707	0.7608+11
2p4f	¹ G ₄	846.128	841.516	845.943	0.5474+11
2s5s	³ S ₁	796.958	796.264	796.071	0.1726+11
2s5s	¹ S ₀	798.894	798.189	798.894	0.4135+10
2s5p	³ F ₀	803.060	803.549	802.859	0.1535+10
2s5p	³ F ₁	803.669	803.557	802.859	0.4691+10
2s5p	³ F ₂	803.684	803.576	802.875	0.7679+10
2s5p	¹ F ₁	803.493	804.786	802.466	0.3478+11
2s5d	³ D ₁	807.215	807.178	806.446	0.4101+11
2s5d	³ D ₂	807.218	807.180	806.448	0.6979+11
2s5d	³ D ₃	807.222	807.183	806.451	0.9757+11
2s5d	¹ D ₂	809.280	808.314	808.352	0.6238+11
2s5f	³ F ₂	809.113	808.493	808.613	0.2627+11
2s5f	³ F ₃	809.114	808.493	808.614	0.3678+11
2s5f	³ F ₄	809.117	808.494	808.616	0.4729+11
2s5f	¹ F ₃	809.408	808.655	808.917	0.3415+11
2s5g	³ G ₃	809.266	809.266	809.266	0.1930+11
2s5g	³ G ₄	809.268	809.268	809.268	0.2480+11
2s5g	³ G ₅	809.271	809.271	809.271	0.3032+11
2s5g	¹ G ₄	809.270	809.270	809.270	0.2477+11
2p5s	³ P ₀	894.747	895.324	895.324	0.4410+10
2p5s	³ P ₁	894.886	895.449	895.449	0.1340+11
2p5s	³ F ₂	895.262	895.868	895.868	0.2235+11
2p5s	¹ F ₁	896.738	896.691	896.691	0.1978+11
2p5p	¹ P ₁	899.453	899.740	899.740	0.2557+11

TABLE I. continued.

1	2	3	4	5	6
2s7h	³ H ₅	863.580			0.7203+10
2s7h	³ H ₆	863.580			0.8513+10
2s7h	¹ H ₅	863.580			0.7203+10
2s8s	³ S ₁	873.819			0.3911+10
2s8s	¹ S ₀	874.388			0.1856+10
2s8p	³ P ₀	875.340			0.4321+09
2s8p	³ P ₁	875.342			0.1302+10
2s8p	³ P ₂	875.345			0.2158+10
2s8p	¹ P ₁	875.483			0.2309+11
2s8d	³ D ₁	876.152			0.1018+11
2s8d	³ D ₂	876.152			0.1695+11
2s8d	³ D ₃	876.153			0.2370+11
2s8d	¹ D ₂	876.648			0.2128+11
2s8f	³ F ₂	876.601			0.6506+10
2s8f	³ F ₃	876.602			0.9109+10
2s8f	³ F ₄	876.602			0.1171+11
2s8f	¹ F ₃	876.768			0.1786+11
2s8g	³ G ₃	876.699			0.5136+10
2s8g	³ G ₄	876.700			0.6607+10
2s8g	³ G ₅	876.701			0.8085+10
2s8g	¹ G ₄	876.706			0.6549+10
2s8h	³ H ₄	876.712			0.3924+10
2s8h	³ H ₅	876.712			0.4795+10
2s8h	³ H ₆	876.713			0.5668+10
2s8h	¹ H ₅	876.713			0.4795+10

TABLE I. continued.

1	2	3	4	5	6
2p5g	³ H ₆	906.710			0.3954+11
2s6s	¹ S ₀	835.764	836.860		0.2254+10
2s6s	³ S ₁	837.519	835.717		0.4198+10
2s6p	³ P ₀	839.292	839.871		0.4189+10
2s6p	³ P ₁	839.280	839.876		0.1309+11
2s6p	³ P ₂	839.263	839.887		0.2319+11
2s6p	¹ P ₁	840.782	840.645	839.616	0.3046+11
2s6d	³ D ₁	841.925	841.959	841.036	0.2221+11
2s6d	³ D ₂	841.931	841.960	841.036	0.3854+11
2s6d	³ D ₃	841.931	841.962	841.036	0.5281+11
2s6d	¹ D ₂	843.046	842.595	842.087	0.3854+11
2s6f	³ F ₂	843.397	842.702	842.707	0.1819+11
2s6f	³ F ₃	843.411	842.703	842.723	0.2563+11
2s6f	³ F ₄	843.430	842.703	842.742	0.3310+11
2s6f	¹ F ₃	841.829	840.832	840.832	0.6050+11
2s6g	³ G ₃	840.964	840.127	840.127	0.3634+11
2s6g	³ G ₄	841.018	840.169	840.169	0.4456+11
2s6g	³ G ₅	841.167	840.291	840.291	0.5143+11
2s6g	¹ G ₄	841.287	841.358	841.358	0.3455+11
2s6h	³ H ₄	843.358			0.9304+10
2s6h	³ H ₅	843.358			0.1137+11
2s6h	³ H ₆	843.359			0.1344+11
2s6h	¹ H ₅	843.359			0.1137+11
2s7s	³ S ₁	859.254			0.5230+10
2s7s	¹ S ₀	860.471			0.2884+10
2s7p	³ P ₀	861.538			0.7628+09
2s7p	³ P ₁	861.540			0.2288+10
2s7p	³ P ₂	861.545			0.3802+10
2s7p	¹ P ₁	861.901			0.1743+11
2s7d	³ D ₁	862.720			0.1472+11
2s7d	³ D ₂	862.721			0.2406+11
2s7d	³ D ₃	862.722			0.3430+11
2s7d	¹ D ₂	863.450		862.419	0.2557+11
2s7d	³ D ₂	862.721			0.4687+09
2s7f	³ F ₂	863.424			0.1006+11
2s7f	³ F ₃	863.425			0.1409+11
2s7f	³ F ₄	863.426			0.1812+11
2s7f	¹ F ₃	863.801			0.2305+11
2s7g	³ G ₃	863.635			0.8098+10
2s7g	³ G ₄	863.637			0.1043+11
2s7g	³ G ₅	863.639			0.1277+11
2s7g	¹ G ₄	863.655		862.801	0.1021+11
2s7h	³ H ₄	863.580			0.5894+10

TABLE II. continued.

1	2	3	4	5	6
2p6g	³ G ₃	939.639	0.1461+11	0.8200+11	0.8200+11
2p6g	¹ F ₃	940.232	0.1487+11	0.1490+12	0.1490+12
2p6g	³ F ₃	940.386	0.1512+11	0.9200+11	0.9200+11
2p6g	³ H ₄	939.635	0.1765+11	0.7300+12	0.7300+12
2p6g	³ G ₅	939.638	0.2152+11	0.1312+14	0.1312+14
2p6g	³ G ₄	939.639	0.1880+11	0.1249+14	0.1249+14
2p6g	³ H ₄	940.098	0.1770+11	0.1390+14	0.1390+14
2p6g	³ G ₅	940.100	0.2158+11	0.1411+14	0.1411+14
2p6g	³ F ₄	940.231	0.1916+11	0.8000+11	0.8000+11
2p6g	¹ H ₅	940.253	0.2029+11	0.2726+14	0.2726+14
2p6g	³ H ₆	940.250	0.2409+11	0.2711+14	0.2711+14
2p6h	³ H ₄	939.830	0.1359+11	0.1110+12	0.1110+12
2p6h	³ H ₄	940.351	0.1373+11	0.6400+11	0.6400+11
2p6h	³ G ₄	940.449	0.1393+11	0.8100+11	0.8100+11
2p6h	³ G ₃	940.449	0.1084+11	0.5400+11	0.5400+11
2p6h	³ G ₅	939.831	0.1660+11	0.4600+11	0.4600+11
2p6h	³ G ₅	940.351	0.1677+11	0.2700+11	0.2700+11
2p6h	³ I ₆	940.302	0.1565+11	0.3745+13	0.3745+13
2p6h	³ I ₆	939.824	0.1519+11	0.2538+13	0.2538+13
2p6h	³ H ₆	939.824	0.1796+11	0.1729+13	0.1729+13
2p6h	³ H ₆	940.303	0.1849+11	0.1167+13	0.1167+13
2p6h	¹ I ₆	940.394	0.1711+11	0.3391+13	0.3391+13
2p6h	³ I ₇	940.395	0.1975+11	0.6284+13	0.6284+13
2p7s	³ P ₀	956.018	0.1994+10	0.1370+13	0.1370+13
2p7s	³ P ₁	956.113	0.6405+10	0.8774+13	0.8774+13
2p7s	³ P ₂	956.536	0.1027+11	0.1208+13	0.1208+13
2p7s	¹ P ₁	956.961	0.9858+10	7.4376+13	7.4376+13
2p7p	³ D ₁	957.741	0.1135+11	0.0970+13	0.0970+13
2p7p	¹ P ₁	957.991	0.1154+11	0.3850+13	0.3850+13
2p7p	³ D ₂	957.993	0.1110+11	0.0545+13	0.0545+13
2p7p	³ D ₃	958.321	0.1545+11	0.0591+13	0.0591+13
2p7p	³ S ₁	958.456	0.1215+11	2.3072+13	2.3072+13
2p7p	³ P ₀	958.563	0.1904+10	0.2413+13	0.2413+13
2p7p	³ P ₁	958.814	0.7536+10	0.8193+13	0.8193+13
2p7p	³ P ₂	958.867	0.9827+10	0.0030+13	0.0030+13
2p7p	¹ D ₂	959.394	0.1595+11	0.0161+13	0.0161+13
2p7p	¹ S ₀	960.871	0.1351+10	25.058+13	25.058+13
2p7d	³ F ₂	959.027	0.1057+11	0.7347+13	0.7347+13
2p7d	¹ D ₂	959.307	0.1903+11	0.3926+13	0.3926+13
2p7d	³ F ₃	959.233	0.1632+11	1.0069+13	1.0069+13
2p7d	³ F ₄	959.544	0.1522+11	0.9834+13	0.9834+13
2p7d	³ D ₁	959.596	0.2059+11	0.2705+13	0.2705+13
2p7d	³ D ₂	959.722	0.2684+11	0.4679+13	0.4679+13

TABLE II. Energy (10^8 cm^{-1}), sum of weighted radiative transition probabilities ($\sum(gA_r)$ in sec^{-1}) and autoionizing rates (A_a in sec^{-1}) for $2pnl'$ and $3nl'$ states in Be-like O. $I(2s) = 918657 \text{ cm}^{-1}$, $I(2p) = 1015387 \text{ cm}^{-1}$.

Conf.	LSJ	$E(10^3 \text{ cm}^{-1})$	$\sum(gA_r)(\text{sec}^{-1})$	$2s^3S$	$A_a(\text{sec}^{-1})$
1	2	3	4	5	6
2p6s	³ P ₀	933.294	0.2822+10	0.1078+13	0.1078+13
2p6s	³ P ₁	933.407	0.8893+10	0.6757+13	0.6757+13
2p6s	¹ P ₁	934.488	0.1528+11	0.1174+15	0.1174+15
2p6s	³ P ₂	933.811	0.1440+11	0.9670+12	0.9670+12
2p6p	¹ P ₁	936.061	0.2093+11	0.1770+12	0.1770+12
2p6p	³ D ₁	936.353	0.1965+11	0.1394+13	0.1394+13
2p6p	³ D ₂	936.386	0.2214+11	0.2960+12	0.2960+12
2p6p	³ D ₃	936.695	0.2140+11	0.3020+12	0.3020+12
2p6p	³ S ₁	937.031	0.1905+11	0.4075+14	0.4075+14
2p6p	³ P ₀	937.299	0.2426+10	0.1465+13	0.1465+13
2p6p	³ P ₁	937.506	0.9406+10	0.7002+13	0.7002+13
2p6p	³ P ₂	937.590	0.1241+11	0.1800+11	0.1800+11
2p6p	¹ D ₂	938.458	0.2640+11	0.1045+13	0.1045+13
2p6p	¹ S ₀	940.953	0.2320+10	0.2594+15	0.2594+15
2p6d	³ P ₀	939.593	0.7785+10	0.2459+14	0.2459+14
2p6d	³ D ₁	938.997	0.3226+11	0.2507+13	0.2507+13
2p6d	³ P ₁	939.553	0.2426+11	0.2233+14	0.2233+14
2p6d	¹ P ₁	941.164	0.4333+11	0.2148+14	0.2148+14
2p6d	³ F ₂	938.146	0.1443+11	0.1454+14	0.1454+14
2p6d	¹ D ₂	938.469	0.2266+11	0.5944+13	0.5944+13
2p6d	³ D ₂	939.071	0.4777+11	0.5822+13	0.5822+13
2p6d	³ P ₂	939.474	0.4255+11	0.1851+14	0.1851+14
2p6d	³ F ₃	938.382	0.1887+11	0.2001+14	0.2001+14
2p6d	³ D ₃	939.244	0.7452+11	0.1297+13	0.1297+13
2p6d	¹ F ₃	940.940	0.1310+12	0.1058+15	0.1058+15
2p6d	³ F ₄	938.666	0.1978+11	0.2016+14	0.2016+14
2p6f	¹ F ₃	939.281	0.2278+11	0.9748+13	0.9748+13
2p6f	³ F ₄	939.339	0.2804+11	0.1785+14	0.1785+14
2p6f	³ F ₃	939.311	0.2246+11	0.1055+14	0.1055+14
2p6f	³ F ₂	939.329	0.1658+11	0.9100+11	0.9100+11
2p6f	³ G ₃	939.754	0.2208+11	0.2869+14	0.2869+14
2p6f	³ G ₄	939.796	0.2787+11	0.3292+14	0.3292+14
2p6f	³ G ₅	939.957	0.3399+11	0.4889+14	0.4889+14
2p6f	¹ G ₄	940.093	0.2523+11	0.5566+14	0.5566+14
2p6f	³ D ₁	940.309	0.1133+11	0.7320+12	0.7320+12
2p6f	³ D ₂	940.191	0.1921+11	0.7870+12	0.7870+12
2p6f	³ D ₃	940.114	0.3592+11	0.6440+12	0.6440+12
2p6f	¹ D ₂	940.483	0.2260+11	0.1929+13	0.1929+13
2p6g	³ F ₂	940.383	0.1074+11	0.1410+12	0.1410+12

TABLE II. continued.

2p7i	960.081	0.6961+10	0.0842+13	0.0842+13	3K ₇
2p7i	960.083	0.5107+10	0.0005+13	0.0005+13	3F ₆
2p7i	960.083	0.6035+10	0.0005+13	0.0005+13	3H ₆
2p7i	960.584	0.6046+10	0.0416+13	0.0416+13	1F ₆
2p7i	960.584	0.6975+10	0.0416+13	0.0416+13	3F ₇
2p7i	960.596	0.5110+10	0.0007+13	0.0007+13	3F ₆
2p7i	960.596	0.6039+10	0.0006+13	0.0006+13	3H ₆
2p7i	960.621	0.6947+10	0.1257+13	0.1257+13	1K ₇
2p7i	960.621	0.7873+10	0.1257+13	0.1257+13	3K ₈
2p7i	960.637	0.4166+10	0.0010+13	0.0010+13	3H ₄
2p7i	960.637	0.5091+10	0.0010+13	0.0010+13	3H ₆
2p8s	970.510	0.1499+10	0.1415+13	0.1415+13	3F ₀
2p8s	970.583	0.5273+10	0.9498+13	0.9498+13	3P ₁
2p8s	971.028	0.7838+10	0.1211+13	0.1211+13	3P ₂
2p8s	971.287	0.9108+10	5.0675+13	5.0675+13	1F ₁
2p8p	971.665	0.1135+11	0.0979+13	0.0979+13	3D ₁
2p8p	971.864	0.8133+10	0.0591+13	0.0591+13	3D ₂
2p8p	971.867	0.1291+11	0.5281+13	0.5281+13	1F ₁
2p8p	972.217	0.1101+11	0.0884+13	0.0884+13	3D ₃
2p8p	972.239	0.1091+10	0.3500+13	0.3500+13	3P ₀
2p8p	972.261	0.1489+11	1.2066+13	1.2066+13	3S ₁
2p8p	972.525	0.6682+10	0.8180+13	0.8180+13	3P ₁
2p8p	972.557	0.5920+10	0.061+13	0.061+13	3P ₂
2p8p	972.908	0.1343+11	0.0057+13	0.0057+13	1D ₂
2p8p	974.148	0.3080+10	19.295+13	19.295+13	1S ₀
2p8d	972.513	0.7132+10	0.3924+13	0.3924+13	3F ₂
2p8d	972.691	0.1385+11	0.5995+13	0.5995+13	3F ₃
2p8d	972.730	0.1709+11	0.3734+13	0.3734+13	1D ₂
2p8d	972.914	0.1595+11	0.2543+13	0.2543+13	3D ₁
2p8d	973.026	0.9748+10	0.5139+13	0.5139+13	3F ₄
2p8d	973.112	0.1701+11	0.2893+13	0.2893+13	1D ₂
2p8d	973.236	0.3267+11	0.1044+13	0.1044+13	3D ₃
2p8d	973.340	0.2313+11	0.7361+13	0.7361+13	3P ₂
2p8d	973.378	0.1352+11	1.0446+13	1.0446+13	3P ₁
2p8d	973.400	0.4347+10	1.2633+13	1.2633+13	3F ₀
2p8d	973.938	0.7006+11	4.4044+13	4.4044+13	1F ₃
2p8d	974.048	0.2869+11	1.0306+13	1.0306+13	1P ₁
2p8f	972.987	0.1045+11	1.1130+13	1.1130+13	3G ₃
2p8f	973.020	0.1246+11	0.0622+13	0.0622+13	3F ₃
2p8f	973.028	0.1420+11	1.1948+13	1.1948+13	3G ₄
2p8f	973.075	0.1217+11	0.0181+13	0.0181+13	3F ₂
2p8f	973.459	0.1079+11	0.6582+13	0.6582+13	1F ₃
2p8f	973.480	0.1412+11	0.7901+13	0.7901+13	3F ₄

TABLE II. continued.

2p7d	959.882	0.4636+11	0.1319+13	0.1319+13	3D ₃
2p7d	960.031	0.2855+11	1.1035+13	1.1035+13	3F ₂
2p7d	960.086	0.1611+11	1.4686+13	1.4686+13	3F ₁
2p7d	960.116	0.5087+10	1.7065+13	1.7065+13	3F ₀
2p7d	961.015	0.2475+11	1.4090+13	1.4090+13	1F ₁
2p7d	960.880	0.7683+11	6.1728+13	6.1728+13	1F ₃
2p7f	959.744	0.1558+11	1.2584+13	1.2584+13	3G ₃
2p7f	959.778	0.1592+11	0.2353+13	0.2353+13	3F ₃
2p7f	959.800	0.1948+11	1.5935+13	1.5935+13	3F ₄
2p7f	959.816	0.1181+11	0.1040+13	0.1040+13	3F ₂
2p7f	960.205	0.1555+11	1.4169+13	1.4169+13	3G ₃
2p7f	960.237	0.1976+11	1.4900+13	1.4900+13	3F ₁
2p7f	960.341	0.2399+11	2.9007+13	2.9007+13	3G ₆
2p7f	960.404	0.1706+11	0.0355+13	0.0355+13	3D ₃
2p7f	960.461	0.1254+11	0.0510+13	0.0510+13	3D ₂
2p7f	960.483	0.1800+11	3.3805+13	3.3805+13	3G ₄
2p7f	960.566	0.7492+10	0.0455+13	0.0455+13	3D ₁
2p7f	960.687	0.1407+11	0.1578+13	0.1578+13	1D ₂
2p7g	959.944	0.1263+11	1.1626+13	1.1626+13	3H ₄
2p7g	959.948	0.1537+11	1.1634+13	1.1634+13	3G ₆
2p7g	959.952	0.1326+11	0.0037+13	0.0037+13	3G ₄
2p7g	959.953	0.1040+11	0.0105+13	0.0105+13	3G ₃
2p7g	960.415	0.1287+11	0.8002+13	0.8002+13	3H ₄
2p7g	960.418	0.1568+11	0.8128+13	0.8128+13	3G ₆
2p7g	960.488	0.1334+11	0.0079+13	0.0079+13	3F ₁
2p7g	960.490	0.1034+11	0.0155+13	0.0155+13	3G ₃
2p7g	960.520	0.1773+11	1.9656+13	1.9656+13	3H ₆
2p7g	960.526	0.1488+11	1.9777+13	1.9777+13	1H ₅
2p7g	960.598	0.7437+10	0.0161+13	0.0161+13	3F ₂
2p7g	960.601	0.1053+11	0.0105+13	0.0105+13	3F ₃
2p7h	960.051	0.1116+11	0.4750+13	0.4750+13	3F ₅
2p7h	960.051	0.1318+11	0.2192+13	0.2192+13	3H ₆
2p7h	960.057	0.1202+11	0.0034+13	0.0034+13	3G ₅
2p7h	960.057	0.9831+10	0.0076+13	0.0076+13	3H ₄
2p7h	960.542	0.1161+11	0.0057+13	0.0057+13	3F ₅
2p7h	960.542	0.1372+11	0.1193+13	0.1193+13	3H ₆
2p7h	960.570	0.1209+11	0.2593+13	0.2593+13	3G ₅
2p7h	960.570	0.9893+10	0.0046+13	0.0046+13	3H ₄
2p7h	960.603	0.1468+11	0.7343+13	0.7343+13	3F ₇
2p7h	960.603	0.1272+11	0.3961+13	0.3961+13	1F ₆
2p7h	960.636	0.7711+10	0.0082+13	0.0082+13	3G ₃
2p7h	960.636	0.9912+10	0.0118+13	0.0118+13	3G ₄
2p7i	960.081	0.6033+10	0.0842+13	0.0842+13	3K ₆

TABLE II. continued.

1	2	3	4	5	6
3s ²	1S ₀	1164.268	0.3531+11	0.7003+14	0.7044+14
3s3p	³ P ₀	1181.658	0.3691+11	0.3840+14	0.8970+14
3s3p	³ F ₁	1181.702	0.1108+12	0.3840+14	0.8971+14
3s3p	¹ F ₁	1202.677	0.1390+12	0.1044+15	0.3666+15
3s3p	³ P ₁	1181.790	0.1846+12	0.3839+14	0.8972+14
3s3d	¹ D ₂	1203.573	0.3678+12	0.9437+14	0.2146+15
3s3d	³ D ₁	1208.502	0.2713+12	0.1108+14	0.1896+14
3s3d	³ D ₂	1208.518	0.4568+12	0.1108+14	0.1896+14
3s3d	³ D ₃	1208.542	0.6389+12	0.1108+14	0.1895+14
3p ²	³ F ₀	1217.478	0.5083+11	0.5000+10	0.1727+15
3p ²	³ F ₁	1217.521	0.1525+12	0.1000+09	0.1727+15
3p ²	³ F ₂	1217.606	0.2544+12	0.2000+10	0.1727+15
3p ²	¹ S ₀	1233.261	0.6703+11	0.3549+14	0.6306+15
3p ²	¹ D ₂	1234.402	0.4307+12	0.5991+14	0.2899+15
3p3d	³ F ₀	1242.184	0.9619+11	0.2873+13	0.4335+14
3p3d	³ D ₁	1239.401	0.2987+12	0.1000+10	0.1036+15
3p3d	³ F ₁	1242.176	0.2884+12	0.2876+13	0.4335+14
3p3d	¹ F ₁	1269.341	0.2677+12	0.3554+13	0.1647+15
3p3d	³ F ₂	1228.197	0.4645+12	0.7210+12	0.1092+13
3p3d	¹ D ₂	1229.033	0.4854+12	0.3000+10	0.9692+13
3p3d	³ D ₂	1239.429	0.4975+12	0.1000+10	0.1036+15
3p3d	³ F ₂	1242.159	0.4802+12	0.2883+13	0.4334+14
3p3d	³ F ₃	1228.261	0.6498+12	0.7230+12	0.1060+13
3p3d	³ D ₃	1239.472	0.6959+12	0.1000+09	0.1036+15
3p3d	¹ F ₃	1255.852	0.6761+12	0.8415+13	0.3164+15
3p3d	³ F ₄	1228.343	0.8348+12	0.7240+12	0.1059+13
3p3d	³ F ₀	1242.184	0.9619+11	0.2873+13	0.4335+14
3p3d	³ D ₁	1239.401	0.2987+12	0.1000+10	0.1036+15
3p3d	³ F ₁	1242.176	0.2884+12	0.2876+13	0.4335+14
3p3d	¹ F ₁	1269.341	0.2677+12	0.3554+13	0.1647+15
3p3d	³ F ₂	1228.197	0.4645+12	0.7210+12	0.1092+13
3p3d	¹ D ₂	1229.033	0.4854+12	0.3000+10	0.9692+13
3p3d	³ D ₂	1239.429	0.4975+12	0.1000+10	0.1036+15
3p3d	³ F ₃	1242.159	0.4802+12	0.2883+13	0.4334+14
3p3d	³ F ₃	1228.261	0.6498+12	0.7230+12	0.1060+13
3p3d	³ D ₃	1239.472	0.6959+12	0.1000+09	0.1036+15
3p3d	¹ F ₃	1255.852	0.6761+12	0.8415+13	0.3164+15
3p3d	³ F ₄	1228.343	0.8348+12	0.7240+12	0.1059+13
3p3d	³ F ₀	1242.184	0.9619+11	0.2873+13	0.4335+14
3p3d	³ D ₁	1239.401	0.2987+12	0.1000+10	0.1036+15
3p3d	³ F ₁	1242.176	0.2884+12	0.2876+13	0.4335+14
3p3d	¹ F ₁	1269.341	0.2677+12	0.3554+13	0.1647+15
3p3d	³ F ₂	1228.197	0.4645+12	0.7210+12	0.1092+13
3p3d	¹ D ₂	1229.033	0.4854+12	0.3000+10	0.9692+13
3p3d	³ D ₂	1239.429	0.4975+12	0.1000+10	0.1036+15
3p3d	³ F ₃	1242.159	0.4802+12	0.2883+13	0.4334+14
3p3d	³ F ₃	1228.261	0.6498+12	0.7230+12	0.1060+13
3p3d	³ D ₃	1239.472	0.6959+12	0.1000+09	0.1036+15
3p3d	¹ F ₃	1255.852	0.6761+12	0.8415+13	0.3164+15
3p3d	³ F ₄	1228.343	0.8348+12	0.7240+12	0.1059+13
3d ²	³ F ₂	1251.526	0.7704+12	0.1000+09	0.8692+14
3d ²	³ F ₃	1251.550	0.1052+13	0.1000+09	0.8692+14
3d ²	³ F ₄	1251.581	0.1355+13	0.1000+09	0.8693+14
3d ²	¹ G ₄	1261.420	0.1303+13	0.9761+14	0.5917+15
3d ²	³ F ₀	1265.064	0.1461+12	0.1000+09	0.3341+13

TABLE II. continued.

1	2	3	4	5	6
2p8f	³ G ₅	973.551	0.1580+11	1.8259+13	1.8259+13
2p8f	³ D ₃	973.581	0.1425+10	0.0207+13	0.0207+13
2p8f	³ D ₂	973.622	0.1153+11	0.0347+13	0.0347+13
2p8f	¹ G ₄	973.647	0.1515+11	2.1382+13	2.1382+13
2p8f	³ D ₁	973.697	0.6701+10	0.0297+13	0.0297+13
2p8f	¹ D ₂	973.792	0.1802+11	0.1223+13	0.1223+13
2p8f	³ H ₄	973.113	0.9483+10	0.8984+13	0.8984+13
2p8f	³ G ₅	973.115	0.1159+11	0.9004+13	0.9004+13
2p8f	³ G ₃	973.124	0.8357+10	0.0204+13	0.0204+13
2p8f	³ F ₄	973.126	0.1060+11	0.0038+13	0.0038+13
2p8f	¹ G ₄	973.596	0.9781+10	0.4919+13	0.4919+13
2p8f	³ G ₅	973.598	0.1195+11	0.4995+13	0.4995+13
2p8f	³ F ₄	973.643	0.1083+11	0.0068+13	0.0068+13
2p8f	³ G ₃	973.644	0.8445+10	0.0142+13	0.0142+13
2p8f	³ H ₆	973.668	0.1336+11	1.3906+13	1.3906+13
2p8f	¹ H ₅	973.672	0.1130+11	1.4011+13	1.4011+13
2p8f	³ F ₂	973.722	0.6331+10	0.0155+13	0.0155+13
2p8f	³ F ₃	973.724	0.8978+10	0.0106+13	0.0106+13
2p8f	³ F ₆	973.181	0.8959+10	0.4343+13	0.4343+13
2p8f	³ F ₆	973.181	0.1059+11	0.4343+13	0.4343+13
2p8f	³ G ₅	973.186	0.9937+10	0.0058+13	0.0058+13
2p8f	³ H ₄	973.186	0.8129+10	0.0053+13	0.0053+13
2p8f	¹ H ₆	973.681	0.9365+10	0.2106+13	0.2106+13
2p8f	³ H ₆	973.681	0.1107+11	0.2107+13	0.2107+13
2p8f	³ G ₅	973.699	0.9985+10	0.0034+13	0.0034+13
2p8f	³ H ₄	973.699	0.8172+10	0.0073+13	0.0073+13
2p8f	³ F ₇	973.723	0.1188+11	0.6448+13	0.6448+13
2p8f	¹ F ₆	973.723	0.1029+11	0.6450+13	0.6450+13
2p8f	³ G ₃	973.745	0.6568+10	0.0090+13	0.0090+13
2p8f	³ G ₄	973.745	0.8446+10	0.0124+13	0.0124+13
2p8f	³ K ₆	973.203	0.4062+10	0.1248+13	0.1248+13
2p8f	³ K ₇	973.203	0.4687+10	0.1248+13	0.1248+13
2p8f	³ H ₆	973.205	0.4066+10	0.0009+13	0.0009+13
2p8f	³ F ₆	973.205	0.3440+10	0.0009+13	0.0009+13
2p8f	¹ F ₆	973.713	0.4066+10	0.0574+13	0.0574+13
2p8f	³ F ₇	973.713	0.4692+10	0.0574+13	0.0574+13
2p8f	³ F ₅	973.721	0.3441+10	0.0010+13	0.0010+13
2p8f	³ H ₆	973.721	0.4067+10	0.0009+13	0.0009+13
2p8f	¹ K ₇	973.738	0.4683+10	0.1822+13	0.1822+13
2p8f	³ K ₈	973.738	0.5307+10	0.1822+13	0.1822+13
2p8f	³ H ₄	973.748	0.2813+10	0.0017+13	0.0017+13
2p8f	³ H ₅	973.748	0.3438+10	0.0017+13	0.0017+13

TABLE II. continued.

1	2	3	4	5	6
3p4d	³ F ₄	1400.225	0.5367+12	0.5400+11	0.1535+13
3p4f	¹ F ₃	1401.165	0.3982+12	0.1000+11	0.2290+12
3p4f	³ G ₃	1401.381	0.4560+12	0.2350+12	0.2328+13
3p4f	³ G ₄	1401.416	0.5895+12	0.2450+12	0.2329+13
3p4f	³ G ₅	1401.472	0.7217+12	0.2430+12	0.2309+13
3p4f	³ F ₂	1403.761	0.2168+12	0.1000+09	0.1502+13
3p4f	³ F ₃	1403.777	0.3035+12	0.1000+09	0.1498+13
3p4f	³ F ₄	1403.797	0.3801+12	0.1000+10	0.1500+13
3p4f	¹ G ₄	1411.306	0.4874+12	0.4970+14	0.2099+15
3p4f	³ D ₃	1413.444	0.4070+12	0.2450+12	0.5075+13
3p4f	³ D ₂	1413.451	0.2895+12	0.2450+12	0.5093+13
3p4f	³ D ₁	1413.456	0.1732+12	0.2440+12	0.5101+13
3p4f	¹ D ₂	1417.764	0.2430+12	0.6504+13	0.2478+14
3d4s	¹ D ₂	1389.009	0.3700+12	0.2170+14	0.1249+15
3d4s	³ D ₁	1396.318	0.2539+12	0.1204+13	0.1956+13
3d4s	³ D ₂	1396.344	0.4925+12	0.1106+13	0.1941+13
3d4s	³ D ₃	1396.383	0.5904+12	0.1183+13	0.1904+13
3d4p	³ F ₀	1410.553	0.9199+11	0.2105+13	0.3083+14
3d4p	³ D ₁	1408.884	0.2606+12	0.1000+09	0.8613+14
3d4p	³ P ₁	1410.557	0.2758+12	0.2108+13	0.3076+14
3d4p	¹ P ₁	1422.981	0.2239+12	0.1649+13	0.1027+15
3d4p	¹ D ₂	1402.790	0.4806+12	0.1000+09	0.5622+13
3d4p	³ F ₂	1404.786	0.4595+12	0.1063+13	0.2445+13
3d4p	³ D ₂	1408.905	0.4342+12	0.1000+09	0.6613+14
3d4p	³ P ₂	1410.565	0.4594+12	0.2115+13	0.3062+14
3d4p	³ F ₃	1404.818	0.6430+12	0.1063+13	0.2449+13
3d4p	³ D ₃	1408.936	0.6074+12	0.1000+09	0.6614+14
3d4p	¹ F ₃	1418.647	0.5778+12	0.2422+14	0.1889+15
3d4p	³ F ₄	1404.861	0.8260+12	0.1062+13	0.2456+13
3d4d	³ F ₃	1405.900	0.6585+12	0.1000+09	0.2778+13
3d4d	³ D ₃	1407.138	0.5632+12	0.1700+11	0.6040+12
3d4d	³ D ₂	1407.142	0.4043+12	0.1900+11	0.5930+12
3d4d	³ D ₁	1407.144	0.2433+12	0.1800+11	0.5810+12
3d4d	³ G ₃	1409.549	0.5807+12	0.4080+12	0.9393+13
3d4d	³ G ₄	1409.579	0.7451+12	0.4120+12	0.9341+13
3d4d	³ G ₅	1409.617	0.9084+12	0.4100+12	0.9420+13
3d4d	¹ P ₁	1409.942	0.3167+12	0.1000+09	0.3130+12
3d4d	³ F ₂	1415.841	0.5648+12	0.1000+09	0.6735+14
3d4d	³ F ₃	1415.859	0.7928+12	0.1000+09	0.6735+14
3d4d	³ F ₄	1415.882	0.1019+13	0.1000+09	0.6736+14
3d4d	³ S ₁	1417.436	0.2723+12	0.1460+12	0.9260+12
3d4d	³ P ₀	1421.899	0.1195+12	0.1000+09	0.5909+13
3d4d	³ P ₁	1421.907	0.3584+12	0.1000+09	0.5892+13

TABLE II. continued.

1	2	3	4	5	6
3d ²	³ P ₁	1265.074	0.4383+12	0.1000+09	0.3341+13
3d ²	³ P ₂	1265.096	0.7301+12	0.1000+09	0.3315+13
3d ²	¹ D ₂	1269.546	0.6357+12	0.9320+12	0.1361+15
3d ²	¹ S ₀	1304.067	0.1223+12	0.3095+13	0.1158+14
3s4s	³ S ₁	1350.581	0.8467+11	0.8820+12	0.8840+12
3s4s	¹ S ₀	1356.354	0.2864+11	0.5562+14	0.5574+14
3s4p	³ P ₀	1364.731	0.2937+11	0.2457+14	0.4370+14
3s4p	¹ P ₁	1361.739	0.9831+11	0.1248+14	0.2073+14
3s4p	³ P ₁	1364.747	0.8810+11	0.2456+14	0.4368+14
3s4p	³ P ₂	1364.779	0.1469+12	0.2453+14	0.4364+14
3s4d	³ D ₁	1370.048	0.1556+12	0.6067+13	0.6911+13
3s4d	³ D ₂	1370.063	0.2592+12	0.6078+13	0.6922+13
3s4d	³ D ₃	1370.084	0.3627+12	0.6087+13	0.6936+13
3s4d	¹ D ₂	1371.422	0.2373+12	0.3754+14	0.5687+14
3s4f	³ F ₂	1378.187	0.1607+12	0.3358+13	0.3399+13
3s4f	³ F ₃	1378.191	0.2250+12	0.3359+13	0.3400+13
3s4f	¹ F ₃	1381.014	0.3156+12	0.1649+13	0.3465+14
3s4f	³ F ₄	1378.197	0.2892+12	0.3360+13	0.3402+13
3p4s	³ P ₀	1379.816	0.4225+11	0.6355+13	0.2613+14
3p4s	³ P ₁	1379.858	0.1268+12	0.6368+13	0.2616+14
3p4s	¹ P ₁	1386.569	0.1273+12	0.7336+14	0.2362+15
3p4s	³ P ₂	1379.943	0.2116+12	0.6380+13	0.2619+14
3p4p	¹ P ₁	1386.376	0.1336+12	0.2000+10	0.2147+13
3p4p	³ D ₁	1388.685	0.1670+12	0.4796+13	0.1242+14
3p4p	³ D ₂	1388.722	0.2796+12	0.5128+13	0.1470+14
3p4p	³ D ₃	1388.785	0.3913+12	0.4798+13	0.1245+14
3p4p	³ S ₁	1391.437	0.1680+12	0.3340+12	0.3864+13
3p4p	³ P ₀	1394.413	0.4424+11	0.3000+10	0.1329+15
3p4p	³ P ₁	1394.446	0.1328+12	0.1000+09	0.1329+15
3p4p	³ P ₂	1394.509	0.2214+12	0.2000+10	0.1330+15
3p4p	¹ S ₀	1404.504	0.5548+11	0.4012+14	0.4551+15
3p4p	¹ D ₂	1405.790	0.3780+12	0.5038+14	0.1369+15
3p4d	³ P ₀	1403.551	0.6182+11	0.1000+09	0.1491+14
3p4d	³ D ₁	1392.788	0.2152+12	0.1000+09	0.5230+13
3p4d	¹ P ₁	1397.707	0.2160+12	0.3010+12	0.8439+13
3p4d	³ P ₁	1403.541	0.1853+12	0.1000+09	0.1498+14
3p4d	³ D ₂	1392.809	0.3586+12	0.1000+09	0.5230+13
3p4d	¹ D ₂	1396.683	0.2995+12	0.1000+09	0.6601+13
3p4d	³ F ₂	1400.112	0.2980+12	0.5000+11	0.1536+13
3p4d	³ F ₃	1403.522	0.3084+12	0.1000+09	0.1511+14
3p4d	³ D ₃	1392.839	0.5017+12	0.1000+09	0.5229+13
3p4d	¹ F ₃	1394.993	0.4543+12	0.6000+11	0.7880+12
3p4d	³ F ₃	1400.160	0.4173+12	0.5500+11	0.1536+13

TABLE II. continued.

1	2	3	4	5	6
$3p5s$	$3P_1$	1461.738	0.1090+12	0.3253+13	0.1384+14
$3p5s$	$1P_1$	1463.579	0.1124+12	0.2692+14	0.8497+14
$3p5s$	$3P_2$	1461.830	0.1819+12	0.3228+13	0.1376+14
$3p5p$	$1P_1$	1465.427	0.1094+12	0.6000+10	0.1744+13
$3p5p$	$3D_1$	1465.973	0.1339+12	0.8320+12	0.4759+13
$3p5p$	$3D_2$	1466.015	0.2239+12	0.8390+12	0.4950+13
$3p5p$	$3D_3$	1466.089	0.3143+12	0.8400+12	0.4794+13
$3p5p$	$1D_2$	1467.452	0.3062+12	0.2165+13	0.7161+14
$3p5p$	$3S_1$	1468.010	0.1235+12	0.4000+11	0.1238+14
$3p5p$	$3P_0$	1468.097	0.3822+11	0.2000+10	0.6649+14
$3p5p$	$3P_1$	1468.142	0.1155+12	0.9000+10	0.5630+14
$3p5p$	$3P_2$	1468.184	0.1836+12	0.6000+10	0.6651+14
$3p5p$	$1S_0$	1472.443	0.3809+11	0.2367+13	0.1253+15
$3p5d$	$3P_0$	1473.114	0.4379+11	0.2830+12	0.1744+14
$3p5d$	$3D_1$	1469.423	0.1526+12	0.1000+09	0.1021+14
$3p5d$	$1P_1$	1472.180	0.1640+12	0.1803+13	0.1927+14
$3p5d$	$3P_1$	1473.099	0.1314+12	0.2840+12	0.1748+14
$3p5d$	$3D_2$	1469.441	0.2543+12	0.1000+09	0.1021+14
$3p5d$	$1D_2$	1470.288	0.2135+12	0.1000+09	0.6463+13
$3p5d$	$3P_2$	1471.400	0.2294+12	0.7500+11	0.1514+13
$3p5d$	$3P_2$	1473.065	0.2189+12	0.2780+12	0.1753+14
$3p5d$	$3D_3$	1469.468	0.3560+12	0.1000+09	0.1020+14
$3p5d$	$1F_3$	1470.140	0.3945+12	0.6900+11	0.3666+13
$3p5d$	$3F_3$	1471.449	0.3216+12	0.7500+11	0.1507+13
$3p5d$	$3F_4$	1471.512	0.4137+12	0.7500+11	0.1502+13
$3p5f$	$1F_3$	1472.545	0.2507+12	0.1000+10	0.2498+13
$3p5f$	$3F_3$	1473.191	0.3865+12	0.1740+12	0.5490+12
$3p5f$	$3F_2$	1473.206	0.2188+12	0.4500+11	0.1390+12
$3p5f$	$3F_4$	1473.222	0.3233+12	0.3100+11	0.2060+12
$3p5f$	$3G_3$	1473.368	0.2872+12	0.3590+12	0.2448+13
$3p5f$	$3G_4$	1473.413	0.3699+12	0.3650+12	0.2467+13
$3p5f$	$3G_6$	1473.452	0.4564+12	0.3870+12	0.2621+13
$3p5f$	$3D_3$	1476.065	0.2938+12	0.6050+12	0.3744+13
$3p5f$	$3D_2$	1476.101	0.2093+12	0.6060+12	0.3732+13
$3p5f$	$3D_1$	1476.125	0.1253+11	0.5980+12	0.3710+13
$3p5f$	$1G_4$	1476.400	0.3293+12	0.2204+14	0.6939+14
$3p5f$	$1D_2$	1479.770	0.2174+12	0.3008+14	0.3168+14
$3p5g$	$3F_2$	1478.749	0.2225+12	0.5450+12	0.5910+12
$3p5g$	$3G_3$	1475.175	0.2100+12	0.1000+09	0.1000+10
$3p5g$	$3F_3$	1478.729	0.3228+12	0.5690+12	0.6360+12
$3p5g$	$1F_3$	1479.529	0.2542+12	0.3940+12	0.7600+13
$3p5g$	$1G_4$	1474.723	0.2804+12	0.4000+10	0.1400+11
$3p5g$	$3G_4$	1475.180	0.2702+12	0.2000+11	0.5000+11

TABLE II. continued.

1	2	3	4	5	6
$3d4d$	$3P_2$	1421.923	0.5969+12	0.1000+09	0.5862+13
$3d4d$	$1D_2$	1424.577	0.4613+12	0.4090+13	0.9141+14
$3d4d$	$1G_4$	1423.452	0.8376+12	0.1643+14	0.2459+15
$3d4d$	$1S_0$	1433.413	0.6623+11	0.3657+14	0.6531+14
$3d4f$	$3P_0$	1426.090	0.9204+11	0.2900+12	0.6120+12
$3d4f$	$3D_1$	1422.654	0.2998+12	0.1000+09	0.3100+11
$3d4f$	$3P_1$	1426.082	0.2763+12	0.2910+12	0.6140+12
$3d4f$	$1P_1$	1434.337	0.2854+12	0.1600+11	0.2091+13
$3d4f$	$3F_2$	1415.250	0.4358+12	0.1200+11	0.5983+13
$3d4f$	$1D_2$	1417.432	0.4725+12	0.1000+09	0.1710+12
$3d4f$	$3D_2$	1422.657	0.4996+12	0.1000+09	0.1000+10
$3d4f$	$3P_2$	1426.068	0.4606+12	0.2910+12	0.6180+12
$3d4f$	$3F_3$	1415.265	0.6097+12	0.1200+11	0.5980+13
$3d4f$	$3G_3$	1419.554	0.7323+12	0.1000+09	0.1446+14
$3d4f$	$3D_3$	1422.660	0.6995+12	0.1000+09	0.2000+10
$3d4f$	$1F_3$	1425.370	0.6332+12	0.2082+13	0.2039+14
$3d4f$	$1G_4$	1410.310	0.7937+12	0.5000+10	0.7531+13
$3d4f$	$3H_4$	1410.692	0.7370+12	0.5011+13	0.2971+14
$3d4f$	$3H_5$	1410.712	0.9011+12	0.5017+13	0.2973+14
$3d4f$	$3F_4$	1415.286	0.7831+12	0.1200+11	0.5972+13
$3d4f$	$3G_4$	1419.569	0.9411+12	0.1000+09	0.1445+14
$3d4f$	$3G_6$	1419.588	0.1149+13	0.1000+09	0.1445+14
$3d4f$	$1H_5$	1427.590	0.1131+13	0.1382+14	0.8655+14
$3d4f$	$3H_6$	1410.737	0.1064+13	0.5017+13	0.2973+14
$3s6s$	$3S_1$	1434.745	0.6962+11	0.7310+12	0.7340+12
$3s6s$	$1S_0$	1440.228	0.5849+11	0.6471+13	0.1145+14
$3s6p$	$3P_0$	1441.271	0.2437+11	0.1279+14	0.1900+14
$3s6p$	$3P_1$	1441.279	0.7310+11	0.1278+14	0.1900+14
$3s6p$	$1P_1$	1441.868	0.8114+11	0.1508+14	0.2225+14
$3s6p$	$3P_2$	1441.295	0.1218+12	0.1278+14	0.1899+14
$3s6p$	$3D_1$	1444.713	0.1026+12	0.5632+13	0.6215+13
$3s6d$	$3D_2$	1444.717	0.1709+12	0.5634+13	0.6218+13
$3s6d$	$3D_3$	1444.724	0.2392+12	0.5636+13	0.6212+13
$3s6d$	$1D_2$	1445.003	0.1676+12	0.2670+14	0.3781+14
$3s6f$	$3F_2$	1447.869	0.1217+12	0.2525+13	0.2647+13
$3s6f$	$3F_3$	1447.871	0.1704+12	0.2525+13	0.2647+13
$3s6f$	$1F_3$	1450.153	0.2036+12	0.1290+12	0.3221+14
$3s6f$	$3F_4$	1447.874	0.2191+12	0.2526+13	0.2648+13
$3s6g$	$3G_3$	1450.873	0.1480+12	0.2400+11	0.1076+13
$3s6g$	$3G_4$	1450.874	0.1904+12	0.2400+11	0.1077+13
$3s6g$	$3G_5$	1450.876	0.2327+12	0.2400+11	0.1077+13
$3s6g$	$1G_4$	1452.856	0.2053+12	0.1910+12	0.1754+13
$3p5s$	$3P_0$	1461.695	0.3630+11	0.3224+13	0.1376+14

TABLE II. continued.

1	2	3	4	5	6
3d5f	¹ P ₁	1491.930	0.2881+12	0.3940+12	0.8064+13
3d5f	³ F ₂	1482.597	0.4027+12	0.3640+12	0.3728+13
3d5f	¹ D ₂	1483.903	0.4651+12	0.1000+10	0.2690+12
3d5f	³ D ₂	1486.909	0.4824+12	0.1000+09	0.1490+12
3d5f	³ F ₃	1487.305	0.4519+12	0.6000+10	0.1364+13
3d5f	³ F ₃	1482.608	0.5623+12	0.4130+12	0.3825+13
3d5f	³ G ₃	1484.600	0.6757+12	0.1500+11	0.1212+14
3d5f	³ D ₃	1486.011	0.6753+12	0.1000+09	0.1520+12
3d5f	¹ F ₅	1489.093	0.5168+12	0.4786+13	0.4886+14
3d5f	³ H ₄	1481.382	0.7995+12	0.1000+10	0.5076+13
3d5f	³ H ₅	1481.912	0.7225+12	0.1793+13	0.1568+14
3d5f	³ F ₄	1481.930	0.8818+12	0.1792+13	0.1568+14
3d5f	³ G ₄	1482.621	0.7220+12	0.3660+12	0.3707+13
3d5f	³ G ₄	1484.613	0.8714+12	0.1000+09	0.1172+14
3d5f	³ G ₅	1484.630	0.1064+13	0.1000+09	0.1173+14
3d5f	¹ H ₆	1489.056	0.9738+12	0.1212+14	0.7991+14
3d5f	¹ H ₆	1481.953	0.1040+13	0.1790+13	0.1566+14
3d5g	³ G ₃	1484.007	0.9925+12	0.1000+09	0.1181+13
3d5g	³ G ₄	1484.418	0.5121+12	0.3900+11	0.4130+12
3d5g	³ G ₄	1484.427	0.6624+12	0.4300+11	0.4880+12
3d5g	³ G ₅	1484.436	0.8107+12	0.3600+11	0.4630+12
3d5g	³ H ₄	1484.363	0.8050+12	0.9000+10	0.1404+13
3d5g	³ H ₅	1484.375	0.9816+12	0.2000+10	0.1312+13
3d5g	³ H ₆	1484.393	0.1168+13	0.1000+09	0.1360+13
3d5g	¹ F ₆	1485.560	0.6413+12	0.1000+09	0.3000+10
3d5g	³ F ₂	1485.793	0.4603+12	0.1000+09	0.1600+12
3d5g	³ F ₃	1485.792	0.6433+12	0.1000+09	0.1540+12
3d5g	³ F ₄	1485.790	0.8271+12	0.1000+10	0.1660+12
3d5g	¹ G ₄	1484.969	0.8266+12	0.6366+13	0.6994+14
3d5g	³ I ₆	1485.111	0.9728+12	0.7470+12	0.4843+13
3d5g	³ I ₆	1485.130	0.1149+13	0.7470+12	0.4845+13
3d5g	³ F ₇	1485.153	0.1324+13	0.7470+12	0.4845+13
3d5g	¹ I ₆	1486.228	0.1139+13	0.1095+13	0.7127+13
3d5g	³ D ₃	1487.913	0.6436+12	0.1000+10	0.3300+11
3d5g	³ D ₂	1487.931	0.4593+12	0.1000+10	0.3700+11
3d5g	³ D ₁	1487.943	0.2754+12	0.1000+10	0.3300+11
3d5g	¹ D ₂	1489.581	0.4365+12	0.1000+10	0.9761+13
3d6s	³ S ₁	1476.634	0.7948+11	0.7130+12	0.1035+13
3d6p	¹ S ₀	1478.955	0.3964+11	0.4091+14	0.1262+15
3d6p	³ P ₀	1480.830	0.3009+11	0.4859+13	0.6903+13
3d6p	¹ P ₁	1479.401	0.1267+12	0.1410+14	0.4667+14
3d6p	³ P ₁	1480.834	0.9058+11	0.4833+13	0.6894+13
3d6p	³ P ₂	1480.842	0.1519+12	0.4780+13	0.6875+13

TABLE II. continued.

1	2	3	4	5	6
3p5g	³ G ₅	1475.193	0.3303+12	0.2100+11	0.5200+11
3p5g	³ H ₄	1475.494	0.2843+12	0.1129+13	0.2819+13
3p5g	³ H ₅	1475.535	0.3476+12	0.1134+13	0.2833+13
3p5g	¹ H ₅	1477.564	0.3117+12	0.8730+12	0.1655+13
3p5g	³ F ₄	1478.708	0.4357+12	0.6010+12	0.6610+12
3p5g	³ H ₆	1475.582	0.4113+12	0.1156+13	0.2892+13
3d5s	³ D ₁	1473.160	0.2433+12	0.3910+12	0.1037+13
3d5s	³ D ₂	1473.173	0.3633+12	0.3410+12	0.3030+12
3d5s	³ D ₃	1473.221	0.4280+12	0.2290+12	0.6450+12
3d5s	¹ D ₂	1475.258	0.3230+12	0.1033+14	0.3125+14
3d5p	³ P ₀	1479.893	0.8898+11	0.2700+12	0.1375+14
3d5p	³ D ₁	1478.320	0.2638+12	0.1000+10	0.2795+14
3d5p	³ P ₁	1479.904	0.2663+12	0.2807+13	0.1373+14
3d5p	¹ P ₁	1486.783	0.1861+12	0.6720+12	0.3123+14
3d5p	¹ D ₂	1476.473	0.4810+12	0.1000+09	0.1066+13
3d5p	³ F ₂	1477.851	0.3807+12	0.2760+12	0.5400+12
3d5p	³ D ₂	1478.338	0.4427+12	0.1000+09	0.2794+14
3d5p	³ F ₃	1479.924	0.4423+12	0.2859+13	0.1367+14
3d5p	³ F ₃	1477.861	0.5212+12	0.2530+12	0.5140+12
3d5p	³ D ₃	1478.365	0.6192+12	0.1000+09	0.2795+14
3d5p	¹ F ₃	1484.540	0.4221+12	0.1821+13	0.5676+14
3d5p	³ F ₄	1477.872	0.6482+12	0.2220+12	0.4750+12
3d5d	¹ F ₃	1479.017	0.6763+12	0.1000+09	0.1052+13
3d5d	³ D ₁	1480.390	0.2473+12	0.1359+13	0.3629+13
3d5d	³ D ₂	1480.402	0.4116+12	0.1606+13	0.3640+13
3d5d	³ D ₃	1480.420	0.5752+12	0.1607+13	0.3632+13
3d5d	³ G ₃	1480.480	0.6284+12	0.3740+12	0.4275+13
3d5d	³ G ₄	1480.503	0.8069+12	0.3760+12	0.4283+13
3d5d	³ G ₅	1480.531	0.9843+12	0.3760+12	0.4281+13
3d5d	¹ P ₁	1480.947	0.2899+12	0.2000+10	0.4190+12
3d5d	³ F ₂	1482.338	0.5159+12	0.1000+10	0.3772+14
3d5d	³ F ₃	1482.353	0.7219+12	0.1000+10	0.3771+14
3d5d	³ F ₄	1482.374	0.9276+12	0.1000+09	0.3772+14
3d5d	¹ G ₄	1483.951	0.5344+12	0.6884+13	0.8303+14
3d5d	³ S ₁	1484.191	0.2530+12	0.5100+11	0.1163+13
3d5d	³ P ₀	1485.261	0.1100+12	0.1000+09	0.6212+13
3d5d	³ P ₁	1485.275	0.3298+12	0.1000+09	0.6193+13
3d5d	³ P ₂	1485.289	0.5494+12	0.1000+09	0.6168+13
3d5d	¹ D ₂	1486.435	0.4330+12	0.4060+12	0.4824+14
3d5d	¹ S ₀	1493.319	0.9054+11	0.2342+13	0.3113+14
3d5f	³ P ₀	1487.329	0.9028+11	0.7000+10	0.1346+13
3d5f	³ D ₁	1486.007	0.2894+12	0.1000+09	0.1520+12
3d5f	³ P ₁	1487.321	0.2710+12	0.7000+10	0.1353+13

TABLE I. continued.

1	2	3	4	5	6
3p6f	³ F ₂	1509.639	0.1565+12	0.1000+09	0.1860+12
3p6f	³ F ₃	1509.648	0.2192+12	0.5000+10	0.2230+12
3p6f	³ F ₄	1509.665	0.2819+12	0.1200+11	0.2360+12
3p6f	³ G ₃	1510.007	0.2319+12	0.3110+12	0.2332+13
3p6f	³ G ₄	1510.053	0.2979+12	0.3220+12	0.2350+13
3p6f	³ G ₅	1510.110	0.3648+12	0.3170+12	0.2363+13
3p6f	³ D ₃	1511.151	0.2499+12	0.3000+11	0.1451+13
3p6f	³ D ₂	1511.194	0.1796+12	0.2800+11	0.1427+13
3p6f	³ D ₁	1511.223	0.1083+12	0.2600+11	0.1412+13
3p6f	¹ D ₂	1512.610	0.2526+12	0.7590+12	0.2098+13
3p6f	¹ G ₄	1511.832	0.2987+12	0.1361+14	0.3363+14
3p6g	³ G ₃	1510.903	0.2000+12	0.1000+09	0.2000+10
3p6g	³ F ₂	1512.723	0.1507+12	0.5800+11	0.6000+11
3p6g	³ F ₃	1512.686	0.2109+12	0.5800+11	0.6200+11
3p6g	¹ F ₃	1513.869	0.2469+12	0.2600+11	0.1713+13
3p6g	¹ G ₄	1510.667	0.2588+12	0.2000+10	0.2100+11
3p6g	³ G ₄	1510.912	0.2571+12	0.3000+10	0.8000+10
3p6g	³ G ₅	1510.925	0.3143+12	0.4000+10	0.1000+11
3p6g	³ H ₄	1511.622	0.2602+12	0.7780+12	0.1544+13
3p6g	³ H ₅	1511.668	0.3183+12	0.7820+12	0.1554+13
3p6g	³ F ₄	1512.640	0.2708+12	0.5900+11	0.6200+11
3p6g	¹ H ₅	1513.601	0.3300+12	0.2038+13	0.4819+13
3p6g	³ H ₆	1511.726	0.3765+12	0.7860+12	0.1562+13
3p6h	¹ H ₅	1511.722	0.3055+12	0.1000+09	0.1000+10
3p6h	³ H ₄	1511.732	0.2500+12	0.5000+10	0.1400+11
3p6h	³ H ₅	1511.745	0.3055+12	0.1000+09	0.2000+10
3p6h	³ H ₆	1511.752	0.3610+12	0.1000+09	0.2000+10
3p6h	³ F ₅	1512.859	0.2988+12	0.8700+11	0.2240+12
3p6h	³ F ₆	1512.891	0.3534+12	0.8900+11	0.2290+12
3p6h	³ F ₇	1512.964	0.4075+12	0.8700+11	0.2250+12
3p6h	¹ F ₆	1513.071	0.3556+12	0.1030+12	0.2730+12
3p6h	³ G ₆	1513.070	0.3145+12	0.4000+10	0.7000+10
3p6h	³ G ₄	1513.097	0.2574+12	0.4000+10	0.9000+10
3p6h	³ G ₃	1513.155	0.2001+12	0.4000+10	0.7000+10
3p6h	¹ G ₄	1513.211	0.2578+12	0.2000+10	0.1000+11
3d6s	³ D ₁	1512.964	0.2572+12	0.6620+12	0.2767+13
3d6s	³ D ₂	1512.982	0.4289+12	0.6610+12	0.2745+13
3d6s	³ D ₃	1513.009	0.6011+12	0.6550+12	0.2710+13
3d6s	¹ D ₂	1514.981	0.3399+12	0.2411+14	0.2760+14
3d6p	³ F ₀	1516.734	0.9482+11	0.9030+12	0.8110+13
3d6p	³ D ₁	1515.523	0.2754+12	0.1000+09	0.1268+14
3d6p	³ F ₁	1516.746	0.2843+12	0.9040+12	0.8097+13
3d6p	¹ F ₁	1519.889	0.2783+12	0.9300+12	0.4293+14

TABLE II. continued.

1	2	3	4	5	6
3s6d	¹ D ₂	1482.625	0.2376+12	0.1344+14	0.3198+14
3s6d	³ D ₁	1483.017	0.1058+12	0.2218+13	0.2311+13
3s6d	³ D ₂	1483.019	0.1766+12	0.2217+13	0.2318+13
3s6d	³ D ₃	1483.023	0.2479+12	0.2210+13	0.2306+13
3s6f	³ F ₂	1484.220	0.1518+12	0.1192+13	0.2398+13
3s6f	³ F ₃	1482.549	0.4012+12	0.1536+14	0.3995+14
3s6f	³ F ₃	1484.222	0.2127+12	0.1192+13	0.2416+13
3s6f	³ F ₄	1484.224	0.2745+12	0.1190+13	0.2416+13
3s6g	¹ G ₄	1490.238	0.4970+12	0.3300+12	0.4561+14
3s6g	³ G ₃	1486.252	0.2674+12	0.2000+10	0.2112+13
3s6g	³ G ₄	1486.255	0.3441+12	0.2000+10	0.2117+13
3s6g	³ G ₅	1486.258	0.4210+12	0.2000+10	0.2123+13
3s6h	³ H ₄	1487.653	0.2028+12	0.1000+10	0.6270+12
3s6h	³ H ₅	1487.661	0.2482+12	0.2000+10	0.6360+12
3s6h	¹ H ₅	1487.898	0.2948+12	0.2240+12	0.3941+13
3s6h	³ H ₆	1487.671	0.2938+12	0.1000+10	0.6380+12
3p6s	³ F ₀	1503.313	0.3287+11	0.1943+13	0.6719+13
3p6s	³ F ₁	1503.356	0.9869+11	0.1983+13	0.6818+13
3p6s	¹ F ₁	1504.477	0.1076+12	0.1441+14	0.4088+14
3p6s	³ F ₂	1503.454	0.1647+12	0.1942+13	0.6703+13
3p6p	¹ F ₁	1505.520	0.9733+11	0.2000+10	0.9850+12
3p6p	³ D ₁	1505.967	0.1065+12	0.2250+12	0.1964+13
3p6p	³ D ₂	1506.010	0.1780+12	0.2280+12	0.2068+13
3p6p	³ D ₃	1506.090	0.2496+12	0.2300+12	0.1938+13
3p6p	³ F ₀	1506.720	0.3454+11	0.2000+10	0.3368+14
3p6p	³ F ₁	1506.746	0.1037+12	0.1000+10	0.3343+14
3p6p	³ F ₂	1506.802	0.1730+12	0.1000+10	0.3365+14
3p6p	¹ D ₂	1507.368	0.2420+12	0.1000+09	0.4421+14
3p6p	³ S ₁	1507.413	0.1108+12	0.3500+11	0.1239+13
3p6p	¹ S ₀	1511.316	0.5123+11	0.9541+13	0.1228+15
3p6d	³ D ₁	1510.006	0.3986+11	0.2000+10	0.1110+14
3p6d	³ F ₁	1509.982	0.1182+12	0.1000+09	0.9845+13
3p6d	¹ F ₁	1510.268	0.1564+12	0.3000+10	0.1115+14
3p6d	³ D ₂	1507.958	0.1960+12	0.1540+12	0.1402+14
3p6d	¹ D ₂	1508.036	0.1798+12	0.1000+10	0.9539+13
3p6d	³ F ₂	1508.648	0.1826+12	0.6600+11	0.3990+13
3p6d	³ F ₃	1509.944	0.1991+12	0.1000+10	0.1172+13
3p6d	³ D ₃	1507.986	0.2768+12	0.1000+10	0.1115+14
3p6d	³ F ₃	1508.648	0.2877+12	0.2000+10	0.9816+13
3p6d	³ F ₃	1508.742	0.2882+12	0.2950+12	0.6527+13
3p6d	³ F ₄	1508.759	0.3290+12	0.2950+12	0.6560+13
3p6f	¹ F ₃	1509.374	0.2199+12	0.2000+10	0.1127+13

TABLE II. continued.

1	2	3	4	5	6
3d6f	3G_6	1519.375	0.1034+13	0.1000+09	0.8148+13
3d6f	1H_6	1522.529	0.1015+13	0.1257+14	0.8623+14
3d6f	3H_6	1518.239	0.1108+13	0.9330+12	0.1004+14
3d6g	1H_6	1519.243	0.9822+12	0.1000+09	0.1123+13
3d6g	3H_4	1519.482	0.8042+12	0.1800+12	0.3404+13
3d6g	3H_6	1519.497	0.9817+12	0.1000+10	0.1325+13
3d6g	3H_6	1519.513	0.1159+13	0.1000+13	0.1330+13
3d6g	1G_4	1519.551	0.8213+12	0.5423+13	0.6623+14
3d6g	3G_6	1519.611	0.6384+12	0.6700+11	0.1054+13
3d6g	3G_4	1519.620	0.8201+12	0.1060+12	0.1562+13
3d6g	3G_6	1519.629	0.1002+13	0.6600+11	0.1060+13
3d6g	3F_6	1519.892	0.9535+12	0.7010+12	0.4859+13
3d6g	3F_6	1519.910	0.1349+13	0.7020+12	0.4861+13
3d6g	3F_6	1519.933	0.1298+13	0.7020+12	0.4863+13
3d6g	1F_5	1519.955	0.6500+12	0.1000+09	0.9000+10
3d6g	3F_2	1520.138	0.4687+12	0.7000+10	0.7480+12
3d6g	3F_3	1520.135	0.6521+12	0.1000+09	0.2000+12
3d6g	3F_4	1520.134	0.8384+12	0.3000+10	0.2580+12
3d6g	1F_6	1520.820	0.1119+13	0.1196+13	0.8096+13
3d6g	3D_1	1521.295	0.2846+12	0.1800+11	0.7300+11
3d6g	3D_2	1521.283	0.4746+12	0.1800+11	0.7800+11
3d6g	3D_3	1521.265	0.6649+12	0.1800+11	0.7300+11
3d6g	1D_2	1522.602	0.4807+12	0.1044+13	0.9060+13
3d6h	3F_2	1521.263	0.4672+12	0.3000+10	0.4000+10
3d6h	3G_8	1520.490	0.6454+12	0.1000+10	0.3000+10
3d6h	3F_3	1521.249	0.6545+12	0.2700+11	0.1230+12
3d6h	3F_3	1521.499	0.6535+12	0.1193+13	0.7769+13
3d6h	3F_6	1520.043	0.9743+12	0.1000+09	0.1030+13
3d6h	3H_4	1520.222	0.8145+12	0.1000+10	0.1250+12
3d6h	3H_6	1520.228	0.9951+12	0.1000+10	0.1280+12
3d6h	1H_6	1520.271	0.9938+12	0.1000+10	0.1860+12
3d6h	1G_4	1520.479	0.8297+12	0.1000+09	0.4000+10
3d6h	3G_6	1520.485	0.1014+13	0.1000+09	0.2000+10
3d6h	3F_4	1521.231	0.8420+12	0.1000+09	0.4000+10
3d6h	1F_6	1520.038	0.1151+13	0.1000+09	0.1010+12
3d6h	3F_6	1520.066	0.1150+13	0.1000+09	0.1020+12
3d6h	3F_7	1520.071	0.1327+13	0.1000+09	0.1030+12
3d6h	3H_6	1520.237	0.1175+13	0.1000+10	0.1270+12
3d6h	3K_6	1520.581	0.1117+13	0.5700+11	0.3930+12
3d6h	3K_7	1520.593	0.1289+13	0.5800+11	0.3980+12
3d6h	3K_8	1520.621	0.1459+13	0.5700+11	0.3980+12
3d6h	1K_7	1520.658	0.1287+13	0.6400+11	0.4380+12

TABLE II. continued.

1	2	3	4	5	6
3d6p	1D_2	1514.870	0.4759+12	0.1000+09	0.5600+12
3d6p	3D_2	1515.541	0.4587+12	0.1000+09	0.1266+14
3d6p	3F_5	1515.705	0.4540+12	0.3910+12	0.4260+12
3d6p	3P_2	1516.771	0.4732+12	0.9060+12	0.8061+13
3d6p	3D_3	1515.566	0.6415+12	0.1000+10	0.1266+14
3d6p	3F_3	1515.728	0.6352+12	0.3920+12	0.4330+12
3d6p	1F_3	1518.554	0.5701+12	0.1282+14	0.7104+14
3d6p	3F_4	1515.758	0.8160+12	0.3920+12	0.4140+12
3d6d	1F_3	1516.426	0.6597+12	0.1000+09	0.4770+12
3d6d	3G_3	1517.167	0.6482+12	0.2250+12	0.2501+13
3d6d	3G_4	1517.188	0.8326+12	0.2260+12	0.2513+13
3d6d	3G_5	1517.214	0.1016+13	0.2260+12	0.2508+13
3d6d	3D_1	1517.200	0.3392+12	0.2340+12	0.1276+13
3d6d	3D_2	1517.213	0.4616+12	0.2360+12	0.1288+13
3d6d	3D_3	1517.231	0.6458+12	0.2350+12	0.1287+13
3d6d	1F_1	1517.415	0.2872+12	0.2000+10	0.3550+12
3d6d	3F_2	1517.939	0.4939+12	0.1000+09	0.2206+14
3d6d	3F_3	1517.954	0.6911+12	0.1000+09	0.2205+14
3d6d	3F_4	1517.974	0.8879+12	0.1000+09	0.2206+14
3d6d	3S_1	1518.994	0.2756+12	0.1690+12	0.1359+13
3d6d	3P_0	1519.706	0.1117+12	0.1000+09	0.4480+13
3d6d	3P_1	1519.713	0.3350+12	0.1000+09	0.4467+13
3d6d	3P_2	1519.724	0.5580+12	0.1000+09	0.4529+13
3d6d	1D_2	1520.094	0.5141+12	0.5230+12	0.4973+14
3d6d	1G_4	1521.230	0.8185+12	0.1398+13	0.7588+14
3d6d	1S_0	1527.619	0.1306+12	0.5635+13	0.2625+14
3d6d	3P_0	1520.776	0.9625+11	0.9400+11	0.1181+13
3d6f	3D_1	1520.094	0.2918+12	0.1000+10	0.2520+12
3d6f	3P_1	1520.768	0.2889+12	0.9500+11	0.1189+13
3d6f	1P_1	1524.678	0.3160+12	0.7080+12	0.1376+14
3d6f	3F_2	1518.362	0.4549+12	0.4400+11	0.2920+13
3d6f	1D_2	1518.960	0.4688+12	0.1000+09	0.2210+12
3d6f	3D_2	1520.095	0.4863+12	0.1000+09	0.1920+12
3d6f	3D_3	1520.751	0.4818+12	0.9700+11	0.1202+13
3d6f	3F_3	1518.371	0.6365+12	0.5000+11	0.2993+13
3d6f	3G_3	1519.344	0.6586+12	0.1000+09	0.8148+13
3d6f	3D_3	1520.096	0.6808+12	0.2000+10	0.1980+12
3d6f	1F_3	1521.039	0.6682+12	0.5464+13	0.2292+14
3d6f	1G_4	1517.772	0.8033+12	0.1000+10	0.3048+13
3d6f	3H_4	1518.195	0.7687+12	0.9950+12	0.1005+14
3d6f	3H_6	1518.214	0.9386+12	0.9350+12	0.1005+14
3d6f	3F_4	1518.383	0.8179+12	0.4300+11	0.2922+13
3d6f	3G_4	1519.358	0.8463+12	0.1000+09	0.8146+13

TABLE III. continued.

1	2	3	4	5	6	7	8
$2p^2 \ ^1D_2$	$2p6d \ ^3F_3$	141.58	8.347+08	$2s2p \ ^1P_1$	$2p6f \ ^1D_2$	126.99	5.345+09
$2p^2 \ ^1D_2$	$2p6d \ ^3F_3$	141.62	2.842+09	$2s2p \ ^1P_1$	$2p6f \ ^3D_2$	127.05	5.773+08
$2p^2 \ ^1D_2$	$2p6s \ ^1P_1$	142.35	5.061+09	$2s2p \ ^1P_1$	$2p6f \ ^3F_2$	127.18	5.045+08
$2p^2 \ ^1D_2$	$2p6s \ ^3P_1$	142.58	2.464+08	$2s2p \ ^1P_1$	$2p6p \ ^1D_2$	127.31	1.444+10
$2p^2 \ ^3P_0$	$2p6d \ ^1P_1$	143.79	1.571+08	$2s2p \ ^1P_1$	$2p6p \ ^3P_2$	127.46	1.803+08
$2p^2 \ ^3P_2$	$2p5d \ ^1F_3$	143.95	1.161+08	$2s2p \ ^1P_1$	$2p6p \ ^3S_1$	127.56	1.170+09
$2p^2 \ ^3P_0$	$2p5d \ ^3P_1$	144.33	3.143+09	$2s2p \ ^1P_1$	$2p6p \ ^3D_2$	127.66	1.706+08
$2p^2 \ ^3P_1$	$2p5d \ ^3P_0$	144.35	8.186+09	$2s2p \ ^1P_1$	$2p6p \ ^3D_1$	127.67	7.624+09
$2p^2 \ ^3P_2$	$2p5d \ ^3P_2$	144.38	1.094+10	$2s2p \ ^1P_1$	$2p6p \ ^1P_1$	127.72	1.307+10
$2p^2 \ ^3P_0$	$2p5d \ ^3P_1$	144.36	3.086+08	$2s2p \ ^3P_0$	$2s6d \ ^3D_1$	131.41	8.606+09
$2p^2 \ ^3P_1$	$2p5d \ ^3P_2$	144.42	1.124+10	$2s2p \ ^3P_1$	$2p4f \ ^3F_3$	131.43	2.645+09
$2p^2 \ ^3P_2$	$2p5d \ ^3P_2$	144.44	4.361+10	$2s2p \ ^3P_1$	$2s6d \ ^3D_2$	131.44	1.067+10
$2p^2 \ ^3P_0$	$2p5d \ ^3D_1$	144.49	2.926+10	$2s2p \ ^3P_1$	$2s6d \ ^3D_1$	131.44	6.436+09
$2p^2 \ ^3P_1$	$2p5d \ ^3D_2$	144.51	6.322+10	$2s2p \ ^3P_2$	$2p4f \ ^3F_2$	131.47	2.586+08
$2p^2 \ ^3P_2$	$2p5d \ ^3D_2$	144.52	1.349+10	$2s2p \ ^3P_2$	$2p4f \ ^3F_2$	131.48	8.728+08
$2p^2 \ ^3P_0$	$2p5d \ ^3D_3$	144.54	1.008+11	$2s2p \ ^3P_2$	$2s6d \ ^3D_3$	131.49	3.304+10
$2p^2 \ ^3P_1$	$2p5d \ ^3D_2$	144.57	4.998+09	$2s2p \ ^3P_2$	$2s6d \ ^3D_2$	131.49	5.531+09
$2p^2 \ ^3P_2$	$2p5d \ ^3D_1$	144.58	1.820+08	$2s2p \ ^3P_2$	$2s6d \ ^3D_1$	131.49	4.267+08
$2p^2 \ ^3P_0$	$2p6d \ ^1D_2$	144.75	1.459+09	$2s2p \ ^3P_2$	$2p4f \ ^1F_3$	131.50	2.578+09
$2p^2 \ ^3P_1$	$2p5d \ ^3F_3$	144.83	1.556+09	$2s2p \ ^3P_2$	$2s6d \ ^3S_1$	132.26	3.262+08
$2p^2 \ ^3P_2$	$2p5d \ ^3F_2$	144.89	1.904+08	$2s2p \ ^3P_0$	$2p4p \ ^3P_1$	132.50	5.874+09
$2p^2 \ ^3P_0$	$2p5s \ ^3P_2$	146.51	2.265+09	$2s2p \ ^3P_1$	$2p4p \ ^3P_2$	132.50	7.494+09
$2p^2 \ ^3P_1$	$2p5s \ ^3P_1$	146.56	1.735+09	$2s2p \ ^3P_1$	$2s6d \ ^1S_0$	132.50	8.666+08
$2p^2 \ ^3P_2$	$2p5s \ ^3P_0$	146.57	6.615+09	$2s2p \ ^3P_1$	$2p4p \ ^3P_1$	132.53	4.633+09
$2p^2 \ ^1D_2$	$2p5s \ ^3P_1$	146.59	1.270+09	$2s2p \ ^1P_1$	$2p5p \ ^1S_0$	132.54	1.387+09
$2p^2 \ ^1D_2$	$2p5s \ ^3P_2$	146.62	1.724+09	$2s2p \ ^3P_2$	$2p4p \ ^3P_2$	132.55	2.577+10
$2p^2 \ ^1D_2$	$2p5s \ ^3P_1$	146.66	2.143+09	$2s2p \ ^3P_2$	$2p4p \ ^3P_0$	132.55	5.794+09
$2p^2 \ ^1D_2$	$2p5d \ ^1P_1$	147.92	2.840+09	$2s2p \ ^3P_2$	$2p4p \ ^3P_1$	132.58	9.420+09
$2p^2 \ ^1D_2$	$2p5d \ ^1F_3$	147.99	1.550+11	$2s2p \ ^1P_1$	$2p5f \ ^1D_2$	132.63	2.344+09
$2p^2 \ ^1D_2$	$2p5g \ ^3F_3$	148.18	1.591+08	$2s2p \ ^1P_1$	$2p5f \ ^3D_2$	132.71	1.941+08
$2p^2 \ ^1D_2$	$2p5d \ ^3F_2$	148.52	1.531+08	$2s2p \ ^3F_0$	$2p4p \ ^3S_1$	133.00	3.086+09
$2p^2 \ ^1D_2$	$2p5d \ ^3D_3$	148.62	1.679+08	$2s2p \ ^3P_1$	$2p4p \ ^3S_1$	133.03	8.959+09
$2p^2 \ ^1D_2$	$2p5d \ ^3D_2$	148.65	2.189+08	$2s2p \ ^3P_2$	$2p4p \ ^3S_1$	133.09	1.247+10
$2p^2 \ ^1D_2$	$2p5d \ ^1D_2$	148.91	1.355+10	$2s2p \ ^1P_1$	$2p5p \ ^3P_0$	133.22	2.346+10
$2p^2 \ ^1D_2$	$2p5d \ ^3F_3$	148.92	3.872+08	$2s2p \ ^3P_2$	$2p4p \ ^3D_3$	133.28	3.456+10
$2p^2 \ ^1D_2$	$2p5d \ ^3F_2$	148.99	7.524+09	$2s2p \ ^3P_1$	$2p4p \ ^3D_2$	133.28	3.456+10
$2p^2 \ ^1S_0$	$2p5s \ ^1P_1$	150.41	6.822+09	$2s2p \ ^3P_0$	$2p4p \ ^3D_1$	133.28	8.538+09
$2p^2 \ ^1S_0$	$2p5s \ ^1P_1$	150.60	1.008+09	$2s2p \ ^3P_1$	$2p4p \ ^3D_1$	133.31	5.485+09
$2p^2 \ ^1S_0$	$2p6d \ ^1P_1$	151.86	2.588+10	$2s2p \ ^3P_2$	$2p4p \ ^3D_2$	133.33	5.379+09
$2p^2 \ ^1S_0$	$2p6d \ ^3D_1$	152.36	2.987+08	$2s2p \ ^3P_2$	$2p4p \ ^3D_1$	133.36	3.719+08
$2p^2 \ ^1S_0$	$2p5s \ ^1P_1$	153.40	2.231+09	$2s2p \ ^1P_1$	$2p5p \ ^3P_2$	133.50	1.235+08
$2p^2 \ ^1S_0$	$2p5s \ ^3P_1$	153.67	1.097+08	$2s2p \ ^3P_1$	$2p4p \ ^1P_1$	133.51	3.110+08
$2p^2 \ ^3P_0$	$2p4d \ ^1P_1$	158.55	1.108+10	$2s2p \ ^1P_1$	$2p5p \ ^1P_1$	133.67	2.256+08

TABLES

TABLE III. Wavelengths (λ), and weighted radiative transition probabilities (A_r in sec^{-1}) for bound-bound transitions in Be-like oxygen ($2l_1n_1l_2 - 2l_2n_2l_1$ transitions)

1	2	3	4	5	6	7	8
$2s^2 \ ^1S_0$	$2p6d \ ^1P_1$	106.26	1.564+09	$2s2p \ ^3P_0$	$2p6f \ ^3D_1$	116.37	1.274+08
$2s^2 \ ^1S_0$	$2p6d \ ^1P_1$	110.14	1.842+09	$2s2p \ ^3P_1$	$2p6f \ ^3D_2$	116.40	2.279+08
$2s^2 \ ^1S_0$	$2p5s \ ^1P_1$	111.51	2.521+08	$2s2p \ ^3P_2$	$2p6f \ ^3D_3$	116.46	4.417+08
$2s^2 \ ^1S_0$	$2p4d \ ^1P_1$	117.95	5.374+08	$2s2p \ ^3P_1$	$2p6p \ ^1D_2$	116.63	1.209+08
$2s^2 \ ^1S_0$	$2p4d \ ^3D_1$	118.90	4.080+08	$2s2p \ ^3P_0$	$2p6p \ ^3P_1$	116.74	1.420+08
$2s^2 \ ^1S_0$	$2s6p \ ^1P_1$	118.94	1.843+10	$2s2p \ ^3P_1$	$2p6p \ ^3P_2$	116.75	6.658+08
$2s^2 \ ^1S_0$	$2p4s \ ^1P_1$	121.13	6.855+08	$2s2p \ ^3P_2$	$2p6p \ ^3P_2$	116.79	4.743+09
$2s^2 \ ^1S_0$	$2s5p \ ^1P_1$	124.48	2.218+10	$2s2p \ ^3P_1$	$2p6p \ ^3P_0$	116.79	1.079+09
$2s^2 \ ^1S_0$	$2s4p \ ^1P_1$	135.44	3.772+10	$2s2p \ ^3P_2$	$2p6p \ ^3P_1$	116.80	4.514+09
$2p^2 \ ^3P_0$	$2p6d \ ^1P_1$	137.26	2.196+08	$2s2p \ ^3P_1$	$2p6p \ ^3S_1$	116.81	1.812+09
$2p^2 \ ^3P_2$	$2p6d \ ^1F_3$	137.38	2.073+08	$2s2p \ ^3P_1$	$2p6p \ ^3S_1$	116.83	5.876+09
$2p^2 \ ^3P_1$	$2p6d \ ^3P_1$	137.56	8.461+08	$2s2p \ ^3P_2$	$2p6p \ ^3S_1$	116.88	4.689+09
$2p^2 \ ^3P_1$	$2p6d \ ^3P_0$	137.58	4.679+09	$2s2p \ ^3P_0$	$2p6p \ ^3D_1$	116.91	2.645+09
$2p^2 \ ^3P_1$	$2p6d \ ^3P_1$	137.59	7.648+09	$2s2p \ ^3P_2$	$2p6p \ ^3D_2$	116.92	1.084+10
$2p^2 \ ^3P_2$	$2p6d \ ^3P_2$	137.61	4.410+08	$2s2p \ ^3P_1$	$2p6p \ ^3D_1$	116.93	6.365+09
$2p^2 \ ^3P_2$	$2p6d \ ^3P_1$	137.65	5.613+09	$2s2p \ ^3P_1$	$2p6p \ ^3D_1$	116.93	2.988+08
$2p^2 \ ^3P_2$	$2p6d \ ^3P_2$	137.66	2.069+10	$2s2p \ ^3P_0$	$2p6p \ ^1P_1$	116.95	6.609+08
$2p^2 \ ^3P_0$	$2p6d \ ^3D_1$	137.67	1.743+10	$2s2p \ ^3P_2$	$2p6p \ ^3D_2$	116.96	1.245+09
$2p^2 \ ^3P_1$	$2p6d \ ^3D_2$	137.68	3.281+10	$2s2p \ ^3P_1$	$2p6p \ ^1P_1$	116.97	1.357+09
$2p^2 \ ^3P_1$	$2p6d \ ^3D_1$	137.70	6.212+09	$2s2p \ ^3P_2$	$2p6p \ ^3D_1$	116.97	3.039+08
$2p^2 \ ^3P_1$	$2p6d \ ^3D_3$	137.71	5.541+10	$2s2p \ ^3P_2$	$2p5f \ ^3D_3$	121.20	1.050+08
$2p^2 \ ^3P_2$	$2p6d \ ^1D_2$	137.74	6.431+08	$2s2p \ ^3P_0$	$2p5p \ ^3P_2$	121.80	2.927+09
$2p^2 \ ^3P_2$	$2p6d \ ^1D_2$	137.80	3.574+09	$2s2p \ ^3P_1$	$2p5p \ ^3P_1$	121.80	1.668+09
$2p^2 \ ^3P_2$	$2p6d \ ^3F_3$	137.87	2.479+09	$2s2p \ ^3P_1$	$2p5p \ ^3P_0$	121.82	1.093+09
$2p^2 \ ^3P_2$	$2p6d \ ^3F_2$	137.91	2.382+08	$2s2p \ ^3P_2$	$2p5p \ ^3P_2$	121.84	3.071+09
$2p^2 \ ^3P_1$	$2p6s \ ^3P_2$	138.68	1.200+09	$2s2p \ ^3P_2$	$2p5p \ ^3P_2$	121.85	1.237+10
$2p^2 \ ^3P_0$	$2p6s \ ^3P_1$	138.73	8.723+08	$2s2p \ ^3P_2$	$2p5p \ ^3P_1$	121.86	6.779+09
$2p^2 \ ^3P_2$	$2p6s \ ^3P_2$	138.74	3.439+09	$2s2p \ ^3P_0$	$2p5p \ ^3S_1$	121.92	2.525+09
$2p^2 \ ^3P_1$	$2p6s \ ^3P_1$	138.76	6.254+08	$2s2p \ ^3P_2$	$2p5p \ ^3S_1$	121.94	6.652+09
$2p^2 \ ^3P_1$	$2p6s \ ^3P_0$	138.78	8.823+08	$2s2p \ ^3P_2$	$2p5p \ ^3S_1$	121.98	5.553+09
$2p^2 \ ^3P_2$	$2p6s \ ^3P_1$	138.82	1.070+09	$2s2p \ ^3P_2$	$2p5p \ ^3D_3$	122.11	1.877+10
$2s^2 \ ^1S_0$	$2p3d \ ^1P_1$	139.46	1.300+10	$2s2p \ ^3P_1$	$2p5p \ ^3D_2$	122.11	1.087+10
$2p^2 \ ^1D_2$	$2p6d \ ^1P_1$	141.02	3.660+09	$2s2p \ ^3P_0$	$2p5p \ ^3D_1$	122.11	4.679+09
$2p^2 \ ^1D_2$	$2p6d \ ^1F_3$	141.07	1.100+11	$2s2p \ ^3P_1$	$2p5p \ ^3D_1$	122.13	2.159+09
$2p^2 \ ^1D_2$	$2p6d \ ^3P_2$	141.36	1.366+08	$2s2p \ ^3P_2$	$2p5p \ ^3D_2$	122.16	2.494+09
$2p^2 \ ^1D_2$	$2p6d \ ^3D_3$	141.40	2.841+08	$2s2p \ ^3P_2$	$2p5p \ ^3D_1$	122.17	1.951+08
$2p^2 \ ^1D_2$	$2p6d \ ^3D_2$	141.44	6.838+08	$2s2p \ ^3P_0$	$2p5p \ ^1P_1$	122.18	3.548+08
$2p^2 \ ^1D_2$	$2p6d \ ^1D_2$	141.56	6.879+09	$2s2p \ ^3P_1$	$2p6p \ ^1P_1$	122.20	8.226+08

TABLE III. continued.

1	2	3	4	5	6	7	8
$2s^2 1S_0$	$2s3p^3 P_1$	171.95	1.269+08	$2s2p^3 P_1$	$2p3p^3 D_1$	168.41	1.030+10
$2s^2 1S_0$	$2s3p^3 P_1$	172.37	9.701+10	$2s2p^3 P_2$	$2p3p^3 D_2$	168.44	1.014+10
$2p^2 1D_2$	$2s5p^3 P_2$	175.00	5.390+09	$2s2p^3 P_2$	$2p3p^3 D_1$	168.50	6.668+08
$2p^2 1S_0$	$2p4d^1 P_1$	176.91	6.850+10	$2s2p^1 P_1$	$2s4s^1 S_0$	172.85	8.977+09
$2p^2 1S_0$	$2p4s^1 P_1$	184.17	5.257+09	$2s2p^1 P_1$	$2p3p^3 S_0$	180.42	2.914+09
$2p^2 3P_0$	$2s4p^3 P_1$	191.00	7.882+08	$2s2p^1 P_1$	$2p3p^1 D_2$	183.73	1.045+11
$2p^2 3P_1$	$2s4p^3 P_2$	191.04	9.589+08	$2s2p^1 P_1$	$2p3p^1 D_1$	191.63	1.214+08
$2p^2 3P_1$	$2s4p^3 P_1$	191.05	6.099+08	$2s2p^3 P_0$	$2s3d^3 D_1$	193.05	1.142+11
$2p^2 3P_1$	$2s4p^3 P_0$	191.06	8.056+08	$2s2p^3 P_1$	$2s3d^3 D_2$	193.11	2.567+11
$2p^2 3P_2$	$2s4p^3 P_2$	191.15	2.985+09	$2s2p^3 P_1$	$2s3d^3 D_1$	193.11	8.558+10
$2p^2 3P_2$	$2s4p^3 P_1$	191.16	1.002+09	$2s2p^1 P_1$	$2p3p^1 P_1$	193.15	5.301+10
$2p^2 1S_0$	$2s5p^1 P_1$	192.00	3.874+08	$2s2p^3 P_2$	$2s3d^3 D_3$	193.21	4.783+11
$2p^2 1D_2$	$2s4f^1 F_0$	193.34	3.825+10	$2s2p^3 P_2$	$2s3d^3 D_2$	193.22	8.540+10
$2p^2 3P_0$	$2p3d^3 P_1$	203.05	3.977+10	$2s2p^3 P_0$	$2s3d^3 D_1$	193.22	5.694+09
$2p^2 3P_1$	$2p3d^3 P_2$	203.08	4.573+10	$2s2p^3 P_0$	$2s3s^3 S_1$	215.21	6.612+09
$2p^2 3P_1$	$2p3d^3 P_0$	203.11	3.894+10	$2s2p^3 P_1$	$2s3s^3 S_1$	215.28	1.981+10
$2p^2 3P_1$	$2p3d^3 P_2$	203.16	4.354+10	$2s2p^3 P_2$	$2s3s^3 S_1$	215.42	3.295+10
$2p^2 3P_2$	$2p3d^3 P_1$	203.23	5.845+10	$2s2p^1 P_1$	$2s3d^1 D_2$	218.33	2.354+11
$2p^2 3P_2$	$2p3d^3 P_2$	203.29	1.846+11	$2s2p^1 P_1$	$2s3s^1 S_0$	246.36	7.460+09
$2p^2 3P_0$	$2p3d^3 P_1$	204.63	1.481+11	$2s3p^1 P_1$	$2p6f^1 D_2$	277.59	1.758+08
$2p^2 3P_1$	$2p3d^3 D_1$	204.67	3.331+11	$2s3p^1 P_1$	$2p6f^3 D_2$	278.94	1.134+08
$2p^2 3P_1$	$2p3d^3 D_2$	204.69	1.021+11	$2s3p^3 P_2$	$2p6f^3 D_3$	279.07	2.272+08
$2p^2 3P_2$	$2p3d^3 D_3$	204.74	5.966+11	$2s3p^3 P_2$	$2p6p^3 S_1$	281.48	1.382+08
$2p^2 3P_2$	$2p3d^3 D_2$	204.79	9.287+10	$2s3p^1 P_1$	$2p5p^1 S_0$	305.55	1.094+08
$2p^2 3P_2$	$2p3d^3 D_1$	204.82	5.683+09	$2s3p^1 P_1$	$2p5f^1 D_2$	306.04	1.242+08
$2p^2 1D_2$	$2p3d^1 P_1$	206.14	9.793+09	$2s3p^3 P_1$	$2p5f^3 D_2$	307.80	1.466+08
$2p^2 1D_2$	$2p3d^1 F_3$	208.28	6.304+11	$2s3p^3 P_1$	$2p5f^3 D_3$	307.97	2.929+08
$2p^2 1D_2$	$2p3d^3 F_2$	208.61	1.681+08	$2p3s^3 P_2$	$2p6f^3 D_2$	346.83	1.044+08
$2p^2 1D_2$	$2p3d^3 F_2$	216.95	1.515+11	$2p3s^3 P_2$	$2p6f^3 D_3$	346.83	2.080+08
$2p^2 1D_2$	$2p3d^3 F_2$	217.32	7.340+09	$2p3s^3 P_0$	$2p6p^3 P_1$	349.32	1.435+08
$2p^2 1S_0$	$2s4p^1 P_1$	219.39	1.275+10	$2p3s^3 P_1$	$2p6p^3 P_2$	349.40	2.801+08
$2p^2 3P_1$	$2p3s^3 P_2$	227.78	1.713+10	$2p3s^3 P_1$	$2p6p^3 P_1$	349.52	1.111+08
$2p^2 3P_0$	$2p3s^3 P_1$	227.88	1.362+10	$2p3s^3 P_1$	$2p6p^3 P_0$	349.76	4.096+08
$2p^2 3P_2$	$2p3s^3 P_2$	227.94	5.107+10	$2p3s^3 P_2$	$2p6p^3 P_2$	349.82	1.759+09
$2p^2 3P_1$	$2p3s^3 P_1$	227.96	1.017+10	$2p3s^3 P_2$	$2p6p^3 P_1$	349.93	9.963+08
$2p^2 3P_1$	$2p3s^3 P_0$	228.04	1.355+10	$2p3s^3 P_0$	$2p6p^3 S_1$	349.95	2.387+08
$2p^2 3P_2$	$2p3s^3 P_1$	228.11	1.695+10	$2p3s^3 P_1$	$2p6p^3 S_1$	350.15	7.588+08
$2p^2 1S_0$	$2p3d^1 P_1$	230.16	1.436+11	$2p3s^3 P_2$	$2p6p^3 S_1$	350.57	3.040+08
$2p^2 1D_2$	$2p3s^1 P_1$	231.58	3.489+10	$2p3s^3 P_0$	$2p6p^3 D_1$	350.79	7.323+08
$2p^2 1S_0$	$2p3s^1 P_1$	262.33	1.221+10	$2p3s^3 P_1$	$2p6p^3 D_2$	350.94	1.957+09
$2p^2 3P_1$	$2s3p^3 P_2$	271.00	1.167+08	$2p3s^3 P_2$	$2p6p^3 D_3$	350.98	3.252+09
$2p^2 3P_2$	$2s3p^3 P_2$	271.22	3.443+08	$2p3s^3 P_1$	$2p6p^3 D_1$	350.99	1.315+08
$2p^2 3P_2$	$2s3p^3 P_1$	271.27	1.130+08	$2p3s^3 P_0$	$2p6p^1 P_1$	351.15	2.313+08

TABLE III. continued.

1	2	3	4	5	6	7	8
$2p^2 3P_1$	$2p4d^3 P_0$	158.58	1.440+10	$2s2p^1 P_1$	$2p5p^3 D_1$	133.90	2.490+09
$2p^2 3P_1$	$2p4d^3 P_1$	158.59	1.350+10	$2s2p^1 P_1$	$2p5p^1 P_1$	133.98	1.696+10
$2p^2 3P_1$	$2p4d^3 P_2$	158.62	1.046+10	$2s2p^3 P_0$	$2s5d^3 D_1$	137.69	1.782+10
$2p^2 3P_2$	$2s6f^3 F_3$	158.64	1.037+08	$2s2p^3 P_1$	$2s5d^3 D_1$	137.72	1.335+10
$2p^2 3P_2$	$2p4d^3 P_1$	158.67	1.875+10	$2s2p^3 P_1$	$2s5d^3 D_2$	137.72	4.005+10
$2p^2 3P_2$	$2p4d^3 P_2$	158.70	6.082+10	$2s2p^3 P_2$	$2s5d^3 D_2$	137.78	1.332+10
$2p^2 3P_2$	$2s6f^1 F_3$	159.04	2.740+09	$2s2p^3 P_2$	$2s5d^3 D_3$	137.78	7.461+10
$2p^2 3P_0$	$2p4d^3 D_1$	159.10	5.212+10	$2s2p^3 P_2$	$2s5d^3 D_3$	137.78	8.883+08
$2p^2 3P_1$	$2p4d^3 D_2$	159.12	1.196+11	$2s2p^3 P_0$	$2s5s^3 S_1$	139.67	1.118+09
$2p^2 3P_1$	$2p4d^3 D_1$	159.14	3.528+10	$2s2p^3 P_1$	$2s5s^3 S_1$	139.70	3.348+09
$2p^2 3P_2$	$2p4d^3 D_3$	159.17	2.107+11	$2s2p^3 P_2$	$2s5s^3 S_1$	139.76	5.560+09
$2p^2 3P_0$	$2s6p^1 P_1$	159.17	1.277+09	$2s2p^1 P_1$	$2p4p^1 S_0$	143.86	6.328+09
$2p^2 3P_2$	$2p4d^3 D_2$	159.20	3.187+10	$2s2p^1 P_1$	$2p4f^1 D_2$	144.46	5.273+09
$2p^2 3P_2$	$2p4d^3 D_1$	159.21	1.896+09	$2s2p^1 P_1$	$2p4f^1 D_2$	144.60	2.943+08
$2p^2 3P_0$	$2s6p^1 P_1$	159.21	8.010+08	$2s2p^1 P_1$	$2s6d^1 D_2$	144.93	2.440+10
$2p^2 3P_0$	$2s6p^3 P_1$	159.57	3.352+09	$2s2p^1 P_1$	$2p4p^1 D_2$	145.78	4.637+10
$2p^2 3P_1$	$2s6p^3 P_2$	159.61	5.046+09	$2s2p^1 P_1$	$2s6d^1 S_0$	146.47	1.025+08
$2p^2 3P_1$	$2s6p^3 P_1$	159.61	1.385+09	$2s2p^1 P_1$	$2p4p^3 D_1$	147.45	5.978+08
$2p^2 3P_1$	$2s6p^3 P_0$	159.61	2.440+09	$2s2p^1 P_1$	$2p4p^1 P_1$	147.70	2.719+10
$2p^2 3P_2$	$2s6p^3 P_2$	159.68	2.980+09	$2s2p^3 P_0$	$2s4d^3 D_1$	151.11	3.677+10
$2p^2 3P_2$	$2p4d^1 D_2$	159.89	8.551+09	$2s2p^3 P_1$	$2s4d^3 D_2$	151.15	8.266+10
$2p^2 1S_0$	$2p5d^1 P_1$	159.89	3.544+10	$2s2p^3 P_2$	$2s4d^3 D_3$	151.22	1.541+11
$2p^2 3P_2$	$2p4d^3 F_3$	159.96	5.535+08	$2s2p^3 P_2$	$2s4d^3 D_2$	151.22	2.751+10
$2p^2 3P_2$	$2p4d^3 F_2$	160.02	1.177+08	$2s2p^3 P_2$	$2s4d^3 D_1$	151.22	1.834+09
$2p^2 1S_0$	$2p5d^3 D_1$	160.76	1.495+08	$2s2p^1 P_1$	$2s5d^1 D_2$	152.38	4.614+10
$2p^2 1D_2$	$2p4d^1 P_1$	162.21	2.418+11	$2s2p^1 P_1$	$2s5s^3 S_0$	154.83	1.976+09
$2p^2 1D_2$	$2p4d^1 F_3$	162.37	2.447+09	$2s2p^1 P_1$	$2s5s^3 S_1$	155.83	1.405+09
$2p^2 1S_0$	$2p5s^1 P_1$	162.81	3.462+09	$2s2p^3 P_1$	$2s4s^3 S_1$	155.87	4.204+09
$2p^2 1D_2$	$2s6f^1 F_3$	163.99	4.136+10	$2s2p^3 P_2$	$2s4s^3 S_1$	155.94	6.965+09
$2p^2 1D_2$	$2p4d^3 D_3$	164.14	7.312+08	$2s2p^3 P_1$	$2p3p^3 P_2$	164.47	1.702+10
$2p^2 3P_1$	$2p4s^3 P_2$	164.20	5.164+09	$2s2p^3 P_0$	$2p3p^3 P_1$	164.49	1.344+10
$2p^2 3P_0$	$2p4s^3 P_1$	164.25	4.061+09	$2s2p^3 P_1$	$2p3p^3 P_1$	164.53	1.010+10
$2p^2 1D_2$	$2s6p^1 P_1$	164.25	4.916+09	$2s2p^3 P_1$	$2p3p^3 P_0$	164.56	1.394+10
$2p^2 3P_1$	$2p4s^3 P_2$	164.28	1.528+10	$2s2p^3 P_2$	$2p3p^3 P_2$	164.56	5.270+10
$2p^2 3P_1$	$2p4s^3 P_1$	164.29	3.010+09	$2s2p^3 P_2$	$2p3p^3 P_1$	164.61	1.829+10
$2p^2 3P_1$	$2p4s^3 P_0$	164.34	4.025+09	$2s2p^3 P_0$	$2p3p^3 S_1$	166.71	5.629+09
$2p^2 3P_2$	$2p4s^3 P_1$	164.37	5.040+09	$2s2p^3 P_1$	$2p3p^3 S_1$	166.75	1.616+10
$2p^2 1D_2$	$2s6p^3 P_2$	164.68	3.424+08	$2s2p^3 P_2$	$2p3p^3 S_1$	166.84	2.582+10
$2p^2 1D_2$	$2p4d^1 D_2$	164.92	4.032+10	$2s2p^3 P_1$	$2p3p^3 D_2$	168.35	3.195+10
$2p^2 1D_2$	$2p4d^3 F_3$	164.97	1.645+08	$2s2p^3 P_2$	$2p3p^3 D_3$	168.35	5.916+10
$2p^2 1D_2$	$2p4d^3 F_2$	165.04	8.782+09	$2s2p^1 P_1$	$2s4d^1 D_2$	168.36	8.913+10
$2p^2 1D_2$	$2p4s^1 P_1$	168.46	1.476+10	$2s2p^3 P_0$	$2p3p^3 D_1$	168.37	1.417+10

TABLE III. continued.

	1	2	3	4	5	6	7	8
$2p3p^3D_3$	380.26	386.40	386.46	386.50	386.58	386.61	402.45	7.429+08
$2p3p^3S_1$	386.40	386.46	386.50	386.58	386.61	402.45	402.83	8.498+08
$2p3p^3S_1$	386.46	386.50	386.58	386.61	402.45	402.83	402.95	1.339+08
$2p3p^3D_2$	386.50	386.58	386.61	402.45	402.83	402.95	403.21	2.531+08
$2p3p^3S_1$	386.58	386.61	402.45	402.83	402.95	403.21	403.61	1.675+09
$2p3p^3D_1$	386.61	402.45	402.83	402.95	403.21	403.61	403.96	3.321+09
$2p3p^3D_2$	386.97	386.97	386.97	386.97	386.97	386.97	404.00	1.541+09
$2p3p^3D_1$	386.97	386.97	386.97	386.97	386.97	386.97	404.12	1.283+08
$2p3p^3D_2$	387.10	387.10	387.10	387.10	387.10	387.10	404.22	6.412+09
$2p3p^3S_1$	387.19	387.19	387.19	387.19	387.19	387.19	404.31	1.413+09
$2p3p^3S_1$	387.30	387.30	387.30	387.30	387.30	387.30	404.37	1.639+10
$2s3s^3S_1$	387.47	387.47	387.47	387.47	387.47	387.47	404.55	1.676+08
$2s3s^3S_1$	387.49	387.49	387.49	387.49	387.49	387.49	404.62	2.234+09
$2s3s^3S_1$	387.50	387.50	387.50	387.50	387.50	387.50	404.63	9.446+08
$2s3s^3S_1$	388.10	388.10	388.10	388.10	388.10	388.10	404.68	2.644+09
$2p3p^3S_1$	395.22	395.22	395.22	395.22	395.22	395.22	404.68	3.739+08
$2p3p^3S_1$	395.85	395.85	395.85	395.85	395.85	395.85	404.75	3.753+09
$2p6d^3F_2$	398.88	398.88	398.88	398.88	398.88	398.88	404.96	4.626+09
$2p6d^3F_1$	398.95	398.95	398.95	398.95	398.95	398.95	405.02	3.082+08
$2p3p^3P_1$	399.27	399.27	399.27	399.27	399.27	399.27	405.09	3.093+09
$2p3p^3P_2$	399.40	399.40	399.40	399.40	399.40	399.40	405.26	3.525+08
$2p3p^3P_0$	399.67	399.67	399.67	399.67	399.67	399.67	405.35	3.730+08
$2p6d^3D_2$	399.72	399.72	399.72	399.72	399.72	399.72	405.98	4.547+08
$2p6d^3D_1$	399.78	399.78	399.78	399.78	399.78	399.78	406.05	5.246+09
$2p6d^3D_3$	399.84	399.84	399.84	399.84	399.84	399.84	410.35	3.727+08
$2p6d^3D_2$	400.05	400.05	400.05	400.05	400.05	400.05	411.23	1.358+08
$2p6d^3D_1$	400.69	400.69	400.69	400.69	400.69	400.69	417.00	4.516+09
$2p6d^3F_3$	401.16	401.16	401.16	401.16	401.16	401.16	418.02	1.841+08
$2p6d^3F_2$	408.29	408.29	408.29	408.29	408.29	408.29	418.42	6.173+08
$2p6s^3F_2$	408.63	408.63	408.63	408.63	408.63	408.63	418.53	2.166+08
$2p6s^3F_1$	408.77	408.77	408.77	408.77	408.77	408.77	418.73	1.361+09
$2s5p^3F_1$	408.95	408.95	408.95	408.95	408.95	408.95	418.91	2.530+08
$2p6s^3F_1$	408.96	408.96	408.96	408.96	408.96	408.96	418.93	1.223+08
$2s6f^3F_3$	409.08	409.08	409.08	409.08	409.08	409.08	419.06	2.493+09
$2s6f^3F_2$	409.08	409.08	409.08	409.08	409.08	409.08	419.59	1.772+09
$2s6f^3F_1$	409.11	409.11	409.11	409.11	409.11	409.11	419.68	4.095+09
$2s6f^3F_2$	409.15	409.15	409.15	409.15	409.15	409.15	420.10	5.561+09
$2s6f^3F_1$	409.30	409.30	409.30	409.30	409.30	409.30	420.22	5.775+08
$2p6s^3F_2$	409.30	409.30	409.30	409.30	409.30	409.30	420.26	6.509+09
$2p6d^1F_2$	410.51	410.51	410.51	410.51	410.51	410.51	420.34	1.567+08
$2p6d^3D_2$	413.69	413.69	413.69	413.69	413.69	413.69	420.38	7.421+09
$2p6d^1D_2$	414.73	414.73	414.73	414.73	414.73	414.73	420.45	2.472+08

TABLE III. continued.

	1	2	3	4	5	6	7	8
$2p^2^1D_2$	287.17	287.17	287.17	287.17	287.17	287.17	287.17	351.35
$2s3d^3D_1$	293.55	293.55	293.55	293.55	293.55	293.55	293.55	351.36
$2s3d^3D_1$	293.59	293.59	293.59	293.59	293.59	293.59	293.59	360.61
$2s3d^3D_2$	293.60	293.60	293.60	293.60	293.60	293.60	293.60	361.46
$2s3d^3D_3$	293.67	293.67	293.67	293.67	293.67	293.67	293.67	364.05
$2s3d^3D_3$	293.68	293.68	293.68	293.68	293.68	293.68	293.68	366.09
$2s3d^3D_3$	293.89	293.89	293.89	293.89	293.89	293.89	293.89	367.00
$2s3d^3D_3$	294.04	294.04	294.04	294.04	294.04	294.04	294.04	367.40
$2s3d^3D_3$	294.08	294.08	294.08	294.08	294.08	294.08	294.08	367.31
$2s3d^3D_3$	294.56	294.56	294.56	294.56	294.56	294.56	294.56	380.30
$2s3d^1D_2$	302.94	302.94	302.94	302.94	302.94	302.94	302.94	380.53
$2s3d^1D_2$	303.16	303.16	303.16	303.16	303.16	303.16	303.16	380.59
$2s3d^1D_2$	326.16	326.16	326.16	326.16	326.16	326.16	326.16	384.21
$2s3d^3D_1$	326.22	326.22	326.22	326.22	326.22	326.22	326.22	384.22
$2s3d^3D_1$	326.23	326.23	326.23	326.23	326.23	326.23	326.23	384.27
$2s3d^3D_2$	326.35	326.35	326.35	326.35	326.35	326.35	326.35	384.28
$2s3d^3D_3$	326.37	326.37	326.37	326.37	326.37	326.37	326.37	384.33
$2s3d^3D_3$	328.06	328.06	328.06	328.06	328.06	328.06	328.06	384.37
$2s3d^3D_3$	328.32	328.32	328.32	328.32	328.32	328.32	328.32	384.38
$2p^2^1S_0$	336.02	336.02	336.02	336.02	336.02	336.02	336.02	384.39
$2s3p^1F_1$	336.69	336.69	336.69	336.69	336.69	336.69	336.69	384.44
$2s3p^1F_1$	337.08	337.08	337.08	337.08	337.08	337.08	337.08	386.50
$2s3p^1F_1$	340.50	340.50	340.50	340.50	340.50	340.50	340.50	390.84
$2s3p^3F_1$	340.51	340.51	340.51	340.51	340.51	340.51	340.51	390.90
$2s3p^3F_2$	340.53	340.53	340.53	340.53	340.53	340.53	340.53	391.01
$2s3p^1F_1$	346.06	346.06	346.06	346.06	346.06	346.06	346.06	391.35
$2s3p^1F_1$	354.74	354.74	354.74	354.74	354.74	354.74	354.74	391.50
$2s3p^3F_1$	369.84	369.84	369.84	369.84	369.84	369.84	369.84	391.94
$2p6d^1D_2$	372.74	372.74	372.74	372.74	372.74	372.74	372.74	392.63
$2p6d^1D_2$	373.58	373.58	373.58	373.58	373.58	373.58	373.58	398.22
$2p6d^3F_2$	374.03	374.03	374.03	374.03	374.03	374.03	374.03	398.34
$2p6d^3F_2$	378.24	378.24	378.24	378.24	378.24	378.24	378.24	398.85
$2p6d^3D_1$	378.65	378.65	378.65	378.65	378.65	378.65	378.65	398.91
$2p6d^3D_2$	378.82	378.82	378.82	378.82	378.82	378.82	378.82	399.11
$2p6d^3D_3$	378.93	378.93	378.93	378.93	378.93	378.93	378.93	399.36
$2p6d^3D_3$	379.02	379.02	379.02	379.02	379.02	379.02	379.02	399.45
$2p6s^1F_1$	379.12	379.12	379.12	379.12	379.12	379.12	379.12	399.65
$2p6d^3D_2$	379.26	379.26	379.26	379.26	379.26	379.26	379.26	400.14
$2p6d^1D_2$	379.41	379.41	379.41	379.41	379.41	379.41	379.41	400.40
$2p6d^3D_1$	379.81	379.81	379.81	379.81	379.81	379.81	379.81	400.94
$2p6d^3D_2$	379.85	379.85	379.85	379.85	379.85	379.85	379.85	402.19
$2p6d^3D_3$	379.87	379.87	379.87	379.87	379.87	379.87	379.87	402.28
$2p6d^3D_3$	380.15	380.15	380.15	380.15	380.15	380.15	380.15	402.35

TABLE III, continued.

2p3p ³ P ₁	461.71	1.338+09	2s3p ³ P ₂	2s5s ³ S ₁	464.73	2.138+09
2p3p ³ P ₂	462.14	1.277+09	2p3d ³ F ₃	2p5f ¹ G ₄	467.11	2.356+09
2p3p ³ P ₃	462.38	4.981+09	2p3d ¹ D ₂	2p5f ¹ D ₂	467.19	3.140+09
2p3p ³ P ₀	463.14	3.535+09	2p3d ³ F ₄	2p5f ³ D ₃	467.69	1.158+08
2p3p ³ P ₁	463.25	7.525+09	2p3d ³ F ₂	2p5f ³ G ₃	468.09	1.305+10
2p3p ³ P ₂	463.36	1.227+10	2p3d ¹ D ₂	2p5f ³ G ₄	468.21	2.456+08
2p3p ³ P ₃	463.38	1.660+09	2p3d ³ F ₃	2p5f ³ D ₂	468.36	2.052+08
2p3p ³ P ₀	463.68	6.748+08	2p3d ³ F ₄	2p5f ³ G ₅	468.44	3.591+10
2p3p ³ P ₁	465.79	1.511+08	2p3d ¹ D ₂	2p5f ³ D ₃	468.44	2.969+08
2s3d ¹ D ₂	466.04	1.007+08	2p3d ³ F ₃	2p5f ³ G ₃	468.55	2.956+09
2p3p ³ S ₁	466.20	5.149+08	2p3d ³ F ₄	2p5f ³ G ₄	468.89	3.797+09
2p3p ³ P ₂	466.35	1.638+08	2p3d ³ F ₂	2p5f ³ F ₃	469.35	5.551+09
2p3p ³ S ₁	467.01	3.408+08	2p3d ³ F ₃	2p5f ³ F ₂	469.39	2.145+09
2p3p ³ S ₁	467.32	1.220+08	2p3d ¹ D ₂	2p5f ¹ F ₃	469.56	2.736+09
2p3p ¹ D ₂	475.27	1.569+10	2p3d ³ F ₃	2p5f ³ F ₄	469.72	5.041+09
2s3d ³ D ₂	475.83	1.517+10	2p3d ³ F ₃	2p5f ³ F ₃	469.82	1.040+09
2s3d ³ D ₃	475.85	2.248+10	2p3d ¹ D ₂	2p5f ³ G ₃	469.83	4.789+09
2s3d ³ D ₃	475.86	2.809+09	2p3d ³ F ₃	2p5f ³ F ₂	469.86	2.346+08
2s3d ³ D ₃	475.89	3.253+10	2p3d ³ F ₃	2p5f ¹ F ₃	470.02	6.351+08
2s3d ³ D ₃	475.90	2.809+09	2p3d ³ F ₄	2p5f ³ F ₄	470.25	2.151+09
2s3d ³ D ₃	477.12	8.680+08	2p3d ³ F ₄	2p5f ³ F ₃	470.35	1.440+08
2s3d ³ D ₃	477.12	8.680+08	2p3d ¹ D ₂	2p5f ³ F ₃	471.10	2.826+08
2p3p ³ P ₁	484.87	2.134+09	2p3d ¹ D ₂	2p5f ¹ F ₃	471.31	1.620+10
2p3p ³ P ₂	484.97	2.381+09	2p3d ³ F ₂	2p5p ³ D ₁	481.43	1.794+08
2p3p ³ P ₃	485.11	6.239+08	2p3d ³ F ₄	2p5p ³ D ₃	481.56	5.657+08
2p3p ³ P ₀	485.37	4.498+08	2p3d ³ F ₃	2p5p ³ D ₂	481.68	3.928+08
2p3p ³ P ₁	485.65	1.160+09	2p3d ¹ D ₂	2p5p ¹ P ₁	484.38	2.483+08
2p3p ³ P ₂	485.70	6.060+08	2p3d ³ D ₁	2p5f ¹ D ₂	486.05	2.014+08
2p3p ³ P ₃	485.85	7.582+08	2p3d ³ D ₁	2p5f ³ D ₁	486.86	1.174+09
2s3d ³ D ₂	488.42	1.199+08	2p3d ³ D ₂	2p5f ³ D ₁	487.01	4.119+08
2s3d ³ D ₁	488.43	1.196+08	2p3d ³ D ₂	2p5f ³ D ₂	487.31	2.294+09
2s3d ³ D ₁	488.45	1.599+08	2p3d ³ D ₃	2p5f ³ D ₂	487.56	4.784+08
2s3d ³ D ₂	488.46	3.588+08	2p3d ³ D ₃	2p5f ¹ G ₄	487.75	1.213+08
2s3d ³ D ₂	488.47	6.718+08	2p3d ³ D ₃	2p5f ³ D ₃	487.82	4.471+09
2s3d ³ D ₂	492.67	1.757+08	2p3d ³ D ₂	2p5f ³ G ₃	489.07	1.642+09
2s4s ¹ S ₀	498.06	3.136+09	2p3d ³ D ₃	2p5f ³ G ₄	489.12	3.345+09
2p3p ¹ S ₀	501.15	2.382+09	2p3d ³ D ₃	2p5f ³ G ₃	489.32	1.922+08
2p3p ¹ D ₂	504.13	2.289+10	2p3d ³ D ₁	2p5f ³ F ₂	490.33	1.184+10
2s3d ³ D ₂	508.00	1.356+08	2p3d ³ D ₂	2p5f ³ F ₃	490.45	1.426+10
2s3d ³ D ₃	508.22	1.982+08	2p3d ³ D ₂	2p5f ³ F ₃	490.49	1.624+09
2s3d ³ D ₃	509.27	1.121+08	2p3d ³ D ₃	2p5f ³ F ₄	490.60	2.107+10
2s3d ³ D ₃	515.05	4.908+08	2p3d ³ D ₂	2p5f ¹ F ₃	490.67	1.794+09
2s3d ³ D ₂	519.71	1.142+09	2p3d ³ D ₃	2p5f ³ F ₃	490.71	1.214+09

TABLE III, continued.

2p3p ¹ D ₂	415.28	6.521+08	2p3d ³ F ₂	2p6p ³ P ₁	423.41	1.674+08
2s3d ³ D ₁	416.05	1.011+08	2s6p ³ P ₀	2p6p ³ P ₂	423.43	3.712+08
2s3d ³ D ₂	416.09	2.280+08	2s6p ³ P ₁	2p6p ³ D ₁	423.65	4.175+08
2s3d ³ D ₃	416.15	4.275+08	2s6p ³ P ₂	2p6p ¹ P ₁	424.49	2.697+09
2s3d ¹ D ₂	421.12	9.249+09	2p3d ³ F ₂	2p6f ¹ D ₂	424.55	2.050+08
2p3p ¹ P ₁	421.40	2.768+09	2p3d ³ F ₁	2p6f ¹ D ₁	424.79	4.829+08
2p3p ¹ D ₂	421.56	1.939+09	2p3d ³ D ₃	2p6f ³ D ₂	424.95	1.304+08
2p3p ¹ S ₀	427.60	2.719+09	2p3d ³ D ₃	2p6p ³ D ₃	425.13	1.643+08
2p3p ¹ P ₁	429.56	5.130+09	2p3d ³ F ₂	2p6f ³ D ₂	425.15	1.575+09
2p3p ¹ P ₁	430.17	3.494+09	2p3d ³ F ₁	2p6f ³ D ₁	425.20	1.779+09
2s3d ¹ D ₂	433.37	5.538+09	2p3d ³ F ₂	2p6f ³ D ₃	425.30	8.493+09
2p3p ³ D ₂	434.04	1.799+08	2p3d ³ P ₀	2p6f ³ D ₁	425.32	2.265+09
2p3p ³ D ₂	434.25	1.078+08	2p3d ³ P ₁	2p6f ³ D ₂	425.40	4.361+09
2p3p ³ D ₃	434.84	3.884+08	2p3d ³ P ₂	2p6f ³ F ₃	426.74	4.422+08
2p3p ³ D ₁	435.03	1.135+08	2p3d ³ P ₂	2p6f ¹ F ₃	426.82	3.858+08
2p3p ³ D ₁	435.15	1.399+09	2p3d ³ P ₁	2p6f ³ F ₂	426.94	1.601+08
2s3d ¹ D ₂	435.19	1.096+09	2p3d ³ P ₂	2p6p ³ S ₁	430.94	4.008+08
2p3p ³ D ₂	435.40	2.469+09	2p3d ³ P ₁	2p6p ³ S ₁	431.19	2.369+08
2p3p ³ D ₂	435.52	3.686+08	2p3d ³ P ₂	2p6p ³ D ₃	431.56	3.220+08
2p3p ³ D ₃	435.71	4.523+09	2p3d ³ P ₁	2p6p ³ D ₂	432.39	1.508+08
2p3p ³ D ₃	435.99	2.935+08	2s3p ¹ P ₁	2s5d ¹ D ₂	436.58	1.143+10
2p3p ³ D ₁	437.28	4.037+08	2p3d ³ F ₃	2p6f ¹ G ₄	438.60	9.352+09
2p3p ³ D ₂	437.65	3.229+08	2p3d ¹ F ₃	2p6f ³ G ₄	439.32	5.591+08
2p3p ³ D ₂	437.75	1.454+10	2p3d ¹ F ₃	2p6f ³ G ₃	439.42	2.973+08
2p3p ³ D ₃	437.84	2.039+10	2p3d ¹ F ₃	2p6f ³ F ₄	440.19	8.895+08
2p3p ³ D ₁	437.91	5.850+09	2p3d ¹ F ₃	2p6f ¹ F ₃	440.35	9.487+08
2p3p ³ D ₂	438.28	1.053+09	2p3d ¹ F ₃	2p6p ¹ D ₂	441.74	1.786+09
2p3p ³ D ₃	438.35	1.151+09	2s3p ³ P ₀	2s5d ³ D ₁	443.32	3.978+09
2s3d ¹ D ₂	439.93	1.984+08	2s3p ³ P ₁	2s5d ³ D ₁	443.40	2.978+09
2p3p ¹ S ₀	440.05	7.904+08	2s3p ³ P ₁	2s5d ³ D ₂	443.40	8.934+09
2p3p ¹ P ₁	442.28	9.358+08	2s3p ³ P ₂	2s5d ³ D ₃	443.54	1.668+10
2p3p ³ S ₁	444.96	1.283+09	2s3p ³ P ₂	2s5d ³ D ₂	443.54	2.979+09
2p3p ³ S ₁	445.07	3.719+09	2s3p ³ P ₂	2s5d ³ D ₁	443.55	1.986+08
2p3p ³ S ₁	445.29	5.915+09	2p3d ¹ P ₁	2p6p ¹ S ₀	446.39	5.051+08
2p3p ³ S ₁	446.50	7.831+08	2p3d ¹ P ₁	2p6f ¹ D ₂	447.70	5.705+09
2p3p ³ S ₁	446.62	1.855+08	2p3d ¹ P ₁	2p6f ³ D ₂	448.38	4.823+08
2p3p ³ D ₂	454.12	4.094+08	2p3d ¹ P ₁	2p6f ³ F ₂	450.09	1.910+08
2p3p ³ D ₁	454.48	4.069+08	2p3d ¹ P ₁	2p6p ¹ D ₂	451.68	1.836+08
2p3p ³ D ₃	454.76	2.406+09	2p3d ¹ P ₁	2p6p ³ D ₁	456.23	2.327+08
2p3p ³ D ₁	454.78	5.817+08	2p3d ¹ P ₁	2p6p ¹ P ₁	456.85	3.896+08
2p3p ³ D ₂	454.89	1.292+09	2s3p ³ P ₁	2s5s ³ S ₀	457.36	1.272+09
2p3p ³ P ₀	461.47	3.869+08	2s3p ³ P ₀	2s5s ³ S ₁	464.48	4.282+09
2p3p ³ P ₁	461.59	9.636+08	2s3p ³ P ₁	2s5s ³ S ₁	464.57	1.282+09

TABLE III. continued.

1	2	3	4	5	6	7	8
2p3p ³ P ₁	2p4s ¹ P ₁	645.71	1.919+09	2p3d ¹ P ₁	2p5f ¹ D ₂	526.65	1.035+10
2p3p ³ P ₀	2p4d ³ P ₁	647.15	1.023+09	2p3d ¹ P ₁	2p5f ³ D ₂	527.94	6.323+08
2p3p ³ P ₁	2p4d ³ P ₀	647.36	1.435+09	2s4f ¹ F ₃	2p6p ¹ D ₂	528.30	2.916+08
2p3p ³ P ₁	2p4d ³ P ₁	647.62	1.398+09	2p8d ¹ P ₁	2p5f ³ F ₂	531.68	1.207+08
2p3p ³ P ₁	2p4d ³ P ₂	648.11	8.282+08	2p3d ¹ P ₁	2p5p ¹ D ₂	536.14	2.974+08
2p3p ³ P ₂	2p4d ³ P ₁	648.47	1.786+09	2p3s ³ P ₁	2s6d ³ S ₁	537.42	1.666+08
2p3p ³ P ₂	2p4d ³ P ₂	648.96	5.772+09	2p3s ³ P ₂	2p3d ³ S ₁	538.40	4.201+08
2s2 ¹ S ₀	2s2p ¹ P ₁	653.89	8.131+09	2p3s ³ P ₁	2p4p ³ P ₂	542.30	1.260+09
2s2 ¹ S ₀	2s2p ¹ P ₀	653.89	8.131+09	2p3s ³ P ₀	2p4p ³ P ₁	542.36	1.031+09
2p3p ³ P ₀	2s6f ¹ F ₃	654.74	2.759+08	2p3s ³ P ₁	2s6d ¹ S ₀	542.40	1.498+08
2p3p ³ P ₁	2p4d ³ D ₁	656.35	5.700+09	2p3s ³ P ₁	2p4p ¹ S ₀	542.59	6.101+08
2p3p ³ P ₁	2p4d ³ D ₂	656.57	1.301+10	2p3s ³ P ₂	2p4p ³ P ₁	542.83	8.638+08
2p3p ³ P ₂	2p4d ³ D ₁	656.83	3.931+09	2p3s ³ P ₂	2p4p ³ P ₀	543.25	1.004+09
2p3p ³ P ₂	2p4d ³ D ₂	657.03	2.314+10	2p3s ³ P ₂	2p4p ³ P ₂	543.30	4.510+09
2p3p ³ P ₂	2p4d ³ D ₃	657.44	3.639+08	2p3s ³ P ₂	2p4p ³ P ₁	543.83	1.550+09
2p3p ³ P ₂	2p4d ³ D ₁	657.56	1.392+08	2p3s ³ P ₂	2p4p ³ P ₀	543.83	1.550+09
2p3p ³ P ₂	2p4d ³ D ₂	657.71	2.211+08	2p3s ³ P ₂	2p4p ³ S ₁	548.59	5.404+08
2p3p ³ P ₂	2p4d ³ D ₃	661.38	1.865+10	2p3s ³ P ₂	2p4f ¹ D ₂	550.86	3.770+08
2p3p ³ P ₂	2p4d ³ D ₁	664.05	1.623+08	2p3s ³ P ₂	2p4p ³ S ₁	551.13	2.662+08
2p3p ³ P ₂	2s6p ¹ P ₁	664.44	3.995+08	2p3s ³ P ₂	2p4p ³ S ₁	551.36	1.103+09
2p3p ³ P ₂	2s6p ¹ P ₀	664.89	3.080+08	2p3s ³ P ₂	2p4p ³ S ₁	552.39	1.474+09
2p3p ³ P ₂	2s6p ¹ P ₁	664.94	1.835+08	2p3s ³ P ₂	2p4p ³ S ₁	555.58	2.707+09
2p3p ³ P ₂	2s6p ¹ P ₂	665.01	5.600+08	2p3s ³ P ₂	2p4p ³ S ₁	555.60	6.119+09
2p3p ³ P ₂	2s6p ¹ P ₂	665.84	3.637+08	2p3s ³ P ₂	2p4p ³ S ₁	555.76	1.108+10
2s3d ³ D ₁	2s4f ³ F ₂	674.87	4.317+10	2p3s ³ P ₂	2p4p ³ S ₁	556.09	1.807+09
2s3d ³ D ₂	2s4f ³ F ₃	674.91	6.396+10	2p3s ³ P ₂	2p4p ³ S ₁	556.65	1.793+09
2s3d ³ D ₂	2s4f ³ F ₃	674.93	7.988+09	2p3s ³ P ₂	2p4p ³ S ₁	557.13	1.202+08
2s3d ³ D ₃	2s4f ³ F ₃	674.97	9.251+10	2p3s ³ P ₂	2p4p ³ S ₁	558.02	4.017+08
2s3d ³ D ₃	2s4f ³ F ₃	675.00	7.984+09	2s4p ¹ P ₁	2p5f ¹ D ₂	570.97	7.232+09
2s3d ³ D ₃	2s4f ³ F ₃	675.02	2.379+08	2p3s ³ P ₁	2p5f ³ D ₃	587.32	1.318+08
2p3p ³ D ₁	2p4s ³ P ₂	681.71	9.743+08	2s3p ¹ P ₁	2p4p ³ D ₁	593.24	1.547+08
2p3p ³ D ₁	2p4s ³ P ₁	682.44	9.873+08	2s3p ¹ P ₁	2s4d ¹ D ₂	597.39	1.130+08
2p3p ³ D ₁	2p4s ³ P ₀	683.15	5.682+09	2s3p ¹ P ₁	2p4p ¹ P ₁	599.73	1.888+10
2p3p ³ D ₁	2p4s ³ P ₀	683.18	1.373+09	2s3p ¹ P ₁	2p4p ¹ P ₁	601.68	4.494+09
2p3p ³ D ₁	2p4s ³ P ₀	683.35	3.081+09	2s3p ¹ P ₁	2p4p ¹ P ₁	605.31	1.537+08
2p3p ³ D ₁	2p4s ³ P ₀	683.35	1.081+09	2s3p ¹ P ₁	2s4d ¹ D ₁	620.91	7.567+09
2p3p ³ D ₁	2p4s ³ P ₀	683.35	1.081+09	2s3p ¹ P ₁	2s4d ¹ D ₂	621.05	1.699+10
2p3p ³ D ₁	2p4s ³ P ₀	683.35	1.081+09	2s3p ¹ P ₁	2s4d ¹ D ₃	621.06	5.664+09
2p3p ³ D ₁	2p4s ³ P ₀	683.35	1.081+09	2s3p ¹ P ₁	2s4d ¹ D ₃	621.31	3.172+10
2p3p ³ D ₁	2p4s ³ P ₀	683.35	1.081+09	2s3p ¹ P ₁	2s4d ¹ D ₃	621.34	5.663+09
2p3p ³ D ₁	2p4s ³ P ₀	683.35	1.081+09	2s3p ¹ P ₁	2s4d ¹ D ₃	621.35	3.770+08
2p3p ³ D ₁	2p4s ³ P ₀	683.35	1.081+09	2s3p ¹ P ₁	2s4d ¹ D ₃	628.96	5.857+08
2p3p ³ D ₁	2p4s ³ P ₀	683.35	1.081+09	2s3p ¹ P ₁	2s4d ¹ D ₃	629.74	3.428+08
2p3p ³ D ₁	2p4s ³ P ₀	683.35	1.081+09	2s3p ¹ P ₁	2s4d ¹ D ₃	630.06	2.653+08
2p3p ³ D ₁	2p4s ³ P ₀	683.35	1.081+09	2s3p ¹ P ₁	2s4d ¹ D ₃	630.06	2.653+08

TABLE III. continued.

1	2	3	4	5	6	7	8
2s3s ³ S ₁	2s4p ³ P ₂	524.68	6.598+09	2p3d ³ P ₂	2p5f ¹ D ₂	494.89	2.759+08
2s3s ³ S ₁	2s4p ³ P ₁	524.76	3.955+09	2p3d ³ P ₁	2p5f ¹ D ₂	495.23	6.312+08
2s3s ³ S ₁	2s4p ³ P ₀	524.80	1.318+09	2p3d ³ P ₂	2p5f ³ D ₁	495.73	2.577+08
2p3p ³ S ₀	2p5s ¹ P ₁	527.50	1.083+09	2p3d ³ P ₂	2p5f ³ D ₂	496.03	3.333+09
2s3s ¹ S ₀	2s4p ¹ P ₁	557.08	3.457+09	2p3d ³ P ₁	2p5f ³ D ₁	496.06	3.522+09
2p3p ³ P ₁	2p4d ¹ P ₁	564.50	3.556+09	2p3d ³ P ₀	2p5f ³ D ₁	496.23	4.489+09
2s3s ¹ S ₀	2p5p ¹ P ₁	566.55	8.177+08	2p3d ³ P ₂	2p5f ³ D ₂	496.30	1.802+10
2p3p ³ P ₁	2s6p ¹ P ₁	587.97	4.516+08	2p3d ³ P ₁	2p5f ³ D ₂	496.37	9.218+09
2p3p ³ P ₁	2s6f ³ F ₂	593.48	9.963+08	2p3d ³ D ₂	2p5p ³ P ₂	498.12	1.128+08
2p3p ³ P ₁	2s6f ³ F ₃	594.12	1.586+09	2p3d ³ D ₁	2p5p ³ P ₁	498.27	1.001+08
2p3p ³ P ₂	2s6f ³ F ₂	594.17	2.191+08	2p3d ³ D ₃	2p5p ³ P ₂	498.39	5.521+08
2p3p ³ P ₂	2p4d ³ P ₁	594.46	2.314+08	2p3d ³ D ₂	2p5p ³ P ₁	498.44	2.761+08
2p3p ³ P ₂	2s6f ³ F ₄	595.15	2.618+09	2p3d ³ D ₁	2p5p ³ P ₀	498.66	1.498+08
2p3p ³ P ₂	2s6f ³ F ₃	595.22	2.590+08	2p3d ³ D ₂	2p5p ³ P ₂	499.29	1.091+08
2p3p ³ P ₂	2s6f ³ F ₃	595.98	4.519+08	2p3d ³ D ₂	2p5p ³ P ₂	499.52	3.793+08
2p3p ³ P ₂	2p4d ³ D ₁	596.64	1.350+10	2s4p ¹ P ₁	2p6p ¹ D ₂	499.80	3.080+08
2p3p ³ P ₂	2p4d ³ D ₂	598.12	3.750+09	2p3d ³ D ₃	2p5p ³ D ₃	502.92	2.543+08
2p3p ³ P ₂	2p4d ³ D ₂	601.29	5.501+08	2p3d ³ D ₂	2p5p ³ D ₂	503.39	1.377+08
2p3p ³ P ₂	2p4d ³ D ₁	601.52	2.303+09	2p3d ³ D ₂	2p5p ³ S ₁	509.65	7.375+08
2p3p ³ P ₂	2p4d ³ D ₃	601.65	4.756+08	2p3d ³ D ₁	2p5p ³ S ₁	510.00	3.950+08
2p3p ³ P ₂	2p4d ³ D ₂	602.00	3.891+09	2p3d ³ D ₂	2p5p ³ S ₁	510.18	1.125+08
2p3p ³ P ₂	2p4d ³ D ₁	602.22	7.266+08	2p3d ³ D ₃	2p5p ³ D ₃	511.94	4.648+08
2p3p ³ P ₂	2p4d ³ D ₃	602.78	6.895+09	2p3d ³ D ₂	2p5p ³ D ₂	513.06	2.273+08
2p3p ³ P ₂	2p4d ³ D ₂	603.12	7.616+08	2p3d ³ D ₁	2p5f ¹ G ₄	514.62	1.783+10
2s4s ¹ S ₀	2p5s ¹ P ₁	604.95	1.845+08	2p3d ³ D ₁	2p5f ³ G ₄	516.14	1.104+09
2p3p ³ D ₃	2s6p ³ P ₂	610.24	1.163+08	2p3d ³ D ₁	2p5f ³ G ₃	516.37	2.439+08
2p3p ³ D ₃	2p4d ¹ D ₂	611.64	4.038+09	2p3s ³ P ₀	2p4f ³ D ₁	516.81	2.053+08
2p3p ³ D ₃	2p4d ¹ D ₂	612.37	4.219+08	2p3s ³ P ₁	2p4f ³ D ₁	517.24	1.549+08
2p3p ³ D ₃	2p4d ¹ D ₂	613.06	2.742+10	2p3s ³ P ₁	2p4f ³ D ₂	517.59	4.454+08
2p3p ³ D ₃	2p4d ¹ D ₂	613.18	1.458+10	2s4f ³ F ₂	2p4f ³ D ₁	517.67	2.732+08
2p3p ³ D ₃	2p4d ¹ D ₂	613.36	3.877+10	2p3d ¹ F ₃	2p5f ³ F ₄	517.78	5.203+08
2p3p ³ D ₃	2p4d ¹ D ₂	613.92	2.669+09	2p3d ¹ F ₃	2p5f ³ F ₃	517.91	1.373+08
2p3p ³ D ₃	2p4d ¹ D ₂	614.22	2.901+09	2s4f ³ F ₃	2p6f ³ D ₂	517.98	3.394+08
2p3p ³ D ₃	2p4d ¹ D ₂	615.11	2.026+09	2p3d ¹ F ₃	2p5f ¹ F ₃	518.16	2.251+09
2p3p ³ D ₃	2p4d ¹ D ₂	615.34	6.100+09	2s4f ³ F ₄	2p6f ³ D ₃	518.22	5.124+08
2p3p ³ D ₃	2p4d ¹ D ₂	615.78	1.032+10	2p3s ³ P ₂	2p4f ³ D ₂	518.49	1.508+08
2p3p ³ D ₃	2p4d ¹ D ₂	620.84	1.200+08	2s4f ³ F ₄	2p6f ³ G ₅	518.63	2.390+08
2s4d ¹ D ₂	2p5d ¹ F ₃	622.15	1.422+08	2p3s ³ P ₂	2p4f ³ D ₃	518.84	8.782+08
2s4s ³ S ₁	2p3d ³ P ₁	628.96	1.848+08	2s4f ³ F ₃	2p6f ³ G ₄	519.02	1.147+08
2s4s ³ S ₁	2p3d ³ P ₂	627.50	3.088+08	2p3d ¹ F ₃	2p6p ¹ D ₂	522.18	1.228+09
2s4s ³ S ₁	2p3d ³ P ₀	630					

TABLE III. continued.

	1	2	3	4	5	6	7	8
$2p4p^3D_3$		$2p6d^3F_4$	934.94	4.451+09	$2p3d^3D_2$	$2p4f^3D_1$	697.34	1.097+09
$2p4p^3D_1$		$2p6d^3F_2$	935.61	1.276+09	$2p3d^3D_1$	$2p4f^3D_2$	697.64	6.987+08
$2p4p^3S_1$		$2p6d^3F_0$	936.39	2.125+08	$2p3d^3D_2$	$2p4f^3D_2$	697.96	5.422+09
$2p4p^3S_1$		$2p6d^3F_2$	936.75	5.933+08	$2p3d^3D_3$	$2p4f^3D_2$	698.48	1.254+09
$2p4p^3D_3$		$2p6d^3F_2$	936.98	2.559+08	$2p3d^3D_2$	$2p4f^3D_3$	698.59	8.639+08
$2p4p^3D_3$		$2p6d^3F_3$	937.44	1.909+08	$2p3d^3D_3$	$2p4f^3D_3$	699.11	1.039+10
$2p4p^3S_1$		$2p6d^3F_2$	937.45	8.925+08	$2s3p^3F_0$	$2s4s^3S_1$	709.15	8.963+08
$2p4p^3S_1$		$2p6d^3D_2$	941.04	3.414+08	$2s3p^3F_1$	$2s4s^3S_1$	709.35	2.685+09
$2s3d^3D_1$		$2p3d^3F_0$	941.31	7.594+08	$2s3p^3F_2$	$2s4s^3S_1$	709.73	4.479+09
$2s3d^3D_1$		$2p3d^3F_1$	941.91	6.366+08	$2p3d^3D_2$	$2p4f^3F_3$	710.84	4.386+10
$2s3s^3S_1$		$2p3s^3F_2$	941.96	2.169+09	$2p3d^3D_1$	$2p4f^3F_2$	710.94	3.061+10
$2s3d^3D_2$		$2p3d^3F_1$	942.03	1.627+09	$2p3d^3D_3$	$2p4f^3F_4$	711.11	7.329+10
$2p3p^1D_2$		$2s5p^1P_1$	942.04	5.264+08	$2p3d^3D_1$	$2s6d^3D_2$	711.14	5.278+09
$2s3d^1D_2$		$2p3d^1F_1$	942.73	2.621+09	$2p3d^3D_2$	$2p4f^3F_2$	711.27	5.467+09
$2s3d^3D_2$		$2p3d^3F_2$	943.24	6.871+08	$2p3d^3D_3$	$2p4f^3F_3$	711.38	5.124+09
$2s3d^3D_3$		$2p3d^3F_2$	943.42	3.015+09	$2p3d^3D_2$	$2s6d^3D_2$	711.48	5.045+08
$2s3s^3S_1$		$2p3s^3F_1$	944.97	1.290+09	$2p3d^3D_3$	$2p4f^3F_2$	711.81	1.513+08
$2s6d^1S_0$		$2p3s^3F_0$	946.43	4.281+08	$2p3d^3D_2$	$2p4f^3F_3$	711.82	8.888+09
$2p4p^3F_1$		$2p6d^1F_1$	948.99	1.209+08	$2p3d^3D_3$	$2p4f^3F_3$	712.36	4.329+08
$2s3s^1S_0$		$2p3s^1F_1$	953.28	3.718+09	$2p3d^3F_2$	$2p4f^1D_2$	712.56	4.315+08
$2p6s^1F_1$		$2p6d^3F_0$	957.25	2.649+08	$2p3d^3F_1$	$2p4f^1D_2$	713.25	9.323+08
$2p4p^3F_1$		$2p6d^3F_1$	962.06	2.292+08	$2p3d^3D_3$	$2s6g^1G_4$	714.92	5.624+08
$2p4p^3F_2$		$2p6d^3F_2$	962.44	3.958+08	$2p3d^3F_2$	$2p4f^3D_1$	715.34	7.162+08
$2p4p^3F_3$		$2p6d^3F_3$	964.10	3.105+08	$2p3d^3F_1$	$2p4f^3D_2$	716.00	9.698+09
$2p4p^3F_0$		$2p6d^3D_1$	964.85	1.281+09	$2p3d^3F_2$	$2p4f^3D_1$	716.04	9.805+09
$2p4p^3F_1$		$2p6d^3D_2$	966.32	8.034+08	$2p3d^3D_2$	$2s6g^3G_3$	716.27	3.287+08
$2p4p^3F_2$		$2p6d^3D_2$	966.97	1.642+09	$2p3d^3F_0$	$2p4f^3D_1$	716.39	1.251+10
$2p4p^3F_3$		$2p6d^3D_3$	967.04	2.922+09	$2p3d^3D_3$	$2s6g^3G_4$	716.50	1.114+09
$2p4p^3F_0$		$2p6d^3D_1$	967.67	3.361+08	$2p3d^3F_2$	$2p4f^3D_3$	716.66	5.145+10
$2s3d^3D_2$		$2p6d^1D_2$	972.65	1.407+08	$2p3d^3F_1$	$2p4f^3D_2$	716.70	2.675+10
$2s3d^3D_3$		$2p3d^3D_3$	975.47	4.855+08	$2p3d^3F_3$	$2p4p^3D_3$	717.89	1.779+08
$2s3d^3D_1$		$2p3d^3D_2$	975.66	3.788+09	$2p3d^3F_2$	$2p4p^3D_2$	718.29	1.756+08
$2s3d^3D_2$		$2p3d^3D_2$	976.36	4.500+08	$2p3d^3F_2$	$2p4p^3D_1$	719.09	8.835+08
$2p4p^3D_2$		$2p6s^3F_2$	976.49	1.998+09	$2p3d^3F_4$	$2p4p^3D_3$	719.13	2.168+09
$2s3d^3D_3$		$2p3d^3F_3$	976.51	1.286+08	$2p3d^1D_2$	$2p4p^3D_2$	719.38	1.506+09
$2s3d^3D_1$		$2p3d^3D_2$	976.68	5.990+08	$2p3d^3F_2$	$2p4p^3D_1$	723.22	1.364+08
$2s3d^3D_2$		$2p3d^3D_1$	976.99	1.307+09	$2p3d^3F_2$	$2p4p^1P_1$	725.18	1.362+08
$2p4p^3D_3$		$2p3d^3D_2$	977.12	5.196+08	$2p3d^1D_2$	$2p4p^1P_1$	729.38	9.842+08
$2p4p^3D_1$		$2p6s^3F_1$	978.84	1.127+08	$2p3d^3F_2$	$2s6d^3D_3$	730.17	2.009+08
$2p4p^3D_3$		$2p6s^3F_2$	979.28	8.505+08	$2p3d^3F_2$	$2p4f^1F_3$	730.59	2.789+08
$2s6d^3S_1$		$2p6d^3F_1$	979.92	1.654+08	$2p3d^3F_1$	$2s6d^3D_2$	730.96	1.705+08
$2p4p^3D_1$		$2p6s^3F_0$	979.97	2.165+08	$2p3d^3D_2$	$2p4p^3F_2$	743.66	2.151+08
$2p4p^3D_2$		$2p6s^3F_1$	980.34	4.641+08	$2p3d^3D_3$	$2p4p^3F_2$	744.25	1.233+09

TABLE III. continued.

	1	2	3	4	5	6	7	8
$2s3d^1D_2$		$2s4f^1F_3$	723.68	6.955+10	$2s4f^1F_3$	$2p5f^1G_4$	636.03	1.013+09
$2s3d^3D_2$		$2s4p^3F_2$	728.62	2.221+08	$2s4f^1F_3$	$2p5f^1F_3$	641.44	1.126+08
$2s3d^3D_1$		$2s4p^3F_1$	728.70	2.218+08	$2s4f^1F_3$	$2p5p^1D_2$	647.62	1.296+08
$2s3d^3D_3$		$2s4p^3F_2$	728.73	1.253+09	$2p3d^3F_3$	$2p4f^1G_4$	649.80	1.737+09
$2s3d^3D_2$		$2s4p^3F_1$	728.77	6.687+08	$2p3d^3F_2$	$2p4f^1G_4$	651.47	2.425+10
$2s3d^3D_1$		$2s4p^3F_0$	728.78	2.963+08	$2p3d^3F_3$	$2p4f^3G_4$	652.07	3.366+10
$2p3p^3D_1$		$2s5f^3F_2$	745.13	2.805+08	$2p3d^3F_3$	$2p4f^3G_3$	652.37	2.568+09
$2p3p^3D_2$		$2s5f^3F_3$	746.20	4.125+08	$2p3d^3F_4$	$2p4f^3G_5$	652.50	4.988+10
$2p3p^3D_3$		$2s5f^3F_4$	747.92	5.879+08	$2p3d^3F_4$	$2p4f^3G_4$	653.10	2.704+09
$2p3p^3F_1$		$2p4s^3F_2$	752.54	1.880+09	$2p3d^3F_2$	$2p4f^1D_2$	653.11	2.251+08
$2p3p^3F_2$		$2p4s^3F_2$	753.69	5.440+09	$2p3d^1D_2$	$2p4f^3G_3$	654.86	1.828+09
$2p3p^3F_0$		$2p4s^3F_1$	753.90	1.440+09	$2p3d^1D_2$	$2p4f^1D_2$	656.51	7.862+09
$2p3p^3F_1$		$2p4s^3F_1$	754.54	1.047+09	$2p3d^1D_2$	$2p4f^3D_2$	659.43	3.419+08
$2p3p^3F_2$		$2p4s^3F_0$	755.44	1.391+09	$2p3d^1D_2$	$2p4f^3D_3$	659.99	1.575+08
$2p3p^3F_3$		$2p4s^3F_1$	755.70	1.752+09	$2s3p^1P_1$	$2s4s^1S_0$	660.91	1.357+09
$2p2^3F_2$		$2s2p^3F_1$	757.86	2.885+09	$2p3d^1D_2$	$2s6d^1D_2$	666.30	1.611+08
$2s6d^1D_2$		$2s2p^3F_2$	758.48	1.519+08	$2p3d^3F_2$	$2p4f^3F_3$	667.36	1.097+09
$2p2^3F_1$		$2s2p^3F_0$	758.68	2.300+09	$2p3d^3F_2$	$2p4f^3F_2$	667.74	5.078+09
$2p2^3F_2$		$2s2p^3F_1$	759.55	1.719+09	$2p3d^3F_2$	$2s6d^3D_3$	667.87	1.268+08
$2p2^3F_3$		$2s2p^3F_2$	759.61	8.593+09	$2p3d^3F_2$	$2s6d^3D_2$	667.90	2.873+08
$2p2^3F_0$		$2s2p^3F_3$	760.42	2.284+09	$2p3d^3F_2$	$2s6d^3D_2$	667.92	1.300+09
$2p2^3F_1$		$2s2p^3F_2$	761.31	2.945+09	$2p3d^3F_3$	$2p4f^3F_4$	668.07	3.644+08
$2s6g^1G_4$		$2p6g^1H_5$	763.40	1.591+08	$2p3d^3F_2$	$2p4f^3F_3$	668.22	6.145+08
$2s6g^3G_5$		$2p6g^3H_6$	763.44	2.059+08	$2p3d^3F_3$	$2p4f^3F_3$	668.30	7.668+09
$2p3p^1D_2$		$2p4s^1P_1$	770.35	4.380+09	$2p3d^3F_3$	$2p4f^3F_2$	668.68	1.148+09
$2s3d^1D_2$		$2p4d^1P_1$	784.99	1.115+09	$2p3d^3F_4$	$2p4f^3F_4$	669.14	1.306+10
$2s4s^3S_1$		$2p4d^3P_1$	828.84	2.538+08	$2p3d^3F_3$	$2p4f^1F_3$	669.17	1.379+09
$2s4s^3S_1$		$2p4d^3P_2$	829.65	4.288+08	$2p3d^3F_3$	$2p4f^3F_3$	669.38	8.230+08
$2p3p^1S_0$		$2p4s^1P_1$	844.99	2.995+09	$2p3d^3F_4$	$2s6d^3D_3$	669.89	6.290+08
$2s4s^3S_1$		$2s6p^3F_1$	857.43	2.932+08	$2p3d^1D_2$	$2p4f^3F_3$	670.91	8.090+09
$2s4s^3S_1$		$2s6p^3F_2$	857.54	4.761+08	$2p3d^3F_3$	$2s6g^1G_4$	671.42	2.665+09
$2s4s^1S_0$		$2p4d^1P_1$	859.47	2.113+09	$2p3d^1D_2$	$2s6d^3D_3$	671.43	4.816+09
$2p3p^1D_2$		$2s5f^1F_3$	892.06	7.309+08	$2p3d^1D_2$	$2p4f^3F_3$	671.78	4.764+10
$2p4p^1P_1$		$2p6d^1D_2$	900.24	4.782+08	$2p3d^3F_2$	$2s6g^1G_4$	672.14	3.121+10
$2s4s^1S_0$		$2p6d^1D_2$	915.07	2.643+08	$2p3d^3F_3$	$2s6g^1G_4$	672.51	5.205+08
$2p4p^1P_1$		$2p6d^1D_2$	922.75	8.635+08	$2p3d^3F_3$	$2s6g^3G_4$	672.82	3.620+10
$2p4p^1P_1$		$2p6d^3F_2$	925.50	7.111+08	$2p3d^3F_3$	$2s6g^3G_4$	673.10	1.809+09
$2p4p^3D_3$		$2p6d^3F_2$	927.90	1.193+08	$2p3d^3F_4$	$2s6g^3G_6$	673.29	4.692+10
$2p4p^3D_1$		$2p6d^3F_1$	928.22	2.101+08	$2p3d^3F_4$	$2s6g^3G_4$	673.91	1.103+09
$2p4p^3D_2$		$2p6d^3F_2$	928.91	4.338+08	$2p3s^1P_1$	$2s5d^1D_2$	687.44	5.205+08
$2p4p^3D_3$		$2p6d^3D_3$	929.93	8.578+08	$2p3d^3D_3$	$2p4f^3G_4$	684.37	1.795+08
$2p4p^3D_1$		$2p6d^3D_2$	932.80	8.836+08	$2p3d^3D_2$	$2p4f^1D_2$	693.02	2.132+08
$2p4p^3D_2$		$2p6d^3F_3$	934.90	3.179+09	$2p3d^3D_1$	$2p4f^3D_1$	697.01	3.136+09

TABLE III. continued.

1	2	3	4	5	6	7	8
2s4d ³ D ₃	2p3d ³ D ₃	1014.32	3.103+08	2p3d ¹ P ₁	2p4p ¹ D ₂	820.68	1.129+09
2s6g ³ G ₄	2p6g ³ G ₃	1014.32	3.629+08	2p4s ¹ P ₁	2p3p ¹ S ₀	844.99	2.995+09
2s6g ³ G ₄	2p6g ³ G ₄	1014.33	1.834+09	2s3p ¹ P ₁	2p3p ¹ D ₂	854.22	3.936+08
2p4f ¹ F ₃	2p6g ³ F ₃	1014.99	3.256+08	2p3d ³ F ₂	2s5g ³ G ₃	854.31	1.854+09
2s4d ¹ D ₂	2p4d ³ D ₂	1015.17	3.631+08	2p3d ³ F ₃	2s5g ¹ G ₄	855.82	4.251+08
2s4d ³ D ₂	2p4d ³ D ₂	1015.22	1.689+09	2p3d ³ F ₃	2s5g ³ G ₄	855.85	2.118+09
2s4d ¹ D ₂	2p4d ³ D ₂	1015.30	4.386+08	2p3d ³ F ₃	2s5g ³ G ₃	855.86	1.693+08
2s6g ³ G ₆	2p6g ³ G ₆	1015.71	2.213+09	2p3d ³ F ₄	2s5g ³ G ₆	857.59	3.302+09
2s4d ³ D ₁	2p4d ³ D ₁	1015.74	9.978+08	2p3d ³ F ₄	2s5g ³ G ₄	857.61	1.386+08
2s4d ³ D ₂	2p4d ³ D ₂	1015.81	1.076+09	2p4s ³ F ₁	2p6p ³ F ₂	860.54	1.035+08
2s5d ¹ D ₂	2p5d ¹ F ₃	1015.86	3.900+08	2p4s ³ F ₁	2p6p ³ F ₀	862.69	1.560+08
2p4f ³ F ₂	2p6g ³ F ₂	1016.06	2.920+09	2p4s ³ F ₂	2p6p ³ F ₂	863.16	6.765+08
2p4f ¹ F ₃	2p6g ³ F ₄	1016.14	2.929+08	2p4s ³ F ₂	2p6p ³ F ₁	863.85	3.885+08
2s5s ³ S ₁	2p5s ³ P ₂	1016.61	8.481+08	2p4s ³ F ₁	2p6p ³ S ₁	865.10	3.022+08
2s5d ³ D ₃	2p5d ³ F ₁	1016.68	2.190+09	2p4s ³ F ₂	2p6p ¹ S ₀	865.64	2.343+08
2s6g ³ G ₄	2p6g ³ G ₄	1017.05	5.353+08	2p4s ³ F ₂	2p6p ³ S ₁	867.74	1.272+08
2s6d ³ D ₃	2p6d ³ F ₁	1017.42	1.503+08	2p4s ³ F ₀	2p6p ³ D ₁	869.01	3.176+08
2s6g ¹ G ₄	2p6g ³ G ₃	1017.52	5.680+08	2p4s ³ F ₁	2p6p ³ D ₂	869.92	8.696+08
2s6d ¹ G ₄	2p6d ³ G ₁	1017.54	2.339+09	2p4s ³ F ₂	2p6p ³ D ₃	870.27	1.448+09
2s5d ³ D ₁	2p5d ³ P ₁	1017.63	6.843+08	2p3d ³ F ₃	2s5d ³ D ₂	871.00	1.425+08
2s5d ³ D ₂	2p5d ³ F ₃	1017.65	9.065+08	2p4s ³ F ₀	2p6p ¹ P ₁	871.25	1.044+08
2p4f ¹ F ₂	2p6g ¹ F ₃	1017.69	7.013+08	2p4s ³ F ₂	2p6p ³ H ₆	872.45	1.682+08
2p4f ³ F ₃	2p6g ³ H ₄	1017.95	5.572+08	2p4s ³ F ₂	2p6p ³ D ₂	872.59	1.642+08
2p4f ³ F ₃	2p6g ³ F ₄	1018.57	1.044+09	2p3d ³ F ₄	2s5d ³ D ₃	872.80	2.047+08
2p4p ³ P ₁	2p6s ³ P ₂	1018.66	4.086+08	2p3d ³ F ₁	2p4p ¹ P ₁	885.44	1.457+09
2s6d ³ D ₃	2p6g ³ H ₄	1018.75	1.267+08	2p4s ¹ P ₁	2p6p ¹ D ₂	885.77	1.928+09
2s5d ³ D ₁	2p5d ³ P ₂	1018.79	1.350+08	2p4s ¹ P ₁	2p6p ³ D ₁	903.43	1.539+08
2s5d ³ D ₂	2p5d ³ P ₂	1018.82	9.927+08	2p4s ¹ P ₁	2p6p ¹ P ₁	905.85	2.262+08
2s6d ³ D ₃	2p6d ³ P ₂	1018.86	1.475+09	2s4p ³ P ₀	2p4f ³ D ₁	920.74	2.768+08
2p4f ³ F ₄	2p6g ³ F ₄	1019.16	1.404+09	2s4p ³ P ₁	2p4f ³ D ₁	920.86	2.071+08
2s6d ¹ D ₂	2p6d ¹ P ₁	1019.33	1.703+09	2s4p ³ P ₁	2p4f ³ D ₂	921.95	6.022+08
2p4f ³ F ₃	2p6g ³ H ₄	1019.94	2.768+09	2s4p ³ P ₂	2p4f ³ D ₂	922.19	2.000+08
2p4f ³ F ₄	2p6g ³ G ₅	1020.46	4.231+09	2s4p ³ P ₂	2p4f ³ D ₃	923.29	1.167+09
2p4p ³ P ₂	2p6s ³ P ₂	1020.52	8.399+08	2s3p ³ P ₁	2p3p ³ P ₂	930.97	6.906+08
2s5s ³ S ₁	2p5s ³ P ₁	1020.56	1.282+09	2s3p ³ P ₂	2p3p ³ P ₁	931.63	1.980+09
2p4p ³ P ₀	2p6s ³ P ₁	1020.78	1.635+09	2s3p ³ P ₀	2p3p ³ P ₁	932.39	5.601+08
2s6d ¹ D ₂	2p6d ¹ F ₃	1021.31	2.878+08	2s3p ³ P ₁	2p3p ³ P ₁	932.74	4.164+08
2s5s ³ S ₁	2p5s ³ P ₀	1021.78	2.438+09	2s3p ³ P ₂	2p3p ³ P ₁	933.39	6.198+08
2p4f ¹ F ₃	2p6g ³ P ₀	1022.03	4.327+08	2s3p ³ P ₁	2p3p ³ P ₀	933.71	5.295+08
2p4f ³ F ₃	2p6g ³ G ₄	1022.75	2.735+09	2s4p ¹ P ₁	2p4f ¹ D ₂	935.98	6.184+08
2p4f ¹ F ₃	2p6g ³ G ₃	1022.75	1.047+08	2s4p ³ P ₁	2p4f ³ F ₂	945.32	2.640+08
2p4f ¹ F ₃	2p6g ¹ G ₄	1022.77	3.080+09	2s4p ³ P ₀	2s6d ³ D ₁	945.52	7.314+08
2s6d ³ D ₂	2p6g ³ G ₃	1023.44	7.009+08	2s4p ³ P ₁	2s6d ³ D ₁	945.65	5.494+08

TABLE III. continued.

1	2	3	4	5	6	7	8
2s6d ³ S ₁	2p6d ³ P ₂	980.08	1.998+08	2p3d ³ D ₁	2p4p ³ P ₁	744.28	2.227+08
2p4p ¹ D ₂	2p6d ¹ F ₃	981.03	4.447+09	2p3d ³ D ₂	2p4p ³ P ₁	744.65	6.777+08
2s4d ¹ D ₂	2p4d ¹ F ₃	984.98	9.948+09	2p3d ³ D ₁	2p4p ³ P ₀	745.08	2.695+08
2p4p ³ S ₁	2p6s ³ P ₂	989.92	1.225+09	2p3d ¹ F ₃	2p4f ¹ G ₄	745.55	2.653+10
2s4d ¹ D ₂	2p4d ¹ P ₁	990.92	1.235+09	2p3d ¹ F ₃	2p4f ³ G ₄	748.54	8.615+08
2s4d ³ D ₃	2s6f ³ F ₄	992.90	1.073+10	2p3d ³ P ₂	2s6d ³ S ₁	754.52	4.599+08
2s4d ³ D ₂	2s6f ³ F ₃	993.02	7.420+09	2p3d ³ P ₁	2s6d ³ S ₁	755.30	2.999+08
2s4d ³ D ₃	2s6f ³ F ₃	993.12	8.427+08	2p3d ³ P ₀	2s6d ³ S ₁	755.69	1.045+08
2s4d ³ D ₂	2s6f ³ F ₂	993.17	4.980+09	2s2p ³ P ₂	2p ² ³ P ₂	757.86	2.885+09
2s4d ³ D ₁	2s6f ³ F ₂	993.34	8.582+08	2s2p ³ P ₀	2p ² ³ P ₁	758.68	2.300+09
2p4p ³ S ₁	2p6s ³ P ₁	993.85	2.823+08	2s2p ³ P ₁	2p ² ³ P ₁	759.55	1.719+09
2s4d ³ D ₁	2p4d ³ P ₀	993.93	7.699+08	2s2p ³ P ₂	2p ² ³ P ₂	759.61	8.593+09
2s4d ³ D ₂	2p4d ³ P ₁	993.98	2.756+08	2s2p ³ P ₁	2p ² ³ P ₀	760.42	2.284+09
2p4p ³ S ₁	2p6s ³ P ₀	995.01	5.589+08	2s2p ³ P ₂	2p ² ³ P ₁	761.31	2.845+09
2s4d ³ D ₂	2p4d ³ P ₁	995.14	3.804+08	2p3d ¹ F ₂	2p6f ³ D ₃	763.40	3.126+08
2s4d ³ D ₃	2p4d ³ P ₂	995.22	2.308+08	2s5f ³ F ₄	2p6f ³ D ₃	763.41	1.314+08
2p4p ¹ D ₂	2p6g ³ F ₂	1005.44	6.077+08	2p3d ¹ F ₃	2s6d ¹ D ₂	763.94	9.360+08
2s6g ³ G ₃	2p6g ³ F ₃	1006.11	1.171+09	2p3d ³ P ₂	2p4p ³ P ₂	764.17	2.930+08
2s6g ³ G ₄	2p6g ³ F ₃	1006.69	1.351+09	2p3d ³ D ₃	2p4p ³ P ₂	764.97	1.190+08
2s6g ³ G ₃	2p6g ¹ F ₃	1007.63	8.048+08	2p3d ³ D ₂	2p4p ³ D ₃	767.83	5.465+08
2s6g ³ G ₄	2p6g ³ H ₆	1007.95	1.038+08	2p3d ³ D ₁	2p4p ³ D ₂	769.44	3.186+08
2s6g ³ G ₄	2p6g ³ F ₄	1008.29	1.020+09	2p3d ³ D ₂	2p4p ³ D ₁	769.69	3.383+08
2p4p ¹ D ₂	2p6d ³ F ₂	1008.71	2.315+08	2p3d ¹ F ₃	2p4f ³ F ₃	770.01	1.530+09
2s4s ³ S ₁	2p4s ³ P ₂	1008.86	1.724+09	2p3d ¹ F ₃	2s6d ³ D ₃	770.69	8.203+08
2s6g ³ G ₅	2p6g ³ H ₆	1009.41	5.167+08	2p3d ¹ F ₃	2p4f ¹ F ₃	771.15	7.751+09
2p4p ³ P ₀	2p6s ¹ P ₁	1009.59	1.632+08	2s2p ¹ P ₁	2p ² ¹ S ₀	771.54	3.927+09
2s6g ³ G ₄	2p6g ³ H ₄	1009.60	3.517+08	2p3d ¹ F ₃	2s6g ¹ G ₄	774.15	2.611+10
2s6g ³ G ₅	2p6g ³ F ₄	1009.69	1.222+09	2p3d ¹ F ₃	2s6g ³ G ₄	776.01	2.686+09
2s6g ³ G ₄	2p6g ³ F ₅	1009.84	3.653+08	2p3d ¹ F ₃	2s6g ³ G ₅	776.38	1.434+08
2s6g ³ G ₆	2p6g ³ G ₅	1010.96	2.574+09	2p3d ¹ P ₁	2p4f ¹ D ₂	780.30	3.143+10
2s6g ³ G ₄	2p6g ¹ H ₅	1011.10	1.793+08	2p3d ³ P ₂	2p4p ³ S ₁	782.28	1.323+09
2s6g ³ G ₄	2p6g ¹ F ₃	1011.41	1.016+09	2p3d ³ P ₁	2p4p ³ S ₁	783.11	7.504+08
2s4s ³ S ₁	2p4s ³ P ₁	1012.46	1.020+09	2p3d ³ P ₀	2p4p ³ S ₁	783.53	2.398+08
2s6d ¹ S ₀	2p6s ¹ P ₁	1012.56	1.749+09	2p3d ³ P ₁	2p4p ³ D ₂	784.43	1.041+09
2s5d ¹ D ₂	2p5d ¹ P ₁	1012.76	1.667+09	2p3d ¹ F ₃	2p4p ³ D ₂	787.19	1.518+09
2s6g ¹ G ₄	2p6g ³ H ₄	1013.69	1.798+09	2p3d ³ P ₂	2p4p ³ D ₂	789.05	1.338+09
2s6g ³ G ₃	2p6g ³ G ₃	1013.70	4.609+08	2p3d ³ P ₂	2p4p ³ D ₂	790.86	2.191+08
2s6g ³ G ₃	2p6g ³ G ₄	1013.71	6.164+08	2p3d ³ P ₂	2p4p ³ D ₂	791.71	6.874+08
2s6g ³ G ₃	2p6g ¹ G ₄	1014.08	3.393+08	2p3d ³ P ₁	2p4p ³ D ₁	792.69	1.998+08
2s4s ³ S ₁	2p4s ³ P ₀	1014.25	3.727+08	2p3d ³ P ₀	2p4p ³ D ₁	793.11	2.983+08
2s4d ³ D ₂	2p4d ³ D ₃	1014.29	1.141+09	2p3d ³ P ₀	2s6d ¹ D ₂	794.18	6.202+08

TABLE III. continued.

1	2	3	4	5	6	7	8
$2s6d^1G_4$	$2p5g^3H_8$	1028.67	8.957+08	$2s3p^3F_0$	$2p3p^3S_1$	1008.55	2.771+08
$2s6d^3D_2$	$2p6d^3D_2$	1029.28	3.620+08	$2p4d^3D_1$	$2p6f^3D_1$	1008.59	2.759+08
$2s6d^3D_1$	$2p6d^3D_2$	1029.33	4.268+08	$2s3p^3P_1$	$2p3p^3S_1$	1008.96	8.536+08
$2s6d^1D_2$	$2p6g^1F_5$	1029.38	1.122+08	$2s3p^3F_2$	$2p3p^3S_1$	1009.72	1.479+09
$2s6d^3D_3$	$2p6d^3D_2$	1029.41	1.308+09	$2p4d^3D_2$	$2p6f^3D_2$	1010.34	7.017+08
$2s6d^3D_2$	$2p6d^3D_1$	1030.08	8.037+08	$2p4d^3D_3$	$2p6f^3D_3$	1012.17	1.191+09
$2s6d^3D_1$	$2p6d^3D_2$	1030.13	6.131+08	$2s4f^3F_4$	$2p4f^3G_5$	1012.40	2.428+10
$2p4f^1F_3$	$2p6d^3F_4$	1032.88	2.451+08	$2s6f^1F_3$	$2p6f^1D_2$	1013.32	1.572+09
$2s6d^3D_3$	$2p6d^3F_4$	1033.72	2.845+09	$2s4f^3F_3$	$2p4f^3G_4$	1013.76	1.788+10
$2s5g^3G_4$	$2p5g^3G_5$	1034.10	1.318+08	$2s4f^3F_2$	$2p4f^3G_4$	1013.84	1.046+09
$2s5g^3G_3$	$2p5g^1G_4$	1034.12	1.693+08	$2s4f^3F_2$	$2p4f^3G_3$	1014.44	1.414+10
$2s5g^1G_4$	$2p5g^3G_6$	1034.13	1.584+08	$2s4f^3F_3$	$2p4f^3G_3$	1014.83	1.042+09
$2s5g^3G_5$	$2p5g^3G_6$	1034.14	4.295+09	$2p4d^3D_2$	$2p6f^3G_3$	1015.28	2.288+09
$2s5g^1G_4$	$2p5g^1G_4$	1034.17	3.057+09	$2p4d^3D_3$	$2p6f^3G_4$	1015.81	2.194+08
$2s5g^3G_3$	$2p5g^3G_3$	1034.49	2.516+09	$2s5p^3P_1$	$2p5p^3P_2$	1015.88	6.772+08
$2s5g^3G_4$	$2p5g^3G_4$	1034.51	2.782+09	$2s5p^3P_2$	$2p5p^3P_2$	1016.04	1.449+09
$2s5g^3G_4$	$2p5g^3G_5$	1034.51	3.075+08	$2s6p^3P_2$	$2p6p^3P_2$	1016.64	1.226+09
$2s5g^3G_5$	$2p5g^3G_4$	1034.54	9.962+08	$2s6f^1F_3$	$2p6f^3D_2$	1016.78	1.999+08
$2s5g^1G_4$	$2p5g^3G_4$	1034.54	5.058+08	$2s6p^3P_1$	$2p5p^3P_1$	1016.80	7.905+08
$2s5g^1G_4$	$2p5g^3G_3$	1034.54	5.860+08	$2s5p^3P_0$	$2p5p^3P_1$	1017.11	6.065+08
$2p4f^1F_3$	$2p6d^1D_2$	1035.01	1.107+08	$2s5p^3P_1$	$2p5p^3P_1$	1017.20	4.593+08
$2s4d^3D_1$	$2s6p^3P_0$	1035.20	3.098+08	$2s5p^3P_2$	$2p5p^3P_1$	1017.35	2.301+08
$2s4d^3D_1$	$2s6p^3P_1$	1035.33	2.037+08	$2s6f^1F_3$	$2p6f^3D_3$	1017.65	2.732+08
$2s4d^3D_2$	$2s6p^3P_1$	1035.38	7.408+08	$2s6p^3P_1$	$2p6p^3P_1$	1017.76	5.741+08
$2s4d^3D_3$	$2p5d^3F_4$	1035.50	3.793+09	$2p4d^3F_4$	$2p6p^3P_0$	1017.79	2.886+08
$2s4d^3D_2$	$2s6p^3P_2$	1035.55	1.964+08	$2s6p^3P_0$	$2p6p^3P_1$	1017.88	7.286+08
$2s4d^3D_3$	$2p6d^1D_2$	1035.63	1.395+09	$2p4d^3D_1$	$2p6f^3D_2$	1018.43	3.122+09
$2s4d^3D_2$	$2p6d^1D_2$	1035.73	1.645+08	$2s5p^3P_1$	$2p6p^3D_2$	1018.60	2.092+08
$2s4d^3D_1$	$2p6d^1D_2$	1035.78	2.279+08	$2p4d^3D_2$	$2p5p^3P_0$	1018.82	4.215+08
$2s4d^3D_1$	$2p6d^1D_2$	1035.78	2.279+08	$2p4d^3D_2$	$2p6f^3D_2$	1019.08	4.034+08
$2s4d^3D_3$	$2p6d^1D_2$	1035.85	1.863+08	$2p4d^3D_2$	$2p6f^3F_3$	1019.34	3.598+09
$2s4d^3D_3$	$2p6d^1D_2$	1035.85	1.863+08	$2s6p^3P_1$	$2p6p^1P_1$	1019.69	1.212+08
$2s4d^3D_3$	$2p6d^1D_2$	1035.85	1.863+08	$2s6p^3P_1$	$2p6p^3P_0$	1019.81	4.252+08
$2s4d^3D_3$	$2p6d^3F_3$	1036.64	1.462+09	$2p4d^3D_3$	$2p6f^3F_4$	1019.92	4.070+09
$2s4d^3D_3$	$2p6d^3F_3$	1036.77	6.637+08	$2p4d^3D_3$	$2p6f^3F_4$	1020.32	1.940+08
$2p4f^3F_2$	$2p5d^1D_2$	1037.08	2.315+08	$2p4d^3D_3$	$2p6f^3F_3$	1020.77	1.057+08
$2s4d^3D_1$	$2p5d^1D_2$	1037.68	5.233+08	$2p4d^1D_2$	$2p6p^3D_1$	1020.91	1.439+08
$2s4d^3D_2$	$2p5d^1D_2$	1037.71	1.834+08	$2s5f^3F_3$	$2p5f^1D_2$	1021.11	1.846+08
$2s4d^3D_3$	$2p5d^3P_2$	1038.25	9.527+08	$2s6f^3G_3$	$2p6p^3G_3$	1021.33	8.037+08
$2s4d^3D_2$	$2p5d^3F_3$	1038.29	2.339+09	$2s6p^3P_1$	$2p6p^3S_1$	1023.01	1.545+08
$2s4d^3D_3$	$2p5d^3F_3$	1038.33	5.842+08	$2s6p^3P_1$	$2p6p^3S_1$	1023.17	4.536+08
$2s4d^3D_2$	$2p5d^3F_3$	1039.19	2.922+08	$2s6p^1P_1$	$2p6p^1D_2$	1023.67	1.076+09

TABLE III. continued.

1	2	3	4	5	6	7	8
$2s6d^1D_3$	$2p6g^1G_4$	1023.58	3.099+08	$2s4p^3P_1$	$2s6d^3D_2$	945.69	1.375+09
$2s5d^3D_2$	$2p5d^3D_3$	1023.59	6.183+08	$2s4p^3P_2$	$2s6d^3D_3$	945.84	2.857+09
$2s5d^3D_3$	$2p5d^3D_3$	1023.63	2.469+09	$2s4p^3P_2$	$2s6d^3D_2$	945.95	4.597+08
$2s6d^3D_1$	$2p6d^3P_0$	1023.78	5.682+08	$2s4p^1P_1$	$2p4f^1F_3$	946.54	1.499+08
$2p4p^3P_2$	$2p6g^3G_3$	1023.87	4.164+08	$2s4p^1P_1$	$2s6d^1D_2$	956.02	3.410+09
$2p4p^1P_1$	$2p5g^3P_0$	1024.04	1.617+08	$2s5p^1P_1$	$2p5p^1S_0$	960.95	5.872+08
$2s6d^1D_2$	$2p6d^3P_1$	1024.16	6.637+08	$2p4d^1D_2$	$2p6f^1D_2$	979.19	5.804+08
$2s5g^3G_4$	$2p5g^3F_3$	1024.19	2.623+09	$2p4d^3F_3$	$2p6f^1G_4$	980.77	5.583+08
$2s6d^3D_1$	$2p6d^3P_1$	1024.21	8.814+08	$2p4d^3F_3$	$2p6f^3D_3$	981.46	1.551+08
$2s5g^3G_3$	$2p5g^3F_2$	1024.22	2.140+09	$2p4d^1D_2$	$2p6f^3D_2$	982.42	1.631+08
$2s5g^3G_4$	$2p5g^3F_3$	1024.22	2.742+08	$2p4d^1D_2$	$2p6f^3G_3$	982.66	3.902+08
$2p4f^3F_2$	$2p6d^3P_1$	1024.59	1.339+08	$2p4d^1D_2$	$2p6f^3D_3$	983.23	1.331+08
$2p4p^3P_2$	$2p6s^3P_1$	1024.70	2.431+08	$2p4d^3F_3$	$2p6f^3G_4$	984.38	1.696+09
$2p4f^1F_3$	$2p6g^3G_3$	1024.76	1.834+08	$2p4d^3F_3$	$2p6f^3G_3$	984.88	7.998+08
$2p4f^3F_3$	$2p6g^3G_4$	1024.77	3.111+09	$2p4d^3F_4$	$2p6f^3G_5$	985.14	5.234+09
$2p4f^3F_3$	$2p6g^1G_4$	1024.78	1.004+09	$2p4d^3F_4$	$2p6f^3G_4$	986.59	1.571+09
$2s6d^3D_2$	$2p6d^3P_2$	1025.00	1.173+09	$2p4d^3F_2$	$2p6f^3F_2$	986.64	8.608+08
$2s6d^3D_1$	$2p6d^3P_2$	1025.04	2.414+08	$2p4d^1D_2$	$2p6f^3G_3$	986.67	1.977+09
$2s6d^3D_3$	$2p6d^3P_2$	1025.12	1.001+09	$2s4p^3P_2$	$2p6f^3F_3$	986.88	9.397+08
$2s5d^3D_1$	$2p5d^3D_2$	1025.13	3.925+08	$2s4p^3P_2$	$2s6d^3S_1$	987.11	1.996+08
$2s5d^3D_2$	$2p5d^3D_2$	1025.16	7.984+08	$2p4d^3F_3$	$2p6f^1F_3$	987.30	2.414+09
$2s5d^3D_3$	$2p5d^3D_2$	1025.20	1.027+09	$2p4d^3F_3$	$2p6f^3F_4$	988.74	2.134+09
$2p4f^3F_4$	$2p6g^3G_5$	1025.30	4.718+09	$2p4d^3F_3$	$2p6f^3F_2$	988.88	1.746+08
$2p4f^3F_4$	$2p6g^3G_4$	1025.33	1.524+08	$2p4d^3F_3$	$2p6f^3F_3$	989.12	5.332+08
$2p4f^3F_2$	$2p6d^3P_2$	1025.43	2.115+08	$2p4d^3F_3$	$2p6f^1F_3$	989.54	1.390+08
$2s5d^3D_2$	$2p5d^3D_1$	1025.76	7.097+08	$2s6p^3P_1$	$2p6f^3D_1$	990.06	1.272+08
$2s5g^3G_4$	$2p5g^1H_5$	1026.01	1.589+08	$2s6p^3P_0$	$2p6f^3D_1$	990.18	1.790+08
$2s5g^1G_4$	$2p5g^1H_5$	1026.04	2.083+09	$2p4d^1D_2$	$2p6f^3F_3$	990.92	5.904+08
$2s5g^3G_6$	$2p5g^3H_6$	1026.11	2.706+09	$2s6p^3P_1$	$2p6f^3D_2$	991.14	3.474+08
$2s5g^3G_3$	$2p5g^1F_3$	1026.32	8.557+08	$2p4d^1D_2$	$2p6f^1F_3$	991.34	2.119+09
$2s5g^1G_4$	$2p5g^1F_3$	1026.37	2.108+09	$2p4d^3F_4$	$2p6f^3F_3$	991.36	1.606+08
$2s5g^3G_4$	$2p5g^3G_4$	1026.37	1.158+09	$2s6p^3P_2$	$2p6f^3D_3$	991.80	7.672+08
$2s5g^3G_5$	$2p5g^3F_4$	1026.41	2.730+09	$2s4p^1P_1$	$2p4p^1D_2$	994.68	4.463+08
$2p4f^1F_3$	$2p6d^3D_3$	1026.77	1.604+08	$2s6p^1P_1$	$2p6p^1S_0$	996.88	7.146+08
$2s6d^3D_2$	$2p6d^3D_3$	1027.47	7.069+08	$2s5p^1P_1$	$2p5p^1D_2$	998.20	2.132+09
$2s6d^3D_3$	$2p6d^3D_3$	1027.59	2.270+09	$2s4p^3P_1$	$2p4p^3P_2$	1003.40	5.873+08
$2s6d^1D_2$	$2p6g^3F_3$	1027.75	1.054+08	$2s4p^3P_2$	$2p4p^3P_2$	1003.69	1.513+09
$2p4f^3F_3$	$2p6d^3D_3$	1027.91	1.129+08	$2s4p^3P_0$	$2p4p^3P_1$	1005.06	4.886+08
$2s5g^3G_4$	$2p5g^3H_5$	1028.57	2.069+09	$2s4p^3P_1$	$2p4p^3P_1$	1005.20	3.596+08
$2p4f^1F_4$	$2p6d^3D_2$	1028.58	1.187+08	$2s4p^3P_2$	$2p4p^3P_1$	1005.50	4.114+08
$2s5g^3G_5$	$2p5g^3H_5$	1028.61	1.017+09	$2s4p^3P_1$	$2p4p^3F_0$	1006.66	3.665+08
$2s5g^3G_3$	$2p5g^3H_4$	1028.62	1.669+09	$2s4f^3F_3$	$2p4f^1G_4$	1008.29	7.693+08

TABLES

TABLE IV. Wavelengths (λ) and weighted radiative transition probabilities ($g_{A,r}$) in sec^{-1} for excited states of Be-like O. Comparison of theoretical results (Cowan code) with recommended NIST data (W. L. Wiese, J. R. Fuhr, and T. M. Deters, *J. Phys. Chem. Ref. Data*, Monograph No. 7 (1996)).

$2l_1 2l_2 \ L S J$	$2l_1' l_1' \ L' S' J'$	$\lambda, \text{\AA}$	Cowan	NIST	Cowan	$g_{A,r}, \text{s}^{-1}$	NIST
$2s^2 \ ^1S_0$	$2s2p \ ^1P_1$	653.885	629.732	629.732	8.131+09	8.616+08	
$2s^2 \ ^1S_0$	$2s3p \ ^1P_1$	172.370	172.169	172.169	9.701+10	8.82+10	
$2s^2 \ ^1S_0$	$2p3d \ ^1F_1$	139.465	139.029	139.029	1.300+10	1.54+10	
$2s^2 \ ^1S_0$	$2s4p \ ^1P_1$	135.438	135.523	135.523	3.772+10	2.83+10	
$2s^2 \ ^1S_0$	$2s5p \ ^1P_1$	124.476	124.616	124.616	2.218+10	2.14+10	
$2s^2 \ ^1S_0$	$2s6p \ ^1P_1$	118.944	119.162	119.162	1.843+10	1.39+10	
$2s^2 \ ^1S_0$	$2p4d \ ^1F_1$	117.952	118.000	118.000	5.374+08	2.71+09	
$2p^2 \ ^3P_2$	$2s3p \ ^3P_1$	271.273	271.035	271.035	1.130+08	6.93+07	
$2p^2 \ ^3P_2$	$2s3p \ ^3P_2$	271.217	270.978	270.978	3.443+08	2.12+08	
$2p^2 \ ^3P_1$	$2s3p \ ^3P_0$	271.086	270.860	270.860	9.111+07	5.57+07	
$2p^2 \ ^3P_1$	$2s3p \ ^3P_1$	271.056	270.838	270.838	6.813+07	4.14+07	
$2p^2 \ ^3P_1$	$2s3p \ ^3P_2$	271.001	270.781	270.781	1.167+08	7.20+07	
$2p^2 \ ^3P_0$	$2s3p \ ^3P_1$	270.946	270.723	270.723	9.207+07	5.64+07	
$2p^2 \ ^1D_2$	$2s3p \ ^1P_1$	287.109	286.448	286.448	7.781+09	6.84+09	
$2p^2 \ ^1D_2$	$2p3s \ ^1P_1$	231.581	231.075	231.075	3.489+10	3.36+10	
$2p^2 \ ^1D_2$	$2p3d \ ^1D_2$	216.948	216.019	216.019	1.515+11	1.53+11	
$2p^2 \ ^1D_2$	$2p3d \ ^1F_3$	208.281	207.796	207.796	6.304+11	6.01+11	
$2p^2 \ ^1D_2$	$2p3d \ ^1P_1$	206.141	205.106	205.106	9.793+09	6.78+09	
$2p^2 \ ^1D_2$	$2s4f \ ^1F_3$	193.344	193.006	193.006	3.825+10	4.23+10	
$2p^2 \ ^1D_2$	$2s5f \ ^1F_3$	173.192	173.252	173.252	4.419+06	5.63+07	
$2p^2 \ ^1D_2$	$2p4s \ ^1P_1$	168.462	168.789	168.789	1.476+10	1.31+10	
$2p^2 \ ^1D_2$	$2p4d \ ^1D_2$	164.923	164.986	164.986	4.032+10	5.10+10	
$2p^2 \ ^1D_2$	$2s6f \ ^1F_3$	163.993	164.177	164.177	4.136+10	5.84+10	
$2p^2 \ ^1D_2$	$2p4d \ ^1F_3$	162.208	162.492	162.492	2.418+11	1.83+11	
$2p^2 \ ^1D_2$	$2p5d \ ^1D_2$	148.913	149.038	149.038	1.355+10	2.38+10	
$2p^2 \ ^1S_0$	$2s3p \ ^1P_1$	336.016	341.396	341.396	2.180+08	3.78+08	
$2p^2 \ ^1S_0$	$2p3s \ ^1P_1$	262.334	265.561	265.561	1.221+10	1.32+10	
$2p^2 \ ^1S_0$	$2p5d \ ^1P_1$	230.158	231.822	231.822	1.436+11	1.31+11	
$2p^2 \ ^1S_0$	$2s4p \ ^1P_1$	219.395	222.237	222.237	1.275+10	1.86+10	
$2p^2 \ ^1S_0$	$2p4s \ ^1P_1$	184.168	186.438	186.438	5.257+09	5.07+09	
$2p^2 \ ^1S_0$	$2p4d \ ^1P_1$	176.909	178.715	178.715	6.850+10	5.25+10	

TABLE III. continued.

1	2	3	4	5	6	7	8
$2p5p \ ^3P_2$	$2p6s \ ^3P_2$	3154.02	6.291+08	$2p6d \ ^3D_2$	$2p6f \ ^3D_3$	2830.15	1.093+08
$2p5p \ ^3P_0$	$2p6s \ ^3P_1$	3165.53	1.536+08	$2p6d \ ^3D_3$	$2p6f \ ^3D_3$	2842.17	6.053+08
$2s5d \ ^1D_2$	$2s6p \ ^1P_1$	3171.39	3.631+08	$2p6d \ ^3D_2$	$2p6f \ ^3G_3$	2858.82	7.901+08
$2p5p \ ^3P_1$	$2p6s \ ^3P_0$	3193.23	1.052+08	$2p6d \ ^3D_3$	$2p6f \ ^3G_4$	2866.83	1.566+09
$2p5p \ ^3P_2$	$2p6s \ ^3P_1$	3194.29	1.569+08	$2p6d \ ^3P_2$	$2p6f \ ^3D_2$	2872.74	6.076+08
$2s5d \ ^3D_3$	$2p4d \ ^3F_4$	3203.66	4.562+08	$2p6d \ ^3P_1$	$2p6f \ ^3D_1$	2872.91	5.611+08
$2p3p \ ^1S_0$	$2s4p \ ^1P_1$	3209.22	1.178+08	$2p6d \ ^3P_0$	$2p6f \ ^3D_1$	2877.50	6.193+08
$2p5d \ ^1D_2$	$2p4d \ ^3F_3$	3226.82	2.916+08	$2p6d \ ^3P_2$	$2p6f \ ^3D_2$	2879.64	2.300+09
$2p6s \ ^1D_2$	$2p6s \ ^1P_1$	3237.95	6.849+08	$2p6d \ ^3P_1$	$2p6f \ ^3D_2$	2882.01	1.214+09
$2s5d \ ^3D_1$	$2p4d \ ^3F_2$	3250.60	1.516+08	$2p6d \ ^3D_1$	$2p6f \ ^3F_2$	2887.72	1.778+09
$2p5p \ ^1S_0$	$2p6s \ ^1P_1$	3703.66	1.922+08	$2p6d \ ^3D_2$	$2p6f \ ^3F_2$	2892.75	2.308+08
$2p3p \ ^3S_1$	$2p3d \ ^3F_2$	4136.72	1.658+08	$2p6d \ ^3D_2$	$2p6f \ ^3F_3$	2894.84	1.800+09
$2p3p \ ^1P_1$	$2p3d \ ^1D_2$	4503.99	1.142+08	$2p6p \ ^3G_4$	$2p6h \ ^3G_4$	2897.33	1.789+08
$2p3p \ ^3P_1$	$2p3d \ ^3F_4$	5797.97	1.408+08	$2p6p \ ^3G_3$	$2p6h \ ^3G_3$	2897.38	1.384+08
$2s4s \ ^3S_1$	$2s4p \ ^3P_2$	7385.08	1.435+08	$2p6d \ ^3D_3$	$2p6f \ ^3F_4$	2904.15	1.986+09
$2p5p \ ^1F_3$	$2p6h \ ^3H_4$	2972.01	7.508+09	$2p6p \ ^3G_4$	$2p6h \ ^3G_5$	2905.56	9.837+08
$2s5f \ ^1F_3$	$2s6d \ ^1D_2$	2973.72	1.422+08	$2p6p \ ^3G_3$	$2p6h \ ^3H_4$	2905.61	7.875+08
$2p5p \ ^3H_6$	$2p6h \ ^3H_6$	2978.34	6.914+08	$2p6d \ ^3D_3$	$2p6f \ ^3F_3$	2907.42	1.062+08
$2p5p \ ^1H_5$	$2p6h \ ^3F_5$	2978.95	5.677+08	$2p6p \ ^1G_4$	$2p6h \ ^3H_4$	2908.48	2.411+08
$2p5p \ ^3F_2$	$2p6h \ ^3G_4$	2981.12	6.311+09	$2p6p \ ^3G_5$	$2p6h \ ^3G_5$	2908.76	2.959+08
$2p5p \ ^3F_3$	$2p6h \ ^3G_4$	2981.48	8.516+08	$2p6p \ ^1G_4$	$2p6h \ ^3I_6$	2912.47	1.184+09
$2p5p \ ^3F_3$	$2p6h \ ^3G_5$	2981.54	3.014+08	$2p6p \ ^3G_5$	$2p6h \ ^3H_6$	2912.74	1.463+09
$2p3s \ ^1P_1$	$2p3p \ ^1D_2$	2987.05	7.712+08	$2p6p \ ^3G_4$	$2p6h \ ^3G_6$	2950.19	1.006+10
$2p5p \ ^3H_4$	$2p6h \ ^3H_4$	2999.06	1.113+08	$2p6p \ ^3G_3$	$2p6h \ ^3H_4$	2950.23	7.987+09
$2p5p \ ^3H_4$	$2p6h \ ^3I_6$	2999.47	1.274+09	$2p6p \ ^3G_4$	$2p6h \ ^3H_4$	2950.23	2.333+08
$2p5p \ ^3H_6$	$2p6h \ ^3G_5$	2999.55	1.402+08	$2p6p \ ^3H_4$	$2p6h \ ^3H_4$	2952.95	5.350+08
$2p5p \ ^3H_6$	$2p6h \ ^3H_6$	2999.95	1.570+09	$2p6p \ ^3H_6$	$2p6h \ ^3G_6$	2953.43	6.509+08
$2p5p \ ^3F_4$	$2p6h \ ^3G_5$	3018.41	1.088+08	$2p6p \ ^3G_6$	$2p6h \ ^3G_6$	2953.49	1.204+08
$2p5p \ ^1F_3$	$2p6h \ ^3H_4$	3018.71	8.703+08	$2p6p \ ^1G_4$	$2p6h \ ^3I_6$	2953.60	9.940+09
$2p5d \ ^3F_4$	$2p6p \ ^3D_3$	3040.04	5.270+08	$2p6p \ ^3G_6$	$2p6h \ ^3H_6$	2953.88	1.194+10
$2p5d \ ^3F_3$	$2p6p \ ^3D_2$	3043.98	3.806+08	$2p6p \ ^3G_6$	$2p6h \ ^3I_6$	2953.93	1.863+08
$2s5f \ ^3F_4$	$2s6d \ ^3D_3$	3046.90	2.134+08	$2s5p \ ^3P_1$	$2s6d \ ^3S_1$	2955.27	2.717+08
$2s5f \ ^3F_3$	$2s6d \ ^3D_1$	3047.16	1.071+08	$2p6p \ ^3H_4$	$2p6h \ ^3I_6$	2957.06	9.482+09
$2s5f \ ^3F_3$	$2s6p \ ^3D_2$	3049.31	1.345+08	$2p6p \ ^3H_6$	$2p6h \ ^3H_6$	2957.53	1.136+10
$2p5d \ ^1D_2$	$2p6p \ ^3D_1$	3052.53	2.319+08	$2s5p \ ^3P_2$	$2s6d \ ^3S_1$	2957.58	4.523+08
$2p5d \ ^1P_1$	$2p6f \ ^1D_2$	3083.84	1.842+09	$2p6p \ ^3F_4$	$2p6h \ ^3G_4$	2963.09	5.723+08
$2p5d \ ^1F_3$	$2p6f \ ^1G_4$	3084.04	3.978+09	$2p6p \ ^3F_3$	$2p6h \ ^3G_3$	2963.41	4.566+08
$2s5f \ ^3F_4$	$2s6p \ ^3G_6$	3118.40	3.957+09	$2p6p \ ^3H_6$	$2p6h \ ^3I_7$	2970.09	1.557+10
$2s5f \ ^3F_3$	$2s6p \ ^3G_4$	3131.60	2.543+09	$2p6p \ ^3H_6$	$2p6h \ ^1I_6$	2970.13	1.721+08
$2s5f \ ^1G_4$	$2s6p \ ^1G_4$	3134.62	2.998+09	$2p6p \ ^3F_4$	$2p6h \ ^1I_6$	2970.69	1.332+10
$2s5f \ ^3F_2$	$2s6p \ ^3G_3$	3137.46	2.054+09	$2p6p \ ^3G_3$	$2p6h \ ^3G_5$	2971.71	9.459+09
					$2p6h \ ^3H_4$	2971.75	2.163+08

TABLES

TABLE VI. Wavelengths (WL), and weighted radiative transition probabilities (A_r in sec^{-1}) for dielectronic satellite lines of Be-like oxygen ($2l_1n_2 - 3ln''$ transitions)

$2l_1n_2 [LSJ]$	even-odd transitions			odd-even transitions				
	1	2	3	4	5	6	7	8
$2s3s^3S_1$	$3s3p^3P_2$	157.19	1.097+11	$2p3d^1F_3$	$3d2^1G_4$	181.96	1.236+12	
$2s3d^3D_1$	$3p3d^3D_1$	158.91	1.319+11	$2p5g^3H_6$	$3d5g^3I_7$	172.88	1.263+12	
$2s3d^1D_2$	$3p3d^1D_2$	161.73	1.224+11	$2s3p^1P_1$	$3s3d^1D_2$	160.42	1.786+11	
$2s3d^3D_2$	$3p3d^3F_3$	158.90	1.959+11	$2s3p^3P_2$	$3p2^3P_2$	157.26	1.600+11	
$2s3d^3D_3$	$3p3d^3F_4$	158.89	2.835+11	$2p3s^3P_0$	$3s3d^3D_3$	179.37	1.315+11	
$2s4s^3S_1$	$3p4s^3P_2$	152.15	1.134+11	$2p3s^1P_1$	$3s3d^1D_2$	185.05	1.460+11	
$2s4d^1D_2$	$3p4d^1D_2$	153.90	1.036+11	$2p3s^3P_1$	$3s3d^3D_2$	179.42	2.956+11	
$2s4d^3D_2$	$3p4d^3F_3$	152.10	1.252+11	$2p3s^1P_1$	$3p2^1D_2$	175.06	1.610+11	
$2s4d^3D_3$	$3p4d^3D_3$	153.81	1.017+11	$2p3s^3P_1$	$3s4d^1D_2$	141.20	1.006+11	
$2s4d^3D_3$	$3p4d^3F_4$	152.08	1.808+11	$2p3s^3P_2$	$3s3d^3D_3$	179.52	5.512+11	
$2s5s^3S_1$	$3p5s^3P_2$	150.41	1.169+11	$2p3d^3P_0$	$3s4d^3D_3$	139.16	1.438+11	
$2s3s^3S_1$	$3s3p^3P_0$	157.22	2.192+10	$2p3d^3P_2$	$3d2^3P_1$	178.52	1.064+11	
$2s3s^3S_1$	$3s3p^3P_1$	157.21	6.578+10	$2p3d^3P_1$	$3d2^3P_0$	178.51	1.016+11	
$2s3s^1S_0$	$3s3p^1P_1$	155.33	5.776+10	$2p3d^1P_1$	$3d2^1S_0$	170.20	1.115+11	
$2s3s^1S_0$	$3s3p^1P_1$	124.55	2.456+10	$2p3d^3D_1$	$3d2^3F_2$	181.70	4.188+11	
$2s3s^3S_1$	$3s3p^3P_0$	122.08	1.014+10	$2p3d^1P_1$	$3d2^1D_2$	180.83	2.181+11	
$2s3s^3S_1$	$3s3p^3P_1$	122.08	3.043+10	$2p3d^3P_1$	$3d2^3P_2$	178.49	1.340+11	
$2s3s^1S_0$	$3s5p^1P_1$	113.25	1.380+10	$2p3d^3P_2$	$3d2^3P_1$	178.46	1.219+11	
$2s3s^3S_1$	$3s5p^3P_1$	111.65	1.490+10	$2p3d^1D_2$	$3p2^1D_2$	184.66	1.786+11	
$2s3s^3S_1$	$3s4p^3P_2$	122.08	5.073+10	$2p3d^3D_2$	$3d2^3F_3$	181.71	6.230+11	
$2s3s^3S_1$	$3s5p^3P_2$	111.65	2.485+10	$2p3d^3F_2$	$3d2^3F_2$	178.72	2.182+11	
$2s3s^3S_1$	$3s6p^3P_2$	106.93	1.130+10	$2p3d^3P_2$	$3d2^3F_3$	177.38	1.517+11	
$2s3d^3D_1$	$3p3d^3D_1$	156.14	3.516+10	$2p3d^1D_2$	$3d2^1D_2$	173.41	2.556+11	
$2s3d^3D_1$	$3p3d^3P_1$	155.46	1.616+10	$2p3d^3F_3$	$3d2^3F_3$	178.78	3.001+11	
$2s3d^3D_1$	$3p3d^3P_0$	155.46	2.084+10	$2p3d^3D_3$	$3d2^3P_2$	177.38	1.517+11	
$2s3d^3D_1$	$3d4p^3D_1$	123.46	1.135+10	$2p3d^3D_3$	$3d2^3F_4$	181.74	9.033+11	
$2s3d^1D_2$	$3s3p^1P_1$	168.93	1.260+10	$2p3d^3F_4$	$3d2^3F_4$	178.84	4.225+11	
$2s3d^3D_2$	$3p3d^3D_1$	156.14	1.245+10	$2p3d^3F_4$	$3p4f^3G_5$	141.04	1.004+11	
$2s3d^3D_1$	$3p3d^3D_2$	156.13	1.202+10	$2p3d^3F_3$	$3d4d^1G_4$	140.53	1.163+11	
$2s3d^3D_2$	$3p3d^3P_1$	155.47	4.634+10	$2p3d^3D_3$	$3d4d^3F_4$	139.95	1.274+11	
$2s3d^1D_2$	$3p3d^1P_1$	151.83	4.161+10	$2s4f^3F_4$	$3d4d^3G_5$	139.43	1.276+11	
$2s3d^1D_2$	$3p4d^1P_1$	127.07	1.206+10	$2s4f^3F_2$	$3p4f^3F_2$	152.29	1.084+11	
$2s3d^3D_1$	$3p4d^3F_3$	124.82	1.535+10	$2s4f^1F_3$	$3p4f^1F_3$	153.36	1.095+11	
$2s3d^3D_1$	$3d4p^3F_3$	124.09	2.755+10	$2s4f^3F_3$	$3p4f^3F_3$	152.28	1.425+11	
$2s3d^3D_2$	$3d4p^3P_1$	123.21	1.736+10	$2s4f^1F_3$	$3p4f^1D_2$	149.55	1.090+11	
$2s3d^1D_2$	$3d4p^1P_1$	123.11	1.021+10	$2s4f^3F_3$	$3p4f^3G_4$	152.83	1.312+11	
$2s3d^3D_1$	$3d5p^3F_2$	113.78	1.110+10	$2s4f^3F_4$	$3p4f^3G_5$	152.82	1.724+11	
$2s3d^3D_2$	$3d5p^3P_1$	113.51	1.021+10	$2s4f^3F_4$	$3p4f^3F_4$	152.28	2.058+11	
$2s3d^3D_2$	$3p3d^3F_2$	158.92	2.463+10	$2s4f^1F_3$	$3p4f^1G_4$	151.01	2.064+11	
$2s3d^3D_2$	$3p3d^3D_2$	156.13	5.403+10	$2p4s^1P_1$	$3d4s^1D_2$	177.42	2.075+11	

TABLE V. Mixing coefficients in the odd-parity complex with $J=3$: $2pnd^1F+2snf^1F$ for $O4+$.

	$2p3d^1F$	$2s4f^1F$	$2s5f^1F$	$2s6f^1F$	$2p4d^1F$	$2s7f^1F$	$2p5d^1F$
$2p3d^1F$	0.95661	-0.26774	-0.06591	-0.00362	0.07312	-0.03515	0.03415
$2s4f^1F$	0.27143	0.96183	0.01296	0.00119	-0.00880	0.00417	-0.00594
$2p4d^1F$	-0.05965	0.02395	0.08956	0.46444	0.86180	-0.13140	0.06419
$2s5f^1F$	0.06578	-0.03297	0.90356	-0.03477	-0.07578	0.01343	-0.00463
$2p5d^1F$	-0.02732	0.01213	0.00106	-0.01126	-0.06774	0.04015	0.99036
$2s6f^1F$	0.03612	-0.01583	-0.00810	0.87387	-0.47086	0.02730	-0.02158
$2p6d^1F$	-0.01718	0.00746	0.00232	-0.01248	-0.02786	0.01216	-0.00906
$2s7f^1F$	0.02440	-0.01021	-0.00388	0.03865	0.13432	0.98932	-0.02893

TABLE VI. continued.

1	2	3	4	5	6	7	8
2s5g ³ G ₄	3d4f ³ G ₄	163.86	1.665+09	2s6h ¹ H ₆	3p6h ¹ G ₄	149.29	2.252+11
2s5g ³ G ₄	3d4f ³ G ₄	163.85	5.228+09	2s6h ³ H ₆	3p6h ³ H ₆	149.61	3.303+11
2s5g ³ G ₅	3d4f ³ G ₅	163.85	8.862+09	2s6h ³ H ₆	3p6h ³ I ₇	149.34	3.643+11
2s5g ¹ G ₄	3d4f ¹ F ₃	162.31	4.948+09	2s6h ³ H ₆	3p6h ³ G ₅	149.32	2.770+11
2s5g ³ G ₄	3d4f ³ F ₃	162.31	1.611+09	2s3p ¹ F ₁	3s2 ¹ S ₀	171.22	1.359+10
2s5g ³ G ₄	3d4f ³ H ₆	161.73	8.615+09	2s3p ³ F ₁	3p2 ³ F ₀	157.27	4.260+10
2s5g ¹ G ₄	3p5d ¹ F ₃	151.32	1.283+09	2s3p ³ F ₁	3p2 ³ F ₁	157.26	3.196+10
2s5g ³ G ₄	3p5g ³ G ₃	150.17	3.459+09	2s3p ³ F ₀	3p2 ³ S ₀	157.25	4.268+10
2s5g ³ G ₄	3p5g ³ H ₄	150.17	8.724+09	2s3p ¹ F ₁	3p2 ¹ S ₀	153.13	2.476+10
2s5g ³ G ₄	3p5g ³ F ₄	149.57	1.909+09	2s3p ¹ F ₁	3p4p ¹ F ₁	124.05	2.378+10
2s5g ¹ G ₄	3p5g ¹ F ₄	149.38	1.713+09	2s3p ³ F ₀	3p4p ³ F ₀	123.04	1.027+10
2s5g ³ G ₄	3p5g ³ F ₄	149.38	6.712+09	2s3p ¹ F ₁	3p4p ¹ F ₁	123.03	1.020+10
2s5g ³ G ₄	3d5f ¹ G ₄	148.79	3.509+09	2s3p ³ F ₂	3p2 ³ F ₁	157.28	5.334+10
2s5g ¹ G ₄	3d5f ³ H ₅	148.66	1.657+09	2s3p ¹ F ₁	3p2 ¹ D ₂	152.86	4.366+10
2s5g ³ G ₄	3d5f ³ H ₆	148.66	4.834+09	2s3p ¹ F ₁	3s4d ¹ D ₂	126.39	1.980+10
2s5g ³ G ₅	3d5f ³ F ₄	148.53	2.405+09	2s3p ³ F ₁	3p4p ³ D ₂	123.90	1.613+10
2s5g ¹ G ₄	3d5f ¹ F ₃	148.16	3.657+09	2s3p ³ F ₂	3d4s ¹ D ₂	123.64	2.808+10
2s5g ³ G ₄	3d5p ³ F ₃	148.09	2.723+09	2s3p ³ F ₁	3p4p ³ S ₁	123.50	1.083+10
2s5g ³ G ₄	3s6h ³ H ₄	147.41	1.050+09	2s3p ³ F ₂	3p4p ³ F ₁	123.04	1.311+10
2s5g ³ G ₄	3s6h ³ H ₅	147.41	3.363+09	2s3p ¹ F ₁	3p4p ³ F ₂	123.02	1.288+10
2s5g ¹ G ₄	3s6h ¹ H ₅	147.36	8.118+09	2s3p ³ F ₂	3p4p ³ D ₃	113.08	1.200+10
2s5g ³ G ₄	3d5f ³ H ₆	147.11	2.079+09	2s3p ³ F ₂	3p5p ³ F ₁	112.81	1.129+10
2s5g ¹ G ₄	3d5f ¹ F ₃	147.10	1.354+09	2s3p ¹ F ₁	3p5p ¹ D ₂	112.71	1.700+10
2s5g ³ G ₅	3d6h ³ F ₄	140.46	1.446+09	2s3p ³ F ₂	3p6p ³ D ₂	107.86	1.243+10
2s5g ³ G ₅	3d6h ³ F ₅	140.41	1.199+09	2s3p ³ F ₂	3s4d ³ D ₃	126.85	1.459+10
2s5g ¹ G ₄	3d5f ¹ G ₄	147.11	6.566+09	2s3p ³ F ₂	3p4p ³ D ₃	123.91	3.043+10
2s5g ³ G ₄	3d5f ³ G ₄	147.11	2.079+09	2s3p ³ F ₂	3p4p ³ F ₂	123.03	3.855+10
2s5g ¹ G ₄	3d5f ¹ F ₃	147.10	1.354+09	2s3p ³ F ₂	3d4s ³ D ₃	122.75	1.247+10
2s5g ³ G ₅	3d6h ³ F ₄	140.46	1.446+09	2s3p ³ F ₂	3p5p ³ D ₃	113.08	2.196+10
2s5g ³ G ₅	3d6h ³ F ₅	140.41	1.199+09	2s3p ³ F ₂	3p5p ³ F ₂	112.81	2.157+10
2s6s ¹ S ₀	3p4s ¹ F ₁	190.12	1.092+09	2s3p ³ F ₂	3p6p ³ D ₃	108.18	1.321+10
2s6s ³ S ₁	3p4s ³ F ₁	184.39	1.830+09	2s3p ³ F ₂	3p6p ³ F ₂	108.10	1.355+10
2s6s ¹ S ₀	3p4d ¹ D ₁	179.53	2.100+09	2p3s ¹ F ₁	3s2 ¹ S ₀	199.56	1.888+10
2s6s ³ S ₁	3p4d ³ F ₀	177.95	5.840+09	2p3s ³ F ₁	3s3d ³ D ₁	179.42	9.850+10
2s6s ¹ S ₀	3p4d ¹ F ₀	176.67	3.497+09	2p3s ³ F ₀	3s4d ³ D ₁	139.10	2.564+10
2s6s ³ S ₁	3p4d ³ F ₀	176.67	1.130+09	2p3s ³ F ₀	3s4d ³ D ₁	139.07	3.422+10
2s6s ¹ S ₀	3d4p ¹ D ₁	174.51	9.132+09	2p3s ³ F ₁	3s5d ³ D ₁	126.01	1.395+10
2s6s ³ S ₁	3d4p ³ F ₀	174.48	4.612+09	2p3s ³ F ₀	3s5d ³ D ₁	126.99	1.861+10
2s6s ¹ S ₀	3d4p ¹ F ₁	173.98	1.851+09	2p3s ³ F ₁	3d2 ¹ D ₂	164.92	6.818+10
2s6s ³ S ₁	3d4f ³ F ₁	169.91	1.392+09	2p3s ³ F ₁	3s4d ³ D ₂	139.10	7.701+10
2s6s ¹ S ₀	3d5p ¹ F ₁	153.61	5.187+09	2p3s ³ F ₁	3p4p ³ D ₂	135.58	1.815+10

TABLE VI. continued.

1	2	3	4	5	6	7	8
2s5d ³ D ₂	3d5p ³ F ₁	148.66	2.143+09	2p5g ³ G ₄	3d5g ³ F ₃	172.46	1.533+11
2s5d ³ D ₂	3s6p ³ F ₁	148.45	2.595+09	2p5g ³ G ₅	3d5g ³ F ₆	172.34	1.309+11
2s5d ³ D ₁	3d5f ³ F ₂	148.06	5.246+09	2p5g ³ F ₂	3d5g ³ D ₁	172.11	2.638+11
2s5d ³ D ₂	3d5f ³ F ₁	147.04	4.380+09	2p5g ³ F ₃	3d5g ³ G ₃	173.15	1.073+11
2s5d ¹ D ₂	3d5f ¹ F ₁	146.49	2.106+09	2p5g ³ F ₂	3d5g ³ F ₂	172.74	2.424+11
2s5d ¹ D ₂	3d4p ¹ F ₃	164.11	1.817+09	2p5g ³ F ₃	3d5g ¹ F ₃	172.81	1.620+11
2s5d ³ D ₂	3s5f ³ F ₃	156.09	2.782+09	2p5g ³ F ₃	3d5g ³ F ₃	172.75	1.920+11
2s5d ¹ D ₂	3s5f ¹ F ₃	156.04	4.662+09	2p5g ³ F ₃	3d5g ³ F ₃	172.74	1.842+11
2s5d ¹ D ₂	3p5g ¹ F ₃	149.20	1.500+09	2p5g ¹ F ₃	3d5g ¹ F ₃	172.68	1.508+11
2s5d ³ D ₂	3d5p ³ F ₃	149.11	4.382+09	2p5g ³ F ₃	3d5g ³ D ₂	172.11	2.170+11
2s5d ³ D ₂	3d5p ³ D ₃	149.00	2.813+09	2p5g ¹ F ₃	3d5g ³ D ₂	172.05	1.511+11
2s5d ³ D ₂	3p5g ³ F ₃	148.92	2.757+09	2p5g ³ F ₃	3d5g ³ D ₂	171.62	1.632+11
2s5d ¹ D ₂	3d5f ¹ D ₂	148.23	5.050+09	2p5g ¹ F ₃	3d5g ¹ D ₂	171.56	1.642+11
2s5d ³ D ₂	3d5f ³ F ₃	148.06	7.823+09	2p5g ¹ H ₅	3d5g ³ H ₅	173.22	2.033+11
2s5d ³ D ₂	3d5f ³ D ₂	147.32	2.206+09	2p5g ¹ H ₅	3d5g ³ H ₅	173.11	1.638+11
2s5d ¹ D ₂	3d5f ¹ F ₃	147.10	3.494+09	2p5g ³ F ₄	3d5g ³ G ₅	173.09	2.229+11
2s5d ³ D ₂	3d5f ³ F ₂	147.04	1.540+09	2p5g ¹ H ₆	3d5g ³ I ₆	172.89	4.531+11
2s5d ³ D ₃	3s5p ³ F ₂	157.71	3.189+09	2p5g ³ F ₄	3d5g ³ F ₄	172.68	4.482+11
2s5d ³ D ₃	3s5f ³ F ₄	156.09	4.012+09	2p5g ¹ H ₅	3d5g ¹ I ₆	172.56	6.290+11
2s5d ³ D ₃	3p5s ³ F ₂	152.77	2.615+09	2p5g ³ H ₆	3d5g ³ H ₆	173.11	4.468+11
2s5d ³ D ₃	3d5p ³ F ₄	149.11	5.993+09	2p5g ³ H ₆	3p6p ³ D ₃	149.97	1.262+11
2s5d ³ D ₃	3d5p ³ D ₂	149.01	2.630+09	2s6f ³ F ₂	3p6f ³ F ₂	150.10	1.054+11
2s5d ³ D ₃	3p5s ³ F ₃	148.92	4.372+09	2s6f ³ F ₃	3p6f ³ G ₃	150.01	1.553+11
2s5d ³ D ₃	3d5p ³ F ₂	148.65	4.014+09	2s6f ¹ F ₃	3p6f ¹ F ₃	150.10	1.468+11
2s5d ³ D ₃	3s6p ³ F ₂	148.45	4.724+09	2s6f ³ F ₃	3p6f ³ D ₂	149.80	1.377+11
2s5d ³ D ₃	3d5f ³ D ₃	147.32	4.054+09	2s6f ¹ F ₃	3p6f ¹ D ₂	149.75	1.009+11
2s5d ³ D ₃	3d5f ³ F ₂	175.77	1.500+09	2s6f ¹ F ₃	3d4d ¹ G ₄	171.93	1.100+11
2s5d ³ D ₃	3d4f ³ F ₂	165.02	1.834+09	2s6f ³ F ₄	3p6f ³ G ₄	150.10	2.122+11
2s5g ³ G ₃	3d4f ³ G ₃	163.86	5.608+09	2s6f ³ F ₄	3p6f ³ G ₄	150.01	2.029+11
2s5g ³ G ₃	3p5s ³ G ₄	150.17	2.262+09	2s6f ³ F ₄	3p6f ³ G ₅	150.00	2.499+11
2s5g ³ G ₃	3d5p ³ F ₃	149.57	3.423+09	2s6f ³ F ₄	3p6f ³ D ₃	149.76	1.458+11
2s5g ³ G ₃	3p5s ³ F ₃	149.37	8.682+09	2s6f ³ F ₄	3p6f ³ G ₄	149.25	1.534+11
2s5g ³ G ₃	3d5f ³ H ₄	148.67	5.247+09	2s6h ¹ H ₅	3p6h ¹ H ₅	149.62	2.620+11
2s5g ³ G ₃	3s6f ³ F ₂	148.16	2.205+09	2s6h ³ H ₄	3p6h ³ H ₄	149.62	2.192+11
2s5g ³ G ₄	3s4f ³ F ₃	175.77	1.484+09	2s6h ³ H ₅	3p6h ³ H ₅	149.62	2.609+11
2s5g ³ G ₄	3s4f ³ F ₄	175.77	2.548+09	2s6h ³ H ₄	3p6h ³ I ₆	149.37	2.613+11
2s5g ¹ G ₄	3s4f ¹ F ₃	174.90	1.380+09	2s6h ¹ H ₆	3p6h ¹ I ₆	149.36	2.119+11
2s5g ¹ G ₄	3d4f ¹ G ₄	166.38	4.256+09	2s6h ³ H ₅	3p6h ³ I ₆	149.36	1.002+11
2s5g ³ G ₄	3d4f ³ G ₄	166.38	1.336+09	2s6h ³ H ₅	3p6h ³ I ₆	149.32	1.022+11
2							

TABLE VI. continued.

1	2	3	4	5	6	7	8
2s6d ³ D ₃	3d4p ¹ F ₃	173.40	1.925+09	2p3d ³ F ₂	3d5d ³ S ₁	128.29	1.108+10
2s6d ³ D ₃	3d4f ³ D ₃	172.20	1.960+09	2p3d ³ F ₁	3d5d ³ F ₂	128.13	1.496+10
2s6d ³ D ₃	3d4f ³ F ₂	171.19	1.736+09	2p3d ³ F ₃	3d5d ³ F ₁	128.11	1.397+10
2s6d ³ D ₃	3s6f ³ F ₄	155.69	1.688+09	2p3d ³ D ₁	3d5d ³ F ₂	128.01	3.315+10
2s6d ³ D ₃	3d5f ³ F ₂	154.95	1.188+09	2p3d ³ D ₂	3d5d ³ F ₁	127.84	1.300+10
2s6d ³ D ₃	3p6s ³ F ₂	151.17	2.046+09	2p3d ³ F ₁	3d6d ¹ D ₂	124.45	1.539+10
2s6d ³ D ₃	3p6d ³ F ₃	149.99	3.996+09	2p3d ³ F ₁	3d6d ³ F ₂	122.72	1.301+10
2s6d ³ D ₃	3p6d ³ F ₃	149.97	8.199+09	2p3d ³ F ₂	3d6d ³ F ₁	122.70	1.203+10
2s6d ³ D ₃	3d6p ³ D ₃	148.45	7.718+09	2p3d ³ D ₁	3d6d ³ F ₂	122.43	2.083+10
2s6d ³ D ₃	3d6p ³ F ₄	148.41	4.787+09	2p3d ³ D ₂	3d6d ³ F ₁	122.18	1.326+10
2s6d ³ D ₃	3d6f ³ F ₄	147.83	5.148+09	2p3d ³ D ₃	3s3d ³ D ₂	197.13	1.513+10
2s6d ³ D ₃	3d6f ³ D ₃	147.46	2.120+09	2p3d ³ D ₃	3s3d ¹ D ₂	195.81	1.445+10
2s6d ³ G ₃	3d6f ³ F ₃	147.31	3.608+09	2p3d ³ F ₂	3p2 ³ F ₂	194.98	1.725+10
2s6d ³ G ₃	3s4f ³ F ₃	186.14	3.075+09	2p3d ³ D ₂	3d2 ³ F ₂	181.72	7.385+10
2s6d ³ G ₃	3d4p ³ F ₂	177.36	1.949+09	2p3d ³ F ₃	3d2 ³ F ₃	178.71	2.368+10
2s6d ³ G ₃	3d4f ¹ D ₂	173.47	2.004+09	2p3d ³ D ₂	3d2 ³ F ₂	177.35	1.698+10
2s6d ³ G ₃	3d4f ³ D ₂	171.91	1.102+09	2p3d ³ D ₂	3d4s ³ D ₂	143.86	2.107+10
2s6d ³ G ₃	3d4f ³ F ₃	171.12	3.940+09	2p3d ³ F ₂	3d4d ³ D ₃	142.37	4.703+10
2s6d ³ G ₃	3p5g ³ H ₄	157.60	6.417+09	2p3d ³ D ₁	3p4f ³ F ₃	141.19	1.974+10
2s6d ³ G ₃	3d5f ³ F ₂	156.79	2.080+09	2p3d ³ F ₂	3p4f ³ D ₃	141.10	2.350+10
2s6d ³ G ₃	3d5f ³ G ₃	155.37	1.167+09	2p3d ³ F ₃	3p4f ³ G ₃	140.96	5.139+10
2s6d ³ G ₃	3s6h ³ H ₄	154.64	1.399+09	2p3d ³ F ₂	3p4f ³ D ₂	140.40	1.191+10
2s6d ³ G ₃	3p6g ³ G ₄	149.27	2.924+09	2p3d ³ D ₂	3p4p ³ D ₂	140.27	3.746+10
2s6d ³ G ₃	3p6g ³ F ₃	148.87	6.629+09	2p3d ³ D ₂	3p4p ¹ D ₂	140.25	7.229+10
2s6d ³ G ₃	3d6f ³ H ₄	147.66	1.044+09	2p3d ³ D ₂	3d4d ³ F ₃	139.93	1.044+10
2s6d ³ G ₄	3s4f ³ F ₃	186.25	2.918+09	2p3d ³ D ₂	3d4d ³ F ₂	139.87	1.044+10
2s6d ³ G ₄	3s4f ³ F ₄	186.16	4.561+09	2p3d ³ F ₂	3d4d ³ F ₃	139.93	8.769+10
2s6d ³ G ₄	3s4f ¹ F ₃	186.19	1.935+09	2p3d ³ F ₃	3d4d ³ G ₃	139.43	7.054+10
2s6d ³ G ₄	3d4p ³ F ₄	177.40	2.283+09	2p3d ³ F ₂	3d4d ³ F ₂	139.36	7.243+10
2s6d ³ G ₄	3d4p ³ F ₃	177.37	2.473+09	2p3d ³ F ₃	3d4d ³ F ₂	138.15	3.947+10
2s6d ³ G ₄	3d4f ³ H ₄	175.62	1.332+09	2p3d ³ D ₂	3p4f ¹ D ₂	137.95	1.415+10
2s6d ³ G ₄	3d4f ³ F ₃	174.23	2.328+09	2p3d ³ D ₂	3d4d ¹ D ₂	136.67	3.988+10
2s6d ³ G ₄	3d4f ³ F ₄	174.22	2.610+09	2p3d ³ F ₂	3d5d ³ D ₂	128.92	1.945+10
2s6d ³ G ₄	3d4f ³ F ₄	174.14	1.876+09	2p3d ³ D ₂	3d5d ³ D ₂	128.34	1.046+10
2s6d ³ G ₄	3d4p ¹ F ₃	173.21	1.388+09	2p3d ³ F ₃	3d5d ³ F ₂	128.11	4.617+10
2s6d ³ G ₄	3d4f ³ G ₅	172.92	6.242+09	2p3d ³ D ₂	3d5d ³ F ₃	128.02	4.994+10
2s6d ³ G ₄	3d4f ³ G ₄	172.89	6.274+09	2p3d ³ D ₂	3d5s ¹ D ₂	127.81	1.355+10
2s6d ³ G ₄	3d4f ³ G ₃	172.85	6.154+09	2p3d ³ D ₂	3d5d ¹ F ₃	127.20	3.553+10
2s6d ³ G ₄	3d4f ³ D ₃	171.93	3.703+09	2p3d ³ F ₂	3d5d ³ G ₃	126.82	4.230+10
2s6d ³ G ₄	3d4f ¹ F ₃	171.13	4.764+09	2p3d ³ D ₂	3s6d ¹ D ₂	126.62	1.502+10
2s6d ³ G ₄	3s5f ¹ F ₃	164.24	1.855+09	2p3d ³ F ₂	3d5d ³ F ₂	126.52	2.122+10

TABLE VI. continued.

1	2	3	4	5	6	7	8
2s6s ¹ S ₀	3d5f ¹ F ₁	152.40	1.091+09	2p3s ¹ F ₁	3s5d ¹ D ₂	127.81	4.664+10
2s6s ³ S ₁	3d6p ³ F ₁	147.23	2.757+09	2p3s ³ F ₁	3s5d ³ D ₂	126.01	4.185+10
2s6s ¹ S ₀	3d6p ¹ F ₁	146.17	3.190+09	2p3s ¹ F ₁	3s6d ¹ D ₂	122.03	1.102+10
2s6s ³ S ₁	3p4s ³ F ₂	184.36	3.832+09	2p3s ³ F ₁	3s6d ³ D ₂	120.21	1.893+10
2s6s ³ S ₁	3p4d ³ F ₂	176.68	6.206+09	2p3s ³ F ₂	3s3d ³ D ₂	179.53	9.837+10
2s6s ³ S ₁	3d4f ³ F ₂	169.91	2.586+09	2p3s ³ F ₂	3s4d ³ D ₂	139.17	2.564+10
2s6s ³ S ₁	3p5s ³ F ₂	160.18	1.207+09	2p3s ³ F ₂	3p4p ³ D ₃	135.63	3.993+10
2s6s ³ S ₁	3p6d ³ F ₂	148.72	1.404+09	2p3s ³ F ₂	3s5d ³ D ₂	126.07	1.394+10
2s6s ³ S ₁	3d6p ³ F ₂	147.22	4.675+09	2p3s ³ F ₂	3s5d ³ D ₃	126.07	7.807+10
2s6d ³ D ₁	3d6p ³ D ₁	148.46	2.949+09	2p3s ³ F ₂	3s6d ³ D ₃	120.26	3.531+10
2s6d ³ D ₂	3d4f ³ D ₁	172.20	8.112+09	2p3d ¹ F ₁	3p2 ¹ S ₀	193.53	3.484+10
2s6d ¹ D ₂	3d4f ¹ F ₁	169.12	4.516+09	2p3d ³ F ₁	3d2 ³ F ₁	178.50	8.327+10
2s6d ¹ D ₂	3d5p ¹ F ₁	155.34	1.561+09	2p3d ³ D ₁	3d2 ³ F ₀	177.33	4.109+10
2s6d ¹ D ₂	3p6s ¹ F ₁	151.19	4.501+09	2p3d ³ D ₁	3d2 ³ F ₁	177.33	2.359+10
2s6d ³ D ₁	3d6p ³ F ₂	149.70	1.436+09	2p3d ³ F ₁	3d4d ¹ F ₁	144.22	6.453+10
2s6d ³ D ₂	3d6p ³ F ₂	148.42	2.437+09	2p3d ³ D ₁	3d4s ³ D ₁	143.85	1.371+10
2s6d ³ D ₁	3d6f ³ F ₂	147.83	2.472+09	2p3d ³ F ₀	3d4d ³ D ₁	142.41	1.102+10
2s6d ³ D ₂	3d6f ³ F ₁	147.31	1.837+09	2p3d ³ D ₁	3d4d ³ D ₁	141.65	1.503+10
2s6d ¹ D ₂	3d6f ¹ F ₁	146.71	1.267+09	2p3d ³ F ₁	3d4d ³ S ₁	140.34	1.914+10
2s6d ³ D ₂	3s4f ³ F ₂	186.48	4.585+09	2p3d ³ F ₁	3d4d ¹ S ₀	139.50	1.069+10
2s6d ³ D ₂	3d4p ³ F ₂	179.15	2.409+09	2p3d ³ F ₀	3d4d ³ F ₀	139.47	1.817+10
2s6d ³ D ₂	3d4p ³ F ₂	177.67	3.369+09	2p3d ³ F ₁	3d4d ³ F ₀	139.46	1.736+10
2s6d ³ D ₂	3d4p ³ F ₃	177.66	2.895+09	2p3d ³ F ₁	3d4d ³ F ₁	139.46	1.428+10
2s6d ³ D ₂	3d4f ³ F ₃	174.42	3.818+09	2p3d ³ F ₁	3d5d ¹ F ₁	130.82	1.900+10
2s6d ¹ D ₂	3d4f ¹ D ₂	174.10	6.306+09	2p3d ¹ F ₁	3d5d ¹ S ₀	128.74	1.336+10
2s6d ¹ D ₂	3d4p ¹ F ₂	173.73	5.188+09	2p3d ³ F ₀	3d5d ³ F ₁	128.15	1.172+10
2s6d ³ D ₂	3d4f ³ D ₂	172.20	4.001+09	2p3d ³ F ₁	3d5d ³ F ₀	128.14	1.134+10
2s6d ¹ D ₂	3s6f ¹ F ₃	171.73	4.001+09	2p3d ³ F ₀	3d6d ¹ S ₀	123.29	2.856+10
2s6d ¹ D ₂	3s6f ³ F ₃	156.37	3.541+09	2p3d ³ F ₀	3d6d ³ F ₁	122.73	1.020+10
2s6d ³ D ₂	3s6f ³ F ₃	155.69	1.070+09	2p3d ³ F ₂	3s3d ³ D ₁	193.60	1.875+10
2s6d ¹ D ₂	3p6d ³ D ₂	150.40	6.012+09	2p3d ¹ F ₁	3p2 ¹ D ₂	193.10	3.747+10
2s6d ³ D ₂	3p6d ¹ D ₂	150.13	5.574+09	2p3d ³ D ₂	3d2 ³ F ₁	177.36	9.272+10
2s6d ¹ D ₂	3p6p ¹ F ₃	149.07	1.110+09	2p3d ³ F ₁	3d4d ³ D ₂	142.39	2.544+10
2s6d ³ D ₂	3d6p ³ F ₃	148.46	4.009+09	2p3d ³ F ₁	3d4d ¹ D ₂	141.23	1.872+10
2s6d ³ D ₂	3d6f ³ F ₃	148.41	3.100+09	2p3d ³ F ₁	3p4f ³ D ₂	141.13	1.243+10
2s6d ¹ D ₂	3d6f ¹ D ₂	147.95	2.968+09	2p3d ³ F ₂	3d4d ³ S ₁	140.31	3.148+10
2s6d ³ D ₂	3d6f ³ F ₃	147.83	3.140+09	2p3d ³ D ₁	3d4d ³ F ₂	139.92	5.889+10
2s6d ¹ D ₂	3d6f ¹ F ₃	147.49	2.625+09	2p3d ³ F ₁	3d4d ³ F ₂	139.46	2.297+10
2s6d ¹ D ₂	3d6h ¹ F ₃	147.39	3.317+09	2p3d ¹ D ₂	3d4d ¹ F ₁	139.46	1.333+10
2s6d ³ D ₂	3s4f ¹ F ₃	186.50	3.562+09	2p3d ³ F ₂	3d4d ³ F ₁	139.44	2.093+10
2s6d ³ D ₂	3p4d ¹ F ₃	180.81	2.788+09	2p3d ³ D ₂	3d4d ³ F ₁	138.76	1.919+10
2s6d ³ D ₂	3d4p ³ F ₄	177.64	1.539+09	2p3d ¹ F ₁	3d5d ¹ D ₂	129.89	1.158+10
2s6d ³ D ₂	3d4f ¹ D ₂	173.76	7.879+09	2p3d ³ F ₁	3d5d ³ D ₂	128.94	1.050+10

TABLE VI. continued.

	1	2	3	4	5	6	7	8
2p3p 1S ₀	3s4p 1P ₁	152.72	1.267+09	2p3d 1F ₃	3d5g 1G ₄	129.35	2.786+10	1.885+10
2p3p 1S ₀	3p4s 1P ₁	147.14	6.341+09	2p3d 1F ₃	3s6g 1G ₄	128.47	1.711+10	1.084+10
2p3p 3S ₁	3s4p 3P ₁	146.18	1.077+09	2p3d 3F ₄	3p5f 3G ₄	128.04	1.909+10	4.026+10
2p3p 3P ₁	3p4s 3P ₀	144.69	4.097+09	2p3d 3D ₃	3d5d 7F ₄	128.03	7.159+10	3.101+10
2p3p 3P ₁	3p4s 3P ₁	144.68	3.066+09	2p3d 3F ₃	3p5f 3G ₄	128.00	1.289+10	1.778+10
2p3p 3P ₀	3p4s 3P ₁	144.66	4.023+09	2p3d 3F ₄	3d5d 3G ₆	126.89	7.485+10	2.523+10
2p3p 3S ₁	3p4s 3P ₁	143.02	1.228+09	2p3d 3F ₃	3d5d 3G ₄	126.85	5.767+10	1.422+10
2p3p 3D ₁	3p4s 3P ₀	141.81	1.653+09	2p3d 3F ₄	3d5d 7F ₄	126.59	4.113+10	2.520+10
2p3p 3D ₁	3p4s 3P ₁	141.81	1.278+09	2p3d 1F ₃	3d6g 1G ₄	123.81	2.787+10	1.905+10
2p3p 3P ₁	3p4d 3P ₁	139.89	4.693+09	2p3d 1F ₃	3d6d 1G ₄	123.55	2.785+10	2.793+10
2p3p 3P ₁	3p4d 3P ₀	139.89	6.492+09	2p3d 3D ₃	3d6d 3F ₄	122.45	4.523+10	1.167+10
2p3p 3P ₀	3p4d 3P ₁	139.87	6.850+09	2p3d 3F ₄	3d6d 3G ₆	121.24	4.467+10	2.875+10
2p3p 1S ₀	3d4p 1P ₁	139.65	4.050+09	2p3d 3F ₃	3d6d 3G ₄	121.21	3.449+10	2.875+10
2p3p 3D ₁	3p4d 3D ₁	139.25	5.930+09	2p3d 3F ₄	3d6d 3F ₄	121.13	2.778+10	7.264+10
2p3p 3P ₀	3d4p 3D ₁	138.85	7.060+09	2s4p 1P ₁	3p4p 1P ₁	154.30	6.776+10	2.812+10
2p3p 3P ₁	3d4p 3D ₁	138.83	9.593+09	2s4p 3P ₁	3p4p 3D ₁	153.24	1.753+10	3.551+10
2p3p 3P ₁	3d4p 3P ₀	138.53	2.225+09	2s4p 3P ₀	3p4p 3D ₁	153.24	2.318+10	3.526+10
2p3p 3P ₁	3d4p 3P ₁	138.53	1.667+09	2s4p 3P ₁	3p4p 3S ₁	152.60	2.003+10	3.824+10
2p3p 3P ₀	3d4p 3P ₁	138.51	2.204+09	2s4p 3P ₁	3p4p 3P ₀	151.91	2.318+10	3.903+10
2p3p 3D ₁	3p4d 3P ₁	137.20	1.042+09	2s4p 3P ₁	3p4p 3P ₁	151.90	1.779+10	2.034+10
2p3p 3D ₁	3p4d 3P ₀	137.20	1.497+09	2s4p 3P ₀	3p4p 3P ₁	151.90	2.342+10	1.528+10
2p3p 3S ₁	3d4p 3P ₀	137.01	1.934+09	2s4p 1P ₁	3s4d 1S ₀	150.10	1.341+10	1.030+10
2p3p 3S ₁	3d4p 3P ₁	137.01	5.639+09	2s4p 3P ₁	3s4d 3D ₂	157.75	1.428+10	3.177+10
2p3p 3D ₁	3d4p 3D ₁	136.20	8.541+09	2s4p 1P ₁	3d4s 1D ₂	153.68	7.205+10	5.439+10
2p3p 3S ₁	3d4f 3P ₁	134.15	2.031+09	2s4p 3P ₁	3p4p 3D ₂	153.24	5.143+10	1.800+10
2p3p 1P ₁	3d4p 1P ₁	132.94	9.811+09	2s4p 3P ₂	3p4p 3S ₁	152.61	3.473+10	1.754+10
2p3p 3P ₁	3p5s 3P ₀	129.37	1.604+09	2s4p 3P ₂	3p4p 3P ₁	151.91	2.833+10	2.155+10
2p3p 3P ₁	3p5s 3P ₁	129.36	1.191+09	2s4p 3P ₁	3p4p 3P ₂	151.89	2.890+10	2.993+10
2p3p 3P ₀	3p5s 3P ₁	129.34	1.585+09	2s4p 3P ₁	3d4s 3D ₂	151.47	1.802+10	2.173+10
2p3p 1S ₀	3d5p 1P ₁	128.23	3.541+09	2s4p 1P ₁	3p4p 1D ₂	149.81	3.356+10	2.219+10
2p3p 3P ₁	3p5d 3D ₁	128.09	8.610+09	2s4p 1P ₁	3d4d 1D ₂	145.71	1.984+10	1.965+10
2p3p 3P ₁	3p5d 3P ₁	127.49	2.961+09	2s4p 3P ₂	3s4d 3D ₃	157.75	2.651+10	4.205+10
2p3p 3P ₁	3p5d 3P ₀	127.48	3.987+09	2s4p 3P ₂	3p4p 3D ₂	153.24	1.759+10	2.916+10
2p3p 3P ₀	3p5d 3P ₁	127.47	4.072+09	2s4p 3P ₂	3p4p 3P ₂	153.23	9.743+10	2.293+10
2p3p 3P ₁	3d5p 3D ₁	126.64	1.999+09	2s4p 3P ₂	3p4p 3P ₁	151.90	8.699+10	4.200+10
2p3p 3P ₁	3p5d 3D ₁	126.62	2.682+09	2s4p 3P ₂	3d4s 3D ₃	151.46	3.337+10	1.615+10
2p3p 3S ₁	3p5d 3P ₀	126.19	6.275+09	2s4p 3P ₂	3p4f 3D ₃	147.65	1.067+10	7.672+10
2p3p 1P ₁	3p5s 3P ₁	126.13	4.354+09	2s4p 3P ₂	3d4d 3D ₁	151.51	2.791+10	1.186+10
2p3p 3D ₁	3p5d 3D ₁	125.83	3.918+09	2s4f 3F ₂	3p4f 3D ₁	150.07	4.222+10	9.843+10
2p3p 3S ₁	3d5p 3P ₁	125.12	1.327+09	2s4f 3F ₂	3p4f 3G ₅	152.84	9.635+10	7.682+10
2p3p 3S ₁	3s6p 3P ₁	124.97	1.173+09	2s4f 3F ₂	3p4f 3F ₃	152.28	1.452+10	1.889+10
2p3p 1P ₁	3p5d 1P ₁	124.78	9.392+09	2s4f 3F ₂	3d4d 3G ₃	150.96	4.788+10	3.477+10

TABLE VI. continued.

1	2	3	4	5	6	7	8
$2p3p^3D_1$	$3d4p^3D_2$	136.20	2.645+09	$2p4d^3P_1$	$3d4d^3S_1$	174.16	5.211+10
$2p3p^3D_1$	$3d4f^3F_2$	135.03	8.239+09	$2p4d^3P_0$	$3d4d^3P_1$	172.83	5.250+10
$2p3p^3S_1$	$3d4f^3P_2$	134.15	3.296+09	$2p4d^3P_1$	$3d4d^3P_0$	172.82	4.745+10
$2p3p^1P_1$	$3d4f^1D_2$	133.93	2.233+09	$2p4d^3P_1$	$3d4d^3P_1$	172.81	4.230+10
$2p3p^1D_2$	$3p5s^1P_1$	130.40	3.057+09	$2p4d^3D_1$	$3d4d^3P_0$	172.19	2.436+10
$2p3p^3P_1$	$3p5s^3P_2$	129.39	2.003+09	$2p4d^3D_1$	$3d4d^3P_1$	172.18	1.355+10
$2p3p^3P_1$	$3p5s^3P_2$	129.34	1.959+09	$2p4d^3P_1$	$3d4d^1S_0$	170.78	3.901+10
$2p3p^3D_1$	$3s5f^3F_2$	129.33	2.929+09	$2p4d^1P_1$	$3s5s^1S_0$	169.82	2.679+10
$2p3p^1D_2$	$3p5d^1P_1$	128.96	1.402+09	$2p4d^3F_2$	$3s4d^3D_1$	187.92	1.348+10
$2p3p^3D_1$	$3s6p^1P_1$	127.76	1.276+09	$2p4d^3P_2$	$3p4p^3S_1$	182.38	2.471+10
$2p3p^3P_2$	$3p5d^3P_2$	127.52	5.202+09	$2p4d^1P_1$	$3p4p^1D_2$	179.24	2.979+10
$2p3p^3P_1$	$3p5d^3P_2$	127.49	5.437+09	$2p4d^3D_1$	$3p4f^3F_2$	177.73	1.868+10
$2p3p^3D_2$	$3p5d^3D_2$	126.64	6.062+09	$2p4d^3D_2$	$3d4d^3D_1$	176.69	1.910+10
$2p3p^3D_1$	$3p5d^3D_1$	126.86	1.263+09	$2p4d^3D_1$	$3d4d^3D_2$	176.67	1.650+10
$2p3p^3P_1$	$3p5d^3P_1$	125.82	1.460+09	$2p4d^1P_1$	$3p4f^1D_2$	175.47	1.031+10
$2p3p^3D_2$	$3p5d^3P_2$	125.28	1.626+09	$2p4d^3P_1$	$3p4f^3D_2$	175.38	3.620+10
$2p3p^3S_1$	$3d6p^3P_2$	125.11	2.122+09	$2p4d^1D_2$	$3d4d^1P_1$	174.94	5.031+10
$2p3p^3D_1$	$3s6p^3P_2$	124.97	1.850+09	$2p4d^3P_2$	$3d4d^3S_1$	174.13	8.638+10
$2p3p^3D_2$	$3d6p^3D_2$	124.46	1.169+09	$2p4d^3P_3$	$3d4d^3P_1$	172.78	5.339+10
$2p3p^3D_1$	$3d6p^3D_1$	124.43	1.081+09	$2p4d^3D_2$	$3d4d^3P_2$	172.20	5.577+10
$2p3p^3D_1$	$3p5g^3F_2$	124.37	1.380+09	$2p4d^3P_1$	$3p6p^3D_2$	150.88	1.513+10
$2p3p^1D_2$	$3p6s^1P_1$	123.80	2.216+09	$2p4d^3P_2$	$3s4d^3D_3$	189.77	1.150+10
$2p3p^3D_1$	$3d5f^3F_2$	123.77	2.006+09	$2p4d^1D_2$	$3s4d^3D_2$	189.08	1.450+10
$2p3p^1D_2$	$3p6d^1P_1$	122.92	2.787+09	$2p4d^1D_2$	$3s4d^1D_2$	187.59	2.178+10
$2p3p^3P_2$	$3p6s^3P_2$	122.78	1.204+09	$2p4d^3D_2$	$3p4p^3D_2$	182.64	2.036+10
$2p3p^3P_1$	$3p6s^3P_2$	122.74	1.198+09	$2p4d^3P_3$	$3p4p^3P_2$	181.37	1.325+10
$2p3p^3P_2$	$3p6d^3P_1$	121.79	3.829+09	$2p4d^3P_2$	$3d4s^3D_3$	180.75	1.060+10
$2p3p^3P_1$	$3p6d^3P_2$	121.77	3.706+09	$2p4d^3D_2$	$3d4s^3D_2$	180.13	2.274+10
$2p3p^1D_2$	$3d6p^1P_1$	121.48	2.318+09	$2p4d^3D_2$	$3p4f^3F_3$	177.75	2.840+10
$2p3p^3P_1$	$3d6p^3D_2$	120.94	2.066+09	$2p4d^1D_2$	$3p4f^1F_3$	177.67	4.942+10
$2p3p^1D_2$	$3d6f^1P_1$	120.78	1.276+09	$2p4d^1D_2$	$3p4f^3G_3$	177.60	3.678+10
$2p3p^3D_1$	$3p6d^3D_2$	120.01	1.127+09	$2p4d^3P_2$	$3p4f^1F_3$	177.53	2.988+10
$2p3p^3S_1$	$3d6p^3P_2$	119.60	1.114+09	$2p4d^3P_3$	$3p4f^3G_3$	177.47	9.496+10
$2p3p^3P_2$	$3s3p^3P_2$	202.89	6.024+09	$2p4d^3P_2$	$3d4d^3D_3$	177.30	9.891+10
$2p3p^3D_2$	$3s3p^3P_2$	197.27	6.792+09	$2p4d^3P_2$	$3d4d^3D_2$	177.30	1.080+10
$2p3p^3D_2$	$3s4f^3F_2$	142.18	1.460+09	$2p4d^3D_2$	$3d4d^3D_3$	176.69	1.483+10
$2p3p^3D_2$	$3p4s^3P_2$	141.83	1.331+09	$2p4d^3D_2$	$3d4d^3D_2$	176.69	9.481+10
$2p3p^3D_2$	$3p4d^3D_2$	139.29	9.106+09	$2p4d^3D_2$	$3p4p^1D_2$	176.23	8.281+10
$2p3p^3D_2$	$3p4d^3D_3$	139.28	1.917+09	$2p4d^3P_2$	$3p4p^1D_2$	176.06	1.553+10
$2p3p^3P_2$	$3d4p^3D_2$	138.89	6.953+09	$2p4d^3F_2$	$3d4d^1F_3$	176.06	5.219+10

TABLE VI. continued.

1	2	3	4	5	6	7	8
$2p3p^1S_0$	$3p6d^1P_1$	124.48	8.575+09	$2s4f^3F_3$	$3p4f^3F_2$	152.29	1.421+10
$2p3p^3D_1$	$3d5p^3D_1$	124.43	3.476+09	$2s4f^1F_3$	$3d4d^1F_3$	152.25	5.588+10
$2p3p^1S_0$	$3d6p^1P_1$	123.01	4.442+09	$2s4f^3F_3$	$3d4d^3D_2$	151.51	4.130+10
$2p3p^1P_1$	$3d5p^1P_1$	122.54	3.701+09	$2s4f^3F_3$	$3p4f^3D_2$	150.07	6.200+10
$2p3p^3P_1$	$3p6d^3D_1$	122.06	5.450+09	$2s4f^1F_3$	$3d2^1G_4$	195.19	5.938+10
$2p3p^3P_0$	$3p6d^3D_1$	122.05	7.097+09	$2s4f^3F_4$	$3p4f^3G_4$	152.84	1.031+10
$2p3p^3P_1$	$3p6d^3P_1$	121.76	2.251+09	$2s4f^3F_4$	$3p4f^3F_3$	152.29	1.462+10
$2p3p^3P_1$	$3p6d^3P_0$	121.76	2.940+09	$2s4f^3F_3$	$3p4f^3F_4$	152.28	1.505+10
$2p3p^3P_0$	$3p6d^3P_1$	121.74	2.846+09	$2s4f^3F_4$	$3d4d^3D_3$	151.51	6.049+10
$2p3p^3S_1$	$3p6d^3P_0$	120.58	3.946+09	$2s4f^3F_3$	$3d4d^3G_4$	150.95	6.318+10
$2p3p^3D_1$	$3p6d^3D_1$	120.01	2.414+09	$2s4f^3F_4$	$3d4d^3G_5$	150.94	8.269+10
$2p3p^1P_1$	$3p6s^1P_1$	119.94	2.201+09	$2s4f^1F_3$	$3p4f^3D_3$	150.08	8.882+10
$2p3p^1P_1$	$3p6p^3D_1$	119.12	5.187+09	$2s4f^1F_3$	$3d4d^1G_4$	148.29	2.049+10
$2p3p^3D_1$	$3d6p^3D_1$	118.93	2.139+09	$2s4f^1F_3$	$3s5g^1G_4$	142.10	1.089+10
$2p3p^1P_1$	$3d6p^1P_1$	117.77	4.770+09	$2p4s^3P_1$	$3s4s^3S_1$	188.95	1.475+10
$2p3p^1P_1$	$3d6f^1P_1$	117.11	1.110+09	$2p4s^1P_1$	$3s4s^1S_0$	188.33	1.368+10
$2p3p^3P_2$	$3s3p^3P_1$	202.92	2.150+09	$2p4s^3P_1$	$3p4p^3D_1$	176.26	2.666+10
$2p3p^3P_1$	$3s3p^3P_2$	202.80	1.831+09	$2p4s^3P_0$	$3p4p^3D_1$	176.21	3.577+10
$2p3p^1D_2$	$3s3p^1P_1$	197.64	8.322+09	$2p4s^3P_0$	$3d4s^3D_1$	173.92	7.143+10
$2p3p^3P_2$	$3p3d^3D_1$	181.65	4.370+09	$2p4s^3P_0$	$3d4s^3D_1$	173.87	9.565+10
$2p3p^3D_1$	$3p3d^1D_2$	180.39	3.173+09	$2p4s^3P_2$	$3s4s^3S_1$	189.08	2.462+10
$2p3p^1P_1$	$3p3d^3F_2$	179.39	3.239+09	$2p4s^1P_1$	$3s4d^1D_2$	183.13	1.478+10
$2p3p^1D_2$	$3s4p^1P_1$	150.37	3.609+09	$2p4s^3P_1$	$3s4d^3D_2$	182.24	1.019+10
$2p3p^3S_1$	$3s4p^3P_2$	146.17	1.758+09	$2p4s^3P_1$	$3p4p^3D_2$	176.25	8.147+10
$2p3p^1D_2$	$3p4s^1P_1$	144.96	3.361+09	$2p4s^3P_1$	$3p4f^3D_2$	168.89	1.190+10
$2p3p^3D_2$	$3s4p^3P_2$	144.95	1.403+09	$2p4s^1P_1$	$3p4f^1D_2$	168.81	2.168+10
$2p3p^3P_2$	$3p4s^3P_1$	144.73	5.077+09	$2p4s^1P_1$	$3d4d^1D_2$	166.89	2.304+10
$2p3p^3P_1$	$3p4s^3P_2$	144.67	4.893+09	$2p4s^3P_2$	$3s4d^3D_3$	182.35	1.891+10
$2p3p^3S_1$	$3p4s^3P_3$	143.00	2.271+09	$2p4s^3P_2$	$3p4p^3D_2$	176.36	2.662+10
$2p3p^3D_1$	$3s4f^3F_2$	142.14	7.896+09	$2p4s^3P_2$	$3d4s^3D_2$	174.02	7.133+10
$2p3p^3P_2$	$3p4d^3D_1$	142.07	1.055+09	$2p4s^3P_2$	$3p4f^3D_3$	168.99	2.224+10
$2p3p^3D_2$	$3p4s^3P_1$	141.85	3.725+09	$2p4d^1P_1$	$3p4p^1P_1$	185.70	1.138+10
$2p3p^3P_2$	$3p4d^3P_2$	139.93	8.487+09	$2p4d^3D_1$	$3p4p^3D_1$	182.63	1.327+10
$2p3p^3D_1$	$3p4d^3P_2$	139.89	9.415+09	$2p4d^3D_1$	$3p4p^3S_1$	182.42	1.486+10
$2p3p^3D_2$	$3p4d^3D_1$	139.29	1.945+09	$2p4d^3D_1$	$3d4s^3D_1$	180.12	1.428+10
$2p3p^3D_1$	$3p4d^3D_2$	139.25	1.903+09	$2p4d^1P_1$	$3p4p^1S_0$	179.65	2.509+10
$2p3p^3P_2$	$3d4p^3P_2$	138.57	2.884+09	$2p4d^3P_0$	$3d4d^3D_1$	177.36	2.260+10
$2p3p^3P_1$	$3d4p^3P_2$	138.53	2.827+09	$2p4d^3P_1$	$3d4d^3D_1$	177.34	1.303+10
$2p3p^1D_2$	$3d4p^1P_1$	137.69	5.098+09	$2p4d^3D_1$	$3d4d^3D_1$	176.67	6.038+10
$2p3p^3D_2$	$3p4d^3P_1$	137.23	3.335+09	$2p4d^3P_0$	$3p4f^3D_1$	175.39	1.519+10
$2p3p^3S_1$	$3d4p^3P_2$	137.00	8.884+09	$2p4d^3D_1$	$3p4f^3D_1$	174.72	2.489+10
$2p3p^3D_2$	$3d4p^3D_2$	136.24	2.871+09	$2p4d^3P_0$	$3d4d^3S_1$	174.18	1.746+10

TABLE VI. continued.

	1	2	3	4	5	6	7	8
$2p3p^3D_3$	137.30	$3p4d^3F_2$	$2p4d^3F_4$	6.060+09	$2p4d^3F_4$	$3p6f^3D_3$	148.63	1.301+10
$2p3p^3D_3$	137.05	$3d4p^3F_3$	$2s5p^1P_1$	1.865+09	$2s5p^1P_1$	$3p5p^1P_1$	151.07	6.740+10
$2p3p^3D_3$	136.29	$3d4p^3D_2$	$2s5p^3P_1$	2.979+09	$2s5p^3P_1$	$3p5p^3D_1$	150.99	2.442+10
$2p3p^3D_3$	135.12	$3d4f^3F_3$	$2s5p^3P_0$	1.548+09	$2s5p^3P_0$	$3p5p^3D_1$	150.99	3.103+10
$2p3p^3D_3$	130.53	$3s5p^3P_2$	$2s5p^3P_1$	1.120+09	$2s5p^3P_1$	$3p5p^3P_0$	150.51	2.429+10
$2p3p^3D_3$	129.42	$3s5f^3F_4$	$2s5p^3P_1$	6.264+09	$2s5p^3P_1$	$3p5p^3P_1$	150.50	3.013+10
$2p3p^3D_3$	127.12	$3p5s^3P_2$	$2s5p^3P_0$	3.697+09	$2s5p^3P_0$	$3p5p^3P_1$	150.49	3.104+10
$2p3p^3D_3$	125.90	$3p5d^3D_2$	$2s5p^1P_1$	1.255+09	$2s5p^1P_1$	$3p5p^1S_0$	149.49	1.271+10
$2p3p^3D_3$	125.58	$3p5d^3F_3$	$2s5p^1P_1$	7.562+09	$2s5p^1P_1$	$3d4s^1D_2$	170.79	1.481+10
$2p3p^3D_3$	125.33	$3p5d^3P_2$	$2s5p^3P_1$	2.953+09	$2s5p^3P_1$	$3p5p^3D_2$	150.98	7.017+10
$2p3p^3D_3$	124.58	$3d5p^3F_4$	$2s5p^1P_1$	3.972+09	$2s5p^1P_1$	$3p5p^1D_2$	150.61	7.715+10
$2p3p^3D_3$	124.51	$3d5p^3D_2$	$2s5p^3P_2$	1.214+09	$2s5p^3P_2$	$3p5p^3S_1$	150.53	5.298+10
$2p3p^3D_3$	124.50	$3d5p^3D_3$	$2s5p^3P_2$	9.576+09	$2s5p^3P_2$	$3p5p^3P_1$	150.50	1.021+10
$2p3p^3D_3$	124.45	$3p5g^3F_4$	$2s5p^3P_1$	3.586+09	$2s5p^3P_1$	$3p5p^3P_2$	150.49	3.172+10
$2p3p^3D_3$	123.85	$3d5f^3F_4$	$2s5p^1P_1$	4.445+09	$2s5p^1P_1$	$3d5s^1D_2$	148.86	2.125+10
$2p3p^3D_3$	123.60	$3d5f^3F_4$	$2s5p^3P_2$	1.773+09	$2s5p^3P_2$	$3p5p^3D_2$	150.98	2.524+10
$2p3p^3D_3$	123.60	$3d5f^3F_4$	$2s5p^3P_2$	1.647+09	$2s5p^3P_2$	$3p5p^3P_3$	150.49	9.013+10
$2p3p^3D_3$	120.73	$3p6s^3P_2$	$2s5p^3P_2$	5.790+09	$2s5p^3P_2$	$3d5s^3D_3$	149.36	1.235+10
$2p3p^3D_3$	119.98	$3p6d^3F_3$	$2s5f^3F_2$	2.635+09	$2s5f^3F_2$	$3p5f^3D_1$	149.92	6.465+10
$2p3p^3D_3$	119.97	$3p6d^3F_3$	$2s5f^3F_2$	2.026+09	$2s5f^3F_2$	$3d5s^3D_2$	150.59	1.198+10
$2p3p^3D_3$	118.79	$3p6d^3P_2$	$2s5f^3F_2$	1.177+09	$2s5f^3F_2$	$3p5f^3D_2$	150.58	9.861+10
$2p3p^3D_3$	118.36	$3d6p^3F_4$	$2s5f^3F_2$	2.249+09	$2s5f^3F_2$	$3d5d^3G_3$	148.95	1.085+10
$2p3p^3D_3$	1071.35	$2p6p^1P_1$	$2s5f^3F_3$	1.191+09	$2s5f^3F_3$	$3d5s^3D_2$	150.59	1.832+10
$2p4p^1S_0$	194.59	$3s4p^1P_1$	$2s5f^3F_3$	2.986+09	$2s5f^3F_3$	$3p5f^3F_3$	150.59	7.533+10
$2p4p^1P_1$	188.95	$3s4p^3P_0$	$2s5f^3F_3$	6.046+09	$2s5f^3F_3$	$3d5s^3D_3$	150.58	8.292+10
$2p4p^1P_1$	188.95	$3s4p^3P_1$	$2s5f^1F_3$	4.148+09	$2s5f^1F_3$	$3d5s^1D_2$	150.18	1.941+10
$2p4p^1P_1$	188.90	$3s4p^3P_1$	$2s5f^3F_3$	5.220+09	$2s5f^3F_3$	$3p5f^3D_3$	149.94	1.342+10
$2p4p^1P_1$	188.10	$3s4p^1P_1$	$2s5f^3F_3$	9.615+09	$2s5f^3F_3$	$3p5f^3D_2$	149.93	9.451+10
$2p4p^1S_0$	187.99	$3s4p^3P_1$	$2s5f^1F_3$	2.489+09	$2s5f^1F_3$	$3p5f^1D_2$	149.17	8.465+10
$2p4p^1D_1$	187.43	$3s4p^3P_0$	$2s5f^1F_3$	8.017+09	$2s5f^1F_3$	$3s6d^1D_2$	148.54	1.635+10
$2p4p^1D_1$	187.43	$3s4p^3P_1$	$2s5f^3F_4$	6.393+09	$2s5f^3F_4$	$3p5f^3F_3$	150.59	2.853+10
$2p4p^1S_0$	185.62	$3p4s^1P_1$	$2s5f^3F_3$	4.720+09	$2s5f^3F_3$	$3d5d^3G_4$	148.95	1.432+10
$2p4p^1P_1$	185.72	$3p4s^3P_0$	$2s5f^3F_4$	3.703+09	$2s5f^3F_4$	$3d5d^3G_5$	148.94	1.879+10
$2p4p^1P_1$	183.70	$3p4s^3P_1$	$2s5f^3F_4$	2.680+09	$2s5f^3F_4$	$3s6d^3D_3$	148.39	1.190+10
$2p4p^1P_1$	183.66	$3p4s^3P_1$	$2s5f^1F_3$	3.711+09	$2s5f^1F_3$	$3s6g^1G_4$	146.88	2.436+10
$2p4p^1S_0$	182.81	$3p4s^3P_0$	$2p5s^3P_1$	2.681+09	$2p5s^3P_1$	$3s5s^3S_1$	185.24	1.543+10
$2p4p^1S_0$	182.80	$3p4s^3P_1$	$2p5s^3P_1$	7.573+09	$2p5s^3P_1$	$3p5p^3D_1$	175.11	1.813+10
$2p4p^1P_1$	176.53	$3p4d^1P_1$	$2p5s^3P_0$	1.122+09	$2p5s^3P_0$	$3p5p^3D_1$	175.06	2.474+10
$2p4p^1S_0$	175.21	$3p4d^3P_0$	$2p5s^3P_1$	3.878+09	$2p5s^3P_1$	$3d5s^3D_1$	172.93	8.008+10
$2p4p^1D_1$	174.72	$3p4d^3P_0$	$2p5s^3P_2$	1.617+09	$2p5s^3P_2$	$3s6s^3S_1$	185.36	2.611+10
$2p4p^1D_1$	172.61	$3d4p^3P_0$	$2p5s^3P_1$	2.212+09	$2p5s^3P_1$	$3p5p^3D_2$	175.09	5.605+10

TABLE VI. continued.

	1	2	3	4	5	6	7	8
$2p3p^3P_2$	$2p3p^3P_2$	$3d4p^3P_2$	$3p4f^3P_2$	8.688+09	$2p4d^3P_2$	$3p4f^3D_3$	175.34	6.774+10
$2p3p^1D_2$	$2p3p^1D_2$	$3d4f^1F_3$	$2p4d^1D_2$	2.778+09	$2p4d^1D_2$	$3d4d^3G_3$	175.07	5.923+10
$2p3p^3P_2$	$2p3p^3P_2$	$3p4d^3P_2$	$2p4d^3D_2$	1.010+09	$2p4d^3D_2$	$3p4f^3D_2$	174.75	4.065+10
$2p3p^3P_2$	$2p3p^3P_2$	$3d4p^3F_2$	$2p4d^3D_2$	1.864+09	$2p4d^3D_2$	$3d4d^3F_2$	174.02	3.533+10
$2p3p^3P_2$	$2p3p^3P_2$	$3d4p^3D_3$	$2p4d^1D_2$	2.647+09	$2p4d^1D_2$	$3d4d^3F_2$	173.16	1.969+10
$2p3p^3P_2$	$2p3p^3P_2$	$3d4f^3F_2$	$2p4d^3F_2$	1.060+09	$2p4d^3F_2$	$3d4d^3F_2$	173.03	9.811+10
$2p3p^3P_2$	$2p3p^3P_2$	$3d4f^3F_2$	$2p4d^1D_2$	1.535+09	$2p4d^1D_2$	$3p4f^1D_2$	172.58	1.656+10
$2p3p^3P_2$	$2p3p^3P_2$	$3p5s^3P_2$	$2p4d^3F_2$	5.901+09	$2p4d^3F_2$	$3d4d^1D_2$	170.45	2.086+10
$2p3p^3P_2$	$2p3p^3P_2$	$3s5f^3F_3$	$2p4d^3P_2$	4.341+09	$2p4d^3P_2$	$3p6p^3D_3$	150.84	3.198+10
$2p3p^3P_2$	$2p3p^3P_2$	$3p5d^3D_2$	$2p4d^3P_2$	8.342+09	$2p4d^3P_2$	$3p6p^3P_2$	150.68	1.891+10
$2p3p^1D_2$	$2p3p^1D_2$	$3p5g^1F_3$	$2p4d^1F_3$	1.098+09	$2p4d^1F_3$	$3s4d^1D_2$	191.24	2.501+10
$2p3p^1D_2$	$2p3p^1D_2$	$3s6f^1F_3$	$2p4d^3D_3$	6.460+09	$2p4d^3D_3$	$3s4d^3D_3$	189.11	2.734+10
$2p3p^3P_2$	$2p3p^3P_2$	$3d5p^3D_2$	$2p4d^3F_5$	1.997+09	$2p4d^3F_5$	$3s4d^3D_2$	187.99	2.329+10
$2p3p^3P_2$	$2p3p^3P_2$	$3d5p^3P_2$	$2p4d^3D_3$	1.932+09	$2p4d^3D_3$	$3p4p^3D_2$	182.65	3.567+10
$2p3p^1D_2$	$2p3p^1D_2$	$3d5f^1F_3$	$2p4d^1F_3$	3.791+09	$2p4d^1F_3$	$3p4f^1F_3$	180.94	2.441+10
$2p3p^3D_2$	$2p3p^3D_2$	$3d5s^3D_2$	$2p4d^3D_3$	5.858+09	$2p4d^3D_3$	$3d4s^3D_3$	180.15	3.958+10
$2p3p^3D_2$	$2p3p^3D_2$	$3p5d^3D_3$	$2p4d^3F_3$	1.567+09	$2p4d^3F_3$	$3p4f^3G_3$	177.54	1.170+10
$2p3p^3D_2$	$2p3p^3D_2$	$3p5d^3F_2$	$2p4d^3D_3$	7.470+09	$2p4d^3D_3$	$3d4d^3D_2$	176.72	1.852+10
$2p3p^3D_2$	$2p3p^3D_2$	$3d5p^3F_3$	$2p4d^3F_3$	2.999+09	$2p4d^3F_3$	$3d4d^3D_2$	175.74	1.285+10
$2p3p^3D_2$	$2p3p^3D_2$	$3d5p^3D_2$	$2p4d^3F_3$	5.403+09	$2p4d^3F_3$	$3d4d^3G_3$	175.00	3.303+10
$2p3p^3D_2$	$2p3p^3D_2$	$3d5p^3D_2$	$2p4d^3D_3$	1.094+09	$2p4d^3D_3$	$3p4f^3D_3$	174.78	6.807+10
$2p3p^3D_2$	$2p3p^3D_2$	$3p5s^3F_3$	$2p4d^3D_3$	2.207+09	$2p4d^3D_3$	$3d4d^3F_3$	174.04	3.301+10
$2p3p^3D_2$	$2p3p^3D_2$	$3d5f^3F_3$	$2p4d^3F_3$	3.016+09	$2p4d^3F_3$	$3p4f^3D_2$	173.81	1.642+10
$2p3p^3D_2$	$2p3p^3D_2$	$3d5f^3F_3$	$2p4d^1F_3$	1.246+09	$2p4d^1F_3$	$3d4d^1D_2$	173.59	2.675+10
$2p3p^1D_2$	$2p3p^1D_2$	$3p6d^1D_2$	$2p4d^3D_3$	5.794+09	$2p4d^3D_3$	$3d4d^3F_2$	173.09	1.414+10
$2p3p^3P_2$	$2p3p^3P_2$	$3p6s^3P_2$	$2p4d^3D_3$	3.576+09	$2p4d^3D_3$	$3d4d^3P_2$	172.22	8.889+10
$2p3p^3P_2$	$2p3p^3P_2$	$3p6d^3D_2$	$2p4d^1F_5$	4.764+09	$2p4d^1F_5$	$3p6f^1F_3$	151.32	3.948+10
$2p3p^3P_2$	$2p3p^3P_2$	$3d6p^3D_3$	$2p4d^1F_3$	3.891+09	$2p4d^1F_3$	$3p6f^1D_2$	150.58	2.227+10
$2p3p^3P_2$	$2p3p^3P_2$	$3p6d^3D_2$	$2p4d^1F_3$	3.280+09	$2p4d^1F_3$	$3d6s^1D_2$	150.04	1.004+10
$2p3p^3P_2$	$2p3p^3P_2$	$3p6d^3D_3$	$2p4d^3F_3$	1.503+09	$2p4d^3F_3$	$3p6f^3F_3$	148.92	1.026+10
$2p3p^3P_2$	$2p3p^3P_2$	$3p6d^3F_4$	$2p4d^3F_4$	4.371+09	$2p4d^3F_4$	$3s4d^3D_3$	188.07	3.486+10
$2p3p^3P_2$	$2p3p^3P_2$	$3d6p^3D_2$	$2p4d^3D_3$	3.259+09	$2p4d^3D_3$	$3p4f^3F_4$	177.77	4.151+10
$2p3p^3P_2$	$2p3p^3P_2$	$3d6p^3F_3$	$2p4d^3F_4$	1.472+09	$2p4d^3F_4$	$3p4f^3G_4$	177.60	1.200+10
$2p3p^3P_2$	$2p3p^3P_2$	$2s6g^3P_2$	$2p4d^3F_4$	1.031+09	$2p4d^3F_4$	$3p4f^3F_4$	176.85	1.202+10
$2p3p^3P_2$	$2p3p^3P_2$	$2p6p^3D_3$	$2p4d^3D_3$	5.996+09	$2p4d^3D_3$	$3d4d^3D_3$	175.81	3.289+10
$2p3p^3P_2$	$2p3p^3P_2$	$3p3d^3D_3$	$2p4d^3F_4$	2.947+09	$2p4d^3F_4$	$3p4f^3D_3$	175.06	3.289+10
$2p3p^3P_2$	$2p3p^3P_2$	$3p3d^3F_2$	$2p4d^3F_4$	1.328+09	$2p4d^3F_4$	$3p4f^3D_3$	173.89	2.217+10
$2p3p^3P_2$	$2p3p^3P_2$	$3p3d^3P_2$	$2p4d^3F_4$	1.038+09	$2p4d^3F_4$	$3d4d^3F_3$	173.16	1.377+10
$2p3p^3P_2$	$2p3p^3P_2$	$3s4p^3P_2$	$2p4d^1F_3$	2.599+09	$2p4d^1F_3$	$3p6f^1G_4$	150.76	5.191+10
$2p3p^3P_2$	$2p3p^3P_2$	$3s4f^3F_3$	$2p4d^3F_4$	1.453+09	$2p4d^3F_4$	$3p6f^3F_4$	148.96	1.657+10
$2p3p^3P_2$	$2p3p^3P_2$	$3p4s^3P_2$	$2p4d^3F_4$	7.080+09	$2p4d^3F_4$	$3p6f^3G_5$	148.86	1.780+10
$2p3p^3P_2$	$2p3p^3P_2$	$3p4d^3D_2$	$2p4d^3F_$					

TABLE VI. continued.

1	2	3	4	5	6	7	8
2p4p ³ D ₂	3s4f ³ F ₃	182.88	2.172+09	2p5d ³ P ₂	3s5d ³ D ₂	185.40	1.065+10
2p4p ¹ D ₂	3p4d ¹ D ₂	179.22	6.136+09	2p5d ³ P ₂	3s5d ³ D ₃	185.40	1.222+10
2p4p ³ D ₂	3p4d ³ D ₃	178.10	3.353+09	2p5d ³ D ₂	3s5d ³ D ₂	185.20	1.141+10
2p4p ³ F ₂	3p4d ³ F ₂	176.11	3.979+09	2p5d ³ D ₂	3s5d ³ D ₃	185.20	1.182+10
2p4p ³ D ₂	3p4d ³ F ₃	175.83	7.971+09	2p5d ¹ D ₂	3s5d ¹ D ₂	184.49	2.002+10
2p4p ³ D ₂	3d4p ³ D ₃	173.14	8.547+09	2p5d ³ F ₂	3s5d ¹ D ₂	184.38	1.037+10
2p4p ³ D ₂	3d4f ³ F ₂	171.27	6.073+09	2p5d ³ P ₂	3p5p ³ F ₂	177.67	1.424+10
2p4p ¹ D ₂	3d4f ³ F ₃	169.38	2.417+09	2p5d ¹ D ₂	3p5f ³ G ₃	175.50	1.763+10
2p4p ³ D ₂	3s5f ¹ F ₃	163.55	5.022+09	2p5d ³ F ₂	3p5f ³ G ₃	175.40	3.199+10
2p4p ¹ D ₂	3p5d ¹ F ₃	158.37	4.431+09	2p5d ³ P ₂	3p5f ³ D ₃	175.22	1.615+10
2p4p ³ F ₂	3p5d ³ D ₃	157.78	1.918+09	2p5d ³ D ₂	3p5f ³ D ₂	175.03	1.943+10
2p4p ¹ D ₂	3d5f ¹ F ₃	153.76	1.093+09	2p5d ¹ D ₂	3d5s ¹ D ₂	174.92	3.294+10
2p4p ¹ D ₂	3p6d ³ F ₃	149.27	1.050+09	2p5d ³ F ₂	3d5s ¹ D ₂	174.82	1.693+10
2p4p ³ D ₃	2p6p ³ F ₄	934.49	4.440+09	2p5d ³ P ₂	3d5d ³ P ₂	173.31	3.991+10
2p4p ³ D ₃	3s4f ³ F ₄	182.87	3.110+09	2p5d ³ D ₂	3d5d ³ F ₂	173.14	2.944+10
2p4p ³ D ₃	3p4d ³ D ₂	178.21	4.931+09	2p5d ³ P ₂	3s6d ³ D ₃	173.11	2.944+10
2p4p ³ D ₃	3p4d ³ F ₃	175.90	7.918+09	2p5d ³ D ₂	3s6d ³ D ₂	172.93	2.141+10
2p4p ³ D ₃	3p4d ³ F ₂	174.87	6.308+09	2p5d ¹ D ₂	3d5d ³ F ₂	172.78	5.182+10
2p4p ³ D ₃	3d4p ³ F ₂	174.48	1.489+09	2p5d ¹ D ₂	3s6d ¹ D ₂	172.70	4.148+10
2p4p ³ D ₃	3d4p ³ F ₃	172.74	6.888+09	2p5d ³ F ₂	3d5d ³ F ₃	172.68	9.094+10
2p4p ³ D ₃	3d4f ³ F ₂	171.35	6.126+09	2p5d ³ F ₂	3s6d ¹ D ₂	172.60	1.998+10
2p4p ³ D ₃	3d4f ³ F ₃	168.23	2.898+09	2p5d ¹ D ₂	3d5d ³ D ₂	171.57	7.025+10
2p4p ³ D ₃	3p4d ³ D ₁	182.47	2.134+09	2p5d ³ F ₂	3d5d ¹ D ₂	171.47	3.602+10
2p4p ³ D ₃	3p4d ³ F ₁	178.95	9.133+09	2p5d ¹ D ₂	3d5g ¹ D ₂	170.85	1.478+10
2p4p ³ D ₃	3d4p ³ D ₁	177.26	2.169+09	2p5d ¹ F ₃	3s5d ³ D ₃	185.93	3.550+10
2p4p ³ D ₃	3p3d ¹ F ₁	235.75	1.545+09	2p5d ³ D ₃	3s5d ³ D ₃	185.25	3.207+10
2p4p ³ D ₃	3p4d ³ F ₁	181.52	1.567+09	2p5d ³ F ₃	3s5d ³ D ₃	184.77	2.850+10
2p4p ³ D ₃	3p4d ³ F ₂	180.06	2.442+09	2p5d ³ D ₃	3p5p ³ D ₃	178.20	1.634+10
2p4p ³ D ₃	3p4d ³ F ₃	179.09	1.580+09	2p5d ³ D ₃	3d5s ³ D ₃	175.96	1.656+10
2p4p ³ D ₃	3d4p ³ F ₁	176.37	1.045+09	2p5d ³ D ₃	3p5f ³ D ₃	175.09	3.125+10
2p4p ³ D ₃	3d4p ³ F ₂	173.16	3.864+09	2p5d ³ D ₃	3d5d ¹ D ₂	173.76	2.109+10
2p4p ³ D ₃	3d4f ³ F ₁	173.06	1.834+09	2p5d ³ F ₃	3d5d ³ D ₂	173.34	2.838+10
2p4p ³ D ₃	3d4f ³ F ₂	172.14	9.108+09	2p5d ³ F ₃	3d5d ³ C ₃	173.32	4.412+10
2p4p ³ D ₃	3d4f ³ F ₃	172.02	3.817+09	2p5d ³ D ₃	3d5d ³ F ₃	173.18	2.357+10
2p4p ³ D ₃	3d5f ³ F ₁	171.18	1.270+09	2p5d ³ D ₃	3s6d ³ D ₃	172.98	3.138+10
2p4p ³ D ₃	3d5f ³ F ₂	164.61	5.895+09	2p5d ¹ F ₃	3d5d ¹ D ₂	172.81	2.415+10
2p4p ³ D ₃	3p6d ³ D ₁	150.14	1.995+09	2p5d ³ F ₃	3d5d ³ F ₂	172.77	1.675+10
2p4p ³ D ₃	3p6d ³ F ₁	149.68	6.104+09	2p5d ³ D ₃	3d5d ³ F ₂	172.30	9.015+10
2p4p ³ D ₃	3d6f ³ F ₁	147.89	1.392+09	2p5d ³ D ₃	3s5d ³ D ₃	184.86	4.610+10
2p4p ³ D ₃	3d6f ³ F ₂	147.16	4.799+09	2p5d ³ D ₃	3p5f ³ F ₄	175.96	1.884+10
2p4p ³ D ₃	3s4f ³ F ₃	187.61	1.140+09	2p5d ¹ F ₃	3p5f ¹ G ₄	175.86	7.630+10
2p4p ³ D ₃	3s4f ³ F ₂	187.41	3.335+09	2p5d ³ F ₃	3p5f ³ F ₄	175.01	1.065+10

TABLE VI. continued.

1	2	3	4	5	6	7	8
2p4p ¹ S ₀	3d4f ¹ F ₁	170.50	1.243+09	2p5s ³ P ₁	3p5f ³ F ₂	172.91	4.301+10
2p4p ³ P ₀	3d4p ¹ P ₁	170.18	1.029+09	2p5s ³ P ₁	3p5f ³ D ₂	172.05	1.598+10
2p4p ³ D ₁	3d4p ³ P ₁	168.98	1.002+09	2p5s ¹ P ₁	3p5f ¹ D ₂	171.52	6.035+10
2p4p ³ S ₁	3d4f ³ P ₁	168.56	4.479+09	2p5s ³ P ₁	3d5d ³ D ₂	170.79	1.272+10
2p4p ³ S ₁	3d4f ³ P ₀	168.55	1.515+09	2p5s ¹ P ₁	3d5d ¹ D ₂	169.58	2.788+10
2p4p ¹ P ₁	3d4f ¹ P ₁	165.50	1.378+09	2p5s ³ P ₂	3p5p ³ D ₂	175.21	1.855+10
2p4p ¹ S ₀	3p5s ³ P ₁	162.40	5.113+09	2p5s ³ P ₂	3d5s ³ D ₂	173.04	6.649+10
2p4p ¹ S ₀	3p5s ¹ P ₁	160.17	3.690+09	2p5s ³ P ₂	3p5f ³ F ₃	173.03	1.459+10
2p4p ³ S ₁	3d5p ³ P ₁	154.54	1.075+09	2p5s ³ P ₂	3p5f ³ D ₃	172.18	3.154+10
2p4p ³ S ₁	3p6d ¹ P ₁	150.96	2.065+09	2p5s ³ P ₂	3d5d ³ D ₃	170.90	2.385+10
2p4p ¹ S ₀	3p6s ³ P ₁	149.45	3.177+09	2p5d ¹ P ₁	3p5p ³ S ₀	177.19	1.214+10
2p4p ³ P ₀	3p6s ³ F ₀	149.14	5.968+09	2p5d ¹ P ₁	3s6s ¹ S ₀	175.17	1.692+10
2p4p ³ S ₁	3d6p ¹ P ₁	148.80	1.343+09	2p5d ³ D ₁	3p5f ³ D ₁	175.00	1.303+10
2p4p ¹ S ₀	3d6f ¹ P ₁	147.74	1.184+09	2p5d ³ P ₀	3d5d ³ D ₁	173.95	4.043+10
2p4p ³ P ₂	3s4p ³ P ₁	189.01	7.734+09	2p5d ³ P ₁	3d5d ³ D ₁	173.94	1.276+10
2p4p ³ P ₁	3s4p ³ P ₂	188.94	6.493+09	2p5d ³ D ₁	3d5d ³ D ₁	173.70	9.591+10
2p4p ³ S ₁	3s4p ³ P ₂	187.98	5.250+09	2p5d ³ D ₁	3s6d ³ D ₁	172.92	1.352+10
2p4p ³ P ₂	3p4s ³ P ₁	183.76	4.841+09	2p5d ³ P ₀	3d5d ³ S ₁	172.81	2.154+10
2p4p ³ P ₁	3p4s ³ P ₂	183.67	5.454+09	2p5d ³ P ₁	3d5d ³ S ₁	172.80	6.330+10
2p4p ³ P ₁	3s4f ³ F ₂	182.83	1.442+09	2p5d ³ P ₁	3d5d ³ P ₁	172.49	6.509+10
2p4p ³ P ₂	3p4d ³ D ₁	179.50	1.480+09	2p5d ³ P ₁	3d5d ³ P ₀	172.47	4.626+10
2p4p ¹ D ₂	3p4d ³ D ₂	178.90	1.301+09	2p5d ³ P ₁	3d5d ³ P ₀	172.47	3.968+10
2p4p ³ D ₂	3p4d ³ D ₂	178.12	4.947+09	2p5d ³ P ₁	3d5d ³ P ₀	172.24	5.899+10
2p4p ³ D ₂	3p4d ³ D ₂	178.07	3.667+09	2p5d ¹ P ₁	3d5d ¹ S ₀	170.87	5.899+10
2p4p ³ P ₂	3p4d ³ P ₁	176.10	1.158+09	2p5d ¹ P ₁	3s5d ¹ D ₂	186.04	1.203+10
2p4p ³ P ₁	3p4d ³ P ₂	176.05	1.330+09	2p5d ³ F ₂	3s5d ³ D ₁	184.68	1.345+10
2p4p ¹ P ₁	3p4d ³ F ₂	175.44	1.513+09	2p5d ³ P ₂	3p5p ³ S ₁	177.73	1.850+10
2p4p ³ D ₁	3d4p ¹ D ₂	174.96	6.294+09	2p5d ¹ P ₁	3d5s ¹ D ₂	176.31	1.953+10
2p4p ³ D ₂	3p4p ³ P ₁	174.77	3.553+09	2p5d ³ P ₂	3s6s ³ S ₁	175.05	1.089+10
2p4p ³ D ₂	3d4p ³ D ₁	174.46	2.921+09	2p5d ¹ P ₁	3s6d ¹ D ₂	174.05	3.872+10
2p4p ³ P ₂	3d4p ³ P ₁	174.01	5.864+09	2p5d ³ D ₂	3d5d ³ D ₁	173.72	2.372+10
2p4p ¹ P ₁	3d4p ³ D ₂	173.10	9.271+09	2p5d ³ P ₁	3d5d ³ F ₂	173.35	1.031+10
2p4p ³ D ₁	3d4p ³ P ₁	172.65	4.470+09	2p5d ³ F ₂	3d5d ³ D ₁	173.27	1.191+10
2p4p ³ D ₂	3d4f ¹ D ₂	170.26	4.889+09	2p5d ¹ D ₂	3d5d ¹ P ₁	173.20	4.247+10
2p4p ³ S ₁	3d4f ³ P ₂	168.56	6.926+09	2p5d ³ P ₁	3s6d ³ D ₂	173.15	1.569+10
2p4p ³ D ₂	3d4f ³ P ₁	168.15	1.591+09	2p5d ³ P ₁	3d5d ¹ D ₂	173.10	2.041+10
2p4p ¹ D ₂	3p5s ³ P ₂	158.98	1.364+09	2p5d ³ D ₂	3d5d ³ S ₁	172.58	1.364+10
2p4p ³ S ₁	3p5d ³ P ₂	157.74	1.029+09	2p5d ³ D ₂	3d5d ³ P ₂	172.47	8.041+10

TABLE VI. continued.

	1	2	3	4	5	6	7	8
$2p4f^3 F_3$	180.28	$3p4d^1 D_2$	1.655+09	$2p5g^3 H_4$	$3d5g^3 F_3$	172.62	2.676+10	
$2p4f^1 F_3$	180.23	$3p4d^1 D_2$	5.438+09	$2p5g^1 G_4$	$3d5g^1 F_3$	172.53	9.168+10	
$2p4f^3 D_3$	179.94	$3p4d^3 F_4$	5.763+09	$2p5g^3 G_4$	$3d5g^3 F_3$	172.52	9.115+10	
$2p4f^3 F_3$	179.18	$3p4d^3 F_2$	1.615+09	$2p5g^3 H_5$	$3s6g^3 G_5$	172.48	4.982+10	
$2p4f^3 F_3$	179.14	$3p4d^3 F_4$	1.470+09	$2p5g^3 H_4$	$3s6g^3 G_4$	172.48	2.147+10	
$2p4f^1 F_3$	179.11	$3p4d^1 F_3$	5.644+09	$2p5g^1 G_4$	$3d5g^3 F_4$	172.46	7.047+10	
$2p4f^3 G_3$	178.86	$3d4p^3 F_3$	1.549+09	$2p5g^3 G_4$	$3d5g^3 F_4$	172.46	2.463+10	
$2p4f^3 D_3$	178.46	$3d4p^3 F_2$	1.033+09	$2p5g^1 G_4$	$3s6g^3 G_3$	172.33	1.200+10	
$2p4f^3 F_3$	177.69	$3d4p^3 F_2$	3.139+09	$2p5g^3 G_5$	$3s6g^3 G_4$	172.33	1.380+10	
$2p4f^1 F_3$	177.66	$3d4p^1 F_3$	3.562+09	$2p5g^1 G_4$	$3s6g^3 G_4$	172.33	3.025+10	
$2p4f^1 F_3$	177.63	$3d4p^3 F_2$	1.322+09	$2p5g^3 G_6$	$3s6g^3 G_5$	172.33	9.438+10	
$2p4f^3 D_3$	177.16	$3d4p^3 D_3$	6.055+09	$2p5g^3 G_4$	$3s6g^3 G_4$	172.32	6.056+10	
$2p4f^3 D_3$	176.73	$3d4f^1 G_4$	1.768+09	$2p5g^3 G_4$	$3d5g^3 D_3$	171.83	1.136+10	
$2p4f^3 F_3$	176.39	$3d4p^3 D_2$	1.110+09	$2p5g^3 H_4$	$3s6g^1 G_4$	171.30	1.197+10	
$2p4f^3 F_3$	175.84	$3d4f^3 H_4$	4.574+09	$2p5g^1 G_4$	$3s6g^1 G_4$	171.15	2.918+10	
$2p4f^1 F_3$	175.79	$3d4f^3 H_4$	2.095+09	$2p5g^3 G_4$	$3s6g^1 G_4$	171.14	2.987+10	
$2p4f^3 G_3$	175.56	$3d4f^3 F_3$	2.888+09	$2p5g^3 H_4$	$3p6h^3 I_6$	164.91	1.376+10	
$2p4f^3 D_3$	175.20	$3d4f^3 F_3$	8.422+09	$2p5g^3 H_5$	$3p6h^3 I_6$	164.90	1.439+10	
$2p4f^1 F_3$	174.39	$3d4f^3 F_2$	6.023+09	$2p5g^3 F_2$	$3s6g^3 G_3$	183.83	2.031+10	
$2p4f^3 D_3$	173.89	$3d4f^3 G_4$	2.600+09	$2p5g^3 F_2$	$3d5g^3 F_3$	172.74	3.043+10	
$2p4f^3 F_3$	173.42	$3d4f^1 F_3$	6.982+09	$2p5g^3 F_2$	$3s6g^3 G_3$	172.61	3.770+10	
$2p4f^1 F_3$	173.09	$3d4f^3 G_3$	9.277+09	$2p5g^3 F_2$	$3d5g^3 D_2$	172.11	5.031+10	
$2p4f^3 F_3$	172.22	$3d4f^3 D_3$	9.370+09	$2p5g^1 F_3$	$3s5g^3 G_3$	183.76	1.119+10	
$2p4f^3 D_3$	172.15	$3d4f^1 F_3$	1.286+09	$2p5g^1 F_3$	$3d5g^3 G_3$	173.09	1.305+10	
$2p4f^1 F_3$	171.16	$3d4f^3 P_2$	3.560+09	$2p5g^3 F_3$	$3d5g^3 F_2$	172.74	1.716+10	
$2p4f^3 G_3$	164.39	$3s5f^1 F_3$	3.412+09	$2p5g^3 F_3$	$3d5d^1 D_2$	172.55	4.042+10	
$2p4f^3 G_3$	158.78	$3p5g^3 H_4$	3.640+09	$2p5g^1 F_3$	$3d5d^1 D_2$	172.49	4.779+10	
$2p4f^3 G_3$	157.93	$3p5g^3 G_4$	2.253+09	$2p5g^1 F_3$	$3d5g^3 D_3$	172.11	2.949+10	
$2p4f^3 D_3$	157.67	$3p5g^3 F_4$	1.717+09	$2p5g^3 F_3$	$3d5g^3 D_3$	172.05	1.877+10	
$2p4f^3 G_3$	157.17	$3d5f^3 H_4$	5.300+09	$2p5g^1 H_5$	$3s5g^3 G_4$	183.83	1.503+10	
$2p4f^3 G_3$	155.77	$3s6h^3 H_4$	1.910+09	$2p5g^3 F_4$	$3s5g^3 G_4$	183.77	2.209+10	
$2p4f^3 D_3$	155.56	$3d5f^3 P_2$	1.233+09	$2p5g^3 F_4$	$3s5g^3 G_4$	183.76	1.114+10	
$2p4f^1 F_3$	154.50	$3d5f^1 F_3$	2.303+09	$2p5g^1 H_5$	$3s5g^3 G_5$	183.76	2.511+10	
$2p4f^3 D_3$	150.71	$3p6d^3 D_3$	2.011+09	$2p5g^1 F_3$	$3s5g^1 G_4$	183.10	2.441+10	
$2p4f^3 D_3$	150.54	$3p6d^3 F_4$	2.811+09	$2p5g^3 F_3$	$3s4f^3 F_5$	187.37	1.006+10	
$2p4f^3 G_3$	150.32	$3p6g^3 F_4$	3.076+09	$2p5g^1 F_3$	$3s4f^3 F_5$	186.50	2.112+10	
$2p4f^3 D_3$	150.27	$3p6d^3 F_2$	1.345+09	$2p5g^3 F_4$	$3s4f^3 F_4$	186.50	2.022+10	
$2p4f^3 F_3$	150.15	$3p6d^3 D_3$	2.375+09	$2p5g^3 F_3$	$3s4f^3 F_3$	186.44	3.034+10	
$2p4f^1 F_3$	150.11	$3p6d^3 D_3$	6.069+09	$2p5g^1 H_5$	$3s4f^1 F_5$	186.44	7.765+10	
$2p4f^3 F_3$	149.98	$3p6d^3 F_4$	3.468+09	$2p5g^1 F_3$	$3d5g^3 G_4$	173.15	1.146+10	
$2p4f^1 F_3$	149.94	$3p6d^3 F_4$	8.822+09	$2p5g^1 H_5$	$3d5g^3 H_4$	173.11	3.255+10	
		$3p6d^1 F_3$			$3d5g^3 G_4$	173.10	2.218+10	

TABLE VI. continued.

	1	2	3	4	5	6	7	8
$2p4f^1 D_2$	186.62	$3s4f^1 F_3$	5.542+09	$2p5d^1 F_4$	$2p5d^3 F_4$	$3p5f^3 G_5$	175.53	9.107+10
$2p4f^3 F_2$	186.46	$3s4f^3 F_3$	5.352+09	$2p5d^3 F_3$	$2p5d^3 F_3$	$3p5f^3 G_4$	175.47	6.484+10
$2p4f^3 D_2$	182.41	$3p4d^3 D_2$	3.218+09	$2p5d^3 F_4$	$3d5d^3 D_3$	$3d5d^3 D_3$	173.42	3.229+10
$2p4f^3 D_2$	181.13	$3p4d^1 D_2$	1.071+09	$2p5d^3 F_4$	$3d5d^3 F_4$	$3d5d^3 F_4$	173.39	4.494+10
$2p4f^3 D_2$	180.00	$3p4d^3 F_3$	3.832+09	$2p5d^3 F_4$	$3d5d^3 F_3$	$3d5d^3 F_3$	172.84	1.616+10
$2p4f^1 D_2$	179.33	$3d4p^1 D_2$	1.748+09	$2p5d^3 F_4$	$3d5d^3 F_4$	$3d5d^3 G_6$	172.22	1.141+10
$2p4f^3 F_2$	179.12	$3p4d^3 F_3$	1.796+09	$2p5d^3 G_3$	$3s5g^3 G_3$	$3s5g^3 G_3$	183.51	3.870+10
$2p4f^3 D_2$	178.92	$3p4d^3 F_2$	8.550+09	$2p5d^3 G_3$	$3d5g^1 F_3$	$3d5g^1 F_3$	172.52	2.741+10
$2p4f^3 D_2$	178.51	$3d4p^3 F_2$	1.074+09	$2p5d^3 G_3$	$3s6g^3 G_3$	$3s6g^3 G_3$	172.32	8.374+10
$2p4f^3 F_2$	177.65	$3d4p^3 F_3$	1.861+09	$2p5d^3 G_3$	$3d5g^3 D_2$	$3d5g^3 D_2$	171.82	2.135+10
$2p4f^3 D_2$	177.21	$3d4p^3 D_2$	3.302+09	$2p5d^3 G_3$	$3d5g^1 D_2$	$3d5g^1 D_2$	171.34	2.437+10
$2p4f^1 D_2$	175.41	$3d4f^3 F_2$	2.053+09	$2p5d^3 H_5$	$3s5g^3 G_4$	$3s5g^3 G_4$	183.69	2.982+10
$2p4f^1 D_2$	175.41	$3d4f^3 F_3$	6.177+09	$2p5d^3 H_4$	$3s5g^3 G_3$	$3s5g^3 G_3$	183.69	3.650+10
$2p4f^3 D_2$	175.24	$3d4f^3 F_2$	8.816+09	$2p5d^3 H_5$	$3s5g^3 G_5$	$3s5g^3 G_5$	183.69	1.437+10
$2p4f^3 D_2$	174.20	$3d4p^1 F_3$	1.792+09	$2p5d^3 G_6$	$3s5g^3 G_5$	$3s5g^3 G_5$	183.52	6.570+10
$2p4f^3 D_2$	173.93	$3d4f^3 G_3$	1.968+09	$2p5d^1 G_4$	$3s5g^3 G_4$	$3s5g^3 G_4$	183.52	2.738+10
$2p4f^1 D_2$	173.16	$3d4f^3 D_2$	9.561+09	$2p5d^3 G_4$	$3s5g^3 G_4$	$3s5g^3 G_4$	183.51	2.373+10
$2p4f^1 D_2$	173.16	$3d4f^3 D_3$	2.124+09	$2p5d^3 G_4$	$3s5g^3 G_5$	$3s5g^3 G_5$	183.50	1.142+10
$2p4f^3 F_2$	172.19	$3d4f^3 D_2$	6.108+09	$2p5d^3 H_5$	$3s5g^1 G_4$	$3s5g^1 G_4$	183.02	1.362+10
$2p4f^1 D_2$	172.15	$3d4f^3 F_2$	7.535+09	$2p5d^3 H_4$	$3s5g^1 G_4$	$3s5g^1 G_4$	183.02	1.269+10
$2p4f^1 D_2$	172.15	$3s5f^3 F_3$	3.273+09	$2p5d^3 G_4$	$3s5g^1 G_4$	$3s5g^1 G_4$	182.85	3.139+10
$2p4f^1 D_2$	165.29	$3p5g^3 G_3$	4.545+09	$2p5d^3 G_4$	$3s5g^1 G_4$	$3s5g^1 G_4$	182.84	3.206+10
$2p4f^3 F_2$	157.91	$3p5g^1 F_3$	1.536+09	$2p5d^3 H_4$	$3d5d^1 G_4$	$3d5d^1 G_4$	173.17	1.123+10
$2p4f^1 D_2$	157.64	$3p5g^1 F_3$	1.580+09	$2p5d^3 H_4$	$3d5g^1 H_5$	$3d5g^1 H_5$	173.15	7.761+10
$2p4f^1 D_2$	155.30	$3d5f^1 F_3$	1.913+09	$2p5d^3 H_5$	$3d5g^3 H_5$	$3d5g^3 H_5$	173.04	4.043+10
$2p4f^1 D_2$	150.86	$3p6d^1 D_2$	2.841+09	$2p5d^3 H_4$	$3d5g^3 G_3$	$3d5g^3 G_3$	173.03	1.990+10
$2p4f^1 D_2$	150.75	$3p6d^3 D_2$	1.053+09	$2p5d^3 H_4$	$3d5g^3 G_4$	$3d5g^3 G_4$	173.03	9.820+10
$2p4f^1 D_2$	150.72	$3p6d^3 F_3$	1.171+09	$2p5d^3 H_4$	$3d5g^3 G_5$	$3d5g^3 G_5$	173.02	1.380+10
$2p4f^1 D_2$	150.70	$3p6d^3 F_3$	2.000+09	$2p5d^1 G_4$	$3d5d^1 G_4$	$3d5d^1 G_4$	173.01	3.343+10
$2p4f^3 F_2$	150.59	$3p6d^3 F_3$	1.506+09	$2p5d^3 G_5$	$3d5d^1 G_4$	$3d5d^1 G_4$	173.00	3.207+10
$2p4f^3 F_2$	150.13	$3p6d^3 D_3$	1.427+09	$2p5d^3 G_5$	$3d5g^1 H_5$	$3d5g^1 H_5$	173.00	6.256+10
$2p4f^3 F_2$	149.98	$3p6d^3 F_2$	1.648+09	$2p5d^3 G_4$	$3d5g^3 H_4$	$3d5g^3 H_4$	172.88	3.023+10
$2p4f^3 F_2$	149.96	$3p6d^3 F_3$	8.580+09	$2p5d^1 G_4$	$3d5g^3 G_3$	$3d5g^3 G_3$	172.87	4.152+10
$2p4f^3 F_2$	149.96	$3p6d^3 P_2$	2.399+09	$2p5d^3 G_5$	$3d5g^3 G_4$	$3d5g^3 G_4$	172.87	4.147+10
$2p4f^3 D_3$	187.37	$3s4f^3 F_5$	3.706+09	$2p5d^1 G_4$	$3d5g^3 G_4$	$3d5g^3 G_4$	172.87	4.768+10
$2p4f^3 F_3$	186.50	$3s4f^3 F_5$	4.309+09	$2p5d^1 G_4$	$3d5g^3 G_5$	$3d5g^3 G_5$	172.87	1.910+10
$2p4f^3 F_3$	186.50	$3s4f^3 F_4$	3.035+09	$2p5d^3 H_5$	$3d5g^1 G_4$	$3d5g^1 G_4$	172.86	1.796+10
$2p4f^1 F_3$	186.44	$3s4f^3 F_5$	8.360+09	$2p5d^3 H_4$	$3d5g^1 G_4$	$3d5g^1 G_4$	172.86	5.639+10
$2p4f^1 F_3$	186.44	$3s4f^3 F_4$	2.530+09	$2p5d^3 G_3$	$3d5g^3 G_4$	$3d5g^3 G_4$	172.86	2.233+10
$2p4f^3 D_3$	182.36	$3p4d^3 D_3$	6.035+09	$2p5d^3 H_5$	$3d5g^3 G_4$	$3d5g^3 G_4$	172.86	2.121+10
$2p4f^3 F_3$	181.55	$3p4d^3 F_3$	1.878+09	$2p5d^3 H_4$	$3d5g^1 F_6$	$3d5g^1 F_6$	172.69	3.779+10
$2p4f^3 F_3$	180.84	$3p4d^1 F_3$	9.961+09	$2p5d^3 H_5$	$3d5g^3 F_4$	$3d5g^3 F_4$	172.62	8.152+10

TABLE VI. continued.

1	2	3	4	5	6	7	8
$2p4f^3F_4$	$3d5f^3D_3$	155.29	1.289+09	$2s6p^3P_2$	$3p6p^3S_1$	149.67	2.439+10
$2p4f^1G_4$	$3p6d^3F_3$	150.94	1.352+09	$2s6p^3P_2$	$3d4d^3D_3$	176.10	1.957+10
$2p4f^1G_4$	$3p6d^3F_3$	150.92	1.392+09	$2s6p^3P_2$	$3p4f^3D_3$	174.16	1.271+10
$2p4f^1G_4$	$3p6p^3G_4$	150.43	8.955+09	$2s6p^3P_2$	$3d4d^3P_2$	171.63	4.102+10
$2p4f^3G_4$	$3p6p^1G_4$	150.39	9.885+09	$2s6p^3P_2$	$3p6p^3D_2$	149.98	2.655+10
$2p4f^3G_5$	$3p6p^3G_4$	150.37	7.129+09	$2s6p^3P_2$	$3p6p^3P_2$	149.81	6.989+10
$2p4f^3G_4$	$3p6p^3G_3$	150.34	6.282+09	$2s6f^3F_2$	$3p6f^3D_1$	149.74	6.999+10
$2p4f^1G_4$	$3p6p^3G_5$	150.33	2.372+09	$2s6f^3F_2$	$3d4d^3G_2$	176.63	2.908+10
$2p4f^1G_5$	$3p6p^3H_5$	150.26	6.772+09	$2s6f^3F_2$	$3p6f^3D_2$	149.75	1.538+10
$2p4f^3G_5$	$3p6p^3H_5$	150.20	2.188+09	$2s6f^1F_3$	$3d4d^1F_3$	177.28	3.513+10
$2p4f^3G_4$	$3p6p^3H_4$	150.17	3.080+09	$2s6f^3F_3$	$3d4d^3F_3$	174.69	1.172+10
$2p4f^1G_4$	$3p6p^3F_3$	150.03	7.156+09	$2s6f^3F_2$	$3p6f^3F_2$	150.10	1.573+10
$2p4f^3G_4$	$3p6p^3F_4$	149.95	7.606+09	$2s6f^3F_3$	$3p6f^3D_3$	149.76	1.636+10
$2p4f^3G_4$	$3p6p^1F_3$	149.67	8.697+09	$2s6f^1F_3$	$3p6f^1D_2$	149.08	7.051+10
$2p4f^3G_4$	$3p6p^1G_4$	149.56	2.618+09	$2s6f^1F_3$	$3d6s^1D_2$	148.56	2.932+10
$2p4f^3F_4$	$3p6p^3G_4$	149.51	2.395+09	$2s6f^3F_3$	$3p4f^3G_4$	179.21	1.204+10
$2p4f^3F_4$	$3p6p^3H_5$	149.34	2.463+09	$2s6f^3F_4$	$3p4f^3G_5$	179.20	1.732+10
$2p4f^3F_4$	$3p6p^3H_5$	149.11	1.706+09	$2s6f^3F_3$	$3d4d^3G_4$	176.63	4.043+10
$2p4f^3F_4$	$3p6p^1H_5$	148.91	2.179+09	$2s6f^3F_4$	$3d4d^3G_5$	176.62	5.705+10
$2p4f^3F_4$	$3p6p^1F_3$	148.85	1.819+09	$2s6f^1F_3$	$3p4f^1G_4$	175.60	5.362+10
$2p4f^3G_5$	$3d6f^3H_6$	148.73	9.541+09	$2s6f^3F_4$	$3d4d^3F_4$	174.69	1.961+10
$2p4f^1G_4$	$3d6p^1F_3$	148.72	3.974+09	$2s6f^3F_4$	$3p6f^3F_4$	150.10	1.709+10
$2p4f^1G_4$	$3d6f^3H_5$	148.70	7.237+09	$2s6h^3H_5$	$3p6h^1H_5$	149.62	1.475+10
$2p4f^1G_4$	$3d6f^1F_3$	148.17	2.499+09	$2s6h^3H_6$	$3p6h^3H_4$	149.62	1.034+10
$2p4f^1G_4$	$3d6h^1F_3$	148.07	3.798+09	$2s6h^1H_5$	$3p6h^3H_5$	149.62	1.041+10
$2p4f^1G_4$	$3d6f^1H_5$	147.84	7.747+09	$2s6h^3H_6$	$3p6h^3G_4$	149.31	1.061+10
$2p4f^3F_4$	$3d6f^3D_3$	147.48	1.800+09	$2s6h^3H_4$	$3p6h^3G_4$	149.31	1.261+10
$2p5p^1S_0$	$3p4d^1P_1$	203.92	1.138+09	$2s6h^3H_5$	$3p6h^1G_4$	149.29	1.271+10
$2p5p^1S_0$	$3s5p^1P_1$	187.07	3.587+09	$2s6h^3H_6$	$3d5p^3I_7$	155.81	1.159+10
$2p5p^3P_0$	$3s5p^3P_0$	185.41	7.556+09	$2p4s^3P_0$	$3s4s^3S_1$	188.89	4.937+09
$2p5p^3P_1$	$3s5p^3P_1$	185.40	5.703+09	$2p4s^3P_1$	$3s4d^3D_1$	182.25	3.411+09
$2p5p^3P_0$	$3s5p^3P_0$	185.35	5.544+09	$2p4s^3P_0$	$3s4d^3D_1$	182.19	4.564+09
$2p5p^3S_1$	$3s5p^3P_1$	185.16	2.645+09	$2p4s^3P_1$	$3p4p^3S_1$	175.41	1.901+09
$2p5p^3D_1$	$3s5p^3P_0$	184.72	7.165+09	$2p4s^3P_1$	$3p4f^3D_1$	168.88	3.917+09
$2p5p^3D_1$	$3s5p^3P_1$	184.72	5.959+09	$2p4s^3P_0$	$3p4f^3D_1$	168.84	5.285+09
$2p5p^1P_1$	$3s5p^3P_0$	184.57	1.260+09	$2p4s^1P_1$	$3p5p^1P_1$	156.24	1.882+09
$2p5p^1P_1$	$3s5p^3P_1$	184.56	1.337+09	$2p4s^1P_1$	$3d5d^1S_0$	149.71	1.932+09
$2p5p^3D_1$	$3s5p^1P_1$	184.52	2.515+09	$2p4s^1P_1$	$3p6p^1P_1$	147.03	5.927+09
$2p5p^1S_0$	$3p5s^1P_1$	179.77	5.433+09	$2p4s^1P_1$	$2p6d^1D_2$	884.33	1.901+09
$2p5p^3P_1$	$3p5s^3P_0$	178.64	1.643+09	$2p4s^3P_2$	$3p4p^3D_1$	176.37	1.771+09
$2p5p^3P_0$	$3p5s^3P_1$	178.57	3.172+09	$2p4s^3P_2$	$3p4p^3S_1$	175.52	3.205+09
$2p5p^3S_1$	$3p5p^3P_0$	178.41	3.919+09	$2p4s^3P_2$	$3d4s^3D_1$	174.03	4.767+09

TABLE VI. continued.

1	2	3	4	5	6	7	8
$2p4f^3G_3$	$3p6g^3F_3$	149.92	7.571+09	$2p5g^1H_5$	$3d5g^3G_5$	173.09	1.118+10
$2p4f^3F_3$	$3p6d^3P_2$	149.71	1.587+09	$2p5g^1F_3$	$3d5g^3G_4$	173.09	9.901+10
$2p4f^1F_3$	$3p6d^1P_2$	149.68	3.801+09	$2p5g^3F_3$	$3d5g^1G_4$	172.99	4.784+10
$2p4f^3F_3$	$3p6g^3G_3$	149.50	3.266+09	$2p5g^1H_5$	$3d5g^1G_4$	172.94	3.385+10
$2p4f^3F_3$	$3p6g^3H_4$	149.34	3.229+09	$2p5g^1F_3$	$3d5g^1G_4$	172.93	6.491+10
$2p4f^3F_3$	$3p6g^3F_2$	149.09	2.312+09	$2p5g^3F_4$	$3d5g^1G_4$	172.93	1.594+10
$2p4f^3G_3$	$3d6f^1D_3$	148.69	6.412+09	$2p5g^1H_5$	$3d5g^3F_5$	172.89	1.098+10
$2p4f^3D_3$	$3d6f^3D_3$	148.01	1.344+09	$2p5g^3F_4$	$3d5g^3F_5$	172.75	1.265+10
$2p4f^3D_3$	$3d6f^3P_2$	147.87	2.754+09	$2p5g^3F_4$	$3d5g^3F_4$	172.74	1.843+10
$2p4f^3F_3$	$3d6f^3D_2$	147.47	1.137+09	$2p5g^1F_3$	$3d5g^3F_4$	172.68	1.211+10
$2p4f^1G_4$	$3s4f^3F_3$	187.95	1.477+09	$2p5g^3F_3$	$3s6g^3G_4$	172.61	2.776+10
$2p4f^3F_4$	$3s4f^3F_3$	186.51	5.122+09	$2p5g^1H_6$	$3s6g^3G_4$	172.55	1.034+10
$2p4f^3F_4$	$3p4d^3D_3$	181.56	3.408+09	$2p5g^1F_3$	$3s6g^3G_4$	172.54	2.779+10
$2p4f^3F_4$	$3p4d^3F_3$	179.17	2.172+09	$2p5g^3F_4$	$3s6g^3G_5$	172.54	6.599+10
$2p4f^3G_6$	$3d4p^3F_4$	178.90	3.199+09	$2p5g^3F_3$	$3s6g^1G_4$	171.43	2.098+10
$2p4f^3G_4$	$3d4p^3F_3$	178.87	1.895+09	$2p5g^1H_6$	$3s6g^1G_4$	171.37	1.036+10
$2p4f^3F_3$	$3d4p^3F_3$	177.69	4.282+09	$2p5g^1F_3$	$3s6g^1G_4$	171.37	2.156+10
$2p4f^3G_4$	$3d4f^1G_4$	177.12	9.982+09	$2p5g^1H_5$	$3p6h^1I_6$	164.92	2.165+10
$2p4f^3F_4$	$3d4p^3D_3$	176.40	2.025+09	$2p5g^3H_6$	$3s5g^3G_5$	183.77	6.174+10
$2p4f^3F_4$	$3d4f^3H_5$	175.85	2.261+09	$2p5g^3H_6$	$3d5g^3H_6$	173.11	2.898+10
$2p4f^1G_4$	$3d4f^3F_3$	175.71	2.442+09	$2p5g^3H_6$	$3d5g^3G_5$	173.09	6.192+10
$2p4f^3G_4$	$3d4f^3F_4$	175.58	3.798+09	$2p5g^3H_6$	$3d5g^3I_6$	173.09	2.674+10
$2p4f^1G_4$	$3d4p^1F_3$	174.67	2.119+09	$2p5g^3H_6$	$3s6g^3G_5$	172.55	2.867+10
$2p4f^3G_5$	$3d4f^3G_4$	174.31	7.406+09	$2p5g^3H_6$	$3p6h^3I_7$	164.95	2.606+10
$2p4f^3G_4$	$3d4f^3G_3$	174.27	6.343+09	$2s6p^3P_1$	$3d4d^3S_1$	172.97	1.132+10
$2p4f^3G_4$	$3d4f^1F_3$	172.52	2.192+09	$2s6p^3P_0$	$3d4d^3P_1$	171.64	1.054+10
$2p4f^3F_4$	$3d4f^1H_6$	170.78	2.761+09	$2s6p^3P_1$	$3d4d^3P_0$	171.64	1.199+10
$2p4f^1G_4$	$3p5p^3G_4$	159.09	3.302+09	$2s6p^1P_1$	$3p6p^1P_1$	150.44	6.090+10
$2p4f^3G_5$	$3p5p^3G_6$	158.90	6.439+09	$2s6p^3P_0$	$3p6p^3D_1$	150.00	2.879+10
$2p4f^3G_4$	$3p5p^3G_4$	158.87	4.316+09	$2s6p^3P_1$	$3p6p^3D_1$	150.00	2.393+10
$2p4f^3G_6$	$3p5p^3H_6$	158.81	3.550+09	$2s6p^3P_1$	$3p6p^3P_0$	149.83	2.018+10
$2p4f^3G_4$	$3p5p^3H_5$	158.78	2.720+09	$2s6p^3P_0$	$3p6p^3P_1$	149.82	2.053+10
$2p4f^3G_5$	$3p5p^3F_4$	158.02	1.624+09	$2s6p^3P_1$	$3p6p^3P_1$	149.82	1.158+10
$2p4f^3G_4$	$3p5p^3F_3$	157.98	1.086+09	$2s6p^3P_1$	$3p6p^3S_1$	149.67	1.971+10
$2p4f^1G_4$	$3p5p^3F_3$	157.94	2.845+09	$2s6p^1P_1$	$3p6p^1S_0$	149.14	1.386+10
$2p4f^1G_4$	$3p5p^1F_3$	157.88	2.082+09	$2s6p^3P_2$	$3d4d^3S_1$	172.96	2.018+10
$2p4f^1G_4$	$3d5f^1G_4$	157.42	1.818+09	$2s6p^3P_1$	$3d4d^3P_2$	171.63	1.341+10
$2p4f^3G_5$	$3d5f^3H_6$	157.22	8.235+09	$2s6p^3P_2$	$3d4d^3P_1$	171.63	1.649+10
$2p4f^3G_4$	$3d5f^3H_5$	157.18	6.087+09	$2s6p^1P_1$	$3p6p^1D_2$	150.02	9.545+10
$2p4f^1G_4$	$3s6h^1H_6$	155.82	3.159+09	$2s6p^3P_1$	$3p6p^3D_2$	149.99	6.475+10
$2p4f^3G_5$	$3s6h^3H_6$	155.81	3.136+09	$2s6p^3P_2$	$3p6p^3P_1$	149.82	2.802+10
$2p4f^3G_4$	$3s6h^3H_5$	155.78	2.283+09	$2s6p^3P_1$	$3p6p^3P_2$	149.81	2.958+10

TABLE VI. continued.

1	2	3	4	5	6	7	8
2p5p ¹ P ₁	3d5f ¹ D ₂	171.10	3.816+09	2s5p ³ P ₁	3p5f ³ F ₂	149.36	2.102+09
2p5p ³ P ₁	3d5f ³ P ₂	170.83	3.330+09	2s5p ¹ P ₁	3p5f ¹ D ₂	147.87	3.060+09
2p5p ³ S ₁	3d5f ³ P ₂	170.62	7.046+09	2s5p ³ P ₁	3d5d ³ D ₂	147.77	4.451+09
2p5p ³ D ₂	3d5f ³ P ₁	170.27	1.491+09	2s5p ³ P ₁	3s6d ³ D ₂	147.20	2.591+09
2p5p ³ D ₂	3d5f ³ P ₁	169.95	2.206+09	2s5p ³ P ₂	3d5d ³ S ₁	146.95	6.115+09
2p5p ³ S ₁	3p6s ³ P ₂	166.04	1.664+09	2s5p ³ P ₁	3d5d ³ P ₁	146.72	1.401+09
2p5p ³ P ₂	3p4d ³ D ₃	203.75	1.350+09	2s5p ³ P ₁	3d5d ³ P ₂	146.71	1.547+09
2p5p ³ D ₂	3s5p ³ F ₃	203.47	2.034+09	2s5p ³ P ₁	3d5d ³ D ₂	146.43	8.022+09
2p5p ³ D ₂	3s5p ³ P ₂	184.75	8.682+09	2s5p ³ P ₁	3d5p ³ D ₂	145.76	2.187+09
2p5p ³ D ₂	3s5f ³ F ₃	182.94	4.685+09	2s5p ³ P ₂	3s4d ³ D ₃	176.55	1.059+09
2p5p ³ D ₂	3p5d ³ F ₃	175.40	1.002+09	2s5p ³ P ₂	3d4d ³ D ₃	165.71	1.012+09
2p5p ³ D ₂	3p5d ³ F ₂	175.01	5.844+09	2s5p ³ P ₂	3d4d ³ P ₂	161.75	1.420+09
2p5p ³ D ₂	3d5p ³ D ₂	173.97	1.332+09	2s5p ³ P ₂	3s5d ³ D ₂	156.00	1.142+09
2p5p ³ D ₂	3d5p ³ D ₃	173.96	1.521+09	2s5p ³ P ₂	3s5d ³ D ₃	156.00	6.332+09
2p5p ³ P ₂	3d5p ³ F ₃	173.67	1.548+09	2s5p ³ P ₂	3d5s ³ D ₂	149.37	3.084+09
2p5p ³ P ₂	3p5p ³ F ₃	173.40	1.111+09	2s5p ³ P ₂	3p5f ³ F ₃	149.37	9.475+09
2p5p ³ D ₂	3d5p ³ D ₃	172.90	5.955+09	2s5p ³ P ₂	3d5d ³ D ₂	147.77	1.492+09
2p5p ³ P ₂	3s6p ³ P ₂	172.77	6.128+09	2s5p ³ P ₂	3d5d ³ D ₃	147.77	8.420+09
2p5p ³ D ₂	3d5f ³ G ₃	172.10	1.076+09	2s5p ³ P ₂	3s6d ³ D ₃	147.20	4.943+09
2p5p ³ P ₂	3d5p ³ F ₃	171.67	1.131+09	2s5p ³ P ₂	3d5d ³ P ₂	146.71	4.536+09
2p5p ³ D ₂	3s6f ³ F ₃	171.66	1.147+09	2s5f ³ F ₂	3d5s ³ D ₁	150.59	5.537+09
2p5p ³ D ₂	3d5f ³ F ₂	171.65	3.901+09	2s5f ³ F ₂	3d5d ³ D ₁	148.97	1.031+09
2p5p ³ D ₂	3s6f ³ F ₃	171.17	3.345+09	2s5f ³ F ₂	3s6d ³ D ₁	148.39	5.699+09
2p5p ³ P ₂	3d5f ³ P ₂	170.86	3.566+09	2s5f ³ F ₂	3d4d ³ G ₃	166.55	2.957+09
2p5p ³ D ₂	3d5f ³ F ₃	170.77	3.971+09	2s5f ³ F ₂	3s5p ³ G ₃	155.82	1.184+09
2p5p ³ P ₂	3p6s ³ P ₂	166.27	1.184+09	2s5f ³ F ₂	3d5d ³ F ₂	148.54	3.438+09
2p5p ³ D ₂	3p6d ³ F ₃	165.26	3.318+09	2s5f ³ F ₂	3s6d ³ D ₂	148.39	1.102+09
2p5p ³ D ₂	3p6d ³ F ₃	165.23	3.318+09	2s5f ³ F ₂	3d5p ³ G ₃	148.08	5.575+09
2p5p ³ D ₂	3p6d ³ F ₃	165.03	1.730+09	2s5f ³ F ₂	3s6p ³ G ₃	147.68	1.160+09
2p5p ³ D ₃	3p5d ³ D ₂	175.70	2.283+09	2s5f ³ F ₃	3d4d ³ F ₃	167.65	4.209+09
2p5p ³ D ₃	3p5d ³ F ₃	175.09	5.787+09	2s5f ³ F ₃	3s5d ³ D ₂	157.19	1.491+09
2p5p ³ D ₃	3p5d ³ P ₂	174.59	1.017+09	2s5f ³ F ₃	3p5f ³ F ₂	150.58	5.178+09
2p5p ³ D ₃	3d5p ³ F ₂	173.15	1.295+09	2s5f ³ F ₃	3d5d ³ D ₁	149.34	6.470+09
2p5p ³ D ₃	3s6p ³ P ₂	172.53	8.924+09	2s5f ³ F ₃	3d5d ³ F ₂	148.97	1.491+09
2p5p ³ D ₃	3s6p ³ P ₂	172.25	1.260+09	2s5f ³ F ₃	3d5d ³ P ₂	148.54	4.519+09
2p5p ³ D ₃	3d5f ³ F ₃	171.73	4.039+09	2s5f ³ F ₃	3s6d ³ F ₃	148.39	8.323+09
2p5p ³ D ₃	3s6f ³ F ₄	171.26	4.999+09	2s5f ³ F ₃	3s6d ³ D ₂	148.39	1.113+09
2p5f ³ D ₁	3d5f ³ P ₂	170.36	2.610+09	2s5f ³ F ₃	3d5p ³ F ₃	147.90	1.983+09
2p5f ³ D ₁	3p5d ³ D ₁	177.71	2.769+09	2s5f ³ F ₃	3d5d ³ D ₂	147.71	3.957+09
2p5f ³ D ₁	3p5d ³ P ₁	176.56	4.435+09	2s5f ³ F ₃	3d5p ³ D ₂	147.02	1.809+09
2p5f ³ D ₁	3p5d ³ P ₀	176.55	5.840+09	2s5f ³ F ₃	3p6f ³ D ₂	142.21	1.348+09
2p5f ³ D ₁	3d5p ³ P ₀	174.47	1.096+09	2s5f ³ F ₃	3d2 ³ G ₄	221.23	1.777+09

TABLE VI. continued.

1	2	3	4	5	6	7	8
2p5p ³ S ₁	3p5s ³ P ₁	178.40	9.304+09	2p4s ³ P ₁	3d4d ³ D ₂	170.70	1.624+09
2p5p ³ D ₁	3p5s ³ P ₁	177.41	2.446+09	2p4s ³ P ₁	3s5d ³ D ₂	161.23	2.086+09
2p5p ³ D ₁	3p5d ³ D ₁	175.59	6.865+09	2p4s ³ P ₁	3p5p ³ D ₂	155.74	8.756+09
2p5p ³ D ₁	3p5d ³ P ₁	174.74	3.688+09	2p4s ³ P ₁	3d5s ³ D ₂	153.87	1.500+09
2p5p ³ S ₁	3d5p ³ D ₁	173.27	3.529+09	2p4s ³ P ₁	3p5f ³ D ₂	152.81	3.639+09
2p5p ³ P ₁	3d5p ³ P ₁	173.01	2.980+09	2p4s ³ P ₁	3d5d ³ D ₂	151.27	4.172+09
2p5p ³ P ₁	3d5p ³ D ₁	172.75	5.260+09	2p4s ³ P ₁	3d5p ³ D ₂	150.55	1.332+09
2p5p ³ P ₁	3s6p ³ P ₁	172.69	1.555+09	2p4s ³ P ₁	3p6p ³ D ₂	146.63	1.553+09
2p5p ³ D ₁	3s6p ³ P ₁	172.57	4.304+09	2p4s ³ P ₂	3s4d ³ D ₂	182.36	3.401+09
2p5p ³ S ₁	3s6p ³ P ₀	172.52	3.118+09	2p4s ³ P ₂	3p4p ³ P ₃	174.57	1.210+09
2p5p ³ S ₁	3s6p ³ P ₁	172.52	8.279+09	2p4s ³ P ₂	3d4d ³ D ₃	170.81	2.875+09
2p5p ³ D ₁	3d5p ³ P ₀	172.42	4.563+09	2p4s ³ P ₂	3p4f ³ D ₂	168.99	3.901+09
2p5p ³ D ₁	3d5p ³ P ₁	172.28	2.143+09	2p4s ³ P ₂	3d4d ³ P ₂	166.60	1.401+09
2p5p ³ D ₁	3d5f ³ P ₁	171.05	7.435+09	2p4s ³ P ₂	3s5d ³ D ₃	160.51	1.569+09
2p5p ³ S ₀	3d5f ³ P ₁	170.61	6.162+09	2s5p ³ P ₁	3s4s ³ S ₀	180.88	1.096+09
2p5p ³ S ₁	3d5f ³ P ₀	170.61	2.276+09	2s5p ³ P ₁	3d4d ³ P ₁	164.90	1.090+09
2p5p ³ D ₁	3d5p ³ P ₁	170.40	4.754+09	2s5p ³ P ₁	3s5s ³ S ₁	158.46	1.305+09
2p5p ³ P ₁	3d5f ³ P ₁	168.78	3.896+09	2s5p ³ P ₁	3s5s ³ S ₀	157.05	4.607+09
2p5p ³ P ₁	3p6s ³ P ₁	167.46	5.519+09	2s5p ³ P ₁	3s5d ³ D ₁	156.00	1.139+09
2p5p ³ S ₁	3p6s ³ P ₁	166.07	1.559+09	2s5p ³ P ₀	3s5d ³ D ₁	155.99	1.520+09
2p5p ³ S ₁	3p6d ³ P ₁	165.85	4.888+09	2s5p ³ P ₁	3p5p ³ S ₁	150.53	7.381+09
2p5p ³ P ₁	3p6d ³ P ₁	161.18	1.504+09	2s5p ³ P ₁	3d5s ³ D ₁	149.37	3.808+09
2p5p ³ P ₂	3s5p ³ P ₁	185.45	8.850+09	2s5p ³ P ₀	3d5s ³ D ₁	149.37	5.176+09
2p5p ³ P ₂	3s5p ³ P ₂	185.40	3.171+09	2s5p ³ P ₁	3s6s ³ S ₀	148.05	2.487+09
2p5p ³ P ₂	3p5s ³ P ₁	178.67	3.774+09	2s5p ³ P ₁	3d5d ³ D ₁	147.77	1.468+09
2p5p ³ P ₂	3p5s ³ P ₂	178.60	8.203+09	2s5p ³ P ₀	3d5d ³ D ₁	147.77	1.971+09
2p5p ³ S ₁	3p5s ³ P ₂	178.37	8.723+09	2s5p ³ P ₁	3d5d ³ P ₁	147.61	3.347+09
2p5p ³ S ₁	3p5d ³ D ₂	175.98	2.429+09	2s5p ³ P ₀	3s6d ³ D ₁	147.20	1.145+09
2p5p ³ D ₂	3p5d ³ D ₁	175.62	2.376+09	2s5p ³ P ₀	3d5d ³ S ₁	146.95	3.577+09
2p5p ³ D ₂	3p5d ³ P ₁	174.84	4.851+09	2s5p ³ P ₀	3d5d ³ S ₁	146.94	1.170+09
2p5p ³ P ₁	3d5p ³ D ₂	173.83	3.302+09	2s5p ³ P ₁	3d5d ³ P ₀	146.72	1.203+09
2p5p ³ S ₁	3d5p ³ D ₂	173.65	5.226+09	2s5p ³ P ₀	3d5d ³ P ₁	146.71	1.270+09
2p5p ³ P ₂	3d5p ³ D ₁	173.53	3.305+09	2s5p ³ P ₁	3d5d ³ S ₀	144.97	3.343+09
2p5p ³ D ₁	3d5p ³ P ₂	172.88	6.285+09	2s5p ³ P ₁	3p4p ³ D ₂	166.63	7.709+09
2p5p ³ P ₂	3s6p ³ P ₁	172.77	1.721+09	2s5p ³ P ₂	3d4d ³ S ₁	162.93	1.013+09
2p5p ³ P ₂	3d5p ³ P ₁	172.75	3.372+09	2s5p ³ P ₁	3p4f ³ D ₂	162.79	2.314+09
2p5p ³ P ₂	3s6p ³ P ₂	172.73	5.429+09	2s5p ³ P ₁	3d4d ³ D ₂	161.01	4.362+09
2p5p ³ P ₂	3s6p ³ P ₂	172.52	9.384+09	2s5p ³ P ₂	3s5s ³ S ₁	158.46	2.189+09
2p5p ³ P ₂	3d5p ³ P ₁	172.45	6.995+09	2s5p ³ P ₁	3s5d ³ D ₂	156.00	3.395+09
2p5p ³ P ₂	3d5p ³ P ₂	171.49	3.057+09	2s5p ³ P ₁	3s5d ³ D ₂	155.74	5.284+09
2p5p ³ D ₂	3d5p ³ P ₁	171.45	7.064+09	2s5p ³ P ₁	3p5p ³ D ₁	150.99	1.781+09
2p5p ³ D ₂	3s6f ³ F ₂	171.14	1.934+09	2s5p ³ P ₁	3d5s ³ D ₂	149.37	9.594+09

TABLE VI. continued.

1	2	3	4	5	6	7	8
$2p5f^1D_2$	$3s6f^3F_2$	173.24	1.566+09	$2s6p^3P_0$	$3s4d^3D_1$	188.41	1.037+09
$2p5f^1D_2$	$3s6f^3F_3$	173.24	1.576+09	$2s6p^1P_1$	$3p4p^1P_1$	183.29	1.063+09
$2p5f^3F_2$	$3s6f^1F_3$	173.21	1.055+09	$2s6p^3P_0$	$3p4p^3S_1$	181.11	1.134+09
$2p5f^1D_2$	$3d5p^3F_3$	173.14	6.397+09	$2s6p^3P_1$	$3p4p^3S_1$	181.11	3.559+09
$2p5f^1D_2$	$3d5f^1G_3$	173.12	2.834+09	$2s6p^1P_1$	$3p4p^1S_0$	177.39	1.012+09
$2p5f^3F_2$	$3d5f^3D_2$	172.81	3.850+09	$2s6p^1P_1$	$3d4d^3D_1$	176.87	1.056+09
$2p5f^3F_2$	$3s6f^3F_3$	172.71	1.242+09	$2s6p^3P_0$	$3d4d^3D_1$	176.10	4.664+09
$2p5f^1D_2$	$3d5f^1D_3$	172.70	4.268+09	$2s6p^3P_1$	$3d4d^3D_1$	176.10	4.722+09
$2p5f^3F_2$	$3d5p^1F_3$	172.62	3.157+09	$2s6p^1P_1$	$3d4d^1P_1$	175.70	7.001+09
$2p5f^1D_2$	$3d5f^3F_2$	172.32	6.437+09	$2s6p^3P_0$	$3p4f^3D_1$	174.17	2.837+09
$2p5f^3F_2$	$3d5f^3D_2$	172.18	4.924+09	$2s6p^3P_1$	$3p4f^3D_1$	174.16	2.757+09
$2p5f^3F_2$	$3d5f^1F_3$	171.27	1.989+09	$2s6p^3F_0$	$3d4d^3S_1$	172.87	3.603+09
$2p5f^1D_2$	$3p6p^1F_3$	164.77	1.057+09	$2s6p^3P_1$	$3d4d^3P_1$	171.64	7.471+09
$2p5f^3D_3$	$3s5f^3F_3$	184.71	6.523+09	$2s6p^1P_1$	$3s5s^1S_0$	166.82	1.843+09
$2p5f^3F_3$	$3s5f^1F_4$	184.29	5.145+09	$2s6p^1P_1$	$3d5d^1S_0$	153.25	4.044+09
$2p5f^1F_3$	$3s5f^3F_2$	184.27	2.804+09	$2s6p^3P_0$	$3p6p^3S_1$	149.67	7.574+09
$2p5f^1F_3$	$3s5f^3F_3$	184.26	2.989+09	$2s6p^3P_0$	$3d6s^3D_1$	148.44	2.150+09
$2p5f^1F_3$	$3s5f^3F_4$	184.26	2.816+09	$2s6p^3P_1$	$3d6s^3D_1$	148.44	1.561+09
$2p5f^3D_3$	$3s5f^1F_3$	183.94	1.067+09	$2s6p^1P_1$	$3d6d^1P_1$	147.79	1.346+09
$2p5f^3F_3$	$3s5f^3F_3$	183.72	5.647+09	$2s6p^3P_1$	$3d6d^3D_1$	147.51	1.003+09
$2p5f^3F_3$	$3s5f^1F_3$	183.52	6.295+09	$2s6p^3P_1$	$3d6d^3D_1$	147.12	1.335+09
$2p5f^3D_3$	$3p5d^3D_3$	177.62	7.784+09	$2s6p^3P_1$	$3d6d^3S_1$	147.12	3.399+09
$2p5f^3F_3$	$3p5d^3D_2$	177.25	2.584+09	$2s6p^1P_1$	$3d6d^1S_0$	145.60	3.346+09
$2p5f^3G_3$	$3p5d^1F_3$	177.21	1.436+09	$2s6p^1P_1$	$3s4d^1D_2$	188.45	3.346+09
$2p5f^3F_3$	$3p5d^1F_3$	177.03	1.456+09	$2s6p^3P_1$	$3s4d^3D_2$	188.40	2.611+09
$2p5f^1F_3$	$3p5d^1D_2$	176.98	2.808+09	$2s6p^1P_1$	$3d4s^1D_2$	182.41	7.152+09
$2p5f^3G_3$	$3p5d^3F_3$	176.80	1.153+09	$2s6p^3P_2$	$3p4p^3S_1$	181.10	6.349+09
$2p5f^1F_3$	$3p5d^3F_3$	176.62	9.155+09	$2s6p^3P_1$	$3p4p^3P_1$	180.12	1.028+09
$2p5f^1F_3$	$3p5d^3F_3$	176.59	1.575+09	$2s6p^1P_1$	$3d4s^3D_2$	179.51	1.879+09
$2p5f^3F_3$	$3p5p^1G_4$	175.60	1.464+09	$2s6p^3P_1$	$3p4p^1D_2$	176.99	8.507+09
$2p5f^1F_3$	$3p5p^1G_4$	175.58	9.650+09	$2s6p^3P_1$	$3d4d^3D_2$	176.10	9.879+09
$2p5f^1F_3$	$3p5p^3H_4$	175.36	6.001+09	$2s6p^3P_1$	$3p4f^3D_2$	174.16	6.246+09
$2p5f^1F_3$	$3d5p^1D_2$	175.04	1.027+09	$2s6p^1P_1$	$3d4d^3F_2$	173.90	3.573+09
$2p5f^3D_3$	$3d5p^3D_3$	174.86	1.536+09	$2s6p^1P_1$	$3d5s^1D_2$	159.58	1.876+09
$2p5f^3C_3$	$3d5p^3F_3$	174.82	3.727+09	$2s6p^3P_1$	$3p5f^1D_2$	157.61	1.228+09
$2p5f^3D_3$	$3p5p^3F_1$	174.75	4.857+09	$2s6p^3P_2$	$3p5f^1D_2$	156.50	1.078+09
$2p5f^1F_3$	$3d5p^3F_2$	174.64	4.173+09	$2s6p^1P_1$	$3s6d^3D_2$	155.34	1.262+09
$2p5f^1F_3$	$3d5p^3F_3$	174.62	5.709+09	$2s6p^1P_1$	$3d5d^3S_1$	155.06	1.663+09
$2p5f^3D_3$	$3d5p^3P_2$	174.38	4.480+09	$2s6p^3P_2$	$3d5d^1D_2$	154.88	2.178+09
$2p5f^3F_3$	$3p5p^3F_3$	174.37	1.777+09	$2s6p^1P_1$	$3d5p^3F_2$	154.13	1.394+09
$2p5f^3F_3$	$3p5p^3F_2$	174.37	1.777+09	$2s6p^1P_1$	$3p5f^1D_2$	149.99	2.080+09
$2p5f^3F_3$	$3p5p^3F_2$	174.37	1.777+09	$2s6p^1P_1$	$3p5f^1D_2$	148.85	3.133+09

TABLE VI. continued.

1	2	3	4	5	6	7	8
$2p5f^3D_1$	$3s6p^3P_0$	174.18	5.519+09	$2s5f^3F_4$	$3p4f^3G_5$	168.82	1.141+09
$2p5f^3D_1$	$3s6p^3P_1$	174.18	4.158+09	$2s5f^3F_3$	$3d4d^3G_4$	166.54	3.849+09
$2p5f^1D_2$	$3d4p^1P_1$	193.79	1.359+09	$2s5f^3F_4$	$3d4d^3G_5$	166.53	4.965+09
$2p5f^1D_2$	$3d4f^1P_1$	189.62	2.539+09	$2s5f^1F_3$	$3p4f^1G_4$	166.14	3.950+09
$2p5f^3F_2$	$3p5d^3D_1$	177.24	2.350+09	$2s5f^1F_3$	$3d4d^1G_4$	162.86	1.867+09
$2p5f^3D_1$	$3p5d^3F_2$	177.24	1.155+09	$2s5f^3F_4$	$3s5d^3D_3$	157.33	1.232+09
$2p5f^3D_2$	$3p5d^1P_1$	176.80	1.677+09	$2s5f^3F_4$	$3s5g^3G_5$	155.82	2.010+09
$2p5f^1D_2$	$3p5d^3P_1$	176.64	1.607+09	$2s5f^3F_3$	$3s5g^3G_4$	155.82	1.548+09
$2p5f^3D_1$	$3d5p^3F_2$	175.09	9.612+09	$2s5f^3F_4$	$3d5d^3D_3$	148.96	2.068+09
$2p5f^3D_1$	$3p5g^3F_2$	174.81	1.417+09	$2s5f^3F_4$	$3d5d^3F_4$	148.53	6.501+09
$2p5f^3D_2$	$3d5p^3P_1$	174.42	2.205+09	$2s5f^3F_3$	$3d5g^3G_4$	148.08	7.150+09
$2p5f^1D_2$	$3s6p^3P_1$	174.26	1.246+09	$2s5f^3F_4$	$3d5g^3G_5$	148.08	9.338+09
$2p5f^1D_2$	$3d5f^3D_1$	172.70	7.906+09	$2s5f^1F_3$	$3d5g^1G_4$	148.03	7.972+09
$2p5f^1D_2$	$3d5p^1P_1$	172.47	2.856+09	$2s5f^3F_4$	$3d5g^3F_4$	147.78	1.003+09
$2p5f^3D_1$	$3d5f^3P_2$	172.24	4.244+09	$2s5f^3F_3$	$3s6g^3G_4$	147.68	1.535+09
$2p5f^3D_2$	$3d5f^3P_1$	171.79	2.631+09	$2s5f^3F_4$	$3s6g^3G_5$	147.68	2.034+09
$2p5f^3F_2$	$3d5f^1P_1$	170.44	3.545+09	$2s5f^3F_4$	$3d5g^3D_3$	147.32	1.397+09
$2p5f^1D_2$	$3p6d^1P_1$	165.76	1.033+09	$2s5f^1F_3$	$3d6d^1G_4$	140.48	1.224+09
$2p5f^3D_2$	$3d6f^3P_1$	162.82	1.250+09	$2p5s^1P_1$	$3d4d^1S_0$	186.33	8.368+09
$2p5f^3D_2$	$3d6f^1P_1$	161.89	0.287+09	$2p5s^3P_0$	$3s6s^3S_1$	185.19	5.240+09
$2p5f^3F_2$	$3d4f^3G_3$	194.43	1.009+09	$2p5s^1P_1$	$3s6s^1S_0$	184.00	6.887+09
$2p5f^1D_2$	$3d4f^1F_3$	192.90	1.792+09	$2p5s^1P_1$	$3d5s^3D_1$	173.48	1.419+09
$2p5f^1D_2$	$3s5f^3F_3$	184.88	2.537+09	$2p5s^3P_1$	$3p5f^3D_1$	172.05	5.067+09
$2p5f^3D_2$	$3s5f^3F_2$	184.74	5.694+09	$2p5s^3P_0$	$3p5f^3D_1$	172.01	6.840+09
$2p5f^3F_2$	$3s5f^3F_2$	184.28	6.004+09	$2p5s^3P_1$	$3d5d^3D_1$	170.79	4.164+09
$2p5f^3D_2$	$3s6f^3D_2$	183.97	1.052+09	$2p5s^3P_0$	$3d5d^3D_1$	170.75	5.794+09
$2p5f^1D_2$	$3p5d^3D_2$	177.66	4.051+09	$2p5s^1P_1$	$3s6d^1D_2$	182.20	1.732+09
$2p5f^1D_2$	$3p5d^1D_2$	177.52	8.924+09	$2p5s^3P_2$	$3p5p^3D_1$	175.22	1.206+09
$2p5f^3D_2$	$3p5d^1D_2$	177.40	1.039+09	$2p5s^3P_1$	$3p5p^1D_2$	174.65	2.412+09
$2p5f^3D_2$	$3p5d^3F_3$	177.03	1.906+09	$2p5s^3P_2$	$3p5p^3S_1$	174.60	2.138+09
$2p5f^3F_2$	$3p5d^3F_2$	176.63	8.712+09	$2p5s^1P_1$	$3d5s^3D_2$	173.48	2.861+09
$2p5f^3D_2$	$3p5d^3F_2$	176.53	3.900+09	$2p5s^3P_2$	$3d5s^3D_1$	173.04	5.433+09
$2p5f^1D_2$	$3d5p^1D_2$	175.59	8.960+09	$2p5s^3P_1$	$3d5s^1D_2$	172.30	2.107+09
$2p5f^1D_2$	$3d5p^3F_3$	175.17	1.011+09	$2p5s^1P_1$	$3p5f^1D_2$	170.98	1.101+09
$2p5f^3D_2$	$3p5g^3F_3$	174.78	2.593+09	$2p5s^1P_1$	$3s6d^1D_2$	170.68	2.500+09
$2p5f^1D_2$	$3p5g^1F_3$	174.66	1.670+09	$2p5s^1P_1$	$3d5g^1D_2$	168.68	4.955+09
$2p5f^1D_2$	$3d5p^3F_3$	174.63	1.162+09	$2p5s^1P_1$	$3p6p^1D_2$	163.77	4.924+09
$2p5f^3F_2$	$3d5p^3F_2$	174.36	1.445+09	$2p5s^1P_1$	$3d6s^1D_2$	161.75	1.249+09
$2p5f^3F_2$	$3s6p^3F_2$	174.14	3.700+09	$2p5s^1P_1$	$3d6d^1D_2$	160.42	1.700+09
$2p5f^3D_2$	$3d5f^3F_2$	173.73	4.436+09	$2p5s^3P_2$	$3p5f^3D_2$	172.17	5.373+09
$2p5f^3D_2$	$3d5f^3D_2$	173.62	8.434+09	$2p5s^3P_2$	$3d5d^3D_2$	170.90	4.125+09
$2p5f^3D_2$	$3d5f^3F_2$	173.61	2.443+09	$2p5s^3P_2$	$3d5d^3P_2$	169.49	1.421+09
$2p5f^3D_2$	$3d5f^3F_2$	173.61	2.443+09	$2p5s^3P_2$	$3p6p^3D_3$	163.71	1.069+09

TABLE VI. continued.

	1	2	3	4	5	6	7	8
$2p5f^1G_4$	175.94	$3p5g^1G_4$	175.94	5.875+09	$2s6f^3F_4$	$3s4d^3D_3$	189.88	3.316+09
$2p5f^1G_4$	175.69	$3p5g^3H_6$	175.69	8.169+09	$2s6f^3F_4$	$3p4f^3F_4$	178.46	1.515+09
$2p5f^3G_5$	175.62	$3p5g^3H_6$	175.62	2.293+09	$2s6f^3F_4$	$3d4d^3D_3$	177.40	1.173+09
$2p5f^3G_4$	175.57	$3p5g^3H_4$	175.57	1.922+09	$2s6f^3F_4$	$3d4d^3G_4$	176.63	2.960+09
$2p5f^3F_4$	175.36	$3p5g^3H_5$	175.36	5.400+09	$2s6f^3F_4$	$3p4f^3D_3$	175.44	1.408+09
$2p5f^1G_4$	175.07	$3p5g^3H_6$	175.07	9.737+09	$2s6f^3F_4$	$3d4d^3F_3$	174.70	1.292+09
$2p5f^3G_4$	174.93	$3p5g^3H_6$	174.93	1.693+09	$2s6f^3F_3$	$3d4d^3F_4$	174.08	2.458+09
$2p5f^3G_5$	174.90	$3d5p^3F_4$	174.90	3.980+09	$2s6f^1F_3$	$3d4d^3F_4$	174.20	5.736+09
$2p5f^3G_4$	174.84	$3d5p^3F_4$	174.84	7.352+09	$2s6f^1F_3$	$3p5f^1G_4$	157.59	5.397+09
$2p5f^3F_4$	174.65	$3d5p^3F_3$	174.65	4.411+09	$2s6f^3F_3$	$3p6f^3F_4$	150.09	3.545+09
$2p5f^3F_4$	174.65	$3p5g^3F_4$	174.65	1.293+09	$2s6f^3F_4$	$3p6f^3G_4$	150.01	2.977+09
$2p5f^1G_4$	174.47	$3p5g^1F_3$	174.47	2.023+09	$2s6f^3F_4$	$3d0s^3D_3$	149.35	7.149+09
$2p5f^3F_4$	174.39	$3p5g^3F_4$	174.39	3.696+09	$2s6f^3F_4$	$3p6h^3G_6$	149.33	1.450+09
$2p5f^1G_4$	173.75	$3d5f^3H_4$	173.75	3.214+09	$2s6f^3F_3$	$3d6d^3G_6$	148.42	6.965+09
$2p5f^1G_4$	173.55	$3s6f^1F_3$	173.55	7.312+09	$2s6f^3F_4$	$3d6d^3G_5$	148.42	6.965+09
$2p5f^1G_4$	173.53	$3d5f^3F_3$	173.53	1.038+09	$2s6f^3F_4$	$3d6d^3F_4$	148.25	1.803+09
$2p5f^1G_4$	173.42	$3d5f^3F_4$	173.42	3.746+09	$2s6f^3F_3$	$3d6g^3G_6$	147.89	1.793+09
$2p5f^3F_4$	173.05	$3s6f^3F_3$	173.05	1.399+09	$2s6f^1F_3$	$3d6g^3G_4$	147.89	1.336+09
$2p5f^1G_4$	172.96	$3d5p^3F_3$	172.96	8.601+09	$2s6f^1F_3$	$3d6g^1G_4$	147.55	5.123+09
$2p5f^1G_4$	172.94	$3d5f^3G_3$	172.94	1.370+09	$2s6h^1H_4$	$3d6d^1G_4$	147.19	7.158+09
$2p5f^3G_4$	172.82	$3s6f^3F_3$	172.82	3.394+09	$2s6h^1H_5$	$3s5g^3G_3$	164.61	1.094+09
$2p5f^3G_4$	172.80	$3d5f^3G_3$	172.80	9.705+09	$2s6h^1H_5$	$3d5g^1H_5$	164.07	1.016+09
$2p5f^3F_4$	172.73	$3s6f^3F_3$	172.73	7.546+09	$2s6h^3H_4$	$3d5g^3H_4$	156.09	1.804+09
$2p5f^3F_4$	172.62	$3d5f^3G_3$	172.62	3.311+09	$2s6h^3H_5$	$3d5g^3H_5$	156.00	2.097+09
$2p5f^1G_4$	172.52	$3s6h^3H_4$	172.52	1.128+09	$2s6h^3H_4$	$3d5g^3I_5$	155.82	8.293+09
$2p5f^3G_5$	171.96	$3s6h^3H_5$	171.96	1.384+09	$2s6h^3H_5$	$3d5g^3I_6$	155.82	3.902+09
$2p5f^3G_4$	171.82	$3s6h^3H_4$	171.82	1.070+09	$2s6h^3H_6$	$3d5g^1I_6$	155.55	5.924+09
$2p5f^3G_4$	171.71	$3s6h^3H_5$	171.71	3.546+09	$2s6h^3H_5$	$3d5g^1I_6$	155.55	7.086+09
$2p5f^3F_4$	171.64	$3s6h^1H_5$	171.64	3.272+09	$2s6h^3H_4$	$3p6h^1H_6$	149.62	2.791+09
$2p5f^3G_4$	171.47	$3d5f^1F_3$	171.47	4.888+09	$2s6h^3H_4$	$3p6h^3H_4$	149.62	2.990+09
$2p5f^3F_4$	171.29	$3p6g^3G_5$	171.29	1.827+09	$2s6h^3H_5$	$3p6h^3H_5$	149.62	3.331+09
$2p5f^3G_5$	165.34	$3p6g^3H_6$	165.34	2.099+09	$2s6h^3H_6$	$3p6h^3H_6$	149.61	4.815+09
$2p5f^3F_4$	165.13	$3p6g^3H_6$	165.13	1.876+09	$2s6h^3H_6$	$3p6h^3I_6$	149.37	3.983+09
$2p5f^3F_4$	165.11	$3p6g^3G_6$	165.11	1.211+09	$2s6h^1H_5$	$3p6h^3I_6$	149.37	1.791+09
$2p5f^3G_4$	165.08	$3p6g^3H_6$	165.08	1.367+09	$2s6h^3H_5$	$3p6h^3G_5$	149.32	7.821+09
$2p5f^1G_4$	164.61	$3p6g^1F_3$	164.61	1.191+09	$2s6h^3H_6$	$3p6h^3G_6$	149.32	6.658+09
$2p5f^3G_4$	164.56	$3p6g^1H_5$	164.56	2.051+09	$2s6h^3H_6$	$3s5g^3G_5$	164.61	1.664+09
$2p5f^3G_4$	163.37	$3d6f^3H_6$	163.37	4.213+09	$2s6h^3H_6$	$3d5g^3H_6$	156.00	3.373+09
$2p5f^3G_4$	163.32	$3d6f^3H_6$	163.32	2.607+09	$2s6h^3H_6$	$3d5g^3G_6$	155.99	1.148+09
$2p5f^3G_4$	163.22	$3d6f^3H_6$	163.22	2.607+09	$2s6h^3H_6$	$3p6f^3G_6$	149.98	1.768+09

TABLE VI. continued.

	1	2	3	4	5	6	7	8
$2p5f^1F_3$	174.11	$3p5g^1F_3$	174.11	7.681+09	$2s6p^3P_1$	$3d6s^3D_2$	148.43	4.854+09
$2p5f^3D_3$	173.94	$3d5f^1G_4$	173.94	7.250+09	$2s6p^1P_1$	$3d6s^1D_2$	148.33	7.944+09
$2p5f^3D_3$	173.59	$3s6f^1F_3$	173.59	1.210+09	$2s6p^3P_1$	$3d6d^3D_2$	147.51	3.065+09
$2p5f^3D_3$	173.57	$3d5f^3F_3$	173.57	1.774+09	$2s6p^1P_1$	$3d6d^1D_2$	147.21	8.193+09
$2p5f^3G_3$	173.40	$3s6f^1F_3$	173.40	7.272+09	$2s6p^3P_2$	$3d6d^3S_1$	147.12	2.210+09
$2p5f^3G_3$	173.38	$3d5f^3F_4$	173.38	1.759+09	$2s6p^1P_1$	$3d6g^1D_2$	146.67	1.800+09
$2p5f^3F_3$	173.20	$3d5f^3F_4$	173.20	6.810+09	$2s6p^3P_2$	$3s4d^3D_3$	188.39	5.026+09
$2p5f^3D_3$	173.18	$3d5f^3F_4$	173.18	2.183+09	$2s6p^3P_2$	$3p4p^3F_2$	180.10	2.611+09
$2p5f^3G_3$	172.90	$3s6f^3F_2$	172.90	3.244+09	$2s6p^3P_2$	$3d4s^3D_2$	179.51	1.049+09
$2p5f^3G_3$	172.90	$3s6f^3F_3$	172.90	5.136+09	$2s6p^3P_2$	$3d4s^3D_3$	179.49	3.623+09
$2p5f^3F_3$	172.72	$3s6f^3F_2$	172.72	6.485+09	$2s6p^3P_2$	$3d4d^1F_3$	176.48	1.824+09
$2p5f^1F_3$	172.70	$3s6f^3F_3$	172.70	8.061+09	$2s6p^3P_2$	$3d4d^3D_2$	176.10	5.645+09
$2p5f^3G_3$	172.36	$3d5f^3D_3$	172.36	1.081+09	$2s6p^3F_2$	$3p4f^3D_2$	174.16	3.283+09
$2p5f^3F_3$	172.19	$3d5f^3D_3$	172.19	3.523+09	$2s6p^3P_2$	$3s6d^3D_3$	155.34	2.613+09
$2p5f^3F_3$	171.80	$3d5f^3P_2$	171.80	2.731+09	$2s6p^3P_2$	$3d6s^3D_2$	148.43	1.512+09
$2p5f^1F_3$	171.78	$3d5f^3P_2$	171.78	9.855+09	$2s6p^3P_2$	$3d6s^3D_3$	148.43	8.964+09
$2p5f^3F_3$	171.70	$3s6h^3H_4$	171.70	3.807+09	$2s6p^3P_2$	$3d6d^3D_3$	147.50	5.707+09
$2p5f^3D_3$	171.64	$3d5f^1F_3$	171.64	4.109+09	$2s6p^3P_2$	$3d6d^3P_2$	146.96	1.095+09
$2p5f^3D_3$	165.71	$3p6d^3P_2$	165.71	1.692+09	$2s6f^3F_2$	$3s4d^3D_1$	189.88	1.430+09
$2p5f^3G_3$	165.08	$3p6g^3H_4$	165.08	1.118+09	$2s6f^3F_2$	$3d6s^3D_1$	149.35	3.885+09
$2p5f^1F_3$	164.29	$3p6g^1F_3$	164.29	1.364+09	$2s6f^3F_2$	$3p4f^3G_3$	179.22	8.335+09
$2p5f^3G_3$	163.30	$3d6f^3H_4$	163.30	2.333+09	$2s6f^3F_2$	$3d4d^3F_2$	174.69	8.383+09
$2p5f^3D_3$	162.97	$3d6f^3D_3$	162.97	1.074+09	$2s6f^3F_2$	$3d4d^3F_3$	174.68	1.909+09
$2p5f^3D_3$	162.79	$3d6f^3P_2$	162.79	2.518+09	$2s6f^3F_2$	$3p6f^1F_3$	150.16	1.123+09
$2p5f^3P_3$	162.64	$3d6f^3D_2$	162.64	1.012+09	$2s6f^3F_2$	$3p6f^3F_3$	150.09	4.458+09
$2p5f^1F_3$	162.37	$3d6h^1F_3$	162.37	2.173+09	$2s6f^3F_2$	$3d6d^3G_3$	148.42	4.013+09
$2p5f^1G_4$	198.43	$3d4f^1G_4$	198.43	1.180+09	$2s6f^3F_2$	$3d6g^3G_3$	147.88	1.032+09
$2p5f^3G_5$	198.17	$3d4f^3H_6$	198.17	1.333+09	$2s6f^3F_2$	$3s4d^3D_2$	189.88	2.237+09
$2p5f^1G_4$	195.20	$3d4p^1F_3$	195.20	1.213+09	$2s6f^1F_3$	$3s4d^1D_2$	188.83	6.199+09
$2p5f^3F_4$	194.44	$3d4f^3G_6$	194.44	1.494+09	$2s6f^1F_3$	$3p4f^1F_3$	178.79	6.907+09
$2p5f^1F_3$	192.67	$3d4f^1F_3$	192.67	1.194+09	$2s6f^3F_3$	$3d4d^3D_3$	176.90	2.010+09
$2p5f^3G_4$	191.69	$3d4f^3G_4$	191.69	1.669+09	$2s6f^3F_3$	$3d4d^3F_2$	176.64	2.731+09
$2p5f^1G_4$	184.67	$3s5f^3F_3$	184.67	5.358+09	$2s6f^3F_3$	$3d4d^3F_2$	174.69	1.136+09
$2p5f^3F_4$	184.67	$3s5f^3F_4$	184.67	1.477+09	$2s6f^1F_3$	$3d4d^3F_2$	172.39	1.127+09
$2p5f^3G_4$	184.52	$3s5f^3F_4$	184.52	1.375+09	$2s6f^1F_3$	$3d4d^1D_2$	171.60	8.608+09
$2p5f^3G_4$	183.74	$3s5f^1F_3$	183.74	3.865+09	$2s6f^1F_3$	$3p5f^1D_2$	156.75	1.435+09
$2p5f^3F_4$	183.53	$3s5f^1F_3$	183.53	1.602+09	$2s6f^1F_3$	$3s6d^1D_2$	156.06	1.893+09
$2p5f^3F_4$	177.25	$3p5d^3D_3$	177.25	3.829+09	$2s6f^3F_3$	$3p6f^3G_3$	150.02	4.564+09
$2p5f^3G_4$	176.80	$3p5d^3F_4$	176.80	2.415+09	$2s6f^3F_3$	$3d6s^3D_2$	149.35	5.338+09
$2p5f^3F_4$	176.63	$3p5d^3F_3$	176.63	1.033+09	$2s6f^3F_3$	$3d6d^3F_3$	148.25	1.310+09

TABLE VII. continued.

1	2	3	4	5	6	7	8
$2p^2\ ^3P_2$	$2p7d\ ^3F_2$	134.06	2.420+08	$2s2p\ ^3P_2$	$2p7p\ ^3D_2$	114.08	5.713+08
$2p^2\ ^3P_1$	$2p7s\ ^3F_3$	134.45	7.600+08	$2s2p\ ^3P_2$	$2p7p\ ^1P_1$	114.08	2.938+08
$2p^2\ ^3P_0$	$2p7s\ ^3P_1$	134.50	5.103+08	$2s2p\ ^3P_1$	$2p6p\ ^1D_2$	116.63	1.602+08
$2p^2\ ^3P_2$	$2p7s\ ^3P_2$	134.51	2.112+09	$2s2p\ ^3P_0$	$2p6p\ ^3P_1$	116.74	4.383+08
$2p^2\ ^3P_1$	$2p7s\ ^3P_1$	134.53	3.555+08	$2s2p\ ^3P_1$	$2p6p\ ^3P_2$	116.75	1.208+09
$2p^2\ ^3P_1$	$2p7s\ ^3P_0$	134.55	5.299+08	$2s2p\ ^3P_1$	$2p6p\ ^3P_1$	116.76	2.123+08
$2p^2\ ^3P_2$	$2p7s\ ^3P_1$	134.58	6.175+08	$2s2p\ ^3P_1$	$2p6p\ ^3P_0$	116.79	1.703+09
$2p^2\ ^1D_2$	$2p8d\ ^1P_1$	134.75	2.873+09	$2s2p\ ^3P_2$	$2p6p\ ^3P_2$	116.79	7.235+09
$2p^2\ ^1D_2$	$2p8d\ ^1F_3$	134.77	5.360+10	$2s2p\ ^3P_2$	$2p6p\ ^3P_1$	116.80	5.156+09
$2p^2\ ^1D_2$	$2p8d\ ^3D_3$	134.90	3.282+08	$2s2p\ ^3P_0$	$2p6p\ ^3S_1$	116.81	1.585+09
$2p^2\ ^1D_2$	$2p8d\ ^1D_3$	134.92	1.438+09	$2s2p\ ^3P_1$	$2p6p\ ^3S_1$	116.83	4.657+09
$2p^2\ ^1D_2$	$2p8d\ ^3D_1$	134.96	1.424+08	$2s2p\ ^3P_2$	$2p6p\ ^3S_1$	116.87	2.348+09
$2p^2\ ^1D_2$	$2p8d\ ^1D_2$	134.99	1.471+09	$2s2p\ ^3P_0$	$2p6p\ ^3D_1$	116.90	2.764+09
$2p^2\ ^1D_2$	$2p8d\ ^3F_3$	135.00	2.107+09	$2s2p\ ^3P_2$	$2p6p\ ^3D_3$	116.92	1.120+10
$2p^2\ ^1D_2$	$2p8d\ ^3F_2$	135.03	8.567+08	$2s2p\ ^3P_2$	$2p6p\ ^3D_2$	116.92	6.760+09
$2p^2\ ^1D_2$	$2p8s\ ^1P_1$	135.25	2.470+09	$2s2p\ ^3P_1$	$2p6p\ ^3D_1$	116.92	4.218+08
$2p^2\ ^1D_2$	$2p8s\ ^3P_1$	135.38	3.934+08	$2s2p\ ^3P_0$	$2p6p\ ^1P_1$	116.95	6.587+08
$2p^2\ ^1D_2$	$2p7d\ ^1P_1$	137.16	1.708+09	$2s2p\ ^3P_2$	$2p6p\ ^3D_2$	116.96	1.148+09
$2p^2\ ^1D_2$	$2p7d\ ^1F_3$	137.19	6.137+10	$2s2p\ ^3P_1$	$2p6p\ ^1P_1$	116.97	1.219+09
$2p^2\ ^1D_2$	$2p7g\ ^3P_1$	137.24	1.477+08	$2s2p\ ^3P_2$	$2p6p\ ^1S_0$	116.97	1.562+08
$2p^2\ ^1D_2$	$2p6d\ ^1P_1$	137.29	2.612+08	$2s2p\ ^3P_1$	$2p8p\ ^1S_0$	121.77	1.259+09
$2p^2\ ^1D_2$	$2p7d\ ^3F_3$	137.35	1.128+08	$2s2p\ ^3P_1$	$2p8f\ ^1D_2$	121.82	6.456+09
$2p^2\ ^1D_2$	$2p7d\ ^3D_3$	137.37	3.257+08	$2s2p\ ^1P_1$	$2p8f\ ^3D_2$	121.85	9.925+08
$2p^2\ ^1D_2$	$2p7d\ ^3D_2$	137.40	1.345+09	$2s2p\ ^1P_1$	$2p8f\ ^3F_2$	121.93	3.204+09
$2p^2\ ^3P_2$	$2p6d\ ^3F_3$	137.41	2.530+08	$2s2p\ ^1P_1$	$2p8p\ ^1D_2$	121.95	3.645+09
$2p^2\ ^1D_2$	$2p7d\ ^1D_2$	137.48	3.531+09	$2s2p\ ^1P_1$	$2p8p\ ^3P_2$	122.00	2.175+08
$2p^2\ ^1D_2$	$2p7d\ ^3F_3$	137.50	1.277+09	$2s2p\ ^1P_1$	$2p8p\ ^3S_1$	122.05	5.662+09
$2p^2\ ^1D_2$	$2p7d\ ^3F_2$	137.54	1.574+09	$2s2p\ ^1P_1$	$2p8p\ ^1P_1$	122.11	6.153+08
$2p^2\ ^3P_0$	$2p6d\ ^3P_1$	137.56	8.374+08	$2s2p\ ^1P_1$	$2p8p\ ^3D_2$	122.11	4.153+08
$2p^2\ ^3P_1$	$2p6d\ ^3P_0$	137.58	4.592+09	$2s2p\ ^1P_1$	$2p8p\ ^3D_1$	122.14	5.951+09
$2p^2\ ^3P_1$	$2p6d\ ^3P_1$	137.59	7.489+09	$2s2p\ ^1P_1$	$2p7f\ ^1D_2$	123.80	2.110+09
$2p^2\ ^3P_1$	$2p6d\ ^3F_2$	137.60	3.968+08	$2s2p\ ^1P_1$	$2p7f\ ^3D_2$	123.83	3.492+08
$2p^2\ ^3P_2$	$2p6d\ ^3P_1$	137.65	6.387+09	$2s2p\ ^1P_1$	$2p7f\ ^3D_1$	123.93	6.143+08
$2p^2\ ^3P_2$	$2p6d\ ^3P_2$	137.66	2.634+10	$2s2p\ ^1P_1$	$2p7p\ ^1D_2$	124.00	7.852+09
$2p^2\ ^3P_0$	$2p6d\ ^3D_1$	137.67	1.706+10	$2s2p\ ^1P_1$	$2p7p\ ^3F_2$	124.08	2.175+08
$2p^2\ ^3P_1$	$2p6d\ ^3D_2$	137.68	3.243+10	$2s2p\ ^1P_1$	$2p7p\ ^3S_1$	124.14	1.897+09
$2p^2\ ^3P_1$	$2p6d\ ^3D_1$	137.70	6.117+09	$2s2p\ ^1P_1$	$2p7p\ ^3D_2$	124.21	2.599+08
$2p^2\ ^3P_2$	$2p6d\ ^3D_3$	137.71	5.444+10	$2s2p\ ^1P_1$	$2p7p\ ^1P_1$	124.21	5.013+09
$2p^2\ ^3P_2$	$2p6d\ ^3D_2$	137.74	6.731+08	$2s2p\ ^1P_1$	$2p7p\ ^3D_1$	124.25	5.252+09
$2p^2\ ^3P_1$	$2p6d\ ^1D_2$	137.80	3.325+09	$2s2p\ ^1P_1$	$2p6p\ ^1S_0$	126.94	7.221+08
$2p^2\ ^3P_2$	$2p6d\ ^3F_2$	137.87	2.362+09	$2s2p\ ^1P_1$	$2p6f\ ^1D_2$	126.97	1.597+09
$2p^2\ ^3P_2$	$2p6d\ ^3F_3$	137.92	2.291+08	$2s2p\ ^1P_1$	$2p6f\ ^3D_2$	127.02	2.200+08
$2p^2\ ^1D_2$	$2p7s\ ^1P_1$	137.93	2.774+09	$2s2p\ ^1P_1$	$2p6f\ ^3F_2$	127.16	2.058+08

TABLES

TABLE VII. Wavelengths (λ) and weighted radiative transition probabilities (gA_{λ} in sec^{-1}) for transitions between bound and autoionizing states in Be-like oxygen ($2l_1n_1l_2 - 2l_2n_2l_1$ transitions)

even-odd transitions			odd-even transitions				
$2l_1n_1L_1S_1J_1$	$\lambda, \text{\AA}$	$gA_{\lambda}, \text{s}^{-1}$	$2l_2n_2L_2S_2J_2$	$\lambda, \text{\AA}$	$gA_{\lambda}, \text{s}^{-1}$	$\lambda, \text{\AA}$	$gA_{\lambda}, \text{s}^{-1}$
$2s^2\ ^1S_0$	$2p8d\ ^1P_1$	102.68	$2s2p\ ^3P_0$	$2p8f\ ^3D_1$	112.01	2.443+08	
$2s^2\ ^1S_0$	$2p7d\ ^1P_1$	104.07	$2s2p\ ^3P_1$	$2p8f\ ^1D_2$	112.02	1.261+08	
$2s^2\ ^1S_0$	$2p6d\ ^1P_1$	106.28	$2s2p\ ^3P_1$	$2p8f\ ^3D_1$	112.03	1.815+08	
$2p^2\ ^3P_0$	$2p8d\ ^1P_1$	131.33	$2s2p\ ^3P_1$	$2p8f\ ^3D_2$	112.04	3.438+08	
$2p^2\ ^3P_2$	$2p8d\ ^1F_3$	131.43	$2s2p\ ^3P_2$	$2p8f\ ^3D_3$	112.08	1.164+08	
$2p^2\ ^3P_1$	$2p8d\ ^3P_0$	131.47	$2s2p\ ^3P_2$	$2p8f\ ^3D_3$	112.09	6.680+08	
$2p^2\ ^3P_1$	$2p8d\ ^3P_1$	131.48	$2s2p\ ^3P_1$	$2p8p\ ^1D_2$	112.13	1.874+08	
$2p^2\ ^3P_1$	$2p8d\ ^1D_2$	131.52	$2s2p\ ^3P_2$	$2p8p\ ^3P_1$	112.16	2.496+08	
$2p^2\ ^3P_2$	$2p8d\ ^3P_1$	131.53	$2s2p\ ^3P_0$	$2p8p\ ^3P_1$	112.18	1.501+08	
$2p^2\ ^3P_0$	$2p8d\ ^3D_1$	131.53	$2s2p\ ^3P_0$	$2p8p\ ^3S_1$	112.19	3.389+08	
$2p^2\ ^3P_2$	$2p8d\ ^3P_2$	131.53	$2s2p\ ^3P_1$	$2p8p\ ^3S_1$	112.21	2.532+09	
$2p^2\ ^3P_2$	$2p8d\ ^3D_3$	131.55	$2s2p\ ^3P_2$	$2p8p\ ^3P_2$	112.21	1.021+09	
$2p^2\ ^3P_1$	$2p8d\ ^3D_1$	131.56	$2s2p\ ^3P_2$	$2p8p\ ^3P_0$	112.22	1.648+08	
$2p^2\ ^3P_1$	$2p8d\ ^1D_2$	131.65	$2s2p\ ^3P_2$	$2p8p\ ^3P_1$	112.22	2.906+09	
$2p^2\ ^3P_2$	$2p8d\ ^3F_3$	131.65	$2s2p\ ^3P_0$	$2p8p\ ^3P_1$	112.24	1.348+09	
$2p^2\ ^3P_2$	$2p8d\ ^3F_2$	131.68	$2s2p\ ^3P_2$	$2p8p\ ^3S_1$	112.25	1.799+09	
$2p^2\ ^3P_2$	$2p8s\ ^3P_2$	131.88	$2s2p\ ^3P_2$	$2p8p\ ^3D_3$	112.26	4.406+09	
$2p^2\ ^3P_2$	$2p8s\ ^3P_2$	131.93	$2s2p\ ^3P_1$	$2p8p\ ^1P_1$	112.26	2.617+08	
$2p^2\ ^3P_0$	$2p8s\ ^3P_1$	131.93	$2s2p\ ^3P_1$	$2p8p\ ^3D_2$	112.26	2.400+09	
$2p^2\ ^3P_1$	$2p8s\ ^3P_1$	131.96	$2s2p\ ^3P_0$	$2p8p\ ^3D_1$	112.27	4.294+08	
$2p^2\ ^3P_1$	$2p8s\ ^3P_0$	132.01	$2s2p\ ^3P_2$	$2p8p\ ^3D_1$	112.29	9.571+08	
$2p^2\ ^3P_2$	$2p7d\ ^1P_1$	133.62	$2s2p\ ^3P_2$	$2p8p\ ^3D_2$	112.30	8.858+08	
$2p^2\ ^3P_2$	$2p7d\ ^1F_3$	133.72	$2s2p\ ^3P_2$	$2p7f\ ^3D_3$	113.77	1.527+08	
$2p^2\ ^3P_0$	$2p7d\ ^3P_1$	133.79	$2s2p\ ^3P_1$	$2p7p\ ^1D_2$	113.86	1.960+08	
$2p^2\ ^3P_1$	$2p7d\ ^3P_0$	133.81	$2s2p\ ^3P_1$	$2p7p\ ^3P_2$	113.93	2.976+08	
$2p^2\ ^3P_1$	$2p7d\ ^3F_6$	133.81	$2s2p\ ^3P_1$	$2p7p\ ^3P_1$	113.96	8.037+08	
$2p^2\ ^3P_1$	$2p7d\ ^3P_2$	133.82	$2s2p\ ^3P_0$	$2p7p\ ^3S_1$	113.97	3.689+08	
$2p^2\ ^3P_2$	$2p7d\ ^3P_1$	133.87	$2s2p\ ^3P_1$	$2p7p\ ^3P_0$	113.97	7.964+08	
$2p^2\ ^3P_0$	$2p7d\ ^3D_1$	133.87	$2s2p\ ^3P_2$	$2p7p\ ^3P_1$	113.97	3.848+09	
$2p^2\ ^3P_2$	$2p7d\ ^3P_2$	133.88	$2s2p\ ^3P_1$	$2p7p\ ^3S_1$	113.98	3.483+09	
$2p^2\ ^3P_1$	$2p7d\ ^3D_2$	133.88	$2s2p\ ^3P_2$	$2p7p\ ^3S_1$	114.02	1.603+09	
$2p^2\ ^3P_2$	$2p7g\ ^3G_3$	133.89	$2s2p\ ^3P_0$	$2p7p\ ^1P_1$	114.02	1.938+09	
$2p^2\ ^3P_1$	$2p7d\ ^3D_1$	133.90	$2s2p\ ^3P_2$	$2p7p\ ^3D_3$	114.04	7.097+09	
$2p^2\ ^3P_2$	$2p7d\ ^3D_2$	133.90	$2s2p\ ^3P_1$	$2p7p\ ^3D_2$	114.04	4.307+09	
$2p^2\ ^3P_1$	$2p7d\ ^1D_2$	133.95	$2s2p\ ^3P_0$	$2p7p\ ^3D_1$	114.05	6.527+08	
$2p^2\ ^3P_2$	$2p7d\ ^3F_3$	134.02	$2s2p\ ^3P_1$	$2p7p\ ^3D_1$	114.07	1.174+09	

TABLE VII. continued.

	1	2	3	4	5	6	7	8
$2s3d^1D_2$	276.29	$2p8d^3D_1$	276.43	$2p8s^3P_2$	$2p7p^3D_2$	326.57	1.645+08	
$2s3d^1D_2$	276.43	$2p8d^1D_2$	276.84	$2p8s^1P_1$	$2p7p^1S_0$	336.57	1.286+08	
$2s3d^3D_1$	276.84	$2p7d^3P_0$	276.87	$2p8s^1P_1$	$2p7f^1D_2$	336.78	1.047+08	
$2s3d^3D_1$	276.87	$2p7d^3P_1$	276.88	$2p8s^1P_1$	$2p7p^1D_2$	338.25	1.904+09	
$2s3d^3D_2$	276.88	$2p7d^3P_1$	276.92	$2p8s^1P_1$	$2p7p^3S_1$	339.33	2.676+08	
$2s3d^3D_2$	276.92	$2p7d^3P_2$	276.93	$2p8s^1P_1$	$2p7p^1P_1$	339.86	6.987+08	
$2s3d^3D_3$	276.93	$2p7d^3P_2$	277.17	$2p8s^1P_1$	$2p6f^3D_1$	340.15	6.935+08	
$2s3d^3D_3$	277.17	$2p7d^3D_2$	277.25	$2p8s^3P_2$	$2p6f^3D_2$	346.32	1.117+08	
$2s3d^3D_3$	277.25	$2p7d^3D_1$	277.49	$2p8s^3P_2$	$2p6f^3D_3$	346.83	2.254+08	
$2s3d^3D_3$	277.49	$2p7d^1D_2$	285.68	$2p8s^3P_0$	$2p6p^3P_1$	349.31	1.507+08	
$2s3d^1D_2$	285.68	$2p7d^1P_1$	285.70	$2p8s^3P_1$	$2p6p^3P_2$	349.41	3.030+08	
$2s3d^1D_2$	285.70	$2p7d^1P_3$	285.70	$2p8s^3P_1$	$2p6p^3P_3$	349.51	1.136+08	
$2s3d^3D_1$	285.70	$2p6d^3P_0$	289.50	$2p8s^3P_1$	$2p6p^3P_3$	349.76	4.495+08	
$2s3d^3D_1$	289.50	$2p6d^3P_1$	293.54	$2p8s^3P_2$	$2p6p^3S_1$	349.82	1.933+09	
$2s3d^3D_2$	293.54	$2p6d^3P_2$	293.63	$2p8s^3P_2$	$2p6p^3S_1$	349.91	2.599+08	
$2s3d^3D_2$	293.63	$2p6d^3D_2$	293.98	$2p8s^3P_2$	$2p6p^3P_1$	349.93	1.089+09	
$2s3d^3D_3$	293.98	$2p6d^3F_4$	294.35	$2p8s^3P_2$	$2p6p^3S_1$	350.11	7.867+08	
$2s3d^1D_2$	302.98	$2p6d^1P_1$	302.98	$2p8s^3P_2$	$2p6p^3S_1$	350.52	2.465+08	
$2s3d^1D_2$	303.16	$2p6d^1F_3$	303.16	$2p8s^3P_2$	$2p6p^3S_1$	350.79	8.137+08	
$2s3d^1D_2$	303.16	$2p6d^1F_3$	303.16	$2p8s^3P_2$	$2p6p^3D_1$	350.94	2.154+09	
$2s3d^1D_2$	303.16	$2p6d^1F_3$	303.16	$2p8s^3P_2$	$2p6p^3D_2$	350.99	1.758+08	
$2s3d^1D_2$	303.16	$2p6d^1F_3$	303.16	$2p8s^3P_2$	$2p6p^3D_3$	351.16	2.373+08	
$2s3d^1D_2$	303.16	$2p6d^1F_3$	303.16	$2p8s^3P_2$	$2p6p^3D_3$	351.36	3.906+08	
$2s3d^1D_2$	303.16	$2p6d^1F_3$	303.16	$2p8s^3P_2$	$2p6p^3D_3$	351.37	3.616+08	
$2s3d^1D_2$	303.16	$2p6d^1F_3$	303.16	$2p8s^3P_2$	$2p6p^3D_3$	355.46	4.742+08	
$2s3d^1D_2$	303.16	$2p6d^1F_3$	303.16	$2p8s^3P_2$	$2p6p^3D_3$	355.48	8.152+08	
$2s3d^1D_2$	303.16	$2p6d^1F_3$	303.16	$2p8s^3P_2$	$2p6p^3D_3$	355.69	1.102+09	
$2s3d^1D_2$	303.16	$2p6d^1F_3$	303.16	$2p8s^3P_2$	$2p6p^3D_3$	355.72	3.660+08	
$2s3d^1D_2$	303.16	$2p6d^1F_3$	303.16	$2p8s^3P_2$	$2p6p^3D_3$	355.91	4.925+09	
$2s3d^1D_2$	303.16	$2p6d^1F_3$	303.16	$2p8s^3P_2$	$2p6p^3D_3$	355.94	2.317+08	
$2s3d^1D_2$	303.16	$2p6d^1F_3$	303.16	$2p8s^3P_2$	$2p6p^3D_3$	356.06	7.363+08	
$2s3d^1D_2$	303.16	$2p6d^1F_3$	303.16	$2p8s^3P_2$	$2p6p^3D_3$	356.13	4.757+08	
$2s3d^1D_2$	303.16	$2p6d^1F_3$	303.16	$2p8s^3P_2$	$2p6p^3D_3$	356.27	1.910+09	
$2s3d^1D_2$	303.16	$2p6d^1F_3$	303.16	$2p8s^3P_2$	$2p6p^3D_3$	356.28	1.369+08	
$2s3d^1D_2$	303.16	$2p6d^1F_3$	303.16	$2p8s^3P_2$	$2p6p^3D_3$	356.40	2.971+08	
$2s3d^1D_2$	303.16	$2p6d^1F_3$	303.16	$2p8s^3P_2$	$2p6p^3D_3$	356.55	1.419+09	
$2s3d^1D_2$	303.16	$2p6d^1F_3$	303.16	$2p8s^3P_2$	$2p6p^3D_3$	357.11	7.560+08	
$2s3d^1D_2$	303.16	$2p6d^1F_3$	303.16	$2p8s^3P_2$	$2p6p^3D_3$	357.15	4.412+08	
$2s3d^1D_2$	303.16	$2p6d^1F_3$	303.16	$2p8s^3P_2$	$2p6p^3D_3$	361.09	2.733+08	
$2s3d^1D_2$	303.16	$2p6d^1F_3$	303.16	$2p8s^3P_2$	$2p6p^3D_3$	363.98	2.366+09	
$2s3d^1D_2$	303.16	$2p6d^1F_3$	303.16	$2p8s^3P_2$	$2p6p^3D_3$	365.88	1.062+08	
$2s3d^1D_2$	303.16	$2p6d^1F_3$	303.16	$2p8s^3P_2$	$2p6p^3D_3$	365.88	1.062+08	

TABLE VII. continued.

	1	2	3	4	5	6	7	8
$2p^2^1D_2$	138.09	$2p7s^3P_1$	138.08	2.712+08	$2s2p^1P_1$	$2p6p^1D_2$	127.29	1.316+10
$2p^2^1D_2$	138.08	$2p6s^3P_2$	138.73	1.241+09	$2s2p^1P_1$	$2p6p^3P_2$	127.43	1.857+08
$2p^2^3P_0$	138.73	$2p6s^3P_1$	138.74	9.039+08	$2s2p^1P_1$	$2p6p^3S_1$	127.52	6.145+08
$2p^2^3P_2$	138.74	$2p6s^3P_2$	138.76	3.555+09	$2s2p^1P_1$	$2p6p^3D_2$	127.64	1.574+08
$2p^2^3P_1$	138.76	$2p6s^3P_1$	138.78	6.489+08	$2s2p^1P_1$	$2p6p^3D_1$	127.64	4.169+09
$2p^2^3P_2$	138.78	$2p6s^3P_0$	138.82	9.113+08	$2s2p^1P_1$	$2p6p^1P_1$	127.69	7.964+09
$2p^2^3P_2$	138.82	$2p6s^3P_1$	141.03	1.731+09	$2s3p^1P_1$	$2p6f^1D_2$	254.10	2.038+08
$2p^2^1D_2$	141.03	$2p6d^1P_1$	141.06	1.071+09	$2s3p^1P_1$	$2p8f^3F_2$	254.56	1.101+08
$2p^2^1D_2$	141.06	$2p6d^1F_3$	141.15	8.889+10	$2s3p^1P_1$	$2p8p^1D_2$	254.67	1.283+08
$2p^2^1D_2$	141.15	$2p6g^3F_3$	141.33	1.873+08	$2s3p^1P_1$	$2p8p^3S_1$	255.09	1.652+08
$2p^2^1D_2$	141.33	$2p6d^3P_2$	141.38	1.448+08	$2s3p^3P_2$	$2p8f^3D_3$	255.23	1.326+08
$2p^2^1D_2$	141.38	$2p6d^3D_3$	141.41	2.704+08	$2s3p^1P_1$	$2p8p^1P_1$	255.35	1.899+08
$2p^2^1D_2$	141.41	$2p6d^1D_2$	141.41	7.042+08	$2s3p^3P_2$	$2p8p^3D_1$	255.48	1.851+08
$2p^2^1D_2$	141.54	$2p6d^3F_3$	141.55	7.555+09	$2s3p^3P_2$	$2p7f^3D_3$	264.11	1.152+08
$2p^2^1D_2$	141.55	$2p6d^3F_3$	141.60	7.428+08	$2s3p^3P_2$	$2p6f^3D_3$	279.07	1.611+08
$2p^2^1D_2$	141.60	$2p6d^3F_2$	141.60	3.138+09	$2p3s^3P_1$	$2p8p^3S_1$	311.71	3.030+08
$2p^2^1D_2$	142.31	$2p6s^1P_1$	142.31	3.864+09	$2p3s^3P_1$	$2p8p^3P_0$	311.73	1.485+08
$2p^2^1D_2$	142.55	$2p6s^3P_1$	142.55	1.708+08	$2p3s^3P_2$	$2p8p^3P_2$	311.75	7.065+08
$2p^2^1D_2$	144.64	$2p8d^1P_1$	144.64	1.299+10	$2p3s^3P_2$	$2p8p^3P_1$	311.78	4.901+08
$2p^2^1D_2$	144.87	$2p8d^1D_1$	145.22	1.070+09	$2p3s^3P_2$	$2p8p^3P_1$	312.08	1.200+09
$2p^2^1D_2$	145.36	$2p8s^3P_1$	145.36	1.676+08	$2p3s^3P_1$	$2p8p^3D_2$	312.09	7.638+08
$2p^2^1D_2$	147.41	$2p7d^1P_1$	147.41	1.409+10	$2p3s^3P_0$	$2p8p^3D_1$	312.13	1.502+08
$2p^2^1D_2$	147.72	$2p7d^3D_1$	148.30	4.246+08	$2p3s^3P_1$	$2p8p^3D_1$	312.29	2.125+08
$2p^2^1D_2$	148.30	$2p7s^1P_1$	148.30	1.269+09	$2p3s^1P_1$	$2p8f^1D_2$	322.54	3.091+08
$2p^2^1D_2$	148.49	$2p7s^3P_1$	148.49	1.244+08	$2p3s^1P_1$	$2p8f^3F_2$	323.29	4.760+08
$2p^2^1D_2$	151.89	$2p6d^1P_1$	151.89	2.020+10	$2p3s^3P_2$	$2p7f^3D_2$	323.46	1.462+09
$2p^2^1D_2$	152.36	$2p6d^3D_1$	152.36	2.751+08	$2p3s^3P_2$	$2p7f^3D_3$	324.02	1.195+08
$2p^2^1D_2$	153.38	$2p6s^1P_1$	153.38	1.947+09	$2p3s^1P_1$	$2p8p^3S_1$	324.14	6.348+08
$2s3d^3D_1$	266.79	$2p8g^3F_2$	266.79	1.041+08	$2p3s^1P_1$	$2p8p^1P_1$	324.56	6.717+08
$2s3d^3D_3$	266.87	$2p8g^3F_4$	266.87	1.277+08	$2p3s^1P_1$	$2p8p^3D_2$	324.56	1.050+08
$2s3d^3D_1$	267.02	$2p8d^3P_0$	267.02	6.294+08	$2p3s^1P_1$	$2p8p^3D_1$	324.77	6.407+08
$2s3d^3D_1$	267.04	$2p8d^3P_1$	267.04	6.281+08	$2p3s^3P_1$	$2p7p^3P_2$	325.29	1.166+08
$2s3d^3D_2$	267.05	$2p8d^3P_2$	267.05	9.609+08	$2p3s^3P_0$	$2p7p^3P_1$	325.55	1.123+08
$2s3d^3D_3$	267.06	$2p8d^3P_2$	267.06	1.163+09	$2p3s^3P_2$	$2p7p^3P_0$	325.61	2.748+08
$2s3d^3D_3$	267.16	$2p8d^3D_3$	267.16	3.752+08	$2p3s^3P_2$	$2p7p^3P_2$	325.64	1.246+09
$2s3d^3D_3$	267.25	$2p8d^1D_2$	267.25	6.453+08	$2p3s^3P_2$	$2p7p^3P_1$	325.70	7.649+08
$2s3d^3D_3$	267.38	$2p8d^3D_1$	267.38	4.695+08	$2p3s^3P_1$	$2p7p^3S_1$	325.72	5.386+08
$2s3d^3D_3$	267.53	$2p8d^1D_2$	267.53	8.587+08	$2p3s^3P_0$	$2p7p^1P_1$	326.04	5.070+08
$2s3d^1D_2$	275.43	$2p8d^1F_3$	275.43	3.368+09	$2p3s^3P_1$	$2p7p^3D_2$	326.21	1.336+09
$2s3d^1D_2$	275.51	$2p8d^1P_1$	275.51	2.455+08	$2p3s^3P_0$	$2p7p^3D_3$	326.22	2.140+09
$2s3d^1D_2$	276.14	$2p8d^1D_2$	276.14	1.299+08	$2p3s^3P_0$	$2p7p^3D_1$	326.31	2.259+08
$2s3d^1D_2$	276.14	$2p8d^1D_2$	276.14	1.299+08	$2p3s^3P_1$	$2p7p^3D_1$	326.48	3.154+08

TABLE VII. continued.

	1	2	3	4	5	6	7	8
$2p3p^3S_1$	358.67	$2p7d^3D_1$	1.961+08	$2p3d^1D_2$	$2p7f^3G_3$	374.88	1.591+09	
$2p3p^3S_1$	359.04	$2p7d^1D_2$	3.114+08	$2p3d^1F_3$	$2p8f^1G_4$	382.18	4.048+09	
$2p3p^1D_2$	361.45	$2p8d^1F_3$	8.004+09	$2p3d^1F_3$	$2p8f^3F_4$	382.42	1.878+08	
$2p3p^1D_2$	362.53	$2p8d^1D_2$	5.693+08	$2p3d^1F_3$	$2p8f^1F_3$	382.45	2.121+08	
$2p3p^3S_1$	362.65	$2p7s^3F_2$	1.504+08	$2p3d^1F_3$	$2p8f^3F_3$	383.01	2.314+08	
$2p3p^1D_2$	363.03	$2p8d^1D_2$	5.704+08	$2p3d^1F_3$	$2p8f^3G_4$	383.08	9.838+08	
$2p3p^1D_2$	363.32	$2p8d^3F_2$	3.004+08	$2p3d^1F_3$	$2p8f^3G_3$	383.09	1.132+08	
$2p3p^1D_2$	364.94	$2p8s^1F_1$	1.164+09	$2p3d^1F_3$	$2p8p^1D_2$	383.26	1.415+09	
$2p3p^1D_2$	365.88	$2p8s^3P_1$	1.819+08	$2p3d^3D_1$	$2p7f^1D_2$	385.55	1.664+08	
$2p3p^3P_1$	368.71	$2p7d^3P_0$	3.805+08	$2p3d^3D_1$	$2p7f^3D_1$	385.74	3.511+08	
$2p3p^3P_1$	368.75	$2p7d^3F_1$	7.279+08	$2p3d^3D_2$	$2p7f^3D_1$	385.84	1.230+08	
$2p3p^3P_1$	368.83	$2p7d^3P_2$	1.810+08	$2p3d^3D_2$	$2p7f^3D_3$	385.98	8.594+08	
$2p3p^3P_2$	369.03	$2p7d^3P_1$	5.109+08	$2p3d^3D_2$	$2p7f^3D_3$	386.06	1.254+08	
$2p3p^3P_2$	369.10	$2p7d^3P_2$	2.159+09	$2p3d^3D_3$	$2p7f^1G_4$	386.11	1.024+08	
$2p3p^3P_1$	369.25	$2p7d^3D_2$	2.022+09	$2p3d^3D_3$	$2p7f^3D_2$	386.14	1.397+08	
$2p3p^3P_1$	369.27	$2p7d^3D_1$	1.437+09	$2p3d^3D_3$	$2p7f^3D_3$	386.22	1.466+09	
$2p3p^3P_2$	369.31	$2p7d^3D_3$	4.341+09	$2p3d^3D_3$	$2p7f^3G_3$	386.36	1.248+09	
$2p3p^3P_1$	369.42	$2p7d^3D_1$	4.258+08	$2p3d^3D_3$	$2p7f^3F_4$	386.47	3.320+09	
$2p3p^3P_1$	369.82	$2p6d^1D_2$	7.440+08	$2p3d^3D_3$	$2p7f^3G_3$	386.52	1.240+08	
$2p3p^3P_2$	370.02	$2p6d^1P_1$	1.756+09	$2p3d^3D_3$	$2p7f^3F_2$	386.84	2.968+08	
$2p3p^3P_2$	370.19	$2p6d^3F_3$	3.820+08	$2p3d^3D_3$	$2p7f^3F_3$	386.94	2.237+09	
$2p3p^3P_1$	372.70	$2p6d^3D_2$	2.778+08	$2p3d^3D_3$	$2p7f^3F_3$	387.00	3.342+09	
$2p3p^3P_1$	373.57	$2p6d^1D_2$	3.031+09	$2p3d^3D_3$	$2p7f^3F_4$	387.13	3.152+09	
$2p3p^3P_2$	373.64	$2p7s^3P_2$	3.116+08	$2p3d^3D_3$	$2p7p^3P_2$	388.53	1.931+08	
$2p3p^3P_2$	373.93	$2p7s^3P_2$	8.749+08	$2p3d^3D_3$	$2p8p^1S_0$	389.01	4.990+08	
$2p3p^3P_1$	374.02	$2p6d^3F_2$	1.563+09	$2p3d^3D_3$	$2p8f^1D_2$	389.55	2.503+09	
$2p3p^3P_0$	374.08	$2p7s^3P_1$	2.129+08	$2p3d^3D_3$	$2p8f^3D_2$	389.81	3.190+08	
$2p3p^3P_1$	374.24	$2p7s^3P_1$	1.479+08	$2p3d^3D_3$	$2p8f^3F_2$	390.65	2.245+08	
$2p3p^3P_1$	374.37	$2p7s^3P_0$	2.188+08	$2p3d^3D_3$	$2p8p^1D_2$	390.90	2.028+08	
$2p3p^3P_2$	374.52	$2p7s^3P_1$	2.573+08	$2p3d^3D_3$	$2p7f^1D_2$	391.07	1.847+08	
$2p3p^3S_0$	374.72	$2p6d^1P_1$	1.736+09	$2p3d^3D_3$	$2p7f^1D_2$	391.27	4.495+08	
$2p3p^3D_2$	378.08	$2p6d^3P_1$	1.217+08	$2p3d^3D_3$	$2p7f^3D_2$	391.41	7.895+08	
$2p3p^3D_2$	378.19	$2p6d^3P_2$	2.296+08	$2p3d^3D_3$	$2p7f^3D_1$	391.47	1.011+09	
$2p3p^3D_1$	378.61	$2p6d^3D_1$	7.961+08	$2p3d^3D_3$	$2p7f^3D_3$	391.50	4.335+09	
$2p3p^3S_0$	378.63	$2p6s^1P_1$	4.384+08	$2p3d^3D_3$	$2p7f^3D_0$	391.58	1.287+09	
$2p3p^3D_3$	378.64	$2p6d^3P_2$	2.685+08	$2p3d^3D_3$	$2p7f^3D_2$	391.62	2.193+09	
$2p3p^3D_2$	378.78	$2p6d^3D_2$	1.422+09	$2p3d^3D_3$	$2p7f^3S_1$	391.89	1.827+08	
$2p3p^3D_2$	378.89	$2p6d^3D_1$	1.934+08	$2p3d^3D_3$	$2p7f^3F_3$	392.46	8.110+08	
$2p3p^3D_3$	378.98	$2p6d^3D_3$	2.883+09	$2p3d^3D_3$	$2p8p^1P_1$	392.50	1.941+08	
$2p3p^3P_1$	379.01	$2p6s^1P_1$	4.715+08	$2p3d^3D_3$	$2p7f^3G_3$	392.51	1.359+08	
$2p3p^3D_2$	379.23	$2p6d^3D_2$	1.230+08	$2p3d^3D_3$	$2p7f^3F_2$	392.61	1.905+08	
$2p3p^1D_2$	379.35	$2p7d^1F_3$	7.010+09	$2p3d^3D_3$	$2p8p^3D_1$	392.81	1.851+08	

TABLE VII. continued.

	1	2	3	4	5	6	7	8
$2p3p^3S_1$	342.53	$2p8d^1D_2$	3.374+08	$2p3s^1P_1$	$2p3p^3D_1$	366.84	6.729+08	
$2p3p^1P_1$	344.55	$2p7d^1P_1$	1.156+09	$2p3d^3D_1$	$2p8f^1D_2$	367.00	1.424+08	
$2p3p^1P_1$	346.09	$2p7d^3D_2$	5.034+08	$2p3d^3D_1$	$2p8f^3D_1$	367.13	2.457+08	
$2p3p^1P_1$	346.59	$2p7d^1D_2$	1.369+09	$2p3d^3D_1$	$2p8f^3D_2$	367.23	1.347+08	
$2p3p^1P_1$	346.92	$2p7d^3F_2$	7.613+08	$2p3s^1P_1$	$2p6p^1P_1$	367.25	1.242+09	
$2p3p^1P_1$	349.43	$2p7s^1F_1$	2.117+08	$2p3d^3D_2$	$2p8f^3D_2$	367.32	6.316+08	
$2p3p^3D_2$	350.94	$2p7d^3F_2$	2.948+08	$2p3d^3D_3$	$2p8f^3D_3$	367.38	1.815+08	
$2p3p^3D_2$	351.24	$2p7d^3D_1$	4.553+08	$2p3d^3D_3$	$2p8f^3D_3$	367.52	1.004+09	
$2p3p^3D_2$	351.32	$2p7d^3D_2$	7.574+08	$2p3d^3D_2$	$2p8f^1F_3$	367.54	8.649+08	
$2p3p^3D_3$	351.32	$2p7d^3F_3$	1.156+08	$2p3d^3D_3$	$2p8f^3F_4$	367.66	2.521+09	
$2p3p^3D_3$	351.48	$2p7d^3D_1$	1.322+08	$2p3d^3D_1$	$2p8f^3F_2$	367.97	1.644+09	
$2p3p^3P_1$	351.50	$2p8d^3P_0$	3.152+08	$2p3d^3D_2$	$2p8f^3F_3$	368.13	1.931+09	
$2p3p^3D_3$	351.51	$2p7d^3D_3$	1.910+09	$2p3d^3D_2$	$2p8f^3G_3$	368.18	1.512+08	
$2p3p^3P_1$	351.52	$2p8d^3P_1$	6.502+08	$2p3d^3D_1$	$2p8p^1D_2$	368.20	2.158+08	
$2p3p^3P_2$	351.59	$2p8d^3D_2$	8.656+08	$2p3d^3D_3$	$2p8p^3P_2$	368.27	1.685+09	
$2p3p^3P_2$	351.77	$2p8d^3P_1$	4.228+08	$2p3d^3P_2$	$2p8f^1D_2$	368.91	1.777+08	
$2p3p^3P_1$	351.82	$2p8d^3P_2$	1.798+09	$2p3d^3P_1$	$2p8f^1D_2$	372.00	1.408+08	
$2p3p^3P_2$	351.85	$2p8d^1D_2$	1.162+09	$2p3d^3P_2$	$2p8f^3D_2$	372.24	4.761+08	
$2p3p^3D_3$	351.93	$2p7d^3F_4$	6.210+09	$2p3d^3P_2$	$2p8f^3D_3$	372.29	2.540+09	
$2p3p^3D_2$	351.93	$2p7d^3F_3$	4.404+09	$2p3d^3P_1$	$2p8f^3D_1$	372.32	6.658+08	
$2p3p^3D_1$	351.95	$2p8d^3D_3$	3.437+09	$2p3d^3P_0$	$2p8f^3D_1$	372.42	1.319+09	
$2p3p^3P_0$	351.96	$2p8d^3D_1$	1.202+09	$2p3d^3F_3$	$2p7f^1G_4$	372.93	1.339+09	
$2p3p^3P_1$	352.10	$2p8d^3D_1$	3.132+08	$2p3d^3F_2$	$2p7f^3G_3$	373.03	1.275+09	
$2p3p^3D_2$	352.18	$2p7d^3F_2$	3.094+08	$2p3d^3P_2$	$2p8f^3F_3$	373.07	8.714+08	
$2p3p^3D_3$	352.31	$2p7d^3F_3$	1.176+08	$2p3d^3P_1$	$2p8f^3F_4$	373.18	1.518+08	
$2p3p^3P_1$	352.33	$2p8d^1D_2$	1.078+09	$2p3d^3F_3$	$2p7f^3F_4$	373.28	2.686+09	
$2p3p^3P_2$	352.63	$2p8d^3F_3$	5.236+08	$2p3d^3F_3$	$2p7f^3G_3$	373.32	7.821+08	
$2p3p^3P_1$	354.45	$2p8s^3P_2$	2.720+08	$2p3d^3F_4$	$2p7f^3G_6$	373.47	9.584+09	
$2p3p^3P_2$	354.71	$2p8s^3P_2$	7.504+08	$2p3d^1D_2$	$2p7f^1D_2$	373.56	8.574+08	
$2p3p^3P_0$	354.87	$2p8s^3P_1$	1.742+08	$2p3d^3F_2$	$2p7f^3F_2$	373.57	5.350+08	
$2p3p^3P_1$	355.01	$2p8s^3P_1$	1.184+08	$2p3d^3F_4$	$2p7f^3F_4$	373.61	1.441+09	
$2p3p^3P_0$	355.10	$2p8s^3P_0$	1.871+08	$2p3d^3F_2$	$2p7f^3F_3$	373.63	5.350+08	
$2p3p^3P_1$	355.27	$2p8s^3P_1$	2.105+08	$2p3d^3F_3$	$2p7f^3G_3$	373.67	3.871+09	
$2p3p^3D_2$	355.30	$2p7s^3P_2$	1.007+08	$2p3d^1D_2$	$2p7f^3D_2$	373.88	1.430+08	
$2p3p^3D_3$	355.69	$2p7s^3P_2$	6.136+08	$2p3d^3F_3$	$2p7f^3F_4$	373.89	3.429+09	
$2p3p^3D_1$	355.71	$2p7s^3P_0$	1.482+08	$2p3d^3F_3$	$2p7f^3F_3$	373.92	2.310+08	
$2p3p^3D_2$	355.83	$2p7s^3P_1$	3.066+08	$2p3d^1D_2$	$2p7f^3D_3$	373.96	4.086+08	
$2p3p^3S_1$	358.00	$2p7d^3F_0$	4.532+08	$2p3d^3F_3$	$2p7f^3G_3$	373.96	1.344+08	
$2p3p^3S_1$	358.04	$2p7d^3P_1$	1.171+09	$2p3d^3P_3$	$2p8p^3D_3$	374.19	2.072+08	
$2p3p^3S_1$	358.11	$2p7d^3P_2$	1.407+09	$2p3d^1D_2$	$2p7f^3G_3$	374.24	2.452+09	
$2p3p^3S_1$	358.51	$2p7d^3D_2$	5.825+08	$2p3d^1D_2$	$2p7f^3F_3$	374.84	1.141+09	

TABLE VII. continued.

	1	2	3	4	5	6	7	8
2p3p 1D2		2p6d 1F3	410.56	9.328+09	2p3d 3D3	2p6f 3D3	419.07	2.395+09
2s4s 1S0		2p8d 1F1	412.09	7.061+08	2p3d 3D2	2p6f 3G3	419.49	1.719+09
2p3p 1D2		2p6d 3D2	413.54	1.216+08	2p3d 3D3	2p6f 3G4	419.58	3.965+09
2p3p 1D2		2p6d 1D2	414.60	1.260+09	2p3d 3D3	2p6f 3C3	419.67	1.832+08
2p3p 1D2		2p6d 3F2	415.15	5.128+08	2p3d 3D1	2p6f 3F2	420.11	5.521+09
2s4s 1S0		2p8s 1F1	416.84	1.607+08	2p3d 3D2	2p6f 3F3	420.23	5.798+08
2p3p 1D2		2p6s 1F1	421.31	1.347+09	2p3d 3D2	2p6f 1F3	420.34	6.391+09
2p3p 1S0		2p6d 1F1	427.62	1.873+09	2p3d 3D3	2p6f 1F3	420.34	2.788+08
2s4d 3D1		2p8d 3F0	433.45	1.072+08	2p3d 3D3	2p6f 3F4	420.38	7.513+09
2s4d 3D1		2p8d 3F1	433.49	1.172+08	2p3d 3D3	2p6f 3F3	420.45	2.701+08
2s4d 3D2		2p8d 3F1	433.50	1.565+08	2p3d 3D2	2p6p 3F1	423.41	1.268+08
2s4d 3D2		2p8d 3F2	433.57	1.420+08	2p3d 3D3	2p6p 3F2	423.45	2.871+08
2s4d 3D3		2p8d 3F2	433.58	1.854+08	2p3d 3F2	2p6f 1D2	424.33	5.492+08
2s4d 3D3		2p8d 3D3	433.78	1.048+08	2p3d 3F1	2p6f 1D2	424.33	1.267+08
2s4d 3D3		2p8d 1D2	434.73	1.523+08	2p3d 3F2	2p6f 3D1	425.14	1.501+09
2s4s 1S0		2p7d 1F1	435.48	3.778+08	2p3d 3D3	2p6p 3D3	425.14	1.401+08
2p3p 1S0		2p6s 1F1	439.66	5.911+08	2p3d 3F1	2p6f 3D1	425.18	1.730+09
2s4d 1D2		2p8d 1F1	440.37	6.815+08	2p3d 3F2	2p6f 3D3	425.28	8.256+09
2s4d 1D2		2p7d 1F1	467.19	1.850+08	2p3d 3F0	2p6f 3D1	425.30	2.203+09
2s4s 1S0		2p6s 1F1	476.99	4.471+08	2p3d 3F1	2p6f 3D2	425.38	4.163+08
2s4s 1S0		2p6d 1F3	515.81	1.101+08	2s4p 1F1	2p8p 1D2	426.49	3.289+08
2s4d 1D2		2p8g 3F3	608.02	1.492+08	2p3d 3F2	2p6f 1F3	426.71	3.835+08
2s5g 3G4		2p8g 3F2	608.02	1.225+08	2p3d 3F1	2p6f 3F2	426.92	1.579+08
2s5g 3G3		2p8g 3F4	608.34	1.083+08	2p3d 3F2	2p6p 3S1	430.86	3.513+08
2p4p 1F1		2p8d 1F1	694.65	2.113+08	2p3d 3F1	2p6p 3S1	431.11	1.887+08
2p4p 1F1		2p8d 1D2	699.20	1.511+08	2p3d 3F2	2p6p 3F1	431.54	2.583+08
2p4p 1F1		2p8d 1D2	701.08	1.833+08	2p3d 3F1	2p6p 3F2	432.37	1.170+08
2p4p 1F1		2p8d 3F2	702.14	2.065+08	2p3d 1F3	2p6f 1G4	438.20	7.941+09
2p4p 3D2		2p8d 1D2	705.76	1.349+08	2p3d 1F3	2p6f 3G4	438.92	5.026+08
2p4p 3D3		2p8d 3D3	706.59	4.425+08	2p3d 1F3	2p6f 3G3	439.02	2.684+08
2p4p 3D1		2p8d 1D2	706.89	2.052+08	2p3d 1F3	2p6f 3F4	439.79	7.311+08
2p4p 3D3		2p8d 3F4	707.63	1.383+09	2p3d 1F3	2p6f 1F3	439.95	8.972+08
2p4p 3D1		2p8d 3F3	707.87	1.015+09	2s4f 3F3	2p6f 1D2	441.14	1.249+08
2p4p 3D2		2p8d 3F2	707.98	4.621+08	2s4f 3F2	2p8f 3D1	441.32	4.079+08
2p4p 3S1		2p8d 3F1	710.86	1.858+08	2s4f 3F3	2p8f 3D2	441.47	3.813+08
2p4p 3S1		2p8d 3F2	711.05	2.359+08	2p3d 1F3	2p6p 3F1	441.49	7.592+08
2p4p 3S1		2p8d 1D2	712.21	1.084+08	2s4f 3F4	2p8f 3D3	441.57	5.743+08
2p4p 3S1		2p8d 1D2	714.15	1.105+08	2s4f 3F4	2p8f 3F3	442.66	2.916+08
2p4p 3D3		2p8s 1F3	717.79	2.557+08	2s4f 1F3	2p8f 1D2	445.29	4.475+08
2p4p 3D2		2p8s 3F1	718.59	1.300+08	2s4f 1F3	2p8f 1G1	445.58	2.736+08
2p4p 3F1		2p8d 1F3	726.03	1.097+08	2s4f 1F3	2p8p 1D2	447.05	3.821+08

TABLE VII. continued.

	1	2	3	4	5	6	7	8
2p3p 3D1		2p6d 1D2	379.39	1.849+09	2p3d 3F2	2p7p 3S1	394.51	1.774+08
2p3p 3D2		2p6d 3F3	379.79	8.104+09	2p3d 3F2	2p7p 3D3	394.72	1.858+08
2p3p 3D3		2p6d 3F4	379.83	1.134+10	2p3d 3F1	2p7p 3S1	394.72	1.107+08
2p3p 3D1		2p6d 3F2	379.85	3.725+09	2p3d 1F3	2p7f 1G4	402.42	4.677+09
2p3p 3D2		2p6d 3F3	380.14	6.031+08	2p3d 1F3	2p7f 3F4	402.82	2.515+08
2p3p 3D3		2p6d 1D2	380.24	4.303+08	2p3d 1F3	2p7f 3G3	402.87	1.286+09
2p3p 1D2		2p7d 1D2	381.02	2.923+08	2p3d 3F3	2p6f 1G4	403.46	1.827+08
2p3p 1D2		2p7d 3F3	381.63	7.513+08	2p3d 1F3	2p7f 3F4	403.53	8.032+08
2p3p 1D2		2p7d 3F3	381.74	1.308+08	2p3d 1F3	2p7f 3G3	403.62	3.299+08
2p3p 1D2		2p7d 3F2	382.04	3.299+08	2p3d 3F2	2p6f 3G3	403.82	3.813+09
2p3p 1D2		2p7s 1F1	385.08	1.046+09	2p3d 1D2	2p6f 1D2	404.02	1.547+09
2p3p 3S1		2p6d 3F0	386.35	7.498+08	2p3d 3F3	2p6f 3G4	404.07	6.948+09
2p3p 3S1		2p6d 3F1	386.46	2.053+08	2p3d 1F3	2p6f 3G3	404.16	1.535+09
2p3p 3S1		2p6d 3F2	386.53	2.918+09	2p3d 3F4	2p6f 3G4	404.22	1.755+10
2p3p 3D1		2p6s 3F1	386.77	1.995+08	2p3d 3F4	2p6f 3F2	404.47	2.408+09
2p3p 3D2		2p6s 3F2	386.93	1.238+09	2p3d 3F2	2p6f 3F2	404.50	1.033+09
2p3p 3D2		2p6s 3F0	386.94	2.996+08	2p3d 1D2	2p6f 3D2	404.53	2.034+08
2p3p 3S1		2p6s 3F1	387.06	6.476+08	2p3d 3F2	2p6f 3D2	404.54	3.210+09
2p3p 3S1		2p6d 1D1	387.15	8.777+08	2p3d 1D2	2p6f 1F3	404.61	3.395+09
2p3p 3S1		2p6d 1D2	387.26	2.200+08	2p3d 3F3	2p6f 3F3	404.66	4.089+08
2p3p 3S1		2p6d 1F1	388.07	1.462+08	2p3d 3F3	2p6f 3F3	404.81	4.831+09
2p3p 1S0		2p7d 1F1	393.96	1.430+09	2p3d 3F3	2p6f 3F3	404.88	3.113+08
2p3p 3S1		2p6s 3F2	395.18	2.747+08	2p3d 3F3	2p6f 1F3	404.95	3.516+08
2p3p 3S1		2p6s 3F1	395.80	1.806+08	2p3d 3F4	2p6f 3F4	405.21	4.474+08
2p3p 3F1		2p6d 3F0	398.85	5.670+08	2p3d 1D2	2p6f 3G3	405.23	3.597+09
2p3p 3F1		2p6d 3F1	398.92	9.565+08	2p3d 1D2	2p6f 3F3	405.96	2.558+08
2p3p 3F2		2p6d 3F1	399.24	7.625+08	2p3d 1D2	2p6f 1F3	406.03	6.101+09
2p3p 3F2		2p6d 3F2	399.37	3.167+09	2p3d 3F4	2p6p 3D3	409.63	2.179+08
2p3p 3F0		2p6d 3D1	399.64	2.127+09	2p3d 3F3	2p6p 3D2	409.74	1.493+08
2p3p 3F1		2p6d 3D2	399.70	3.968+09	2p3d 1F1	2p7p 1S0	410.20	2.000+08
2p3p 3F2		2p6d 3D3	399.75	6.858+09	2p3d 1F1	2p7f 1D2	410.51	2.825+09
2p3p 3F1		2p6d 3D1	399.82	7.751+08	2p3d 1F1	2p7f 3D2	410.89	3.576+08
2p3p 3F2		2p6d 3D2	400.03	1.077+08	2p3d 1F1	2p7f 3F2	411.98	2.149+08
2p3p 1S0		2p7s 1D1	400.35	4.310+08	2p3d 1F1	2p7p 1D2	412.70	1.173+08
2p3p 3F1		2p6d 1D2	400.69	3.790+08	2p3d 1F1	2p7p 1F1	415.11	1.522+08
2p3p 3F2		2p6d 3F3	401.16	2.737+08	2p3d 1F1	2p7p 3D1	415.54	1.562+08
2p3p 3F3		2p6s 3F2	408.27	4.570+08	2p3d 3D1	2p6f 1D2	418.07	1.913+08
2p3p 3F2		2p6s 3F2	408.60	1.301+09	2p3d 3D1	2p6f 3D1	418.42	5.866+08
2p3p 3F0		2p6s 3F1	408.74	3.314+08	2p3d 3D2	2p6f 3D1	418.54	2.057+08
2p3p 3F1		2p6s 3F1	408.93	2.351+08	2p3d 3D2	2p6f 3D2	418.74	1.303+09
2p3p 3F1		2p6s 3F0	409.13	3.279+08	2p3d 3D3	2p6f 1G4	418.92	1.175+08
2p3p 3F2		2p6s 3F1	409.27	4.015+08	2p3d 3D3	2p6f 3D2	418.92	2.182+08

TABLE VII. continued.

1	2	3	4	5	6	7	8
$2p4p^1P_1$	$2p7d^1D_2$	773.90	4.980+08	$2p4d^3F_3$	$2p8f^1G_4$	737.97	4.238+08
$2p4f^3D_3$	$2p8g^3F_3$	774.00	1.252+08	$2p4s^1P_1$	$2p7p^1S_0$	738.20	1.049+08
$2p4f^3D_3$	$2p8g^3F_4$	774.49	1.362+09	$2p4d^1D_2$	$2p8f^1D_2$	738.53	2.084+08
$2p4f^3D_2$	$2p8g^3F_3$	774.76	4.780+08	$2p4d^3F_3$	$2p8f^3F_4$	738.88	5.344+08
$2p4f^1D_2$	$2p8g^3F_2$	774.78	1.939+08	$2p4d^3F_3$	$2p8f^1F_3$	738.99	2.063+08
$2p4f^3D_1$	$2p8g^3G_3$	775.24	6.321+08	$2p4d^1D_2$	$2p8f^3D_3$	739.68	1.315+08
$2p4f^1P_1$	$2p8g^3F_2$	775.55	9.739+08	$2p4d^3F_4$	$2p8f^3G_5$	739.74	2.678+09
$2p4p^1P_1$	$2p7d^3F_2$	775.58	4.317+08	$2p4d^3F_2$	$2p8f^3F_2$	739.90	1.402+08
$2p4f^3D_3$	$2p8g^3F_4$	777.60	6.561+08	$2p4d^3F_4$	$2p8f^3F_4$	740.12	4.599+08
$2p4f^1D_2$	$2p8g^3G_3$	778.39	3.133+08	$2p4d^1D_2$	$2p8f^1F_3$	740.35	9.095+08
$2p4f^1D_2$	$2p8g^3F_3$	778.71	1.053+09	$2p4d^3F_2$	$2p8f^3G_3$	740.38	1.512+09
$2p4p^3D_1$	$2p8g^3G_3$	779.19	3.580+08	$2p4d^3F_3$	$2p8f^3G_4$	741.35	1.160+09
$2p4p^3D_2$	$2p7d^3D_1$	779.24	1.417+08	$2p4d^1D_2$	$2p8f^3F_3$	742.76	5.674+08
$2p4p^3D_3$	$2p7d^3D_2$	779.42	2.828+08	$2s6p^3P_1$	$2p8f^3D_2$	744.39	1.156+08
$2p4p^3D_1$	$2p7d^1D_2$	780.21	6.602+08	$2s4p^3P_2$	$2p8f^3D_3$	744.53	2.628+08
$2p4f^3G_4$	$2p8g^1H_6$	781.00	4.786+08	$2p4s^1P_1$	$2p7p^1D_2$	746.34	8.560+08
$2p4f^3G_3$	$2p8g^1G_4$	781.13	2.411+08	$2p4s^1P_1$	$2p7p^1P_1$	754.24	1.708+08
$2p4f^1G_4$	$2p8g^3G_5$	781.19	3.054+08	$2p4d^3D_1$	$2p8f^3D_1$	754.51	1.113+08
$2p4f^1G_4$	$2p8g^3G_5$	781.58	2.911+08	$2p4d^3D_2$	$2p8f^3D_2$	755.30	3.224+08
$2p4f^3G_6$	$2p8g^3H_6$	781.97	1.336+09	$2p4s^1P_1$	$2p7p^3D_1$	755.66	1.593+08
$2p4f^1D_2$	$2p7d^3F_4$	782.27	2.749+09	$2p4s^1P_1$	$2p8f^3D_3$	756.06	4.881+08
$2p4f^1G_5$	$2p8g^3G_5$	782.37	2.077+08	$2s6p^1P_1$	$2p8f^3F_2$	756.13	1.103+08
$2p4p^3D_2$	$2p7d^3F_3$	782.40	1.229+08	$2p4d^3D_2$	$2p8f^1F_3$	756.23	5.283+08
$2p4p^3D_1$	$2p7d^3F_2$	782.71	8.374+08	$2p4d^3D_1$	$2p8f^3F_4$	756.64	1.396+09
$2p4p^3D_3$	$2p7d^3F_2$	783.66	1.518+08	$2s6f^1F_3$	$2p8f^3F_2$	758.07	8.628+08
$2p4f^3G_3$	$2p8g^3H_4$	784.15	5.021+08	$2p4d^3D_2$	$2p8f^1G_4$	758.42	5.913+08
$2p4f^1G_4$	$2p8g^1H_6$	784.22	9.453+08	$2p4d^3D_3$	$2p8p^1D_2$	758.74	1.039+09
$2p4f^1G_4$	$2p8g^3G_5$	784.54	4.948+08	$2p4d^3D_3$	$2p8f^3G_4$	759.24	1.501+08
$2p4f^1G_4$	$2p8g^3G_5$	784.67	1.169+08	$2p4d^3D_3$	$2p8p^3P_2$	761.96	1.238+08
$2p4p^3S_1$	$2p7d^3P_0$	784.85	1.292+08	$2p4d^3P_1$	$2p8f^1D_2$	766.05	1.433+08
$2p4p^3S_1$	$2p7d^3P_1$	785.03	3.368+08	$2p4d^3P_2$	$2p8f^3D_2$	766.37	2.356+08
$2p4p^3S_1$	$2p7d^3P_2$	785.37	4.553+08	$2p4d^3P_1$	$2p8f^3D_1$	766.61	3.174+08
$2p4p^1S_0$	$2p8d^1P_1$	786.61	7.599+08	$2p4d^3P_2$	$2p8f^3D_3$	766.65	1.203+09
$2p4p^3S_1$	$2p7d^3D_2$	787.29	2.248+08	$2p4d^3P_3$	$2p8f^3D_1$	766.95	3.920+08
$2p4f^1G_4$	$2p8g^3G_5$	787.66	1.729+08	$2p4d^3P_1$	$2p8f^3D_2$	767.05	6.285+08
$2p4p^1P_1$	$2p7s^1P_1$	788.21	1.484+08	$2s6f^3F_4$	$2p8f^3G_5$	768.50	2.020+08
$2p4p^3D_3$	$2p7s^3P_2$	801.12	5.012+08	$2p4d^3P_2$	$2p8f^3F_3$	769.92	3.254+08
$2p4p^3D_1$	$2p7s^3P_0$	801.58	1.261+08	$2p4d^3P_3$	$2p8p^3D_3$	774.71	1.151+08
$2p4p^3D_2$	$2p7s^3P_1$	801.98	2.632+08	$2p4d^1P_1$	$2p8p^1S_0$	791.17	2.251+08
$2p4p^3P_1$	$2p7d^3P_0$	803.52	1.458+08	$2p4d^1P_1$	$2p8f^1D_2$	793.40	1.232+09
$2p4p^3P_1$	$2p7d^3P_1$	803.71	2.840+08	$2p4d^1P_1$	$2p8f^3D_2$	794.48	1.462+09
$2p4p^1S_0$	$2p8s^1P_1$	804.07	2.840+08	$2p4d^1F_3$	$2p8f^1G_4$	796.60	1.630+09

TABLE VII. continued.

1	2	3	4	5	6	7	8
$2p4p^3P_1$	$2p8d^3P_1$	726.14	2.315+08	$2p3d^1P_1$	$2p6p^1S_0$	447.22	1.657+08
$2p4p^3P_2$	$2p8d^3P_1$	727.09	1.512+08	$2p3d^1P_1$	$2p6f^1D_2$	447.59	4.721+09
$2p4p^3P_2$	$2p8d^3F_2$	727.29	6.445+08	$2p3d^1P_1$	$2p6f^3D_2$	448.22	4.782+08
$2p4p^3P_1$	$2p8d^1D_2$	727.55	4.320+08	$2p3d^1P_1$	$2p6f^3F_3$	449.92	1.739+08
$2p4p^3P_0$	$2p8d^3D_1$	727.81	4.020+08	$2p3d^1P_1$	$2p6p^1D_2$	451.66	1.466+08
$2p4p^3P_2$	$2p8d^3D_3$	727.84	1.273+09	$2s4p^1P_1$	$2p7p^1D_2$	452.58	1.051+08
$2p4p^3P_1$	$2p8d^1D_2$	728.59	1.188+08	$2p3d^1P_1$	$2p6p^3D_1$	456.07	2.392+08
$2p4p^3P_2$	$2p8d^3F_3$	730.74	1.759+08	$2s4f^3F_4$	$2p7f^3D_3$	468.35	1.504+08
$2s6s^3S_1$	$2p8d^3P_1$	735.91	1.176+08	$2s4f^3F_4$	$2p7f^3G_5$	468.99	1.635+08
$2s6s^3S_1$	$2p8d^3P_2$	736.12	1.307+08	$2s4f^1F_3$	$2p7f^1G_4$	473.35	2.678+08
$2p4p^3P_1$	$2p8s^3P_2$	738.75	1.250+08	$2s4f^1F_3$	$2p7p^1D_2$	475.80	1.300+08
$2p4p^3P_2$	$2p8s^3P_2$	739.73	3.553+08	$2s4f^3F_4$	$2p6f^3G_5$	518.52	3.186+08
$2p4p^3P_2$	$2p8d^1F_3$	740.89	2.775+09	$2s4f^3F_4$	$2p6f^3G_4$	518.91	1.359+08
$2p4p^1D_2$	$2p8d^1D_2$	745.45	1.875+08	$2s4f^3F_2$	$2p6f^3G_3$	519.04	1.010+08
$2p4p^1D_2$	$2p8d^3F_2$	748.79	1.015+08	$2s4f^1F_3$	$2p6f^1G_4$	523.63	4.602+08
$2p4p^1D_2$	$2p8g^3H_6$	753.53	1.924+08	$2s4f^3F_3$	$2p8f^3D_1$	607.56	1.347+08
$2s6g^3G_4$	$2p8g^1H_5$	753.60	1.467+08	$2s4f^3F_3$	$2p8f^3D_2$	607.84	1.208+08
$2s6g^3G_4$	$2p8g^3G_6$	753.95	1.481+08	$2s4f^1F_3$	$2p8f^1D_2$	608.00	1.833+08
$2s6g^1G_4$	$2p8g^3G_6$	754.36	1.379+09	$2s4f^3F_4$	$2p8f^3F_3$	610.08	1.026+08
$2s6g^3G_5$	$2p8g^3G_6$	754.76	1.716+08	$2p4s^3P_1$	$2p8g^3S_1$	663.06	1.257+08
$2s6g^1G_4$	$2p8g^1H_5$	755.35	8.638+08	$2p4s^3P_2$	$2p8p^3F_2$	663.31	3.188+08
$2p4p^1D_2$	$2p8s^1P_1$	755.73	4.950+08	$2p4s^3P_2$	$2p8p^3P_1$	663.45	2.160+08
$2s6g^3G_3$	$2p8g^3H_4$	756.36	8.884+08	$2p4s^3P_0$	$2p8p^1P_1$	664.10	1.455+08
$2s6g^1G_4$	$2p8g^3G_5$	756.70	9.101+08	$2p4s^3P_1$	$2p8p^3D_2$	664.81	3.684+08
$2s6g^1G_4$	$2p8g^3G_5$	758.54	1.480+08	$2p4s^3P_2$	$2p8p^3D_3$	664.81	5.699+08
$2p4f^1F_3$	$2p8g^3F_4$	758.86	4.057+08	$2p4s^3P_1$	$2p8p^3D_1$	665.69	1.070+08
$2p4f^1F_3$	$2p8g^1G_4$	759.12	2.257+08	$2p4s^3P_1$	$2p8f^3F_2$	677.20	1.507+08
$2s6d^3D_2$	$2p8g^3F_4$	759.28	1.022+08	$2p4s^3P_1$	$2p8p^1D_2$	677.96	6.226+08
$2p4f^3F_2$	$2p8g^3G_3$	759.47	3.993+08	$2p4s^3P_1$	$2p8p^3S_1$	680.95	1.542+08
$2p4f^3F_3$	$2p8g^3G_3$	759.96	2.416+08	$2p4s^1P_1$	$2p8p^1P_1$	682.78	1.473+08
$2p4f^3F_3$	$2p8g^1G_4$	760.24	1.091+09	$2p4s^1P_1$	$2p8p^3D_1$	683.72	1.325+08
$2p4f^3F_4$	$2p8g^3F_4$	760.28	2.911+08	$2p4s^3P_1$	$2p7p^3P_0$	729.30	1.105+08
$2p4f^3F_4$	$2p8g^3G_5$	760.54	1.705+09	$2p4s^3P_2$	$2p7p^3P_2$	729.56	5.037+08
$2p4f^1F_3$	$2p8g^3F_4$	761.84	1.114+09	$2p4s^3P_2$	$2p7p^3P_1$	729.85	3.094+08
$2s6d^3D_2$	$2p8g^3G_3$	762.21	1.508+08	$2p4s^3P_1$	$2p7p^3S_1$	729.87	2.129+08
$2p4f^3F_2$	$2p8g^3G_3$	762.49	9.057+08	$2p4s^3P_0$	$2p7p^1P_1$	731.51	2.161+08
$2p4f^3F_3$	$2p8g^3F_4$	762.97	2.825+08	$2p4s^3P_1$	$2p7p^3D_2$	732.34	5.895+08
$2p4f^3F_3$	$2p8g^3H_4$	763.04	4.348+08	$2p4s^3P_2$	$2p7p^3D_3$	732.48	9.406+08
$2p4f^3F_4$	$2p8g^3G_5$	763.34	7.094+08	$2p4s^3P_0$	$2p7p^3D_1$	732.85	1.001+08
$2p4p^1P_1$	$2p7d^1P_1$	763.80	3.214+08	$2p4s^3P_1$	$2p7p^3D_1$	733.69	1.474+08
$2p4p^1P_1$	$2p7d^3D_2$	771.43	1.656+08	$2p4d^3F_2$	$2p8f^1F_3$	737.80	1.043+08

TABLE VII. continued.

	1	2	3	4	5	6	7	8			
2p4f ³ G ₅	2p6g ³ G ₅	2p5d ³ F ₅	2p8f ¹ G ₄	1426.60	2.685+08	1043.13	4.353+08	2s8f ¹ F ₃	2p8f ¹ G ₄	1038.85	6.697+08
2p4f ³ G ₅	2p6g ¹ G ₄	2p5d ³ F ₅	2p8f ³ F ₄	1430.01	3.282+08	1043.22	1.139+09	2s8f ¹ F ₃	2p8f ³ F ₄	1038.93	6.028+08
2p4f ¹ G ₄	2p6g ³ G ₅	2p5d ¹ D ₂	2p8f ¹ F ₃	1431.38	5.758+08	1043.49	2.197+08	2s8f ¹ F ₃	2p8f ¹ F ₃	1039.30	9.255+08
2p4f ¹ G ₄	2p6g ³ H ₄	2p5d ³ F ₄	2p8f ³ G ₅	1433.96	1.883+09	1044.53	1.730+09	2s7p ³ F ₂	2p7p ³ D ₁	1039.46	3.383+08
2p4f ¹ G ₄	2p6g ³ G ₃	2p5d ³ F ₃	2p8f ³ G ₃	1434.36	1.045+09	1044.57	6.812+08	2s7p ³ F ₂	2p7p ³ D ₁	1039.49	3.839+08
2p4f ¹ G ₄	2p6g ¹ G ₄	2p5d ³ F ₃	2p8f ³ F ₄	1435.42	2.286+08	1044.81	1.192+08	2s7p ³ F ₂	2p7p ³ F ₃	1039.60	1.029+08
2p4f ¹ D ₂	2p6d ¹ D ₂	2p5d ³ F ₃	2p8f ³ G ₄	1439.30	8.858+08	1044.84	2.416+08	2s8p ¹ F ₁	2p8p ³ D ₁	1039.70	4.478+08
2p4f ³ G ₅	2p6d ³ F ₄	2p5d ¹ D ₂	2p8f ³ F ₃	1440.43	2.858+08	1044.84	6.024+09	2p4d ³ F ₂	2p6f ¹ F ₃	1040.08	1.511+08
2p5p ¹ F ₁	2p8d ³ F ₂	2p5d ³ D ₂	2p8f ³ D ₂	1452.74	1.031+08	1045.36	8.331+08	2s8f ¹ F ₃	2p8p ¹ D ₂	1040.15	3.048+08
2p5p ³ D ₃	2p8d ³ D ₃	2p5d ³ D ₂	2p8f ¹ F ₃	1450.19	3.898+08	1045.57	1.059+08	2s7p ¹ F ₁	2p7p ¹ F ₁	1040.69	5.655+08
2p5p ³ D ₁	2p8d ¹ D ₂	2p5d ³ D ₃	2p8f ³ D ₃	1456.70	2.791+08	1045.98	3.439+09	2s7f ¹ F ₃	2p7f ³ F ₂	1041.50	1.310+08
2p5p ³ D ₃	2p8d ³ F ₁	2p5d ³ D ₃	2p8f ³ F ₄	1458.86	9.306+08	1046.21	2.746+09	2s7f ¹ F ₃	2p7f ³ F ₄	1041.67	6.104+08
2p5p ³ D ₂	2p8d ³ F ₃	2p5d ³ F ₁	2p8p ³ D ₂	1461.92	1.082+08	1046.27	5.047+09	2s7f ¹ F ₃	2p7f ³ F ₃	1041.91	3.698+08
2p5p ³ F ₂	2p8d ³ F ₂	2p5d ³ D ₂	2p8p ³ F ₂	1463.05	5.835+08	1048.02	1.215+09	2s6f ³ F ₃	2p6f ³ F ₄	1042.11	8.041+08
2p5p ³ F ₁	2p8d ³ F ₃	2p5d ³ D ₂	2p8p ³ F ₃	1465.55	6.659+08	1051.34	1.241+09	2s6f ³ F ₃	2p6f ³ F ₂	1042.17	9.524+08
2p5p ³ F ₁	2p8d ³ D ₂	2p5d ³ F ₃	2p8p ³ D ₂	1466.23	2.244+08	1051.58	5.057+08	2s7f ¹ F ₃	2p7f ¹ G ₃	1042.28	1.283+09
2p5p ³ F ₁	2p8d ³ D ₁	2p5d ³ F ₃	2p8p ³ D ₁	1467.06	2.387+08	1051.71	3.478+09	2s6f ³ F ₄	2p6f ³ F ₄	1042.31	2.493+09
2p5p ³ F ₂	2p8d ³ F ₁	2p5d ³ D ₂	2p8p ³ F ₃	1467.11	8.959+08	1052.74	5.555+08	2s6f ³ F ₃	2p6f ³ F ₃	1042.32	4.520+08
2p5p ³ F ₂	2p8d ³ F ₂	2p5d ³ D ₂	2p8p ³ D ₁	1468.29	2.640+08	1053.41	1.508+09	2s6f ³ F ₃	2p6f ³ F ₃	1042.54	4.504+08
2p5p ³ F ₂	2p8d ³ F ₂	2p5d ³ D ₂	2p8p ³ D ₂	1468.53	4.404+08	1054.86	1.151+09	2s6f ³ F ₄	2p6f ³ F ₃	1042.75	1.636+08
2p5p ³ F ₂	2p8d ³ F ₂	2p5d ³ D ₂	2p8p ³ D ₂	1475.71	2.013+08	1055.55	1.110+09	2s6f ³ F ₄	2p6f ³ F ₃	1042.87	6.139+08
2p5p ³ F ₂	2p8d ³ F ₂	2p5d ³ D ₂	2p8p ³ D ₂	1475.71	2.516+08	1056.52	2.572+08	2s6f ³ F ₄	2p6f ³ F ₃	1043.23	9.044+08
2p5p ³ F ₂	2p8d ³ F ₂	2p5d ³ D ₂	2p8p ³ D ₂	1477.13	2.984+08	1056.79	2.902+09	2s7p ¹ F ₁	2p7p ¹ D ₂	1043.40	5.714+08
2p5p ³ F ₂	2p8d ³ F ₂	2p5d ³ D ₂	2p8p ³ D ₂	1477.20	3.654+08	1057.27	1.918+08	2s7p ¹ F ₁	2p7p ¹ D ₂	1046.10	1.873+08
2p5p ³ F ₂	2p8d ³ F ₂	2p5d ³ D ₂	2p8p ³ D ₂	1478.76	1.000+08	1057.30	3.235+08	2s7f ¹ F ₃	2p7f ¹ D ₂	1046.80	6.212+08
2p5p ³ F ₂	2p8d ³ F ₂	2p5d ³ D ₂	2p8p ³ D ₂	1486.98	1.078+09	1057.93	6.078+09	2s6p ¹ F ₁	2p6p ¹ D ₂	1048.40	1.115+08
2p5p ³ F ₂	2p8d ³ F ₂	2p5d ³ D ₂	2p8p ³ D ₂	1486.98	1.355+09	1058.27	2.305+08	2p4d ³ D ₃	2p4p ³ D ₃	1050.12	1.203+09
2p5p ³ F ₂	2p8d ³ F ₂	2p5d ³ D ₂	2p8p ³ D ₂	1488.12	1.324+09	1058.35	1.568+10	2s6p ¹ F ₁	2p6p ¹ F ₁	1068.79	1.477+08
2p5p ³ F ₂	2p8d ³ F ₂	2p5d ³ D ₂	2p8p ³ D ₂	1488.20	1.588+09	1058.63	6.136+09	2p4d ³ F ₂	2p4d ³ F ₂	1078.12	2.927+09
2p5p ³ F ₂	2p8d ³ F ₂	2p5d ³ D ₂	2p8p ³ D ₂	1489.04	1.275+09	1058.79	1.186+09	2p4d ¹ F ₁	2p4d ¹ F ₁	1081.78	2.779+08
2p5p ³ F ₂	2p8d ³ F ₂	2p5d ³ D ₂	2p8p ³ D ₂	1489.17	1.525+09	1060.03	3.634+08	2p4d ¹ F ₃	2p4d ¹ F ₃	1082.31	4.369+08
2p5p ³ F ₂	2p8d ³ F ₂	2p5d ³ D ₂	2p8p ³ D ₂	1492.58	1.268+09	1061.19	3.286+08	2p4d ¹ F ₃	2p4d ¹ F ₃	1085.98	8.791+09
2p5p ³ F ₂	2p8d ³ F ₂	2p5d ³ D ₂	2p8p ³ D ₂	1492.58	1.005+09	1062.44	1.008+10	2p4d ¹ F ₃	2p4d ¹ F ₃	1090.43	7.282+08
2p5p ³ F ₂	2p8d ³ F ₂	2p5d ³ D ₂	2p8p ³ D ₂	1493.72	2.352+09	1062.93	6.750+08	2p4d ¹ F ₃	2p4d ¹ F ₃	1095.83	5.783+08
2p5p ³ F ₂	2p8d ³ F ₂	2p5d ³ D ₂	2p8p ³ D ₂	1493.98	2.010+09	1062.93	3.989+09	2p4d ¹ F ₃	2p4d ¹ F ₃	1106.46	6.733+08
2p5p ³ F ₂	2p8d ³ F ₂	2p5d ³ D ₂	2p8p ³ D ₂	1496.10	9.255+08	1063.13	3.989+09	2p4d ¹ F ₃	2p4d ¹ F ₃	1294.72	1.793+08
2p5p ³ F ₂	2p8d ³ F ₂	2p5d ³ D ₂	2p8p ³ D ₂	1496.20	1.247+09	1063.19	2.621+08	2p5s ³ F ₂	2p8p ³ F ₂	1296.27	1.132+08
2p5p ³ F ₂	2p8d ³ F ₂	2p5d ³ D ₂	2p8p ³ D ₂	1500.22	3.438+08	1063.20	1.097+08	2p5s ³ F ₂	2p8p ³ F ₂	1300.15	1.936+08
2p5p ³ F ₂	2p8d ³ F ₂	2p5d ³ D ₂	2p8p ³ D ₂	1500.35	4.190+08	1063.84	3.622+09	2p5s ³ F ₂	2p8p ³ F ₂	1300.46	2.943+08
2p5p ³ F ₂	2p8d ³ F ₂	2p5d ³ D ₂	2p8p ³ D ₂	1504.12	2.750+08	1063.89	6.202+08	2p5s ³ F ₂	2p8p ³ F ₂	1319.19	1.910+08
2p5p ³ F ₂	2p8d ³ F ₂	2p5d ³ D ₂	2p8p ³ D ₂	1504.18	2.201+08	1063.94	1.900+08	2p5s ³ F ₂	2p8p ³ F ₂	1330.95	1.204+08
2p5p ³ F ₂	2p8d ³ F ₂	2p5d ³ D ₂	2p8p ³ D ₂	1517.83	1.602+09	1063.95	1.178+08	2p5s ³ F ₂	2p8p ³ F ₂	1337.98	1.059+08
2p5p ³ F ₂	2p8d ³ F ₂	2p5d ³ D ₂	2p8p ³ D ₂	1517.83	1.602+09	1064.30	1.584+09	2p5s ³ F ₂	2p8p ³ F ₂		

TABLE VII. continued.

$2p5f^3G_3$	2923.04	4.849+09	$2p5g^3H_6$	2960.79	1.861+08
$2p5f^3G_4$	2930.31	4.904+09	$2p5g^3F_4$	2963.07	5.709+08
$2p5f^3G_4$	2930.68	3.890+08	$2p6h^3G_3$	2963.38	4.552+08
$2p5f^3G_5$	2934.30	1.236+08	$2p6h^3G_5$	2971.68	9.447+09
$2p5f^3G_5$	2934.87	9.050+09	$2p6h^3H_4$	2971.72	2.162+08
$2p5f^3F_4$	2947.14	1.096+08	$2p6h^3H_4$	2971.98	4.455+10
$2p5f^3G_5$	2948.51	5.912+08	$2p6h^3I_7$	2974.44	1.713+08
$2p5f^3D_3$	2949.12	4.048+08	$2p6h^3I_6$	2975.00	1.326+10
$2p5f^3D_2$	2958.34	1.039+09	$2p6h^3I_6$	2981.10	6.296+09
$2p5f^3D_2$	2958.80	5.666+08	$2p6h^3G_3$	2981.10	6.296+09
$2p5f^3D_3$	2962.57	2.080+08	$2p6h^3G_4$	2981.44	8.491+09
$2p5f^3D_3$	2962.82	5.051+09	$2p6h^3F_3$	2981.50	3.009+08
$2p5f^3F_4$	2963.14	9.217+08	$2p6h^3H_6$	2982.68	6.922+08
$2p5f^3G_3$	2963.55	2.058+08	$2p6h^3I_6$	2983.29	5.690+08
$2p5f^3G_3$	2966.43	6.319+09	$2p6h^3H_4$	3002.34	1.197+08
$2p5f^3G_4$	2966.62	2.677+09	$2p6h^3H_4$	3002.76	1.564+09
$2p5f^3G_4$	2970.62	1.076+09	$2p6h^3H_5$	3002.85	1.509+08
$2p5f^3G_4$	2971.48	2.103+08	$2p6h^3H_6$	3003.25	1.920+09
$2p5f^3D_2$	2971.97	2.561+09	$2p6h^3G_5$	3018.38	1.081+09
$2p5f^3G_4$	2980.95	9.455+08	$2p6h^3H_4$	3018.69	8.630+08
$2p5f^3G_4$	2981.34	2.264+08	$2p6p^3D_3$	3040.73	5.700+08
$2p5f^3G_4$	2983.71	7.505+08	$2p6p^3D_2$	3044.75	4.094+08
$2p5f^3G_4$	2983.99	4.393+08	$2p6p^3F_1$	3050.67	2.401+08
$2p5f^3G_4$	2993.02	4.346+08	$2p6p^3F_1$	3051.40	1.111+08
$2p5f^3G_4$	2994.17	1.872+08	$2p6p^3D_2$	3053.03	2.496+08
$2p5f^3G_4$	2998.60	3.119+09	$2p5d^3D_3$	3057.08	3.030+08
$2p5f^3D_2$	3012.50	1.084+09	$2p6f^3D_2$	3079.70	1.720+09
$2p5f^3D_2$	3015.63	5.379+08	$2p6f^3G_4$	3083.39	3.782+09
$2p5f^3G_4$	3022.68	3.844+08	$2p5f^3F_3$	3109.77	1.447+08
$2p5f^3G_4$	3025.29	2.854+08	$2p5f^3D_2$	3119.53	2.170+08
$2p5f^3D_2$	3007.31	1.798+08	$2p5f^3G_4$	3147.87	1.188+08
$2p5f^3G_5$	3079.82	3.114+08	$2p6p^3D_3$	3159.49	1.813+08
$2p5f^3G_4$	3086.87	1.637+08	$2p6p^3S_1$	3164.14	2.447+08
$2p5p^3S_1$	3109.97	1.194+08	$2p6f^3F_3$	3172.61	5.228+08
$2p5p^3P_2$	3141.41	2.786+08	$2p6f^3I_4$	3254.35	5.288+08
$2p5p^3P_2$	3153.41	6.274+08	$2p6s^3F_1$	3193.39	1.557+08
$2p5p^3F_1$	3164.68	1.532+08	$2p6s^3P_1$	3227.20	6.353+08
$2p5p^3F_1$	3193.21	1.000+08	$2p6s^3F_1$	3689.26	1.640+08

TABLE VII. continued.

$2p5p^3P_1$	2562.33	2.705+08	$2p6d^1D_2$	2764.73	1.503+09
$2p5p^3D_3$	2568.42	4.110+08	$2p5d^3F_4$	2765.58	4.649+09
$2p5p^3F_1$	2583.73	5.494+08	$2p6f^3F_2$	2771.74	1.740+08
$2p5p^3D_1$	2594.40	6.113+08	$2p6f^3F_3$	2773.31	5.246+08
$2p5p^3D_2$	2607.42	1.491+09	$2p6f^1F_3$	2776.71	2.002+09
$2p5p^3D_3$	2607.97	2.057+08	$2p6f^3G_4$	2777.33	5.580+08
$2p5p^3S_1$	2611.54	2.022+08	$2p6f^3F_4$	2791.94	1.680+09
$2p5p^3D_1$	2616.34	3.901+08	$2p6f^1F_3$	2798.53	1.033+08
$2p5p^3S_1$	2617.04	3.963+08	$2p6f^3F_3$	2798.71	6.497+08
$2p5p^3D_2$	2623.65	1.264+08	$2p6d^1D_2$	2802.17	5.919+08
$2p5p^3S_1$	2645.49	3.330+08	$2p6f^3D_2$	2824.33	1.645+08
$2p5p^3F_1$	2658.57	1.478+08	$2p6f^3D_2$	2858.80	7.818+08
$2p5p^3P_1$	2661.50	2.778+08	$2p6f^3G_4$	2866.45	1.539+09
$2p5p^3P_2$	2670.11	1.321+08	$2p6f^3G_5$	2866.81	1.100+09
$2p5p^3P_2$	2675.87	5.296+08	$2p6f^3D_2$	2875.76	5.778+08
$2p5p^3P_0$	2688.20	1.466+09	$2p6f^3D_1$	2875.86	5.481+08
$2p5p^3D_1$	2690.47	3.757+08	$2p6f^3D_1$	2880.57	6.083+08
$2p5p^3D_3$	2693.17	1.227+09	$2p6f^3D_3$	2882.44	2.280+09
$2p5p^3P_1$	2696.78	5.233+08	$2p6f^3D_2$	2885.22	1.181+09
$2p5p^3P_1$	2702.31	1.104+08	$2p6f^3F_2$	2888.24	1.790+09
$2p5p^3P_1$	2842.27	1.856+08	$2p6f^3F_2$	2893.44	2.331+08
$2p6s^1F_3$	2846.70	1.615+08	$2p6f^3F_3$	2895.15	1.795+09
$2p6p^3F_2$	2846.70	1.615+08	$2p6h^3G_4$	2897.30	1.787+08
$2p6p^3F_3$	2853.04	3.763+08	$2p6h^3G_3$	2897.36	1.383+08
$2p6p^3F_2$	2858.89	3.587+08	$2p6f^3F_4$	2904.06	2.041+09
$2p6p^3F_3$	2860.94	3.063+08	$2p6h^3G_5$	2905.54	9.903+08
$2p6p^1F_3$	2863.05	2.511+08	$2p6h^3H_4$	2905.58	7.933+08
$2p6p^3H_4$	2864.92	4.700+08	$2p6f^3F_3$	2907.46	1.132+08
$2p6d^1D_2$	2871.05	2.358+08	$2p6h^3H_4$	2909.55	2.691+08
$2p6p^3H_4$	2871.24	5.491+08	$2p6h^3G_5$	2909.81	3.310+08
$2p6p^3G_5$	2874.66	1.247+09	$2p6h^3F_5$	2913.54	1.486+09
$2p6p^3H_4$	2801.51	8.017+08	$2p6h^3H_6$	2913.79	1.826+09
$2p6p^1F_3$	2801.91	1.999+08	$2p6h^3G_5$	2950.16	1.008+08
$2p6p^3G_4$	2801.97	4.476+09	$2p6h^3H_4$	2950.20	2.308+08
$2p6p^1F_3$	2908.20	3.966+09	$2p6h^3H_4$	2950.21	7.988+09
$2p6p^3F_2$	2909.92	4.388+09	$2p6h^3G_5$	2954.57	1.094+08
$2p6p^3F_3$	2910.39	9.647+08	$2p6h^3F_5$	2954.70	9.633+09
$2p6p^3F_3$	2912.36	2.620+08	$2p6h^3F_6$	2954.96	1.157+10
$2p6p^3G_6$	2913.44	6.189+09	$2p6h^3F_6$	2955.01	1.804+08
$2p6p^3F_4$	2913.80	1.175+08	$2p6h^3H_4$	2956.14	5.073+08
$2p6p^3F_4$	2913.80	1.175+08	$2p6h^3G_5$	2956.63	6.174+08
$2p5f^3G_4$	2916.28	1.175+08	$2p6h^3F_5$	2960.26	9.175+09
$2p5f^3G_4$	2917.94	1.192+09	$2p6h^3H_4$	2960.74	1.099+10
$2p5f^3G_4$	2920.19	2.608+08	$2p5g^3H_5$		

Table VIII: c: Mixing coefficients of even complex states with $J=2$ for O^{4+} .

(2s3d + 2p3p) mixing			
	$1s^2 2s3d$ (2S) 3D	$1s^2 2p3p$ (2P) 3D	$1s^2 2p3p$ (2P) 1D
$1s^2 2s3d$	0.99128	-0.00093	0.12127
$1s^2 2s3d$	0.00097	0.99121	-0.00080
$1s^2 2p3p$	-0.12168	0.00034	0.99173
$1s^2 2p3p$	-0.00015	0.00015	0.99925
$1s^2 2p3p$	0.00013	-0.07904	-0.00717
(2s4d + 2p4p) mixing			
	$1s^2 2s4d$ (2S) 3D	$1s^2 2p4p$ (2P) 3D	$1s^2 2p4p$ (2P) 1D
$1s^2 2s4d$	0.99867	-0.00124	0.04293
$1s^2 2s4d$	0.00124	0.99614	-0.00097
$1s^2 2p4p$	-0.04258	0.00013	0.99560
$1s^2 2p4p$	-0.00006	0.00005	0.99794
$1s^2 2p4p$	0.00004	-0.03289	-0.02548
$1s^2 2p4f$	0.00002	0.00000	-0.00033
$1s^2 2p4f$	0.01242	-0.00001	-0.02290
$1s^2 2p4f$	0.00001	-0.00082	0.00132
(2s6d + 2p4p+2p4f) mixing			
	$1s^2 2p4p$ (2P) 1D	$1s^2 2p4f$ (2P) 3F	$1s^2 2p4f$ (2P) 1D
$1s^2 2p4p$	0.98500	0.00881	0.01627
$1s^2 2p4f$	-0.00902	0.30783	0.94678
$1s^2 2p4f$	-0.00504	0.09953	0.03380
$1s^2 2p4f$	-0.13180	0.02211	0.05978
$1s^2 2s6d$	-0.00349	0.94487	-0.31311
$1s^2 2s6d$	0.03492	-0.00446	-0.01721

Table VIII: a: Mixing coefficients for even complex states with $J=3$ for O^{4+} .

(2s6g+2s6d + 2p4f) mixing				
	$1s^2 2s6g$ (2S) 3G	$1s^2 2p4f$ (2P) 1F	$1s^2 2s6d$ (2S) 3D	$1s^2 2p4f$ (2P) 3F
$1s^2 2p4f$	0.69115	-0.03309	-0.01511	-0.05538
$1s^2 2p4f$	0.08354	-0.39332	-0.05070	0.91044
$1s^2 2p4f$	-0.00082	-0.11131	0.06117	0.03844
$1s^2 2p4f$	0.11273	0.86023	0.30920	0.38268
$1s^2 2s6g$	0.70204	-0.05830	-0.02813	-0.11411
(2s5g+2s5d + 2p4f) mixing				
	$1s^2 2s5g$ (2S) 3G	$1s^2 2s5d$ (2S) 3D		
$1s^2 2s4d$		-0.01294	0.00000	
$1s^2 2p4p$		-0.03798	0.00000	
$1s^2 2p4f$		0.00000	0.09830	
$1s^2 2p4f$		0.01054	0.00000	
$1s^2 2s5d$		0.99871	0.00000	
$1s^2 2s5g$		0.00000	0.99499	
$1s^2 2p5p$		-0.02130	0.00000	
$1s^2 2p5f$		0.00780	0.00000	

Table VIII: b: Mixing coefficients of even complex states with $J=4$ for O^{4+} .

(2s6g + 2p4f) mixing				
	$1s^2 2s6g$ (2S) 3G	$1s^2 2s6g$ (2S) 1G	$1s^2 2p4f$ (2P) 3F	$1s^2 2p4f$ (2P) 1G
$1s^2 2p4f$	0.65198	0.19352	-0.04232	0.69958
$1s^2 2p4f$	0.12172	-0.06901	0.98908	-0.03944
$1s^2 2p4f$	-0.20207	0.59252	0.04410	-0.14724
$1s^2 2s6g$	0.68069	0.23588	-0.09142	-0.67469
$1s^2 2s6g$	-0.21535	0.73677	0.09703	0.14579
(2s5g + 2p4f) mixing				
	$1s^2 2s5g$ (2S) 3G	$1s^2 2s5g$ (2S) 1G		
$1s^2 2p4f$	0.08905	0.04044		
$1s^2 2p4f$	-0.04137	0.08849		
$1s^2 2s5g$	0.90365	0.41655		
$1s^2 2s5g$	-0.41645	0.90371		

Table VIII: e: Mixing coefficients of even configurations with $J=5$ for O^{4+} .

2s7i mixing			
	$1s^2 2s7i$	$1s^2 2s7i$	$1s^2 2s7i$
	$(^2S)^3I$	$(^2S)^3I$	$(^2S)^3I$
$1s^2 2s7i$	$(^2S)^3I$	0.73015	0.68321
$1s^2 2s7i$	$(^2S)^3I$	-0.68321	0.73015
2s8i mixing			
	$1s^2 2s8i$	$1s^2 2s8i$	$1s^2 2s8i$
	$(^2S)^3I$	$(^2S)^3I$	$(^2S)^3I$
$1s^2 2s8i$	$(^2S)^3I$	0.72880	0.68465
$1s^2 2s8i$	$(^2S)^3I$	-0.68465	0.72880
2s9i mixing			
	$1s^2 2s9i$	$1s^2 2s9i$	$1s^2 2s9i$
	$(^2S)^3I$	$(^2S)^3I$	$(^2S)^3I$
$1s^2 2s9i$	$(^2S)^3I$	0.72766	0.68587
$1s^2 2s9i$	$(^2S)^3I$	-0.68587	0.72766

Table VIII: d: Mixing coefficients for odd complex states with $J=3$ for O^{4+} .

(2s4f + 2p3d) mixing					
	$1s^2 2p3d$	$1s^2 2p3d$	$1s^2 2s4f$	$1s^2 2s4f$	$1s^2 2s4f$
	$(^2P)^3F$	$(^2P)^3F$	$(^2S)^3F$	$(^2S)^3F$	$(^2S)^3F$
$1s^2 2p3d$	$(^2P)^3F$	0.98870	0.00858	-0.13340	-0.00109
$1s^2 2p3d$	$(^2P)^3F$	-0.00886	0.95666	-0.00014	-0.26639
$1s^2 2s4f$	$(^2S)^3F$	0.13451	0.00185	0.99030	0.00175
$1s^2 2s4f$	$(^2S)^3F$	-0.00159	0.27021	-0.00200	0.96213
(2s5f + 2p4d+2p3d) mixing					
	$1s^2 2s5f$	$1s^2 2s5f$	$1s^2 2s5f$	$1s^2 2s5f$	$1s^2 2s5f$
	$(^2S)^3F$	$(^2S)^3F$	$(^2S)^3F$	$(^2S)^3F$	$(^2S)^3F$
$1s^2 2p3d$	$(^2P)^3F$	-0.04382	-0.00010		
$1s^2 2p3d$	$(^2P)^3F$	-0.00008	-0.06566		
$1s^2 2s4f$	$(^2S)^3F$	0.00001	0.01262		
$1s^2 2p4d$	$(^2P)^3F$	0.04835	-0.00060		
$1s^2 2p4d$	$(^2P)^3F$	-0.00027	0.08919		
$1s^2 2s5f$	$(^2S)^3F$	0.99769	0.00040		
$1s^2 2s5f$	$(^2S)^3F$	-0.00036	0.99357		
$1s^2 2p5d$	$(^2P)^3F$	-0.00804	-0.00002		
(2s6f + 2p4d) mixing					
	$1s^2 2p4d$	$1s^2 2p4d$	$1s^2 2s6f$	$1s^2 2p4d$	$1s^2 2p4d$
	$(^2P)^3F$	$(^2P)^3D$	$(^2S)^3F$	$(^2P)^3F$	$(^2P)^3F$
$1s^2 2p4d$	$(^2P)^3F$	0.95485	-0.04366	0.01383	-0.27866
$1s^2 2p4d$	$(^2P)^3D$	0.04911	0.98823	0.14186	0.02156
$1s^2 2p4d$	$(^2P)^3F$	-0.02632	-0.08193	0.47222	0.00068
$1s^2 2s6f$	$(^2S)^3F$	0.27757	-0.03703	0.01669	0.95945
$1s^2 2s6f$	$(^2S)^3F$	-0.01414	-0.11479	0.86750	-0.01793
$1s^2 2p4d$	$(^2P)^3F$				0.01765
$1s^2 2p4d$	$(^2P)^3D$				0.01775
$1s^2 2p4d$	$(^2P)^3F$				0.85468
$1s^2 2s6f$	$(^2S)^3F$				-0.00497
$1s^2 2s6f$	$(^2S)^3F$				-0.48040

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