

BALMER DECREMENTS IN HYDROGEN EMISSION LINES I

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ABSTRACT

An extension of Sobolev's dynamical treatment on the radiation field of extended stellar envelope is examined. The cyclic equations are solved in connection with the escape probability of photon. A medium of hydrogen atoms with seven levels is considered. The numerical results give reasonable values of Balmer decrements for higher series member, when compared with the observed data on B_e stars. However, the dilution factor for the extended envelope of these objects derived by fitting the computed Balmer decrements to the observed values is smaller than the values obtained from other method. A more detailed consideration on the equation of radiative transfer seems to be required.

1. Introduction

The radiation field of the extended envelopes of early type stars, such as B_e stars, has been treated by various approaches. While the method initiated by Menzel and Baker (cf. Menzel (1)) was applied successfully to the radiation field of planetary nebulae, it was found to be unsatisfactory for B_e stars, since in the envelopes of these stars the ionization from excited states may occur and there seems to exist the self absorption of spectral lines (Burbidge and Burbidge (2)) due to the insufficient geometrical dilution. Indeed, the observed Balmer decrements of B_e stars, especially, the ratio of the total intensity of H_α emission line to that of H_β , show considerable differences among stars (cf. Rojas and Herman (3) and Pottasch (4)) and are not equal to the theoretical value, which is nearly independent of the temperatures of the stars and of the dilution factor.

To overcome this discrepancy, one should solve the appropriate system of equations, by assuming a steady state of these objects. The equations governing the physical states in these objects are composed of the so-called cyclic equations which describes the balance between the gain and loss of the population of atoms in a fixed energy level, and of the system of equations of radiative transfer connected to the atomic transition between each energy level. The change of population of the atoms in a given energy level is governed by radiative and collisional processes. Though the latter process is significant in some physical conditions (Pottasch (4)), here we consider the purely radiative process alone. Even for this limited problem, it is difficult to solve exactly the system of equations for level

population and radiation transfer. There are two types of approach to deal with them. The one, which has static character, is the treatments given by Miyamoto (5) and Kogure (6), (7), and (8). They aimed to deal with the problem of self absorption by solving the equation of transfer, with assumption that the atoms have finite numbers of energy levels. On the other hand, the observational evidence that there should be differences of velocity in the envelopes of these objects, leads to the formulation given by Sobolev (9), where the equation of transfer is approximated by some parametrical representation. Recently, Doazan (10) and Lacoarret (11) applied the above mentioned two sorts of approaches to the real B_e stars. However, their arguments do not lead to satisfactory decision which approach is better.

In this paper, we shall examine the theory given by Sobolev. The fundamental point of this procedure lies in that we can define an escape probability of photon from the envelope due to the Doppler shift caused by the motions of the absorbing matter in the medium. A simple formulation of the escape probability is given in section 2 for pure absorbing medium. The resultant expression for the escape probability differs from those with which Doazan (10) analyzed real B_e stars. The difference between these two formulation gives rise to differences in Balmer decrements. An illustrative example with the approximation of 7-level atoms are considered (section 3). Some comments on the comparison between observational results and theoretical are given in section 4.

2. Fundamental equations

The following derivation of the escape probability in a moving medium is essentially the same as the derivation in Sobolev (9) and also in Ambarzumian (12). Consider a pure hydrogen medium where only radiative process occurs. In a steady state the number of hydrogen atom N_i in the i -th state per cubic centimeter and the electron concentration N_e can be defined by the cyclic equation,

$$\sum_{k=1}^{i-1} (N_i A_{ik} - N_k B_{ki} J_{ki}) = \sum_{k=i+1}^{\infty} (N_k A_{ki} - N_i B_{ik} J_{ik}) + (N_e N_+ C_i - N_i B_{ic} J_{ic}),$$

$$i = 1, 2, \dots, \dots\dots\dots (1)$$

and

$$\sum_{k=1}^{\infty} (N_e N_+ C_k - N_k B_{kc} J_{kc}) = 0, \dots\dots\dots (2)$$

where N_+ denotes the number of hydrogen ion per cubic centimeter and J_{ik} , the mean intensity of radiation for the $i-k$ transition, and the A 's and B 's are usual Einstein's coefficients for spontaneous emission and for absorption, respectively, and C_k is the recombination coefficient to the level k . The suffix c denotes the continuum state.

To solve the system of equation, we must refer to the equation of transfer for determining the J 's. Consider a one dimensional medium bounded by $x=0$ and $x=x_1$, where the surface $x=0$ faces to the central star. We can write the equation for radiation flux H_{ik} , as

$$\frac{2}{h\nu_{ik}} \frac{dH_{ik}}{dx} = N_k A_{ki} - N_i B_{ik} J_{ik}. \dots\dots\dots (3)$$

Now, if we substitute the equations (3) into equation (1), and integrate with respect to x over $(0, x_1)$, we have, assuming J_{ie} is constant throughout the medium,

$$\sum_{k=1}^{i-1} \frac{2}{h\nu_{ki}} [H_{ki}(x_1) - H_{ki}(0)] = \sum_{k=i+1}^{\infty} \frac{2}{h\nu_{ik}} [H_{ik}(x_1) - H_{ik}(0)] + x_1 [\widetilde{N}_e \widetilde{N}_+ C_i - \widetilde{N}_i B_{ic} J_{ic}], \quad i=1, 2, \dots, \quad (4)$$

where

$$\widetilde{N}_i = \frac{1}{x_1} \int_0^{x_1} N_i dx, \quad (5)$$

and

$$\widetilde{N}_e \widetilde{N}_+ = \frac{1}{x_1} \int_0^{x_1} N_e N_+ dx. \quad (6)$$

In a pure absorbing medium, we introduce the quantities defined as

$$\widetilde{\beta}_{ik} = \frac{2}{h\nu_{ik}} [H_{ik}(x_1) - H_{ik}(0)] / A_{ki} \widetilde{N}_k x_1. \quad (7)$$

In equation (7), the numerator represents the number of photons which emerges from the medium, and the denominator is the number of photons emitted in the medium. Then $\widetilde{\beta}$'s represent the mean escape probabilities of photons emitted in this medium.

With the aid of these probabilities, the cyclic equations become

$$\sum_{k=1}^{i-1} \widetilde{N}_i A_{ik} \widetilde{\beta}_{ki} = \sum_{k=i+1}^{\infty} \widetilde{N}_k A_{ki} \widetilde{\beta}_{ik} + \widetilde{N}_e \widetilde{N}_+ C_i - \widetilde{N}_i B_{ic} J_{ic}, \quad i=1, 2, \dots, \quad (8)$$

It should be noted that N 's are replaced here by \widetilde{N} 's, the mean value over the medium. If we have any relations between \widetilde{N} 's and $\widetilde{\beta}$'s, we can solve these equations either for \widetilde{N} 's or for $\widetilde{\beta}$'s and can obtain an overall image about the physical states of the medium. The Balmer decrements can be written in these notations as

$$\frac{H_i}{H_\beta} = \frac{H_{2i}(x_1)}{H_{2i}(x_1)} = \frac{\widetilde{N}_i A_{i2} \widetilde{\beta}_{2i}}{\widetilde{N}_4 A_{42} \widetilde{\beta}_{24}} \frac{h\nu_{2i}}{h\nu_{24}}, \quad i=3, 4, 5, \dots, \quad (9)$$

where we have neglected the incident flux of $i-2$ radiation, $H_{2i}(0)$.

In order to have an explicit expression for the relation between \widetilde{N} 's and $\widetilde{\beta}$'s, we trace the behavior of a photon emitted at some point in the medium. For simplicity we assume the absorption coefficient has a rectangular profile, that is,

$$\alpha(\nu) = \alpha, \quad \text{if } |\nu - \nu_0| \leq \frac{\Delta\nu}{2}, \\ = 0, \quad \text{if } |\nu - \nu_0| > \frac{\Delta\nu}{2}, \quad (10)$$

where ν_0 denotes the frequency at the line center and $\Delta\nu$ is the line width defined by thermal motion of atoms. Then if there is a velocity gradient in the medium, a photon with frequency ν has chance to be absorbed by the medium where the original frequency ν falls in the range of $(\nu_0 - \Delta\nu/2, \nu_0 + \Delta\nu/2)$ for the local standard of frequency, shifted by the Doppler effect. If we write $|dv/ds|$ for the velocity

gradient in the medium and $s(\nu)$ for the geometrical distance from the emitted point to the point where the photon with frequency ν escapes freely from the medium, we can write the escape probability for this photon as

$$\beta_\nu = 1 - \int_0^{s(\nu)} e^{-\int_0^{s'} \alpha ds''} \cdot \alpha ds', \tag{11}$$

where

$$s(\nu) = \frac{1}{\left| \frac{dv}{ds} \right| \frac{\nu_0}{c}} \left[\nu - \left(\nu_0 - \frac{\Delta\nu}{2} \right) \right], \tag{12}$$

denoting the light velocity by c . For the total line emitted with rectangular profile as

$$\begin{aligned} E(\nu) &= E, & \text{if } |\nu - \nu_0| \leq \frac{\Delta\nu}{2}, \\ &= 0, & \text{if } |\nu - \nu_0| > \frac{\Delta\nu}{2}, \end{aligned} \tag{13}$$

the escape probability has the form,

$$\begin{aligned} \beta &= \frac{1}{E \cdot \Delta\nu} \int_{\nu_0 - \frac{\Delta\nu}{2}}^{\nu_0 + \frac{\Delta\nu}{2}} E(\nu) \beta_\nu d\nu \\ &= 1 - \frac{1}{\Delta\nu} \int_{\nu_0 - \frac{\Delta\nu}{2}}^{\nu_0 + \frac{\Delta\nu}{2}} d\nu \int_0^{s(\nu)} e^{-\int_0^{s'} \alpha ds''} \cdot \alpha ds'. \end{aligned} \tag{14}$$

If we assume that α is constant on the appropriate range in the medium, we finally obtain

$$\beta = \beta_0 \left[1 - \exp\left(-\frac{1}{\beta_0}\right) \right], \tag{15}$$

where

$$\beta_0 = \frac{1}{2u\alpha} \left| \frac{dv}{ds} \right|, \tag{16}$$

and

$$u = \frac{\Delta\nu}{\nu_0} \frac{c}{2}, \tag{17}$$

(cf. Ambarzumian (12)). As $\beta_0 \rightarrow 0$, it results that

$$\beta = \beta_0 \tag{18}$$

The equation (18) is the original expression obtained by Sobolev (9) and applied by Doazan (10) to the analysis of HD 50138. It should be noted that the equation (18) holds only for small β_0 , or when the total optical depth of the medium is large, since $1/\beta_0$ is a measure of the optical thickness of the medium. We can solve the equation (8) and fix self-consistently the values of β 's, without any assumption about it. The original expression for β 's is not satisfactory for this point. An assumption is necessarily made on some of the values of β 's before solving the equations (8).

3. Numerical computations for seven level atoms

It is difficult to solve equation (8) for infinite levels. Here we present some numerical results for the case where hydrogen atoms are assumed to have 6 disc-

rete levels and 1 continuum level. It would be sufficient with this rather crude assumption to see the effect of the different definition of the escape probability on the Balmer decrements.

Reformulating the basic equation given in the last section for the 7-level atoms, we have,

$$\sum_{k=1}^{i-1} A_{ik} E_i \beta_{ki} + B_{ic} J_{ic} E_i = \sum_{k=i+1}^6 A_{ki} E_k \beta_{ik} + E_+ C_i, \quad i=2, 3, \dots, 6. \quad \dots\dots\dots(19)$$

$$E_+ \sum_{i=1}^6 C_i = \sum_{i=1}^6 B_{ic} J_{ic} E_i, \quad \dots\dots\dots(20)$$

and

$$\beta_{ik} = \beta^0_{ik} \left[1 - \exp\left(-\frac{1}{\beta^0_{ik}}\right) \right], \quad (k > i), \quad \dots\dots\dots(21)$$

where

$$E_i = \frac{\tilde{N}_i}{N_1}, \quad \dots\dots\dots(22)$$

$$E_+ = \frac{\widetilde{N_0 N_+}}{N_1}, \quad \dots\dots\dots(23)$$

and

$$\beta^0_{ik} = \left(\frac{\nu_{ik}}{\nu_{12}}\right)^3 \frac{A_{21}}{A_{ki}} \cdot \frac{\left(\frac{g_2}{g_1}\right) - E_2}{\left(\frac{g_k}{g_i}\right) E_i - E_k} \cdot \beta^0_{12}. \quad \dots\dots\dots(24)$$

The negative absorption is taken into account in the last expression, where g 's denote the statistical weights. For the ionizing radiation from central star, J_{ic} , we assume that it suffers only geometrical dilution and the medium is optically thin for this radiation. Hence, with dilution factor W , we have

$$J_{ic} = W \cdot J_{ic}^*(T^*), \quad \dots\dots\dots(25)$$

where $J_{ic}^*(T^*)$ is the Planck function for the stellar temperature T^* . The electron temperature of the medium is taken to be equal to T^* , which defines the recombination coefficient.

Now the system of equations (19), (20) and (21) should be solved for three free parameters, the temperature T , dilution factor W , and the escape probability of Lyman alpha radiation β_{12} or β^0_{12} . We have computed nearly 800 cases with $10^4 K \leq T \leq 5.10^4 K$, $10^{-6} \leq \beta^0_{12} \leq 10^1$, and $W \leq 10^0$. The iterative processes are carried out. If we have a set of approximate values of E 's we can compute the β 's through equations (21) and (24). The β 's will define the E 's through equations (19) and (20). Except a few cases, we have obtained the solutions in 3 digits accuracy within 10 times of iterations. The computations are executed on the electronic computer KDC II, installed at Kyoto University.

The numerical results are given in the Appendix, and some illustrative examples are shown in Figures 1 through 10 for the case with $T=2.10^4 K$.

Figure 1 shows the variation of E_+ , a measure of ionization degree, against the dilution factor W . The branching of curves at large W is due to the difference in β^0_{12} , which is caused by that the ionization from higher levels occurs there. As W becomes smaller, the ion population is governed wholly by the ionization

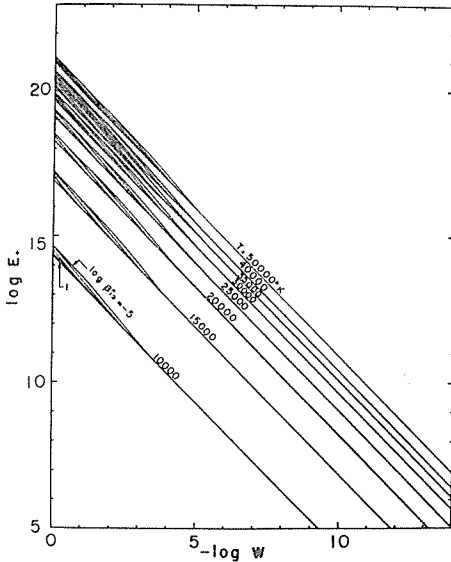


Fig. 1. $\log E_+$ vs. $-\log W$ for various temperature T . The branching of each curve at the left hand side is due to different values of β^0_{12} .

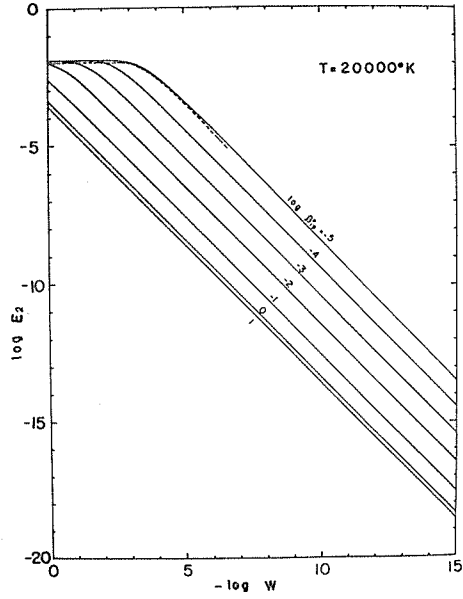


Fig. 2. $\log E_2$ vs. $-\log W$ for temperature $T=20,000^\circ K$, and for various β^0_{12} . Dashed line, reproduced from Doazan (10), is fitted to the curve with $\beta^0_{12}=10^{-5}$.

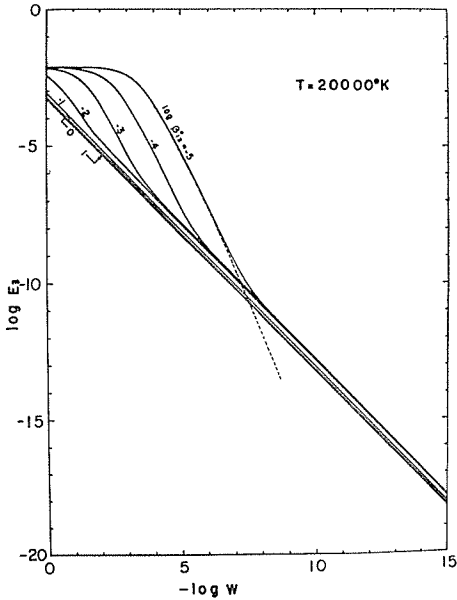


Fig. 3. $\log E_3$ vs. $-\log W$ for temperature $T=20,000^\circ K$, and for various β^0_{12} . Dashed line, reproduced from Doazan (10), is fitted to the curve with $\beta^0_{12}=10^{-5}$.

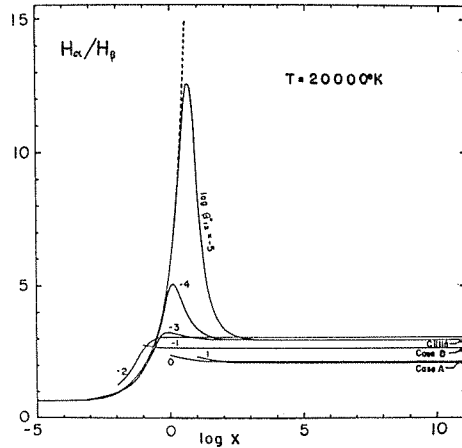


Fig. 4. H_α/H_β vs. $\log X$ for temperature $T=20,000^\circ K$, and for various β^0_{12} . Dashed line is reproduced from Doazan (10).

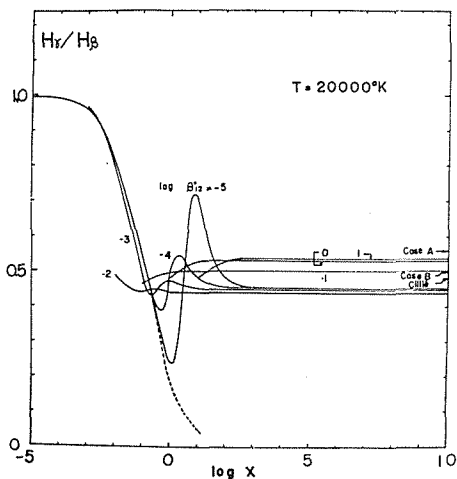


Fig. 5. H_7/H_β vs. $\log X$ for temperature $T=20,000^\circ K$, and for various β_{12}^0 . Dashed line is reproduced from Doazan (10).

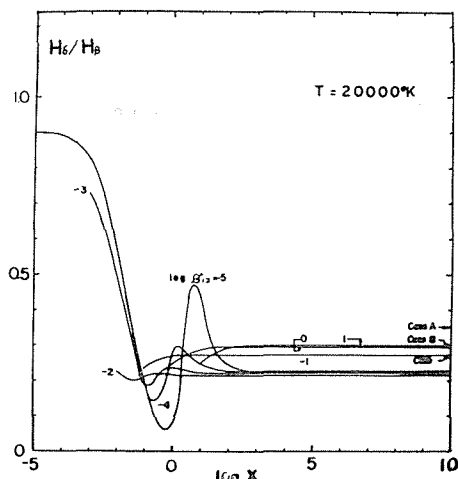


Fig. 6. H_δ/H_β vs. $\log X$ for temperature $T=20,000^\circ K$, and for various β_{12}^0 .

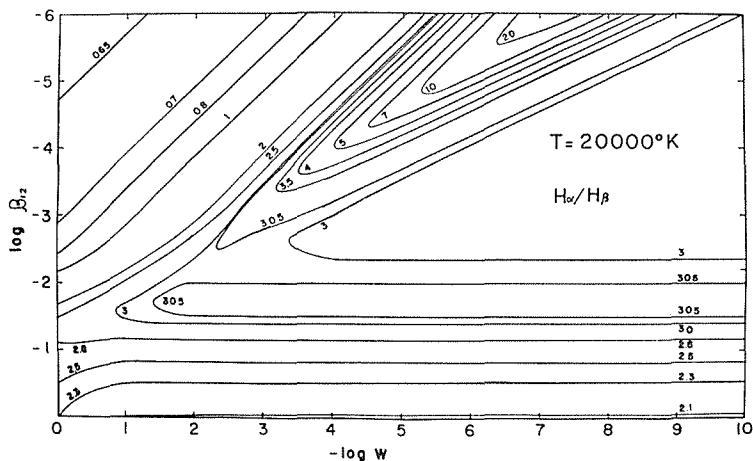


Fig. 7. Loci of the constant H_α/H_β in $(-\log W, \log \beta_{12})$ plane for temperature $T=20,000^\circ K$.

from ground level and is independent of β_{12}^0 . In Figures 2 and 3 similar curves for E_2 and E_3 are shown respectively. (The populations of the higher levels have similar trends as E_3). The ionization from higher levels has an effect on the curve at large W , or at the neighbor of the central star. At small W , the behavior of E_2 -curve is different from that of E_3 . While E_3 becomes proportional to W as W goes to 0, E_2 tends to be proportional to β_{12}^0/W for small β_{12}^0 and W , because the population of the higher level is governed mainly by recombination and subsequent cascade transitions, but the optical thickness of Lyman α radiation has effect on the population of the second level. The dashed lines in Figures 2 and 3 represent the results with equation (18) (Doazan (10)), which are adjusted to fit the curve with

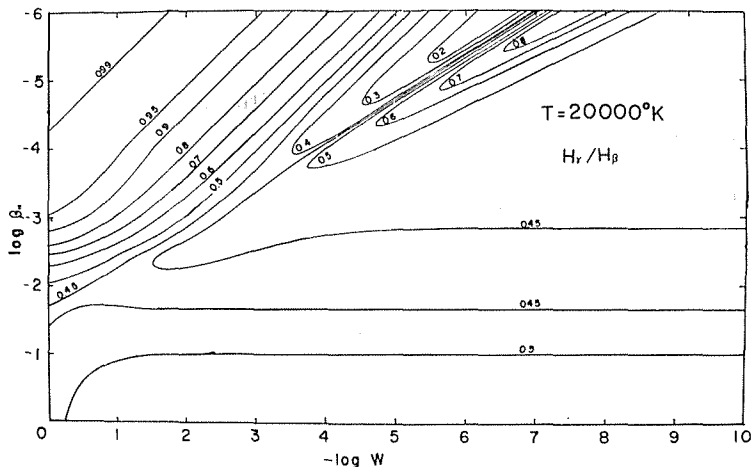


Fig. 8. Loci of the constant H_7/H_β in $(-\log W, \log \beta_{12})$ plane for temperature $T=20,000^\circ K$.

$\beta_{12}^0=10^{-5}$. Departure at small W is clearly seen for E_3 , where β^0 's tend to be large. The values of Balmer decrements, H_α/H_β , H_7/H_β , and H_8/H_β are plotted against $\log X \equiv \log \beta_{12}^0/W$, in Figures 4 through 6. The curves given by Doazan (10) are shown by dashed lines and in the right side of the figures, the corresponding values for nebular case are shown (cf. Menzel (1)). Characteristic differences can be seen in that there are a maximum for H_α/H_β , and minima for H_7/H_β and H_8/H_β in present results, while the curves are monotonic in Doazan's. This is due to the fact that the exact escape probability can not become greater than 1. In Figures 7 and 8, the relations between β_{12} and W are shown for constant H_α/H_β and H_7/H_β , respectively. There seems to exist loci for each maxima and minima nearly along the line $\log \beta_{12}/\log W = \text{constant}$. These are the region where β 's deviate from β^0 's.

4. Discussions

If we limit ourselves to the problem of radiative recombination spectra, the success of the theory depends on the treatment of equation of transfer. Kogure's works ((6), (7), and (8)) mainly consist of detailed solution of equation of transfer, while Sobolev (9) introduced a new idea of escape probability, without solving the equation directly. In applying to numerical work, both authors assumed the transparency or the opaqueness of the medium for radiation arising from the transition between higher energy levels. Without this assumption, Kogure's treatment becomes awfully cumbersome, and if one use the equation (18) for the escape probability, one cannot have logical consistency. In the present treatment, this rather artificial assumption is automatically avoided. A consistent measure of transparency for spectral lines is given by the escape probability with given parameter, T , W , and β_{12} . With β 's defined in the equation (15), one can obtain the Balmer decrements in nebular cases (cf. Menzel (1)). Indeed in Figures 4 through 6, we have a relevant value of Balmer decrements, when W goes to zero and $\beta_{12}=1$ for the case A, $\beta_{12} \ll 1$ for the case B.

Comparing with the observation, we may obtain following results. When we compare the results with observed H_α/H_β , we find that the dilution factor derived to fit is too small, which was criticized by Kogure (8). As β_{12}^0 becomes small, the Balmer decrements computed here coincide with those given by Doazan, and the latter forms an envelope of our curves with various values of β_{12}^0 .

Hence the defect that for observed H_α/H_β the theory tends to give smaller value of dilution factor remains even with this exact expression of β 's.

Next we consider the higher member of Balmer series. In figures 9 and 10, H_α/H_β and H_δ/H_β are plotted against H_γ/H_β , respectively. The observed values given by various authors ((2), (3), (4), (10), (13), (14), and (15)) are plotted by filled circles (later type B_e) and by open circles (early type). The theoretical curves are shown for temperature $T \simeq 2.10^4 K$ by various approaches. (Hence the direct comparison with observation should be done for later type B_e stars.) In Figure 9, the curve labeled by I_a is the result given by Kogure (7) with the assumption that the envelope is opaque for line radiation. The curve V is the result from the solution of the equation of transfer for Balmer lines with transparent Paschen and higher lines (6). These are the representatives of the static approach to the problem. The difficulty with this approach is to interpret the observed H_α/H_β , and H_γ/H_β consistently. To overcome this point, Kogure revised rather empirically the case V and I_a to give better coincidence with the observed results (the curve labeled by VII) (7). From the figure, it is obvious that the treatment after Sobolev (unlabeled curves) has better coincidence with the observation (espe-

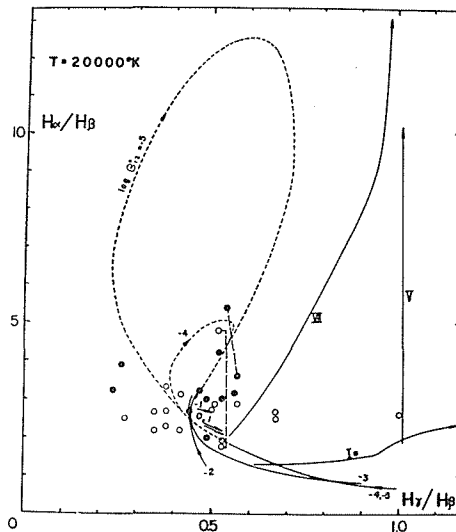


Fig. 9. Comparison of the various theoretical curves with observed values in $\alpha-\gamma$ plane ($T=20,000^\circ K$). The observed values are represented by filled circles (for late type B_e) and by open circles (for early type B_e). The pairs connected by broken line represent that for these stars different observers have given different results. Theoretical curves with I_a , V , and VII are reproduced from Kogure (6 and 7), unlabeled curves are the results in the present computation. The arrows indicate the direction of decreasing W . The dashed portions represent for $W < 10^{-3}$.

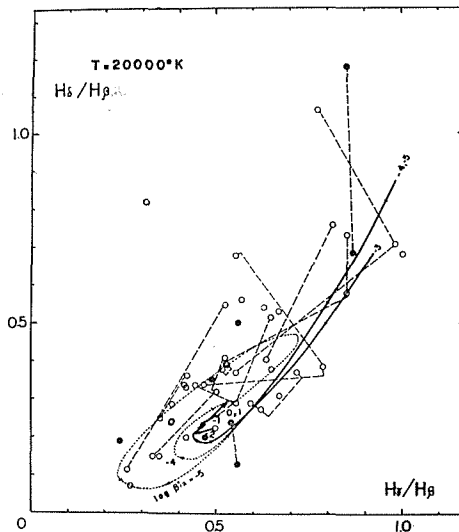


Fig. 10. Comparison between theoretical curves with various β_{12}^0 and observed values in $\delta-\gamma$ plane ($T=20,000^\circ K$). The observed values are shown as in Fig. 9. The theoretical curves are shown for $1 \geq W \geq 10^{-3}$ by continuous curves and for $W < 10^{-3}$ by dotted curves.

cially in Figure 10). ($H_\gamma-H_\delta$ relations obtained for $T=30,000^\circ K$ nearly coincide with those for $T=20,000^\circ K$ if β_{12}^0 in the latter raised by order 1. Hence, the observed values for early type stars may compared with the curves shown in the figure.) This might come from the fact that this treatment takes automatically the problem of radiation transfer into account and does not require any assumption on the transparency or opaqueness for the higher series line radiation.

The conclusions given in this paper are as follows:

1. With the concept of the escape probability given by Sobolev, we can formulate a consistent system of equations which governs the radiation recombination spectra. This treatment gives Balmer decrements which fit the case A and Case B given by Menzel and Baker for planetary nebulae, with suitable limiting processes.

2. The observed H_γ/H_β and H_δ/H_β may be reproduced by dynamical approach. It may be due to the circumstances that here the transfer problem is considered for higher series member.

3. To interpret the observed Balmer decrement in B_e stars, Sobolev's treatment gives rather smaller value of dilution factor (in the present computation, W falls in $10^{-4} \sim 10^{-2}$), which seems to be inconsistent with the radius of emitting regions obtained by Boyarchuk (16) considering the rotational velocity and the conservation of angular momentum.

The above difficulty suggests that it is desirable to treat the equation of transfer more exactly, or in higher approximation. For example, we might have to formulate the escape probability for scattering mechanism.

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REFERENCES

1. D. H. Menzel, "Selected Papers on Physical Processes in Ionized Plasmas", Dover, 1962.
2. G. R. Burbidge and E. M. Burbidge, Ap. J., **118**, 252, 1953.
3. H. Rojas and R. Herman, "Étoiles à Raies d'Émission", Mem. Soc. Roy., Liège, **20**, 198, 1958.
4. S. R. Pottasch, Ann. d'Astrophys., **24**, 159, 1961.
5. S. Miyamoto, Jap. J. Astron., **1**, 17, 1949.
6. T. Kogure, Publ. Astron. Soc., Japan, **11**, 127, 1959.
7. T. Kogure, Publ. Astron. Soc., Japan, **11**, 278, 1959.
8. T. Kogure, unpublished.
9. V. V. Sobolev, "Moving Envelopes of Stars", Chap. 1., 1947.
10. V. Doazan, Ann. d'Astrophys., **28**, 1, 1965.
11. M. Lacoarret, Ann. d'Astrophys., **28**, 321, 1965,
12. V. A. Ambarzumian, "Theoretical Astrophysics", Chap. 28, Pergamon, 1958.
13. O. Struve and H. F. Schwede, Phys. Rev., **38**, 1195, 1931.
14. G. R. Burbidge and E. M. Burbidge, Ap. J., **120**, 76, 1954.
15. E. M. Burbidge and G. R. Burbidge, Ap. J., **122**, 89, 1955.
16. A. A. Boyarchuk, Astron. Zhur., S. S. S. R., **34**, 193 1957.

APPENDIX

The computational results are tabulated in the following tables. The parameters T and β_{012} are given in the first line. The dilution factor $\log W$ and $\log X$ are given in 2nd and 3rd lines, respectively. For these parameters, the relative populations of atoms in the i -th level, the usual b_n factors, the escape probability β_{ij} , and the Balmer decrements are given. 7 entries in the block LOG E(I), $\log E_i$, $i=1, \dots, 6$, and $\log E_+$ are arranged in order. The second block labeled LOG BN(I), contains $\log b_i$, $i=1, \dots, 6$, in their order. $\log \beta$'s are given in 5 blocks under the heading LOG BETA (I, J). The first block gives $\log \beta_{i0}$, $i=1, \dots, 5$, the second block, $\log \beta_{i5}$, $i=1, \dots, 4$, and so on. The Balmer decrements, $\log H_\alpha/H_\beta$, $\log H_\beta/H_\gamma$, $\log H_\gamma/H_\delta$, and $\log H_\delta/H_\epsilon$ are given in the last block after the heading LOG F(I)/F(4).

T = 10000	LOG BETA0(1,2) = 1.00			LOG BETA0(1,2) = 0.00			LOG BETA0(1,2) = -1.00		
-LOG W	0.00	5.00	10.00	0.00	5.00	10.00	0.00	5.00	10.00
LOG X	1.00	6.00	11.00	0.00	5.00	10.00	-1.00	4.00	9.00
LOG E(I)									
I=1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	92.7580	87.7603	82.7603	92.9398	87.9427	82.9427	93.7736	88.7832	83.7832
3	93.1112	88.1247	83.1247	93.1289	88.1426	83.1426	93.2614	88.2760	83.2760
4	93.3797	88.4132	83.4132	93.3844	88.4181	83.4181	93.4282	88.4613	83.4613
5	93.5707	88.6283	83.6282	93.5727	88.6302	83.6302	93.5926	88.6483	83.6483
6	93.6976	88.7769	83.7769	93.6986	88.7778	83.7778	93.7100	88.7864	83.7864
+	14.3313	9.3182	4.3182	14.3316	9.3182	4.3182	14.3360	9.3182	4.3182
LOG BN(I)									
I=1	0.1984	5.2115	10.2115	0.1981	5.2115	10.2115	0.1937	5.2115	10.2115
2	97.4941	97.5096	97.5096	97.6756	97.6920	97.6920	98.5050	98.5325	98.5325
3	98.4471	98.4737	98.4737	98.4645	98.4916	98.4916	98.5926	98.6250	98.6250
4	98.7989	98.8456	98.8456	98.8034	98.8504	98.8504	98.8427	98.8936	98.8936
5	98.9503	99.0210	99.0210	98.9520	99.0229	99.0229	98.9675	99.0410	99.0410
6	99.0026	99.0950	99.0950	99.0033	99.0959	99.0959	99.0103	99.1045	99.1045
LOG BETA(I, J)									
I=1 J=6	99.9997	99.9997	99.9997	99.9969	99.9969	99.9969	99.9689	99.9689	99.9689
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
I=1 J=5	99.9994	99.9994	99.9994	99.9943	99.9943	99.9943	99.9445	99.9445	99.9445
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
I=1 J=4	99.9988	99.9988	99.9988	99.9880	99.9880	99.9880	99.8849	99.8849	99.8849
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
I=1 J=3	99.9965	99.9965	99.9965	99.9656	99.9656	99.9656	99.6973	99.6973	99.6973
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
I=1 J=2	99.9785	99.9785	99.9785	99.8008	99.8008	99.8008	99.0000	99.0000	99.0000
LOG F(I)/F(4)									
I=3	0.3209	0.3008	0.3008	0.3338	0.3138	0.3138	0.4225	0.4041	0.4041
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	99.7189	99.7429	99.7429	99.7161	99.7399	99.7399	99.6922	99.7148	99.7148
6	99.4548	99.5006	99.5006	99.4511	99.4966	99.4966	99.4187	99.4620	99.4620

T = 10000												
LOG BETA0(1,2) = -2.00					LOG BETA0(1,2) = -3.00							
-LOG W	0.00	1.00	5.00	10.00	0.00	1.00	2.00	3.00	5.00	10.00		
LOG X	-2.00	-1.00	3.00	8.00	-3.00	-2.00	-1.00	0.00	2.00	7.00		
LOG E(I)												
I=1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
2	94.8213	93.8740	89.8802	84.8802	95.5836	94.8719	93.9113	92.9154	90.9159	85.9159		
3	93.5102	92.5020	88.5005	83.5005	93.7759	92.6122	91.5648	90.5593	88.5587	83.5587		
4	93.6112	92.6218	88.6227	83.6227	93.8277	92.7310	91.6970	90.6929	88.6925	83.6925		
5	93.7191	92.7480	88.7512	83.7512	93.9402	92.8678	91.8369	90.8332	88.8328	83.8328		
6	93.7988	92.8422	88.8473	83.8473	94.0166	92.9614	91.9327	90.9292	88.9288	83.9288		
+	14.3764	13.3250	9.3182	4.3182	14.5314	13.3650	12.3235	11.3187	9.3182	4.3182		
LOG BN(I)												
I=1	0.1533	1.2047	5.2115	10.2115	99.9983	1.1647	2.2062	3.2110	5.2115	10.2115		
2	99.5123	99.6165	99.6294	99.6294	0.1197	0.5744	0.6533	0.6641	0.6651	0.6651		
3	98.8009	98.8442	98.8496	98.8496	98.9117	98.9144	98.9085	98.9077	98.9077	98.9077		
4	98.9854	99.0474	99.0550	99.0550	99.0468	99.1165	99.1240	99.1247	99.1248	99.1248		
5	99.0536	99.1339	99.1439	99.1439	99.1197	99.2137	99.2243	99.2254	99.2255	99.2255		
6	99.0587	99.1535	99.1654	99.1654	99.1215	99.2327	99.2455	99.2468	99.2470	99.2470		
LOG BETA(I,J)												
I=1 J=6	99.7223	99.7223	99.7223	99.7223	98.8382	98.8382	98.8382	98.8382	98.8382	98.8382		
2	0.0000	0.0000	0.0000	0.0000	99.9985	99.9997	0.0000	0.0000	0.0000	0.0000		
3	0.0000	0.0000	0.0000	0.0000	99.9999	0.0000	0.0000	0.0000	0.0000	0.0000		
4	0.0000	0.0000	0.0000	0.0000	99.9996	0.0000	0.0000	0.0000	0.0000	0.0000		
5	0.0000	0.0000	0.0000	0.0000	99.9994	0.0000	0.0000	0.0000	0.0000	0.0000		
I=1 J=5	99.5495	99.5495	99.5495	99.5495	98.5825	98.5825	98.5825	98.5825	98.5825	98.5825		
2	99.9999	0.0000	0.0000	0.0000	99.9968	99.9994	99.9999	0.0000	0.0000	0.0000		
3	0.0000	0.0000	0.0000	0.0000	99.9998	0.0000	0.0000	0.0000	0.0000	0.0000		
4	99.9999	0.0000	0.0000	0.0000	99.9979	99.9999	0.0000	0.0000	0.0000	0.0000		
I=1 J=4	99.2536	99.2536	99.2536	99.2536	98.2553	98.2553	98.2553	98.2553	98.2553	98.2553		
2	99.9998	0.0000	0.0000	0.0000	99.9906	99.9982	99.9998	0.0000	0.0000	0.0000		
3	99.9999	0.0000	0.0000	0.0000	99.9985	99.9999	0.0000	0.0000	0.0000	0.0000		
I=1 J=3	98.7947	98.7947	98.7947	98.7947	97.7947	97.7947	97.7947	97.7947	97.7947	97.7947		
2	99.9988	99.9999	0.0000	0.0000	99.9329	99.9866	99.9985	99.9998	0.0000	0.0000		
I=1 J=2	98.0000	98.0000	98.0000	98.0000	97.0000	97.0000	97.0000	97.0000	97.0000	97.0000		
LOG F(I)/F(4)												
I=3	0.4873	0.4694	0.4672	0.4672	0.4799	0.4590	0.4559	0.4556	0.4555	0.4555		
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
5	99.6358	99.6541	99.6564	99.6564	99.6466	99.6668	99.6679	99.6681	99.6682	99.6682		
6	99.3246	99.3573	99.3615	99.3615	99.3337	99.3688	99.3728	99.3732	99.3733	99.3733		
+												
T = 10000												
LOG BETA0(1,2) = -4.00												
-LOG W	0.00	0.30	0.70	1.00	1.30	1.70	2.00	2.50	3.00	4.00	5.00	10.00
LOG X	-4.00	-3.70	-3.30	-3.00	-2.70	-2.30	-2.00	-1.50	-1.00	0.00	1.00	6.00
LOG E(I)												
I=1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	95.8051	95.8024	95.7307	95.6145	95.4424	95.1410	94.8788	94.4068	93.9160	92.9199	91.9203	86.9203
3	94.4540	94.2158	93.7606	93.3197	92.8252	92.1747	91.7423	91.1273	90.5857	89.5675	88.5657	83.5655
4	94.0608	93.7676	93.3152	92.9500	92.5778	92.0955	91.7545	91.2194	90.7068	89.7013	88.7008	83.7007
5	94.0947	93.8183	93.3959	93.0502	92.6930	92.2243	91.8893	91.2592	90.8484	89.8436	88.8431	83.8431
6	94.1466	93.8855	93.4768	93.1373	92.7843	92.3192	91.9857	91.4567	90.9462	89.9417	88.9412	83.9411
+	14.6428	14.3235	13.8766	13.5245	13.1657	12.6977	12.3634	11.8339	11.3233	10.3187	9.3182	4.3182
LOG BN(I)												
I=1	99.8869	0.2061	0.6531	1.0052	1.3639	1.8320	2.1663	2.6958	3.2064	4.2110	5.2115	10.2115
2	0.2298	0.5463	0.9216	1.1574	1.3440	1.5108	1.5829	1.6403	1.6601	1.6686	1.6695	1.6696
3	99.4784	99.5594	99.5512	99.4624	99.3266	99.1441	99.0461	98.9605	98.9295	98.9160	98.9146	98.9145
4	99.1685	99.1946	99.1891	99.1760	99.1625	99.1483	99.1416	99.1360	99.1340	99.1332	99.1331	99.1331
5	99.1628	99.2057	99.2302	99.2366	99.2381	99.2375	99.2368	99.2362	99.2359	99.2358	99.2358	99.2358
6	99.1401	99.1982	99.2365	99.2491	99.2548	99.2578	99.2586	99.2591	99.2592	99.2593	99.2593	99.2593
LOG BETA(I,J)												
I=1 J=6	97.8381	97.8381	97.8382	97.8382	97.8382	97.8382	97.8382	97.8382	97.8382	97.8382	97.8382	97.8382
2	99.9754	99.9756	99.9792	99.9841	99.9893	99.9946	99.9971	99.9990	99.9997	0.0000	0.0000	0.0000
3	99.9935	99.9962	99.9987	99.9995	99.9999	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	99.9894	99.9951	99.9985	99.9994	99.9998	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	99.9894	99.9951	99.9984	99.9993	99.9997	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
I=1 J=5	97.5825	97.5825	97.5825	97.5825	97.5825	97.5825	97.5825	97.5825	97.5825	97.5825	97.5825	97.5825
2	99.9481	99.9483	99.9560	99.9662	99.9772	99.9885	99.9937	99.9979	99.9993	99.9999	0.0000	0.0000
3	99.9803	99.9884	99.9960	99.9986	99.9996	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	99.9376	99.9707	99.9915	99.9969	99.9989	99.9997	99.9999	0.0000	0.0000	0.0000	0.0000	0.0000
I=1 J=4	97.2553	97.2553	97.2553	97.2553	97.2553	97.2553	97.2553	97.2553	97.2553	97.2553	97.2553	97.2553
2	99.8522	99.8578	99.8738	99.9021	99.9333	99.9662	99.9814	99.9937	99.9980	99.9998	0.0000	0.0000
3	99.8597	99.9141	99.9692	99.9893	99.9969	99.9995	99.9998	0.0000	0.0000	0.0000	0.0000	0.0000
I=1 J=3	96.7947	96.7947	96.7947	96.7947	96.7947	96.7947	96.7947	96.7947	96.7947	96.7947	96.7947	96.7947
2	99.2804	99.2795	99.3455	99.4512	99.5916	99.7735	99.8703	99.9547	99.9852	99.9985	99.9998	0.0000
I=1 J=2	96.0000	96.0000	96.0000	96.0000	96.0000	96.0000	96.0000	96.0000	96.0000	96.0000	96.0000	96.0000
LOG F(I)/F(4)												
I=3	0.4108	0.4643	0.5065	0.5082	0.4951	0.4758	0.4661	0.4582	0.4554	0.4542	0.4541	0.4541
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	99.6576	99.6741	99.6908	99.6921	99.6869	99.6790	99.6750	99.6718	99.6707	99.6702	99.6702	99.6702
6	99.3460	99.3776	99.4040	99.4061	99.3994	99.3890	99.3838	99.3795	99.3780	99.3774	99.3773	99.3773

BALMER DECREMENTS

T = 10000 LOG BETA0(1,2) = -5.00

-LOG W	0.00	0.50	1.00	1.25	1.50	1.75	2.00	2.25	2.50	2.75	3.00	3.30	3.70
LOG X	-5.00	-4.50	-4.00	-3.75	-3.50	-3.25	-3.00	-2.75	-2.50	-2.25	-2.00	-1.70	-1.30
LOG E(I)													
I=1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	95.7067	95.7843	95.8242	95.8173	95.7845	95.7194	95.6170	95.4763	95.3014	95.0998	94.8795	94.5996	94.2122
3	94.8564	94.7429	94.4989	94.5092	94.0661	93.7536	93.3737	92.9337	92.4519	91.9481	91.4380	90.8412	90.1444
4	94.5349	94.2818	93.8433	93.5408	93.1527	92.7015	92.2542	91.8525	91.4881	91.1476	90.8283	90.4720	90.0316
5	94.4285	94.0933	93.5580	93.2112	92.8396	92.4838	92.1497	91.8242	91.5062	91.2008	90.9106	90.5799	90.1590
6	94.3385	93.9216	93.3704	93.0793	92.7868	92.4897	92.1854	91.8770	91.5721	91.2774	90.9951	90.6707	90.2542
+	14.6607	14.1564	13.6421	13.3768	13.1027	12.8181	12.5239	12.2250	11.9286	11.6407	11.3632	11.0424	10.6282
LOG BH(I)													
I=1	99.8690	0.3733	0.8876	1.1529	1.4270	1.7116	2.0058	2.3047	2.6011	2.8890	3.1665	3.4873	3.9014
2	0.1135	0.6954	1.2495	1.5080	1.7493	1.9688	2.1605	2.3188	2.4402	2.5266	2.5837	2.6247	2.6514
3	99.8629	0.2537	0.5239	0.5996	0.6286	0.6027	0.5170	0.3759	0.1905	99.9746	99.7419	99.4660	99.1834
4	99.6247	99.8759	99.9576	99.9145	99.8005	99.6339	99.4808	99.3781	99.3100	99.2574	99.2156	99.1801	99.1538
5	99.4787	99.6478	99.6268	99.5453	99.4478	99.3766	99.3367	99.3101	99.2885	99.2710	99.2583	99.2484	99.2417
6	99.3141	99.4016	99.3645	99.3388	99.3204	99.3079	99.2978	99.2883	99.2798	99.2730	99.2682	99.2646	99.2622
LOG BTA(I,J)													
I=1 J=6	96.8382	96.8382	96.8381	96.8381	96.8382	96.8382	96.8382	96.8382	96.8382	96.8382	96.8382	96.8382	96.8382
2	99.8126	99.7847	99.7660	99.7692	99.7844	99.8119	99.8488	99.8886	99.9244	99.9519	99.9708	99.9846	99.9937
3	99.8379	99.8682	99.9215	99.9485	99.9704	99.9855	99.9939	99.9978	99.9993	99.9998	99.9999	0.0000	0.0000
4	99.5947	99.7253	99.8841	99.9420	99.9770	99.9926	99.9978	99.9992	99.9997	99.9999	0.0000	0.0000	0.0000
5	99.6177	99.7653	99.9240	99.9691	99.9895	99.9964	99.9986	99.9994	99.9998	99.9999	0.0000	0.0000	0.0000
I=1 J=5	96.5825	96.5825	96.5825	96.5825	96.5825	96.5825	96.5825	96.5825	96.5825	96.5825	96.5825	96.5825	96.5825
2	99.6456	99.5888	99.5574	99.5627	99.5876	99.6344	99.7000	99.7743	99.8439	99.8994	99.9384	99.9673	99.9865
3	99.5824	99.6448	99.7733	99.8463	99.9094	99.9547	99.9810	99.9971	99.9997	99.9999	0.0000	0.0000	0.0000
4	98.8475	99.0313	99.3950	99.6326	99.8353	99.9456	99.9840	99.9949	99.9982	99.9993	99.9997	99.9999	0.0000
I=1 J=4	96.2553	96.2553	96.2553	96.2553	96.2553	96.2553	96.2553	96.2553	96.2553	96.2553	96.2553	96.2553	96.2553
2	99.2425	99.1619	99.1200	99.1263	99.1586	99.2229	99.3224	99.4524	99.5950	99.7252	99.8259	99.9053	99.9603
3	98.7854	98.8571	99.0656	99.2393	99.4578	99.6851	99.8557	99.9457	99.9821	99.9945	99.9984	99.9996	99.9999
I=1 J=3	95.7947	95.7947	95.7947	95.7947	95.7947	95.7947	95.7947	95.7947	95.7947	95.7947	95.7947	95.7947	95.7947
2	98.4007	98.3128	98.2642	98.2679	98.2984	98.3619	98.4633	98.6034	98.7780	98.9795	99.1989	99.4635	99.7379
I=1 J=2	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000
LOG F(I)/F(4)													
I=3	0.0690	0.2013	0.3832	0.4994	0.6405	0.7805	0.8498	0.8216	0.7362	0.6441	0.5721	0.5168	0.4798
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	99.8246	99.7662	99.6740	99.6346	99.6438	99.7217	99.8010	99.8214	99.7949	99.7553	99.7227	99.6978	99.6815
6	99.5157	99.3995	99.3040	99.3184	99.3968	99.5141	99.5945	99.5976	99.5503	99.4934	99.4487	99.4149	99.3929

T = 10000 LOG BETA0(1,2) = -5.00 (Continued)

-LOG W	4.00	5.00	6.00	7.00	10.00
LOG X	-1.00	0.00	1.00	2.00	5.00
LOG E(I)					
I=1	0.0000	0.0000	0.0000	0.0000	0.0000
2	89.9165	92.9203	91.9207	90.9207	87.9208
3	89.7152	88.5820	87.5677	86.5663	83.5662
4	89.7170	88.7031	87.7017	86.7016	83.7016
5	89.8517	88.8449	87.8442	86.8441	83.8441
6	89.9484	88.9430	87.9425	86.9424	83.9424
+	10.3233	9.3187	8.3182	7.3182	4.3182
LOG BH(I)					
I=1	4.2064	5.2110	6.2115	7.2115	10.2115
2	2.6606	2.6691	2.6699	2.6700	2.6700
3	99.0591	98.9305	98.9167	98.9153	98.9152
4	99.1442	99.1350	99.1340	99.1339	99.1339
5	99.2393	99.2371	99.2369	99.2368	99.2368
6	99.2614	99.2606	99.2605	99.2605	99.2605
LOG BTA(I,J)					
I=1 J=6	96.8382	96.8382	96.8382	96.8382	96.8382
2	99.9968	99.9997	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000
I=1 J=5	96.5825	96.5825	96.5825	96.5825	96.5825
2	99.9931	99.9993	99.9999	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000
I=1 J=4	96.2553	96.2553	96.2553	96.2553	96.2553
2	99.9798	99.9979	99.9998	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000
I=1 J=3	95.7947	95.7947	95.7947	95.7947	95.7947
2	99.8592	99.9850	99.9985	99.9998	0.0000
I=1 J=2	95.0000	95.0000	95.0000	95.0000	95.0000
LOG F(I)/F(4)					
I=3	0.4671	0.4553	0.4541	0.4540	0.4539
4	0.0000	0.0000	0.0000	0.0000	0.0000
5	99.6760	99.6710	99.6705	99.6704	99.6704
6	99.3854	99.3785	99.3778	99.3777	99.3777

T = 15000											
	LOG BETA(1,2) = 1.00			LOG BETA(1,2) = 0.00			LOG BETA(1,2) = -1.00				
-LOG W	0.00	5.00	10.00	0.00	5.00	10.00	0.00	1.00	2.00	5.00	10.00
LOG X	1.00	6.00	11.00	0.00	5.00	10.00	-1.00	0.00	1.00	4.00	9.00
LOG E(I)											
I=1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	95.1784	90.1857	85.1857	95.3585	90.3679	85.3679	96.1679	95.2030	94.2067	91.2071	86.2071
3	95.5059	90.5372	85.5372	95.5236	90.5551	85.5551	95.6631	94.6856	93.6879	90.6882	85.6882
4	95.7496	90.8147	85.8147	95.7549	90.8196	85.8196	95.8084	94.8567	93.8621	90.8627	85.8627
5	95.9198	91.0204	86.0204	95.9225	91.0223	86.0223	95.9538	95.0305	94.0394	91.0404	86.0404
6	96.0318	91.1619	86.1619	96.0336	91.1628	86.1628	96.0571	95.1580	94.1701	91.1715	86.1715
+	16.8922	11.8688	6.8688	16.8955	11.8688	6.8688	16.9108	15.8737	14.8693	11.8688	6.8688
LOG BH(I)											
I=1	0.1862	5.2097	10.2097	0.1850	5.2097	10.2097	0.1677	1.2048	2.2092	5.2097	10.2097
2	98.1890	98.2197	98.2197	98.3678	98.4019	98.4019	99.1599	99.2321	99.2402	99.2412	99.2412
3	98.7989	98.8537	98.8537	98.8154	98.8716	98.8716	98.9376	98.9971	99.0039	99.0047	99.0047
4	99.0148	99.1034	99.1034	99.0189	99.1082	99.1082	99.0550	99.1405	99.1503	99.1514	99.1514
5	99.0938	99.2180	99.2180	99.0953	99.2199	99.2199	99.1093	99.2231	99.2364	99.2379	99.2379
6	99.1034	99.2570	99.2570	99.1040	99.2579	99.2579	99.1102	99.2481	99.2646	99.2665	99.2665
LOG BETA(I,J)											
I=1 J=6	99.9997	99.9997	99.9997	99.9969	99.9969	99.9969	99.9689	99.9689	99.9689	99.9689	99.9689
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	99.9997	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	99.9996	0.0000	0.0000	0.0000	0.0000
I=1 J=5	99.9994	99.9994	99.9994	99.9943	99.9943	99.9943	99.9444	99.9445	99.9445	99.9445	99.9445
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	99.9999	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	99.9999	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	99.9999	0.0000	0.0000	99.9988	99.9999	0.0000	0.0000	0.0000
I=1 J=4	99.9988	99.9988	99.9988	99.9880	99.9880	99.9880	99.8849	99.8849	99.8849	99.8849	99.8849
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	99.9997	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	99.9993	99.9999	0.0000	0.0000	0.0000
I=1 J=3	99.9965	99.9965	99.9965	99.9656	99.9656	99.9656	99.6972	99.6973	99.6973	99.6973	99.6973
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	99.9977	99.9998	0.0000	0.0000	0.0000
I=1 J=2	99.9785	99.9785	99.9785	99.8008	99.8008	99.8008	99.0000	99.0000	99.0000	99.0000	99.0000
LOG F(I)/F(4)											
I=3	0.3457	0.3118	0.3118	0.3581	0.3248	0.3248	0.4421	0.4180	0.4152	0.4148	0.4148
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	99.6980	99.7335	99.7335	99.6954	99.7306	99.7306	99.6734	99.7016	99.7051	99.7055	99.7055
6	99.4191	99.4841	99.4841	99.4157	99.4802	99.4802	99.3859	99.4382	99.4449	99.4457	99.4457

T = 15000											
	LOG BETA(1,2) = -2.00										
-LOG W	0.00	0.50	1.00	2.00	3.00	4.00	5.00	10.00			
LOG X	-2.00	-1.50	-1.00	0.00	1.00	2.00	3.00	8.00			
LOG E(I)											
I=1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
2	97.0473	96.7098	96.2707	95.2975	94.3003	93.3006	92.3006	87.3006			
3	96.0981	95.5227	94.9557	93.9162	92.9118	91.9114	90.9113	85.9113			
4	96.0674	95.5564	95.0372	94.0251	93.0237	92.0236	91.0236	86.0236			
5	96.1540	95.6631	95.1525	94.1443	93.1433	92.1432	91.1432	86.1432			
6	96.2155	95.7417	95.2381	94.2331	93.2324	92.2324	91.2324	86.2324			
+	17.0240	16.4403	15.8952	14.8716	13.8691	12.8688	11.8688	6.8688			
LOG BH(I)											
I=1	0.0544	0.6381	1.1832	2.2068	3.2094	4.2096	5.2097	10.2097			
2	99.9261	0.1723	0.2782	0.3287	0.3340	0.3346	0.3346	0.3346			
3	99.2593	99.2676	99.2457	99.2299	99.2280	99.2278	99.2278	99.2278			
4	99.2008	99.2735	99.2994	99.3109	99.3121	99.3122	99.3122	99.3122			
5	99.1963	99.2891	99.3236	99.3390	99.3406	99.3408	99.3408	99.3408			
6	99.1553	99.2652	99.3067	99.3253	99.3272	99.3274	99.3274	99.3274			
LOG BETA(I,J)											
I=1 J=6	99.7222	99.7222	99.7223	99.7223	99.7223	99.7223	99.7223	99.7223			
2	99.9957	99.9980	99.9993	99.9999	0.0000	0.0000	0.0000	0.0000			
3	99.9978	99.9995	99.9999	0.0000	0.0000	0.0000	0.0000	0.0000			
4	99.9912	99.9977	99.9994	99.9999	0.0000	0.0000	0.0000	0.0000			
5	99.9888	99.9969	99.9991	99.9999	0.0000	0.0000	0.0000	0.0000			
I=1 J=5	99.5494	99.5495	99.5495	99.5495	99.5495	99.5495	99.5495	99.5495			
2	99.9909	99.9958	99.9985	99.9998	0.0000	0.0000	0.0000	0.0000			
3	99.9939	99.9986	99.9997	0.0000	0.0000	0.0000	0.0000	0.0000			
4	99.9547	99.9883	99.9967	99.9997	0.0000	0.0000	0.0000	0.0000			
I=1 J=4	99.2535	99.2535	99.2536	99.2536	99.2536	99.2536	99.2536	99.2536			
2	99.9734	99.9876	99.9955	99.9995	0.0000	0.0000	0.0000	0.0000			
3	99.9602	99.9912	99.9980	99.9998	0.0000	0.0000	0.0000	0.0000			
I=1 J=3	98.7946	98.7947	98.7947	98.7947	98.7947	98.7947	98.7947	98.7947			
2	99.8223	99.9130	99.9674	99.9965	99.9996	0.0000	0.0000	0.0000			
I=1 J=2	98.0000	98.0000	98.0000	98.0000	98.0000	98.0000	98.0000	98.0000			
LOG F(I)/F(4)											
I=3	0.4688	0.4811	0.4798	0.4774	0.4771	0.4771	0.4771	0.4771			
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
5	99.6320	99.6428	99.6461	99.6474	99.6475	99.6475	99.6475	99.6475			
6	99.3073	99.3327	99.3416	99.3453	99.3457	99.3457	99.3457	99.3457			

BALMER DECREMENTS

T = 15000 LOG BETA(1,2) = -3.00

-LOG W	0.00	0.50	1.00	1.25	1.50	1.75	2.00	2.50	3.00	4.00	5.00	6.00	10.00
-LOG X	-3.00	-2.50	-2.00	-1.75	-1.50	-1.25	-1.00	-0.50	0.00	1.00	2.00	3.00	7.00
LOG E(I)													
I=1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	97.3150	97.2861	97.1035	96.9457	96.7539	96.5386	96.3086	95.8264	95.3320	94.3344	93.3346	92.3347	88.3347
3	96.7558	96.5214	96.0047	95.6282	95.1930	94.7387	94.3098	93.5928	93.0096	91.9726	90.9688	89.9684	85.9684
4	96.5513	96.1898	95.5350	95.1320	94.7578	94.4341	94.1440	93.6092	93.0980	92.0933	91.0929	90.0928	86.0928
5	96.5364	96.1380	95.4791	95.1280	94.8137	94.5267	94.2549	93.7345	93.2278	92.2249	91.2246	90.2246	86.2246
6	96.5183	96.0806	95.4276	95.1705	94.8822	94.6058	94.3389	93.8222	93.3166	92.3142	91.3139	90.3139	86.3139
+	17.1621	16.6083	16.0180	15.7229	15.4365	15.1606	14.8937	14.3771	13.8715	12.8690	11.8688	10.8688	6.8688
LOG BN(I)													
I=1	99.9163	0.4701	1.0604	1.3555	1.6419	1.9179	2.1848	2.7014	3.2070	4.2094	5.2097	6.2097	10.2097
2	0.0557	0.5806	0.9882	1.1256	1.2202	1.2808	1.3178	1.3521	1.3634	1.3682	1.3687	1.3687	1.3687
3	99.7790	0.0983	0.1719	0.0906	99.9417	99.7634	99.6013	99.4010	99.3234	99.2888	99.2853	99.2849	99.2849
4	99.5467	99.7390	99.6745	99.5665	99.4787	99.4310	99.4077	99.3896	99.3840	99.3817	99.3815	99.3815	99.3815
5	99.4406	99.5960	99.5274	99.4713	99.4435	99.4324	99.4275	99.4238	99.4227	99.4221	99.4221	99.4221	99.4221
6	99.3201	99.4361	99.4185	99.4114	99.4095	99.4091	99.4090	99.4090	99.4090	99.4090	99.4090	99.4090	99.4090
LOG BETA(I,J)													
I=1 J=6	98.8379	98.8379	98.8380	98.8381	98.8381	98.8381	98.8381	98.8381	98.8382	98.8382	98.8382	98.8382	98.8382
2	99.9234	99.9274	99.9516	99.9662	99.9781	99.9866	99.9921	99.9974	99.9992	99.9999	0.0000	0.0000	0.0000
3	99.8787	99.9233	99.9757	99.9899	99.9964	99.9988	99.9996	99.9999	0.0000	0.0000	0.0000	0.0000	0.0000
4	99.6439	99.8114	99.9581	99.9860	99.9953	99.9981	99.9991	99.9998	99.9999	0.0000	0.0000	0.0000	0.0000
5	99.6229	99.8046	99.9630	99.9877	99.9952	99.9978	99.9989	99.9997	99.9999	0.0000	0.0000	0.0000	0.0000
I=1 J=5	98.5823	98.5823	98.5824	98.5824	98.5825	98.5825	98.5825	98.5825	98.5825	98.5825	98.5825	98.5825	98.5825
2	99.8433	99.8505	99.8990	99.9287	99.9537	99.9716	99.9832	99.9944	99.9982	99.9998	0.0000	0.0000	0.0000
3	99.6815	99.7865	99.9274	99.9692	99.9891	99.9965	99.9988	99.9998	0.0000	0.0000	0.0000	0.0000	0.0000
4	98.9474	99.2535	99.7570	99.9134	99.9722	99.9898	99.9956	99.9989	99.9997	0.0000	0.0000	0.0000	0.0000
I=1 J=4	98.2551	98.2551	98.2551	98.2552	98.2552	98.2552	98.2552	98.2553	98.2553	98.2553	98.2553	98.2553	98.2553
2	99.5990	99.6125	99.7247	99.8004	99.8674	99.9174	99.9507	99.9835	99.9917	99.9995	0.0000	0.0000	0.0000
3	98.9380	99.1161	99.5579	99.7890	99.9189	99.9735	99.9915	99.9989	99.9998	0.0000	0.0000	0.0000	0.0000
I=1 J=3	97.7945	97.7945	97.7946	97.7946	97.7947	97.7947	97.7947	97.7947	97.7947	97.7947	97.7947	97.7947	97.7947
2	98.8208	98.8274	98.9912	99.1424	99.3265	99.5180	99.6837	99.8846	99.9618	99.9961	99.9996	0.0000	0.0000
I=1 J=2	97.0000	97.0000	97.0000	97.0000	97.0000	97.0000	97.0000	97.0000	97.0000	97.0000	97.0000	97.0000	97.0000
LOG F(I)/F(4)													
I=3	0.0157	0.1359	0.3255	0.4276	0.4835	0.4945	0.4882	0.4740	0.4680	0.4652	0.4649	0.4649	0.4649
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	99.7572	99.7141	99.6462	99.6521	99.6699	99.6746	99.6712	99.6641	99.6611	99.6598	99.6596	99.6596	99.6596
6	99.4283	99.3426	99.3014	99.3411	99.3719	99.3778	99.3732	99.3638	99.3599	99.3582	99.3580	99.3580	99.3580
T = 15000 LOG BETA(1,2) = -4.00													
-LOG W	0.00	1.00	1.50	2.00	2.25	2.50	2.75	3.00	3.30	3.70	4.00	5.00	6.00
-LOG X	-4.00	-3.00	-2.50	-2.00	-1.75	-1.50	-1.25	-1.00	-0.70	-0.30	0.00	1.00	2.00
LOG E(I)													
I=1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	97.2605	97.3324	97.2959	97.1090	96.9499	96.7575	96.5421	96.3124	96.0256	95.6337	95.3363	94.3386	93.3389
3	96.8755	96.7622	96.5277	96.0146	95.6448	95.2213	94.7607	94.2693	93.6615	92.6655	91.3199	90.0150	89.9791
4	96.7873	96.5388	96.1487	95.4345	94.9505	94.4033	93.8366	93.3686	92.9364	92.4576	92.1302	91.1040	90.1013
5	96.7734	96.4326	95.9719	95.1409	94.6016	94.0706	93.6489	93.3229	92.9795	92.5531	92.2441	91.2358	90.2349
6	96.7715	96.3357	95.7590	94.8065	94.3361	93.9665	93.6562	93.3727	93.0503	92.6360	92.3312	91.3267	90.3263
+	17.1899	16.1618	15.6077	15.0175	14.7225	14.4363	14.1604	13.8935	13.5817	13.1740	12.8714	11.8690	10.8688
LOG BN(I)													
I=1	99.8886	0.9167	1.4707	2.0610	2.3559	2.6422	2.9181	3.1849	3.4968	3.9044	4.2070	5.2094	6.2097
2	99.9734	1.0734	1.5920	1.9943	2.1302	2.2248	2.2845	2.3217	2.3467	2.3625	2.3677	2.3724	2.3729
3	99.8709	0.7856	1.1052	1.1824	1.1075	0.9703	0.7856	0.5610	0.2651	99.8717	99.6337	99.3312	99.2956
4	99.7548	0.5285	0.6984	0.5744	0.3894	0.1245	99.8336	99.6325	99.5122	99.4410	99.4162	99.3924	99.3899
5	99.6499	0.3431	0.4305	0.1897	99.9454	99.7007	99.5548	99.4957	99.4642	99.4453	99.4390	99.4331	99.4325
6	99.5455	0.1377	0.1151	99.7528	99.5774	99.4940	99.4596	99.4430	99.4325	99.4258	99.4236	99.4215	99.4213
LOG BETA(I,J)													
I=1 J=6	97.8380	97.8379	97.8379	97.8380	97.8381	97.8381	97.8381	97.8381	97.8381	97.8382	97.8382	97.8382	97.8382
2	99.4628	99.4091	99.4380	99.5919	99.6983	99.7962	99.8714	99.9225	99.9594	99.9834	99.9916	99.9991	99.9999
3	99.1383	99.1986	99.4012	99.7605	99.8909	99.9578	99.9853	99.9953	99.9989	99.9998	0.0000	0.0000	0.0000
4	98.4874	98.6427	98.9695	99.5973	99.8491	99.9579	99.9902	99.9974	99.9993	99.9998	99.9999	0.0000	0.0000
5	98.4775	98.6465	99.0086	99.6809	99.9054	99.9791	99.9948	99.9982	99.9993	99.9998	99.9999	0.0000	0.0000
I=1 J=5	97.5823	97.5823	97.5823	97.5824	97.5824	97.5825	97.5825	97.5825	97.5825	97.5825	97.5825	97.5825	97.5825
2	99.1784	99.0926	99.1223	99.3047	99.4521	99.6076	99.7417	99.8402	99.9147	99.9647	99.9821	99.9982	99.9998
3	98.6882	98.7375	98.9364	99.4149	99.6932	99.8725	99.9544	99.9853	99.9965	99.9995	99.9999	0.0000	0.0000
4	97.7131	97.8618	98.1265	98.8165	99.2739	99.7177	99.9296	99.9822	99.9954	99.9989	99.9996	0.0000	0.0000
I=1 J=4	97.2551	97.2551	97.2551	97.2551	97.2552	97.2552	97.2552	97.2552	97.2553	97.2553	97.2553	97.2553	97.2553
2	98.7208	98.6283	98.6539	98.8364	98.9943	99.1856	99.3970	99.5869	99.7637	99.8979	99.9474	99.9946	99.9995
3	97.8972	97.9187	98.0946	98.5609	98.9136	99.3197	99.6855	99.8882	99.9725	99.9962	99.9991	0.0000	0.0000
I=1 J=3	96.7964	96.7945	96.7945	96.7946	96.7946	96.7947	96.7947	96.7947	96.7947	96.7947	96.7947	96.7947	96.7947
2	97.9064	97.8020	97.8162	97.9859	98.1388	98.3273	98.5402	98.7685	99.0543	99.4336	99.6652	99.9611	99.9961
I=1 J=2	96.0000	96.0000	96.0000	96.0000	96.0000	96.0000	96.0000	96.0000	96.0000	96.0000	96.0000	96.0000	96.0000
LOG F(I)/F(4)													
I=3	99.8633	99.9924	0.1306	0.3189	0.4281	0.5491	0.6607	0.6717	0.6051	0.5279	0.4968	0.4668	0.4638
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	99.9716	99.8979	99.8194	99.7026	99.6367	99.6172	99.6389	99.7354	99.7420	99.6901	99.6764	99.6632	99.6619
6	99.8831	99.7206	99.5313	99.2843	99.2265	99.3107	99.4349	99.4767	99.4825	99.4008	99.3820	99.3641	99.3623

(Continued)
T = 15000 LOG BETA(1,2) = -4.00

-LOG W	7.00	8.00	10.00	0.00	1.00	2.00	2.50	3.00	3.25	3.50	3.75	4.00
LOG X	3.00	4.00	6.00	-5.00	-4.00	-3.00	-2.50	-2.00	-1.75	-1.50	-1.25	-1.00
LOG E(I)												
I=1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	92.3389	91.3389	89.3389	97.2296	97.2608	97.3325	97.2970	97.1089	96.9498	96.7573	96.5420	96.3123
3	88.9755	87.9751	85.9751	96.8877	96.8755	96.7621	96.5277	96.0174	95.6532	95.2384	94.7903	94.3200
4	89.1010	88.1010	86.1010	96.8277	96.7873	96.5328	96.1484	95.4325	94.9467	94.3967	93.7980	93.1557
5	89.2349	88.2348	86.2348	96.8301	96.7734	96.4383	95.9710	95.1339	94.5695	93.9189	93.2112	92.6014
6	89.3262	88.3262	86.3262	96.8482	96.7695	96.3324	95.7524	94.7276	94.0358	93.3246	92.8224	92.4740
+	9.8688	8.8688	6.8688	17.1927	16.1899	15.1618	14.6077	14.0175	13.7225	13.4363	13.1604	12.8935
LOG BN(I)												
I=1	7.2097	8.2097	10.2097	99.8857	0.8886	1.9167	2.4707	3.0610	3.3559	3.6422	3.9180	4.1849
2	2.3729	2.3729	2.3729	99.9397	0.9737	2.0736	2.5921	2.9943	3.1301	3.2239	3.2844	3.3216
3	99.2919	99.2916	99.2915	99.8802	0.8709	1.7856	2.1053	2.1851	2.1159	1.9874	1.8151	1.6117
4	99.3897	99.3897	99.3897	99.7924	0.7549	1.5284	1.6981	1.5724	1.3816	1.1179	0.7951	0.4196
5	99.4324	99.4324	99.4324	99.7036	0.6448	1.3428	1.4296	1.1827	0.9132	0.5489	0.1171	99.7742
6	99.4213	99.4213	99.4213	99.6193	0.5435	1.1344	1.1086	0.6740	0.2771	99.8521	99.6259	99.5443
LOG BETA(I,J)												
I=1 J=6	97.8382	97.8382	97.8382	96.8380	96.8380	96.8379	96.8379	96.8380	96.8381	96.8381	96.8381	96.8381
2	0.0000	0.0000	0.0000	98.5373	98.5014	98.4186	98.4506	98.6376	98.7966	98.9891	99.2036	99.4230
3	0.0000	0.0000	0.0000	98.1439	98.1381	98.1992	98.4099	98.9071	99.2665	99.6240	99.8489	99.9467
4	0.0000	0.0000	0.0000	97.4762	97.4858	97.6415	97.9684	98.6391	99.1089	99.6023	99.8847	99.9740
5	0.0000	0.0000	0.0000	97.4694	97.4732	97.6431	98.0054	98.7442	99.2677	99.7578	99.9548	99.9924
I=1 J=5	97.5825	97.5825	97.5825	96.5824	96.5823	96.5823	96.5823	96.5824	96.5824	96.5825	96.5825	96.5825
2	0.0000	0.0000	0.0000	98.2152	98.1786	98.0926	98.1224	98.3080	98.4667	98.6590	98.8743	99.1038
3	0.0000	0.0000	0.0000	97.6952	97.6882	97.7375	97.9363	98.4218	98.7783	99.1868	99.5879	99.9394
4	0.0000	0.0000	0.0000	96.7004	96.7130	96.8616	97.1723	97.8167	98.2691	98.7878	99.3552	99.8050
I=1 J=4	97.2553	97.2553	97.2553	96.2551	96.2551	96.2551	96.2551	96.2551	96.2552	96.2552	96.2552	96.2552
2	99.9999	99.6000	0.0000	97.7589	97.7205	97.6281	97.6538	97.8365	97.9944	98.1864	98.4014	98.6310
3	0.0000	0.0000	0.0000	96.9107	96.8972	96.9188	97.0945	97.5571	97.9037	98.3042	98.7413	99.2022
I=1 J=3	96.7947	96.7947	96.7947	95.7944	95.7944	95.7944	95.7944	95.7946	95.7946	95.7947	95.7947	95.7947
2	99.9996	0.0000	0.0000	96.9476	96.9061	96.8018	96.8161	96.9860	97.1392	97.3277	97.5406	97.7688
I=1 J=2	96.0000	96.0000	96.0000	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000
LOG F(I)/F(4)												
I=3	0.4635	0.4634	0.4634	99.8380	99.8632	99.9923	0.1310	0.3238	0.4405	0.5724	0.7207	0.8915
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	99.6617	99.6617	99.6617	99.9865	99.9721	99.8978	99.8190	99.7008	99.6228	99.5226	99.4139	99.4464
6	99.3621	99.3621	99.3621	99.9358	99.9001	99.7270	99.5378	99.2332	99.0282	98.8675	98.9635	99.2472

(Continued)
T = 15000 LOG BETA(1,2) = -5.00

-LOG W	4.25	4.50	4.75	5.00	5.30	5.70	6.00	7.00	8.00	9.00	10.00
LOG X	-0.75	-0.50	-0.25	0.00	0.30	0.70	1.00	2.00	3.00	4.00	5.00
LOG E(I)											
I=1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	96.0741	95.8307	95.5845	95.3366	95.0380	94.6388	94.3391	93.3393	92.3393	91.3393	90.3393
3	93.8329	93.3284	92.8131	92.2929	91.6704	90.8629	90.3206	89.0155	87.9798	86.9761	85.9758
4	92.5036	91.9956	91.6159	91.2849	90.8129	90.4525	90.1284	89.1046	88.1018	87.1018	86.1018
5	92.1909	91.8723	91.5769	91.2936	90.9674	90.5491	90.2426	89.2366	88.2360	87.2359	86.2359
6	92.1744	91.8909	91.6171	91.3512	91.0399	90.6326	90.3300	89.3277	88.3275	87.3275	86.3275
+	12.6332	12.3770	12.1235	11.8714	11.5701	11.1693	10.8690	9.8688	8.8688	7.8688	6.8688
LOG BN(I)											
I=1	4.4453	4.7014	4.9550	5.2070	5.5083	5.9091	6.2094	7.2097	8.2097	9.2097	10.2097
2	3.3437	3.2565	3.3639	3.3680	3.3707	3.3723	3.3728	3.3733	3.3734	3.3734	3.3734
3	1.3850	1.1367	0.8749	0.6067	0.2855	99.8788	99.6369	99.3320	99.2962	99.2926	99.2923
4	0.0278	99.7760	95.6499	99.5709	99.5002	99.4406	99.4168	99.3932	99.3908	99.3905	99.3905
5	99.6241	99.5616	99.5188	99.4885	99.4636	99.4461	99.4309	99.4341	99.4325	99.4334	99.4334
6	99.5051	99.4777	99.4575	99.4436	99.4436	99.4427	99.4424	99.4427	99.4425	99.4425	99.4425
LOG BETA(I,J)											
I=1 J=6	96.8381	96.8381	96.8382	96.8382	96.8382	96.8382	96.8382	96.8382	96.8382	96.8382	96.8382
2	99.6172	99.7627	99.8500	99.9182	99.9582	99.9832	99.9915	99.9991	99.9999	0.0000	0.0000
3	99.9824	99.9945	99.9983	99.9995	99.9999	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	99.9949	99.9987	99.9995	99.9998	99.9999	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	99.9980	99.9992	99.9996	99.9998	99.9999	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
I=1 J=5	96.5825	96.5825	96.5825	96.5825	96.5825	96.5825	96.5825	96.5825	96.5825	96.5825	96.5825
2	99.3376	99.5519	99.7187	99.8317	99.9123	99.9643	99.9819	99.9982	99.9998	0.0000	0.0000
3	99.9453	99.9827	99.9947	99.9984	99.9996	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	99.9610	99.9908	99.9969	99.9988	99.9996	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
I=1 J=4	96.2553	96.2553	96.2553	96.2553	96.2553	96.2553	96.2553	96.2553	96.2553	96.2553	96.2553
2	98.8692	99.1123	99.3533	99.5684	99.7576	99.8967	99.9471	99.9946	99.9996	99.9999	99.9999
3	99.6259	99.8671	99.9582	99.9875	99.9971	99.9996	99.9999	0.0000	0.0000	0.0000	0.0000
I=1 J=3	95.7947	95.7947	95.7947	95.7947	95.7947	95.7947	95.7947	95.7947	95.7947	95.7947	95.7947
2	98.0062	98.2490	98.4950	98.7427	99.0412	99.4287	99.6633	99.9611	99.9960	99.9996	0.0000
I=1 J=2	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000
LOG F(I)/F(4)											
I=3	1.0557	1.0589	0.9283	0.7717	0.6305	0.5317	0.4978	0.4667	0.4636	0.4633	0.4633
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	99.6836	99.8442	99.8543	99.7999	99.7370	99.6920	99.6769	99.6634	99.6621	99.6619	99.6619
6	99.5558	99.6826	99.6438	99.5531	99.4616	99.4034	99.3829	99.3646	99.3627	99.3626	99.3625

BALMER DECREMENTS

T = 20000		LOG BETA0(1,2) = 1.00				LOG BETA0(1,2) = 0.00			
-LOG W	0.00	5.00	10.00		0.00	1.00	5.00	10.00	
LOG X	1.00	6.00	11.00		0.00	1.00	5.00	10.00	
LOG E(I)									
I=1	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	
2	96.4239	91.4388	86.4388		96.6009	95.6187	91.6208	86.6208	
3	96.7290	91.7806	86.7806		96.7474	95.7928	91.7984	86.7984	
4	96.9533	92.0502	87.0502		96.9597	96.0441	92.0551	87.0551	
5	97.1088	92.2501	87.2501		97.1129	96.2353	92.2520	87.2520	
6	97.2100	92.3860	87.3861		97.2133	96.3653	92.3869	87.3869	
+	18.2495	13.2158	8.2158		18.2522	17.2204	13.2158	8.2158	
LOG BN(I)									
I=1	0.1584	5.1921	10.1921		0.1557	1.1875	5.1921	10.1921	
2	98.5502	98.5988	98.5988		98.7246	98.7742	98.7809	98.7809	
3	98.9291	99.0644	99.0644		98.9942	99.0719	99.0822	99.0822	
4	99.1199	99.2506	99.2506		99.1237	99.2399	99.2555	99.2555	
5	99.1588	99.3338	99.3338		99.1603	99.3144	99.3358	99.3358	
6	99.1435	99.3533	99.3533		99.1441	99.3280	99.3542	99.3542	
LOG BETA(I,J)									
I=1 J=6	99.9997	99.9997	99.9997		99.9969	99.9969	99.9969	99.9969	
2	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	
3	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	
4	0.0000	0.0000	0.0000		99.9996	0.0000	0.0000	0.0000	
5	99.9999	0.0000	0.0000		99.9994	0.0000	0.0000	0.0000	
I=1 J=5	99.9994	99.9994	99.9994		99.9943	99.9943	99.9943	99.9943	
2	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	
3	0.0000	0.0000	0.0000		99.9999	0.0000	0.0000	0.0000	
4	99.9999	0.0000	0.0000		99.9985	0.0000	0.0000	0.0000	
I=1 J=4	99.9988	99.9988	99.9988		99.9880	99.9880	99.9880	99.9880	
2	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	
3	0.0000	0.0000	0.0000		99.9997	0.0000	0.0000	0.0000	
I=1 J=3	99.9965	99.9965	99.9965		99.9656	99.9656	99.9656	99.9656	
2	0.0000	0.0000	0.0000		99.9997	0.0000	0.0000	0.0000	
I=1 J=2	99.9785	99.9785	99.9785		99.8008	99.8008	99.8008	99.8008	
LOG F(I)/F(4)									
I=3	0.3651	0.3197	0.3197		0.3768	0.3380	0.3327	0.3327	
4	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	
5	99.6833	99.7277	99.7277		99.6811	99.7190	99.7248	99.7248	
6	99.3936	99.4727	99.4727		99.3906	99.4581	99.4688	99.4688	

T = 20000		LOG BETA0(1,2) = -1.00							
-LOG W	0.00	0.50	1.00	2.00	3.00	5.00	10.00		
LOG X	-1.00	-0.50	0.00	1.00	2.00	4.00	9.00		
LOG E(I)									
I=1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
2	97.3672	96.9281	96.4491	95.4581	94.4590	92.4591	87.4591		
3	96.9120	96.4274	95.9304	94.9313	93.9314	91.9314	86.9314		
4	97.0302	96.5752	96.0908	95.0974	94.0981	92.0982	87.0982		
5	97.1641	96.7320	96.2574	95.2688	94.2700	92.2701	87.2701		
6	97.2552	96.8438	96.3782	95.3938	94.3954	92.3956	87.3956		
+	18.2871	17.7428	17.2249	16.2167	15.2158	13.2158	8.2158		
LOG BN(I)									
I=1	0.1208	0.6651	1.1830	2.1912	3.1920	5.1921	10.1921		
2	99.4559	99.5611	99.6000	99.6173	99.6190	99.6192	99.6192		
3	99.1245	99.1842	99.2051	99.2142	99.2151	99.2152	99.2152		
4	99.1592	99.2486	99.2820	99.2969	99.2984	99.2986	99.2986		
5	99.1765	99.2887	99.3320	99.3516	99.3536	99.3538	99.3538		
6	99.1510	99.2840	99.3363	99.3601	99.3625	99.3628	99.3628		
LOG BETA(I,J)									
I=1 J=6	99.9688	99.9689	99.9689	99.9689	99.9689	99.9689	99.9689		
2	99.9992	99.9997	99.9999	0.0000	0.0000	0.0000	0.0000		
3	99.9990	99.9998	99.9999	0.0000	0.0000	0.0000	0.0000		
4	99.9945	99.9987	99.9996	0.0000	0.0000	0.0000	0.0000		
5	99.9917	99.9978	99.9994	99.9999	0.0000	0.0000	0.0000		
I=1 J=5	99.9444	99.9444	99.9444	99.9445	99.9445	99.9445	99.9445		
2	99.9983	99.9994	99.9998	0.0000	0.0000	0.0000	0.0000		
3	99.9976	99.9994	99.9998	0.0000	0.0000	0.0000	0.0000		
4	99.9753	99.9945	99.9987	99.9999	0.0000	0.0000	0.0000		
I=1 J=4	99.8849	99.8849	99.8849	99.8849	99.8849	99.8849	99.8849		
2	99.9949	99.9981	99.9994	99.9999	0.0000	0.0000	0.0000		
3	99.9856	99.9962	99.9989	99.9999	0.0000	0.0000	0.0000		
I=1 J=3	99.6971	99.6972	99.6972	99.6973	99.6973	99.6973	99.6973		
2	99.9649	99.9869	99.9956	99.9995	0.0000	0.0000	0.0000		
I=1 J=2	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000		
LOG F(I)/F(4)									
I=3	0.4412	0.4302	0.4252	0.4228	0.4226	0.4225	0.4225		
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
5	99.6651	99.6858	99.6949	99.6992	99.6997	99.6997	99.6997		
6	99.3661	99.4070	99.4248	99.4333	99.4342	99.4343	99.4343		

T = 20000 LOG BETA0(1,2) = -2.00									
-LOG W	0.00	1.00	1.50	2.00	3.00	4.00	5.00	10.00	
LOG X	-2.00	-1.00	-0.50	0.00	1.00	2.00	3.00	8.00	
LOG E(I)									
I=1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	97.9836	97.4578	97.0206	96.5408	95.5492	94.5500	93.5501	88.5501	
3	97.5662	96.5212	95.8215	95.2137	94.1599	93.1541	92.1536	87.1535	
4	97.4470	96.3624	95.7889	95.2676	94.2596	93.2588	92.2587	87.2587	
5	97.4799	96.4356	95.8925	95.3791	94.3734	93.3729	92.3728	87.3728	
6	97.4949	96.4919	95.9692	95.4607	94.4569	93.4565	92.4565	87.4565	
+	18.4285	17.2706	16.7354	16.2223	15.2164	14.2158	13.2158	8.2158	
LOG BH(I)									
I=1	99.9794	1.1373	1.6725	2.1856	3.1915	4.1921	5.1921	10.1921	
2	99.9309	0.5631	0.6611	0.6944	0.7086	0.7101	0.7102	0.7102	
3	99.6372	99.7502	99.5857	99.4910	99.4430	99.4379	99.4374	99.4373	
4	99.4346	99.5079	99.4696	99.4615	99.4593	99.4591	99.4591	99.4591	
5	99.3508	99.4645	99.4566	99.4563	99.4565	99.4565	99.4566	99.4566	
6	99.2493	99.4043	99.4167	99.4214	99.4235	99.4237	99.4237	99.4237	
LOG BETA(I,J)									
I=1 J=6	99.7217	99.7221	99.7222	99.7222	99.7223	99.7223	99.7223	99.7223	
2	99.9643	99.9890	99.9960	99.9987	99.9999	0.0000	0.0000	0.0000	
3	99.9216	99.9933	99.9989	99.9998	0.0000	0.0000	0.0000	0.0000	
4	99.7456	99.9815	99.9959	99.9989	99.9999	0.0000	0.0000	0.0000	
5	99.7067	99.9776	99.9947	99.9985	99.9998	0.0000	0.0000	0.0000	
I=1 J=5	99.5487	99.5493	99.5494	99.5495	99.5495	99.5495	99.5495	99.5495	
2	99.9259	99.9767	99.9914	99.9971	99.9997	0.0000	0.0000	0.0000	
3	99.8021	99.9807	99.9968	99.9994	0.0000	0.0000	0.0000	0.0000	
4	99.1414	99.9032	99.9793	99.9942	99.9995	99.9999	0.0000	0.0000	
I=1 J=4	99.2526	99.2533	99.2535	99.2536	99.2536	99.2536	99.2536	99.2536	
2	99.7972	99.9322	99.9747	99.9915	99.9991	99.9999	0.0000	0.0000	
3	99.1805	99.8699	99.9787	99.9960	99.9997	0.0000	0.0000	0.0000	
I=1 J=3	98.7939	98.7944	98.7946	98.7947	98.7947	98.7947	98.7947	98.7947	
2	99.1750	99.5966	99.8285	99.9399	99.9937	99.9994	99.9999	0.0000	
I=1 J=2	98.0000	98.0000	98.0000	98.0000	98.0000	98.0000	98.0000	98.0000	
LOG F(I)/F(4)									
I=3	0.0864	0.4126	0.4758	0.4837	0.4842	0.4842	0.4842	0.4842	
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
5	99.6895	99.6456	99.6482	99.6449	99.6423	99.6420	99.6420	99.6420	
6	99.3519	99.3232	99.3385	99.3371	99.3350	99.3347	99.3347	99.3347	

T = 20000 LOG BETA0(1,2) = -3.00									
-LOG W	0.00	1.00	2.00	2.30	2.70	3.00	3.50	4.00	10.00
LOG X	-3.00	-2.00	-1.00	-0.70	-0.30	0.00	0.50	1.00	7.00
LOG E(I)									
I=1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	98.0806	98.0147	97.4850	97.2317	96.8627	96.5733	96.0802	95.5822	94.5830
3	97.8325	97.5750	96.5043	96.0170	95.2932	94.7289	93.9128	93.2784	92.2169
4	97.7870	97.3841	95.9977	95.4400	94.7730	94.3900	93.8454	93.3331	92.3281
5	97.7904	97.3054	95.8302	95.3264	94.8021	94.4752	93.9603	93.4560	92.4542
6	97.8029	97.2770	95.6986	95.3037	94.8607	94.5491	94.0415	93.5391	92.5381
+	18.5121	17.4274	16.2701	15.9455	15.5283	15.2222	14.7178	14.2164	13.2158
LOG BH(I)									
I=1	99.8958	0.9805	2.1378	2.4624	2.8796	3.1857	3.6901	4.1915	5.1921
2	99.9443	0.9632	1.5907	1.6620	1.7103	1.7270	1.7382	1.7416	1.7430
3	99.8199	0.6472	0.7338	0.5710	0.2645	0.0062	99.6945	99.5616	99.5007
4	99.6910	0.3728	0.1438	99.9107	99.6608	99.5840	99.5437	99.5328	99.5280
5	99.5778	0.1775	99.8596	99.6804	99.5733	99.5525	99.5420	99.5391	99.5379
6	99.4737	99.9927	99.6115	99.5412	99.5154	99.5099	99.5067	99.5057	99.5053
LOG BETA(I,J)									
I=1 J=6	98.8369	98.8371	98.8378	98.8380	98.8381	98.8381	98.8381	98.8382	98.8382
2	99.6303	99.6624	99.8866	99.9354	99.9720	99.9855	99.9953	99.9985	99.9998
3	99.2002	99.3879	99.9221	99.9743	99.9953	99.9988	99.9999	0.0000	0.0000
4	98.5119	98.8118	99.8531	99.9630	99.9946	99.9982	99.9996	99.9999	0.0000
5	98.4934	98.8247	99.8764	99.9717	99.9949	99.9979	99.9994	99.9998	0.0000
I=1 J=5	98.5813	98.5814	98.5822	98.5823	98.5824	98.5825	98.5825	98.5825	98.5825
2	99.3655	99.4050	99.7708	99.8660	99.9408	99.9692	99.9900	99.9968	99.9997
3	98.7567	98.9355	99.7781	99.9226	99.9857	99.9965	99.9996	99.9999	0.0000
4	97.7421	98.0266	99.3259	99.7720	99.9667	99.9902	99.9979	99.9994	99.9999
I=1 J=4	98.2541	98.2542	98.2548	98.2551	98.2552	98.2552	98.2553	98.2553	98.2553
2	98.9206	98.9537	99.4475	99.6454	99.8323	99.9108	99.9706	99.9906	99.9999
3	97.9792	98.1251	99.0850	99.5305	99.8942	99.9734	99.9971	99.9995	0.0000
I=1 J=3	97.7937	97.7938	97.7944	97.7945	97.7946	97.7947	97.7947	97.7947	97.7947
2	98.1230	98.1400	98.6145	98.8592	99.2205	99.4886	99.8009	99.9328	99.9931
I=1 J=2	97.0000	97.0000	97.0000	97.0000	97.0000	97.0000	97.0000	97.0000	97.0000
LOG F(I)/F(4)									
I=3	99.8372	99.9665	0.2629	0.3801	0.4978	0.5060	0.4871	0.4769	0.4722
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	99.9762	99.9005	99.6836	99.6347	99.6655	99.6715	99.6622	99.6570	99.6545
6	99.8625	99.6986	99.2768	99.2905	99.3643	99.3707	99.3577	99.3508	99.3477

BALMER DECREMENTS

Table with columns for T = 20000, LOG BETA(1,2) = -4.00, and rows for -LOG W, LOG X, LOG E(I), LOG BN(I), LOG BETA(I,J), and LOG F(I)/F(4) with various numerical values.

(Continued)

Table with columns for T = 20000, LOG BETA(1,2) = -4.00, and rows for -LOG W, LOG X, LOG E(I), LOG BN(I), LOG BETA(I,J), and LOG F(I)/F(4) with various numerical values.

T = 25000									
LOG BETA(1,2) = 1.00					LOG BETA(1,2) = 0.00				
LOG W	0.00	5.00	10.00	0.00	1.00	5.00	10.00	0.00	1.00
LOG X	1.00	6.00	11.00	0.00	1.00	5.00	10.00	0.00	1.00
LOG E(I)									
I=1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	97.1676	92.1923	87.1923	97.3406	96.3706	92.3743	87.3743	97.3406	96.3706
3	97.4536	92.5262	87.5262	97.4730	96.5359	92.5441	87.5441	97.4730	96.5359
4	97.6620	92.7896	87.7896	97.6696	96.7794	92.7944	87.7944	97.6696	96.7794
5	97.8055	92.9843	87.9843	97.8121	96.9641	92.9862	87.9862	97.8121	96.9641
6	97.8991	93.1167	88.1167	97.9045	97.0895	93.1176	88.1176	97.9045	97.0895
+	19.0882	14.0447	9.0447	19.0925	18.0511	14.0447	9.0447	19.0925	18.0511
LOG BN(I)									
I=1	0.1503	5.1938	10.1938	0.1460	1.1875	5.1938	10.1938	0.1460	1.1875
2	98.7719	98.8401	98.8401	98.9406	99.0120	99.0221	99.0221	98.9406	99.0120
3	99.0863	99.2025	99.2025	99.1014	99.2058	99.2203	99.2203	99.1014	99.2058
4	99.1781	99.3492	99.3492	99.1814	99.3527	99.3540	99.3540	99.1814	99.3527
5	99.1894	99.4117	99.4117	99.1917	99.3852	99.4137	99.4137	99.1917	99.3852
6	99.1582	99.4193	99.4193	99.1503	99.3858	99.4202	99.4202	99.1503	99.3858
LOG BETA(I,J)									
I=1 J=6	99.9997	99.9997	99.9997	99.9969	99.9969	99.9969	99.9969	99.9969	99.9969
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	99.9997	0.0000	0.0000	0.0000	99.9997	0.0000
4	99.9998	0.0000	0.0000	99.9978	99.9999	0.0000	0.0000	99.9978	99.9999
5	99.9996	0.0000	0.0000	99.9964	99.9997	0.0000	0.0000	99.9964	99.9997
I=1 J=5	99.9994	99.9994	99.9994	99.9943	99.9943	99.9943	99.9943	99.9943	99.9943
2	0.0000	0.0000	0.0000	99.9999	0.0000	0.0000	0.0000	99.9999	0.0000
3	0.0000	0.0000	0.0000	99.9995	0.0000	0.0000	0.0000	99.9995	0.0000
4	99.9991	0.0000	0.0000	99.9906	99.9998	0.0000	0.0000	99.9906	99.9998
I=1 J=4	99.9988	99.9988	99.9988	99.9880	99.9880	99.9880	99.9880	99.9880	99.9880
2	0.0000	0.0000	0.0000	99.9997	0.0000	0.0000	0.0000	99.9997	0.0000
3	99.9998	0.0000	0.0000	99.9977	0.0000	0.0000	0.0000	99.9977	0.0000
I=1 J=3	99.9965	99.9965	99.9965	99.9656	99.9656	99.9656	99.9656	99.9656	99.9656
2	0.0000	0.0000	0.0000	99.9984	99.9998	0.0000	0.0000	99.9984	99.9998
I=1 J=2	99.9785	99.9785	99.9785	99.8008	99.8008	99.8008	99.8008	99.8008	99.8008
LOG E(I)/F(4)									
I=3	0.3809	0.3260	0.3260	0.3914	0.3457	0.3390	0.3390	0.3914	0.3457
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	99.6713	99.7226	99.7226	99.6705	99.7125	99.7196	99.7196	99.6705	99.7125
6	99.3740	99.4640	99.4640	99.3720	99.4470	99.4601	99.4601	99.3720	99.4470

T = 25000									
LOG BETA(1,2) = -1.00									
-LOG W	0.00	0.50	1.00	2.00	3.00	4.00	5.00	10.00	0.00
LOG X	-1.00	-0.50	0.00	1.00	2.00	3.00	4.00	5.00	10.00
LOG E(I)									
I=1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	96.0447	97.6519	97.1920	96.2098	95.2115	94.2118	93.2119	88.2119	96.0447
3	97.6875	97.1975	96.6865	95.6780	94.6770	93.6766	92.6768	87.6768	97.6875
4	97.7678	97.3162	96.8307	95.8368	94.8374	93.8374	92.8375	87.8375	97.7678
5	97.8931	97.4651	96.9910	96.0029	95.0041	94.0043	93.0043	88.0043	97.8931
6	97.9693	97.5679	97.1064	96.1242	95.1260	94.1262	93.1262	88.1262	97.9693
+	19.1441	18.5853	18.0589	17.0462	16.0449	15.0447	14.0447	9.0447	19.1441
LOG BN(I)									
I=1	0.0945	0.6532	1.1797	2.1924	3.1937	4.1938	5.1938	10.1938	0.0945
2	99.5931	99.7591	99.8257	99.8561	99.8593	99.8596	99.8596	99.8596	99.5931
3	99.2645	99.3332	99.3486	99.3528	99.3531	99.3531	99.3531	99.3531	99.2645
4	99.2280	99.3352	99.3762	99.3949	99.3969	99.3970	99.3971	99.3971	99.2280
5	99.2212	99.3520	99.4043	99.4289	99.4314	99.4317	99.4317	99.4317	99.2212
6	99.1726	99.3299	99.3948	99.4253	99.4285	99.4288	99.4288	99.4288	99.1726
LOG BETA(I,J)									
I=1 J=6	99.9688	99.9688	99.9688	99.9689	99.9689	99.9689	99.9689	99.9689	99.9688
2	99.9961	99.9984	99.9995	99.9999	0.0000	0.0000	0.0000	0.0000	99.9961
3	99.9933	99.9983	99.9996	0.0000	0.0000	0.0000	0.0000	0.0000	99.9933
4	99.9657	99.9914	99.9978	99.9998	0.0000	0.0000	0.0000	0.0000	99.9657
5	99.9478	99.9862	99.9964	99.9997	0.0000	0.0000	0.0000	0.0000	99.9478
I=1 J=5	99.9443	99.9444	99.9444	99.9444	99.9445	99.9445	99.9445	99.9445	99.9443
2	99.9918	99.9967	99.9988	99.9999	0.0000	0.0000	0.0000	0.0000	99.9918
3	99.9830	99.9957	99.9989	99.9999	0.0000	0.0000	0.0000	0.0000	99.9830
4	99.8542	99.9639	99.9910	99.9992	99.9999	0.0000	0.0000	0.0000	99.8542
I=1 J=4	99.8847	99.8848	99.8849	99.8849	99.8849	99.8849	99.8849	99.8849	99.8847
2	99.9763	99.9902	99.9966	99.9996	0.0000	0.0000	0.0000	0.0000	99.9763
3	99.8974	99.9724	99.9929	99.9994	99.9999	0.0000	0.0000	0.0000	99.8974
I=1 J=3	99.6967	99.6970	99.6972	99.6972	99.6973	99.6973	99.6973	99.6973	99.6967
2	99.8481	99.9332	99.9760	99.9975	99.9997	0.0000	0.0000	0.0000	99.8481
I=1 J=2	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000
LOG F(I)/E(4)									
I=3	0.3809	0.4137	0.4246	0.4284	0.4287	0.4287	0.4287	0.4287	0.3809
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	99.6687	99.6832	99.6904	99.6942	99.6946	99.6946	99.6946	99.6946	99.6687
6	99.3582	99.3968	99.4154	99.4246	99.4255	99.4256	99.4256	99.4256	99.3582

T = 25000 LOG BETA(1,2) = -2.00

-LOG W	0.00	1.00	1.50	2.00	2.50	3.00	4.00	5.00	6.00	10.00
LOG X	-2.00	-1.00	-0.50	0.00	0.50	1.00	2.00	3.00	4.00	8.00
LOG E(I)										
I=1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	98.4802	98.0918	97.7202	97.2751	96.7930	96.2984	95.3006	94.3009	93.3009	89.3009
3	98.2628	97.5573	96.9074	96.1621	95.4978	94.9315	93.9016	92.8985	91.8982	87.8982
4	98.2049	97.3321	96.6728	95.0450	95.5097	95.0012	93.9980	92.9977	91.9977	87.9977
5	98.2223	97.3431	96.7081	96.1326	95.6142	95.1092	94.1071	93.1069	92.1069	88.1069
6	98.2522	97.3291	96.7329	96.1999	95.6910	95.1885	94.1872	93.1871	92.1871	88.1871
+	19.2790	18.1270	17.5772	17.0559	16.5485	16.0459	15.0448	14.0447	13.0447	9.0447
LOG BN(I)										
I=1	99.9595	1.1115	1.6613	2.1827	2.6902	3.1927	4.1937	5.1938	6.1938	10.1938
2	99.8936	0.6573	0.8355	0.9118	0.9372	0.9451	0.9483	0.9486	0.9487	0.9487
3	99.7048	0.1512	0.0512	99.8272	99.6705	99.6066	99.5778	99.5748	99.5745	99.5745
4	99.5302	99.8144	99.7000	99.5935	99.5657	99.5596	99.5575	99.5573	99.5573	99.5573
5	99.4154	99.6882	99.6031	99.5488	99.5380	99.5355	99.5344	99.5344	99.5344	99.5344
6	99.3205	99.5494	99.5031	99.4913	99.4900	99.4898	99.4897	99.4897	99.4897	99.4897
LOG BETA(I,J)										
I=1 J=6	99.7206	99.7215	99.7220	99.7222	99.7222	99.7223	99.7223	99.7223	99.7223	99.7223
2	99.8940	99.9535	99.9799	99.9928	99.9976	99.9992	99.9999	0.0000	0.0000	0.0000
3	99.6850	99.9218	99.9825	99.9972	99.9995	99.9999	0.0000	0.0000	0.0000	0.0000
4	99.1207	99.7752	99.9543	99.9919	99.9979	99.9994	0.0000	0.0000	0.0000	0.0000
5	99.1066	99.7448	99.9476	99.9899	99.9972	99.9992	0.0000	0.0000	0.0000	0.0000
I=1 J=5	99.5471	99.5485	99.5491	99.5494	99.5495	99.5495	99.5495	99.5495	99.5495	99.5495
2	99.7893	99.9036	99.9576	99.9846	99.9949	99.9984	99.9998	0.0000	0.0000	0.0000
3	99.3212	99.7869	99.9492	99.9920	99.9986	99.9997	0.0000	0.0000	0.0000	0.0000
4	98.3488	99.1956	99.7659	99.9573	99.9892	99.9967	99.9997	0.0000	0.0000	0.0000
I=1 J=4	99.2508	99.2523	99.2531	99.2534	99.2535	99.2536	99.2536	99.2536	99.2536	99.2536
2	99.4996	99.7393	99.8790	99.9548	99.9849	99.9951	99.9995	0.0000	0.0000	0.0000
3	98.5343	99.1269	99.6824	99.9451	99.9910	99.9980	99.9998	0.0000	0.0000	0.0000
I=1 J=3	98.7923	98.7935	98.7942	98.7945	98.7946	98.7947	98.7947	98.7947	98.7947	98.7947
2	98.7321	99.0463	99.3817	99.7114	99.8948	99.9652	99.9965	99.9996	0.0000	0.0000
I=1 J=2	98.0000	98.0000	98.0000	98.0000	98.0000	98.0000	98.0000	98.0000	98.0000	98.0000
LOG F(I)/F(4)										
I=3	99.8797	0.1165	0.3267	0.4630	0.4873	0.4897	0.4899	0.4899	0.4899	0.4899
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	99.8349	99.6981	99.6481	99.6451	99.6423	99.6391	99.6373	99.6371	99.6371	99.6371
6	99.5786	99.3431	99.2979	99.3297	99.3309	99.3281	99.3265	99.3263	99.3263	99.3263

T = 25000 LOG BETA(1,2) = -3.00

-LOG W	0.00	1.00	2.00	2.50	3.00	3.30	3.70	4.00	4.50	5.00	6.00	7.00	8.00
LOG X	-3.00	-2.00	-1.00	-0.50	0.00	0.30	0.70	1.00	1.50	2.00	3.00	4.00	5.00
LOG E(I)													
I=1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	98.5477	98.4898	98.1111	97.7413	97.2997	97.0161	96.6267	96.3301	95.8321	95.3327	94.3329	93.3330	92.3330
3	98.4081	98.2621	97.5588	96.9071	96.1050	95.5702	94.8150	94.2874	93.5725	92.9928	91.9580	90.9544	89.9541
4	98.4065	98.2009	97.2651	96.4500	95.5156	94.9810	94.4336	94.0967	93.5754	93.0692	92.0666	91.0663	90.0663
5	98.4312	98.1853	97.1221	96.2538	95.3723	94.9540	94.5077	94.1971	93.6908	93.1888	92.1881	91.1880	90.1880
6	98.4583	98.1691	96.9769	96.0558	95.3251	94.9910	94.5766	94.2725	93.7699	93.2680	92.2687	91.2686	90.2686
+	19.3347	18.2781	17.1270	16.5773	16.0559	15.7505	15.3470	15.0459	14.5451	14.0448	13.0447	12.0447	11.0447
LOG BN(I)													
I=1	99.9039	0.9604	2.1115	2.6612	3.1826	3.4881	3.8915	4.1927	4.6935	5.1937	6.1938	7.1938	8.1938
2	99.9055	0.9041	1.6786	1.8565	1.9362	1.9581	1.9722	1.9767	1.9795	1.9804	1.9807	1.9807	1.9807
3	99.7944	0.7050	1.1528	1.0508	0.7700	0.5410	0.1890	99.9625	99.7484	99.6690	99.6342	99.6307	99.6303
4	99.6761	0.5271	0.7404	0.4771	0.0649	99.8349	99.6909	99.6552	99.6347	99.6286	99.6259	99.6259	99.6259
5	99.5686	0.3793	0.4673	0.1487	99.7885	99.6757	99.6328	99.6234	99.6179	99.6162	99.6156	99.6155	99.6155
6	99.4710	0.2383	0.1972	99.8259	99.6165	99.5879	99.5769	99.5740	99.5721	99.5715	99.5713	99.5713	99.5713
LOG BETA(I,J)													
I=1 J=6	98.8347	98.8350	98.8369	98.8376	98.8379	98.8380	98.8381	98.8381	98.8381	98.8382	98.8382	98.8382	98.8382
2	99.2350	99.2749	99.5918	99.8031	99.9247	99.9603	99.9836	99.9917	99.9974	99.9992	99.9999	0.0000	0.0000
3	98.6503	98.7516	99.3808	99.8118	99.9684	99.9909	99.9985	99.9996	99.9999	0.0000	0.0000	0.0000	0.0000
4	97.9231	98.0589	98.8806	99.6134	99.9535	99.9895	99.9979	99.9992	99.9998	99.9999	0.0000	0.0000	0.0000
5	97.8893	98.0321	98.9156	99.6620	99.9653	99.9914	99.9976	99.9989	99.9997	99.9999	0.0000	0.0000	0.0000
I=1 J=5	98.5791	98.5704	98.5811	98.5819	98.5823	98.5824	98.5825	98.5825	98.5825	98.5825	98.5825	98.5825	98.5825
2	98.9216	98.9592	99.3077	99.6202	99.8447	99.9165	99.9653	99.9823	99.9944	99.9982	99.9998	0.0000	0.0000
3	98.2140	98.3090	98.9194	99.5207	99.9052	99.9722	99.9956	99.9989	99.9998	0.0000	0.0000	0.0000	0.0000
4	97.1614	97.2934	98.0854	98.8571	99.7181	99.9329	99.9823	99.9957	99.9989	99.9997	0.0000	0.0000	0.0000
I=1 J=4	98.2521	98.2523	98.2539	98.2547	98.2551	98.2552	98.2552	98.2552	98.2553	98.2553	98.2553	98.2553	98.2553
2	98.4784	98.5099	98.8464	99.2060	99.5975	99.7687	99.8996	99.9482	99.9833	99.9947	99.9995	0.0000	0.0000
3	97.4512	97.5318	98.0912	98.6931	99.4540	99.8022	99.9665	99.9917	99.9989	99.9998	0.0000	0.0000	0.0000
I=1 J=3	97.7921	97.7922	97.7935	97.7942	97.7945	97.7947	97.7947	97.7947	97.7947	97.7947	97.7947	97.7947	97.7947
2	97.6968	97.7187	98.0245	98.3665	98.7918	99.0699	99.4421	99.6702	99.8831	99.9617	99.9961	99.9996	0.0000
I=1 J=2	97.0000	97.0000	97.0000	97.0000	97.0000	97.0000	97.0000	97.0000	97.0000	97.0000	97.0000	97.0000	97.0000
LOG F(I)/F(4)													
I=3	99.8093	99.8593	0.0631	0.2069	0.3721	0.4801	0.5133	0.5020	0.4862	0.4801	0.4774	0.4771	0.4771
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	99.9957	99.9614	99.8481	99.7459	99.6308	99.6487	99.6676	99.6624	99.6543	99.6511	99.6496	99.6496	99.6496
6	99.9453	99.8700	99.5961	99.3398	99.2727	99.3385	99.3640	99.3562	99.3454	99.3412	99.3394	99.3393	99.3392

BALMER DECREMENTS

Table with columns for LOG W, LOG X, LOG E(I), LOG BN(I), LOG BETA(I,J), and LOG F(I)/F(4). Rows represent different spectral lines and transitions, with values for LOG BETA(1,2) ranging from -4.00 to 7.00.

(Continued)

Continuation of the table from the previous block, showing LOG BETA(1,2) values for LOG W, LOG X, LOG E(I), LOG BN(I), LOG BETA(I,J), and LOG F(I)/F(4) for various spectral lines.

(Continued)
T = 25000

LOG BETA0(1,2) = -5.00

-LOG W	5.75	6.00	6.25	6.50	6.75	7.00	7.30	7.70	8.00	9.00	10.00	11.00	12.00
LOG X	0.75	1.00	1.25	1.50	1.75	2.00	2.30	2.70	3.00	4.00	5.00	6.00	7.00
LOG E(I)													
I=1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	96.5798	96.3331	96.0849	95.8360	95.5866	95.3369	95.0872	94.8375	94.5878	93.3373	92.3373	91.3373	90.3373
3	94.7793	94.3035	93.8142	93.3092	92.7942	92.2745	91.7526	91.2259	90.6945	89.0007	87.9652	86.9616	85.9612
4	93.7436	93.0996	92.4537	91.9567	91.5833	91.2551	90.8846	90.4251	90.1014	89.0779	88.0755	87.0752	86.0752
5	93.1187	92.5305	92.1387	91.8278	91.5358	91.2544	90.9294	90.5119	90.2057	89.2000	88.1994	87.1993	86.1993
6	92.7323	92.4051	92.1161	91.8381	91.5675	91.3035	90.9933	90.5868	90.2845	89.2824	88.2822	87.2822	86.2822
+	13.2968	13.0459	12.7954	12.5451	12.2949	12.0448	11.7448	11.3477	11.0447	10.0447	9.0447	8.0447	7.0447
LOG BN(I)													
I=1	5.9418	6.1927	6.4432	6.6935	6.9436	7.1937	7.4938	7.8938	8.1938	9.1938	10.1938	11.1938	12.1938
2	3.9756	3.9797	3.9820	3.9834	3.9842	3.9846	3.9849	3.9850	3.9851	3.9851	3.9851	3.9851	3.9851
3	2.2035	1.9786	1.7398	1.4851	1.2202	0.9506	0.6288	0.2222	99.9807	99.6770	99.6415	99.6379	99.6375
4	1.0512	0.6580	0.2627	0.0160	99.8927	99.8146	99.7441	99.6847	99.6610	99.6375	99.6351	99.6348	99.6348
5	0.2941	99.9568	99.8155	99.7549	99.7131	99.6817	99.6568	99.6394	99.6332	99.6274	99.6268	99.6267	99.6267
6	99.7829	99.7066	99.6681	99.6404	99.6199	99.6059	99.5959	99.5894	99.5871	99.5850	99.5848	99.5848	99.5848
LOG BETA(I,J)													
I=1 J=6	96.8381	96.8381	96.8381	96.8381	96.8382	96.8382	96.8382	96.8382	96.8382	96.8382	96.8382	96.8382	96.8382
2	99.1661	99.4041	99.6094	99.7601	99.8584	99.9182	99.9583	99.9832	99.9992	99.9999	99.9999	99.9999	99.9999
3	99.8524	99.9486	99.9831	99.9947	99.9984	99.9995	99.9999	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	99.8973	99.9771	99.9954	99.9988	99.9996	99.9998	99.9999	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	99.9634	99.9936	99.9982	99.9992	99.9997	99.9998	99.9999	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
I=1 J=5	96.5825	96.5825	96.5825	96.5825	96.5825	96.5825	96.5825	96.5825	96.5825	96.5825	96.5825	96.5825	96.5825
2	98.8364	99.0831	99.3273	99.5478	99.7175	99.8316	99.9125	99.9644	99.9820	99.9982	99.9998	99.9999	99.9999
3	99.5955	99.8448	99.9475	99.9834	99.9949	99.9985	99.9996	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	99.3993	99.8257	99.9651	99.9915	99.9971	99.9988	99.9996	99.9999	0.0000	0.0000	0.0000	0.0000	0.0000
I=1 J=4	96.2552	96.2552	96.2553	96.2553	96.2553	96.2553	96.2553	96.2553	96.2553	96.2553	96.2553	96.2553	96.2553
2	98.3625	98.6102	98.8583	99.1071	99.3513	99.5681	99.7580	99.8971	99.9473	99.9946	99.9995	99.9999	99.9999
3	98.7497	99.2170	99.6383	99.8723	99.9599	99.9880	99.9973	99.9996	99.9999	0.0000	0.0000	0.0000	0.0000
I=1 J=3	95.7947	95.7947	95.7947	95.7947	95.7947	95.7947	95.7947	95.7947	95.7947	95.7947	95.7947	95.7947	95.7947
2	97.5023	97.7479	97.9953	98.2437	98.4929	98.7424	99.0421	99.4301	99.6644	99.9612	99.9961	99.9996	99.9999
I=1 J=2	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000
LOG F(I)/F(4)													
I=3	0.7639	0.9310	1.0867	1.0785	0.9418	0.7830	0.6415	0.5432	0.5095	0.4788	0.4757	0.4754	0.4754
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	99.3759	99.4317	99.6818	99.8396	99.8466	99.7906	99.7271	99.6820	99.6669	99.6534	99.6521	99.6519	99.6519
6	98.9282	99.2364	99.5504	99.6714	99.6281	99.5353	99.4460	99.3847	99.3642	99.3459	99.3441	99.3439	99.3439
T = 30000													
LOG BETA0(1,2) = 1.00													
-LOG W	0.00	5.00	10.00										
LOG X	1.00	6.00	11.00										
LOG E(I)													
I=1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
2	97.6750	92.7111	87.7111	97.8430	96.8874	95.8924	92.8930	87.8930					
3	97.9445	93.0384	88.0384	97.9654	97.0455	96.0551	93.0562	88.0562					
4	98.1397	93.2964	88.2964	98.1487	97.2821	96.2993	93.3012	88.3012					
5	98.2748	93.4880	88.4880	98.2852	97.4625	96.4871	93.4899	88.4899					
6	98.3618	93.6169	88.6169	98.3699	97.5835	96.6142	93.6178	88.6178					
+	19.6797	14.6272	9.6272	19.6858	18.6354	17.6281	14.6272	9.6272					
LOG BN(I)													
I=1	0.1345	5.1870	10.1870	0.1284	1.1788	2.1861	5.1870	10.1870					
2	98.9207	99.0093	99.0093	99.0827	99.1775	99.1898	99.1912	99.1912					
3	99.1553	99.3017	99.3017	99.1701	99.3007	99.3176	99.3195	99.3195					
4	99.2118	99.4209	99.4209	99.2146	99.3985	99.4230	99.4258	99.4258					
5	99.2044	99.4701	99.4701	99.2087	99.4364	99.4683	99.4720	99.4720					
6	99.1610	99.4686	99.4686	99.1630	99.4270	99.4650	99.4695	99.4695					
LOG BETA(I,J)													
I=1 J=6	99.9997	99.9997	99.9997	99.9997	99.9997	99.9997	99.9997	99.9997	99.9997				
2	0.0000	0.0000	0.0000	99.9998	0.0000	0.0000	0.0000	0.0000					
3	99.9999	0.0000	0.0000	99.9991	0.0000	0.0000	0.0000	0.0000					
4	99.9993	0.0000	0.0000	99.9926	99.9996	0.0000	0.0000	0.0000					
5	99.9989	0.0000	0.0000	99.9881	99.9991	99.9999	0.0000	0.0000					
I=1 J=5	99.9994	99.9994	99.9994	99.9943	99.9943	99.9943	99.9943	99.9943					
2	0.0000	0.0000	0.0000	99.9997	0.0000	0.0000	0.0000	0.0000					
3	99.9998	0.0000	0.0000	99.9941	99.9999	0.0000	0.0000	0.0000					
4	99.9968	0.0000	0.0000	99.9689	99.9989	0.0000	0.0000	0.0000					
I=1 J=4	99.9988	99.9988	99.9988	99.9880	99.9880	99.9880	99.9880	99.9880					
2	0.0000	0.0000	0.0000	99.9991	99.9999	0.0000	0.0000	0.0000					
3	99.9993	0.0000	0.0000	99.9911	99.9998	0.0000	0.0000	0.0000					
I=1 J=3	99.9965	99.9965	99.9965	99.9656	99.9656	99.9656	99.9656	99.9656					
2	0.0000	0.0000	0.0000	99.9948	99.9995	0.0000	0.0000	0.0000					
I=1 J=2	99.9785	99.9785	99.9785	99.8008	99.8008	99.8008	99.8008	99.8008					
LOG F(I)/F(4)													
I=3	0.3940	0.3313	0.3313	0.4017	0.3523	0.3452	0.3443	0.3443					
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					
5	99.6629	99.7195	99.7195	99.6650	99.7083	99.7156	99.7165	99.7165					
6	99.3590	99.4574	99.4574	99.3589	99.4383	99.4519	99.4535	99.4535					

BALMER DECREMENTS

T = 30000 LOG BETA(1,2) = -1.00										
-LOG W	0.00	1.00	1.50	2.00	2.50	3.00	4.00	5.00	10.00	
LOG X	-1.00	0.00	0.50	1.00	1.50	2.00	3.00	4.00	9.00	
LOG E(I)										
I=1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
2	98.4759	97.6952	97.2186	96.7263	96.2288	95.7295	94.7299	93.7299	88.7299	
3	98.2249	97.2242	96.7024	96.1934	95.6903	95.1893	94.1889	93.1889	88.1889	
4	98.2833	97.3430	96.8437	96.3441	95.8442	95.3442	94.3443	93.3443	88.3443	
5	98.3984	97.4983	97.0047	96.5069	96.0076	95.5079	94.5079	93.5080	88.5080	
6	98.4621	97.6066	97.1199	96.6244	96.1258	95.6263	94.6264	93.6265	88.6265	
+	19.7496	18.6468	18.1337	17.6293	17.1279	16.6276	15.6272	14.6272	9.6272	
LOG BN(I)										
I=1	0.0646	1.1674	1.6805	2.1849	2.6863	3.1868	4.1870	5.1870	10.1870	
2	99.6518	99.9799	99.9114	99.8225	99.7264	99.6275	99.5281	99.4282	99.0282	
3	99.3659	99.4680	99.4562	99.4547	99.4530	99.4525	99.4522	99.4522	99.4522	
4	99.2854	99.4480	99.4617	99.4665	99.4681	99.4686	99.4688	99.4688	99.4688	
5	99.2581	99.4608	99.4803	99.4869	99.4890	99.4897	99.4900	99.4900	99.4900	
6	99.1914	99.4387	99.4651	99.4740	99.4768	99.4777	99.4781	99.4781	99.4781	
LOG BETA(I,J)										
I=1 J=6	99.9687	99.9688	99.9688	99.9689	99.9689	99.9689	99.9689	99.9689	99.9689	
2	99.9896	99.9982	99.9994	99.9998	99.9999	0.0000	0.0000	0.0000	0.0000	
3	99.9751	99.9983	99.9995	99.9999	0.0000	0.0000	0.0000	0.0000	0.0000	
4	99.8777	99.9918	99.9977	99.9993	99.9998	99.9999	0.0000	0.0000	0.0000	
5	99.8197	99.9865	99.9962	99.9989	99.9996	99.9999	0.0000	0.0000	0.0000	
I=1 J=5	99.9441	99.9444	99.9444	99.9444	99.9444	99.9445	99.9445	99.9445	99.9445	
2	99.9784	99.9963	99.9988	99.9996	99.9999	0.0000	0.0000	0.0000	0.0000	
3	99.9367	99.9955	99.9988	99.9997	99.9999	0.0000	0.0000	0.0000	0.0000	
4	99.5422	99.9668	99.9909	99.9973	99.9991	99.9997	0.0000	0.0000	0.0000	
I=1 J=4	99.8842	99.8848	99.8849	99.8849	99.8849	99.8849	99.8849	99.8849	99.8849	
2	99.9389	99.9891	99.9963	99.9988	99.9996	99.9999	0.0000	0.0000	0.0000	
3	99.6539	99.9707	99.9925	99.9978	99.9993	99.9998	0.0000	0.0000	0.0000	
I=1 J=3	99.6958	99.6970	99.6972	99.6972	99.6972	99.6973	99.6973	99.6973	99.6973	
2	99.6531	99.9259	99.9744	99.9916	99.9973	99.9992	99.9999	0.0000	0.0000	
I=1 J=2	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	
LOG F(I)/F(4)										
I=3	0.2452	0.4074	0.4260	0.4315	0.4332	0.4337	0.4339	0.4340	0.4340	
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
5	99.6826	99.6903	99.6913	99.6915	99.6915	99.6915	99.6915	99.6915	99.6915	
6	99.3664	99.4096	99.4162	99.4182	99.4188	99.4190	99.4191	99.4191	99.4191	
T = 30000 LOG BETA(1,2) = -2.00										
-LOG W	0.00	1.00	2.00	2.50	3.00	3.50	4.00	5.00	6.00	10.00
LOG X	-2.00	-1.00	0.00	0.50	1.00	1.50	2.00	3.00	4.00	8.00
LOG E(I)										
I=1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	98.8123	98.4932	97.7565	97.2980	96.8116	96.3156	95.8168	94.8173	93.8174	89.8174
3	98.6846	98.1520	96.9383	96.1916	95.5120	94.9438	94.4206	93.4107	92.4097	88.4096
4	98.6720	97.9897	96.6836	96.1506	95.5156	95.0075	94.5053	93.5044	92.5043	88.5043
5	98.6925	97.9732	96.7095	96.1337	95.6169	95.1125	94.6112	93.6106	92.6106	88.6105
6	98.7250	97.9729	96.7270	96.1972	95.6903	95.1883	94.6876	93.6876	92.6876	88.6874
+	19.8695	18.7308	17.6434	17.1326	16.6289	16.1278	15.6274	14.6272	13.6272	9.6272
LOG BN(I)										
I=1	99.9447	1.0834	2.1708	2.6816	3.1852	3.6864	4.1868	5.1870	6.1870	10.1870
2	99.8683	0.6879	1.0386	1.0909	1.1081	1.1133	1.1149	1.1155	1.1156	1.1156
3	99.7057	0.3118	0.1854	99.9396	99.7736	99.7066	99.6838	99.6741	99.6731	99.6730
4	99.5543	0.0107	99.7920	99.6697	99.6384	99.6315	99.6297	99.6289	99.6289	99.6289
5	99.4323	99.8517	99.6754	99.6104	99.5973	99.5940	99.5931	99.5927	99.5926	99.5926
6	99.3344	99.7210	99.5625	99.5435	99.5402	99.5394	99.5391	99.5390	99.5390	99.5390
LOG BETA(I,J)										
I=1 J=6	99.7187	99.7204	99.7219	99.7222	99.7222	99.7223	99.7223	99.7223	99.7223	99.7223
2	99.7873	99.8873	99.9782	99.9924	99.9975	99.9992	99.9997	0.0000	0.0000	0.0000
3	99.3608	99.7245	99.9809	99.9971	99.9995	99.9999	0.0000	0.0000	0.0000	0.0000
4	98.6556	99.2785	99.9513	99.9915	99.9978	99.9993	99.9998	0.0000	0.0000	0.0000
5	98.6402	99.2760	99.9450	99.9895	99.9971	99.9991	99.9997	0.0000	0.0000	0.0000
I=1 J=5	99.5445	99.5470	99.5490	99.5493	99.5495	99.5495	99.5495	99.5495	99.5495	99.5495
2	99.6035	99.7749	99.9539	99.9837	99.9947	99.9983	99.9995	99.9999	0.0000	0.0000
3	98.9252	99.3745	99.9445	99.9915	99.9985	99.9997	99.9999	0.0000	0.0000	0.0000
4	97.8842	98.5030	99.7503	99.9552	99.9887	99.9966	99.9989	99.9999	0.0000	0.0000
I=1 J=4	99.2479	99.2505	99.2530	99.2534	99.2535	99.2536	99.2536	99.2536	99.2536	99.2536
2	99.2098	99.4657	99.8689	99.9524	99.9843	99.9949	99.9984	99.9998	0.0000	0.0000
3	98.1577	98.5632	99.6567	99.9413	99.9905	99.9979	99.9994	0.0000	0.0000	0.0000
I=1 J=3	98.7900	98.7920	98.7941	98.7945	98.7946	98.7947	98.7947	98.7947	98.7947	98.7947
2	98.4347	98.6809	99.3473	99.6980	99.8904	99.9638	99.9884	99.9988	99.9999	0.0000
I=1 J=2	98.0000	98.0000	98.0000	98.0000	98.0000	98.0000	98.0000	98.0000	98.0000	98.0000
LOG F(I)/F(4)										
I=3	99.8269	99.9668	0.3224	0.4660	0.4919	0.4945	0.4947	0.4947	0.4947	0.4947
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	99.9420	99.8205	99.6388	99.6423	99.6306	99.6362	99.6348	99.6341	99.6341	99.6341
6	99.7674	99.5416	99.2896	99.3235	99.3248	99.3219	99.3206	99.3200	99.3199	99.3199

BALMER DECREMENTS

Table with columns for LOG BETA(1,2) = -4.00 and LOG BETA(1,2) = -5.00. Rows include LOG W, LOG X, LOG E(I), LOG BN(I), LOG BETA(I,J), and LOG F(I)/F(4).

Table with columns for LOG BETA(1,2) = -5.00. Rows include LOG W, LOG X, LOG E(I), LOG BN(I), LOG BETA(I,J), and LOG F(I)/F(4).

T = 35000		LOG BETA0(1,2) = 1.00				LOG BETA(1,2) = 0.00				
-LOG W	0.00	1.00	5.00	10.00	0.00	1.00	2.00	5.00	10.00	
LOG X	1.00	2.00	6.00	11.00	0.00	1.00	2.00	5.00	10.00	
LOG E(I)										
I=1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
2	98.0410	97.0841	93.0897	88.0897	98.2035	97.2638	96.2707	93.2715	88.2715	
3	98.2965	97.3974	93.4114	88.4114	98.3193	97.4161	96.4279	93.4292	88.4292	
4	98.4811	97.6415	93.6655	88.6655	98.4917	97.6470	96.6679	93.6703	88.6703	
5	98.6085	97.8195	93.8533	88.8533	98.6240	97.8228	96.8518	93.8552	88.8552	
6	98.6907	97.9383	93.9801	88.9801	98.7023	97.9406	96.9767	93.9809	88.9810	
+	20.1217	19.0699	15.0609	10.0609	20.1295	19.0709	18.0620	15.0609	10.0609	
LOG BN(I)										
I=1	0.1194	1.1712	5.1801	10.1801	0.1116	1.1702	2.1791	5.1801	10.1801	
2	99.0269	99.1218	99.1363	99.1363	99.1815	99.3005	99.3163	99.3181	99.3181	
3	99.2021	99.3549	99.3779	99.3779	99.2172	99.3726	99.3933	99.3957	99.3957	
4	99.2319	99.4442	99.4771	99.4771	99.2348	99.4486	99.4785	99.4819	99.4819	
5	99.2096	99.4723	99.5151	99.5151	99.2172	99.4746	99.5126	99.5170	99.5170	
6	99.1573	99.4567	99.5074	99.5074	99.1611	99.4580	99.5030	99.5083	99.5083	
LOG BETA(I,J)										
I=1 J=6	99.9997	99.9997	99.9997	99.9997	99.9968	99.9969	99.9999	99.9969	99.9969	
2	0.0000	0.0000	0.0000	0.0000	99.9996	0.0000	0.0000	0.0000	0.0000	
3	99.9998	0.0000	0.0000	0.0000	99.9978	99.9999	0.0000	0.0000	0.0000	
4	99.9983	99.9999	0.0000	0.0000	99.9826	99.9989	99.9999	0.0000	0.0000	
5	99.9974	99.9998	0.0000	0.0000	99.9722	99.9977	99.9998	0.0000	0.0000	
I=1 J=5	99.9994	99.9994	99.9994	99.9994	99.9943	99.9943	99.9943	99.9943	99.9943	
2	0.0000	0.0000	0.0000	0.0000	99.9992	99.9999	0.0000	0.0000	0.0000	
3	99.9996	0.0000	0.0000	0.0000	99.9953	99.9998	0.0000	0.0000	0.0000	
4	99.9923	99.9997	0.0000	0.0000	99.9278	99.9967	99.9998	0.0000	0.0000	
I=1 J=4	99.9988	99.9988	99.9988	99.9988	99.9880	99.9880	99.9880	99.9880	99.9880	
2	99.9999	0.0000	0.0000	0.0000	99.9980	99.9998	0.0000	0.0000	0.0000	
3	99.9981	0.0000	0.0000	0.0000	99.9770	99.9993	0.0000	0.0000	0.0000	
I=1 J=3	99.9965	99.9965	99.9965	99.9965	99.9656	99.9656	99.9656	99.9656	99.9656	
2	99.9996	0.0000	0.0000	0.0000	99.9879	99.9988	99.9999	0.0000	0.0000	
I=1 J=2	99.99785	99.99785	99.99785	99.99785	99.8008	99.8008	99.8008	99.8008	99.8008	
LOG F(I)/F(4)										
I=3	0.4044	0.3452	0.3353	0.3353	0.4068	0.3574	0.3492	0.3483	0.3483	
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
5	99.6553	99.7058	99.7157	99.7157	99.6614	99.7037	99.7117	99.7128	99.7128	
6	99.3466	99.4336	99.4515	99.4515	99.3491	99.4306	99.4457	99.4475	99.4475	

T = 35000		LOG BETA0(1,2) = -1.00								
-LOG W	0.00	1.00	1.50	2.00	2.50	3.00	4.00	5.00	10.00	
LOG X	-1.00	0.00	0.50	1.00	1.50	2.00	3.00	4.00	9.00	
LOG E(I)										
I=1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
2	98.7711	98.0528	97.5895	97.1020	96.6060	96.1073	95.1079	94.1079	89.1079	
3	98.6001	97.6349	97.0933	96.5729	96.0654	95.5630	94.5619	93.5618	88.5618	
4	98.6524	97.7257	97.2168	96.7142	96.2136	95.7134	94.7133	93.7133	88.7133	
5	98.7543	97.8743	97.3733	96.8732	96.3732	95.8733	94.8733	93.8733	88.8733	
6	98.8177	97.9738	97.4841	96.9878	96.4890	95.9894	94.9896	93.9896	88.9896	
+	20.2009	19.0861	18.5694	18.0636	17.5618	17.0612	16.0609	15.0609	10.0609	
LOG BN(I)										
I=1	0.0401	1.1550	1.6717	2.1774	2.6793	3.1799	4.1801	5.1801	10.1801	
2	99.6777	0.0782	0.1276	0.1459	0.1518	0.1537	0.1545	0.1546	0.1546	
3	99.4265	99.5761	99.5513	99.5366	99.5310	99.5291	99.5283	99.5283	99.5282	
4	99.3240	99.5121	99.5199	99.5231	99.5243	99.5247	99.5249	99.5249	99.5249	
5	99.2762	99.5110	99.5266	99.5323	99.5342	99.5348	99.5350	99.5351	99.5351	
6	99.2050	99.4760	99.5030	99.5125	99.5155	99.5165	99.5169	99.5170	99.5170	
LOG BETA(I,J)										
I=1 J=6	99.9685	99.9688	99.9688	99.9689	99.9689	99.9689	99.9689	99.9689	99.9689	
2	99.9797	99.9960	99.9986	99.9995	99.9999	0.0000	0.0000	0.0000	0.0000	
3	99.9394	99.9949	99.9987	99.9997	99.9999	0.0000	0.0000	0.0000	0.0000	
4	99.7171	99.9772	99.9941	99.9983	99.9995	99.9998	0.0000	0.0000	0.0000	
5	99.6269	99.9630	99.9904	99.9972	99.9991	99.9997	0.0000	0.0000	0.0000	
I=1 J=5	99.9438	99.9443	99.9444	99.9444	99.9444	99.9444	99.9445	99.9445	99.9445	
2	99.9585	99.9916	99.9971	99.9991	99.9997	99.9999	0.0000	0.0000	0.0000	
3	99.8472	99.9866	99.9968	99.9991	99.9997	99.9999	0.0000	0.0000	0.0000	
4	99.1405	99.9079	99.9757	99.9928	99.9978	99.9993	99.9999	0.0000	0.0000	
I=1 J=4	99.8836	99.8847	99.8848	99.8849	99.8849	99.8849	99.8849	99.8849	99.8849	
2	99.8855	99.9755	99.9914	99.9972	99.9991	99.9997	0.0000	0.0000	0.0000	
3	99.3324	99.9133	99.9789	99.9944	99.9984	99.9995	0.0000	0.0000	0.0000	
I=1 J=3	99.6945	99.6966	99.6970	99.6972	99.6972	99.6972	99.6973	99.6973	99.6973	
2	99.4430	99.8409	99.9410	99.9803	99.9937	99.9980	99.9998	0.0000	0.0000	
I=1 J=2	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	
LOG F(I)/F(4)										
I=3	0.0945	0.3639	0.4155	0.4311	0.4358	0.4372	0.4378	0.4378	0.4378	
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
5	99.7028	99.6926	99.6900	99.6887	99.6881	99.6879	99.6878	99.6878	99.6878	
6	99.3964	99.4054	99.4115	99.4129	99.4131	99.4132	99.4132	99.4132	99.4132	

BALMER DECREMENTS

(Continued)
T = 35000
LOG BETA0(1,2) = -5.00
Table with columns for -LOG W, LOG X, LOG E(I), LOG BN(I), LOG BETA(I,J), and LOG F(I)/F(4).

T = 40000
LOG BETA0(1,2) = 1.00
LOG BETA0(1,2) = 0.00
Table with columns for -LOG W, LOG X, LOG E(I), LOG BN(I), LOG BETA(I,J), and LOG F(I)/F(4).

T = 40000 LOG BETA0(1,2) = -1.00

-LOG W	0.00	0.50	1.00	1.50	2.00	3.00	4.00	5.00	10.00
LOG X	-1.00	-0.50	0.00	0.50	1.00	2.00	3.00	4.00	9.00
LOG E(I)									
I=1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	98.4857	98.7004	98.3159	97.8673	97.3861	96.3943	95.3951	94.3952	89.3952
3	98.8673	98.4745	97.9563	97.4005	96.8654	95.8466	94.8445	93.8443	88.8443
4	98.9200	98.5305	98.0266	97.5037	96.9955	95.9929	94.9927	93.9926	88.9926
5	99.0124	98.6533	98.1685	97.6558	97.1516	96.1500	95.1498	94.1498	89.1498
6	99.0777	98.7294	98.2579	97.7614	97.2632	96.2641	95.2642	94.2642	89.2642
+	20.5503	19.9758	19.4281	18.9078	18.4007	17.3977	16.3974	15.3973	10.3973
LOG EN(I)									
I=1	0.0225	0.5969	1.1447	1.6649	2.1720	3.1751	4.1754	5.1754	10.1754
2	99.6910	99.9801	0.1434	0.2150	0.2409	0.2521	0.2533	0.2534	0.2534
3	99.4585	99.6402	99.6697	99.6341	99.6061	99.5904	99.5886	99.5884	99.5884
4	99.3445	99.5295	99.5732	99.5707	99.5696	99.5700	99.5701	99.5701	99.5701
5	99.2817	99.4990	99.5599	99.5676	99.5704	99.5718	99.5720	99.5720	99.5720
6	99.2095	99.4358	99.5120	99.5357	99.5446	99.5486	99.5490	99.5490	99.5490
LOG BETA(I,J)									
I=1 J=6	99.9682	99.9675	99.9687	99.9688	99.9688	99.9689	99.9689	99.9689	99.9689
2	99.9671	99.9827	99.9927	99.9974	99.9991	99.9999	0.0000	0.0000	0.0000
3	99.8878	99.9572	99.9882	99.9972	99.9993	99.9999	0.0000	0.0000	0.0000
4	99.5178	99.8099	99.9487	99.9874	99.9965	99.9997	0.0000	0.0000	0.0000
5	99.4208	99.7204	99.9170	99.9795	99.9943	99.9995	0.0000	0.0000	0.0000
I=1 J=5	99.9433	99.9439	99.9442	99.9444	99.9444	99.9444	99.9445	99.9445	99.9445
2	99.9333	99.9643	99.9847	99.9945	99.9982	99.9998	0.0000	0.0000	0.0000
3	99.7254	99.8913	99.9693	99.9927	99.9982	99.9998	0.0000	0.0000	0.0000
4	98.8311	99.3690	99.8009	99.9485	99.9852	99.9986	99.9999	0.0000	0.0000
I=1 J=4	99.8828	99.8838	99.8844	99.8848	99.8849	99.8849	99.8849	99.8849	99.8849
2	99.8214	99.8997	99.9559	99.9838	99.9946	99.9995	99.9999	0.0000	0.0000
3	99.0654	99.4548	99.8080	99.9520	99.9881	99.9990	99.9999	0.0000	0.0000
I=1 J=3	99.6930	99.6948	99.6962	99.6968	99.6971	99.6972	99.6973	99.6973	99.6973
2	99.2603	99.4869	99.7314	99.8916	99.9624	99.9961	99.9996	0.0000	0.0000
3	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000
LOG F(I)/F(4)									
I=3	99.9756	0.1205	0.2946	0.3939	0.4271	0.4397	0.4409	0.4410	0.4410
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	99.7321	99.7172	99.6986	99.6906	99.6874	99.6853	99.6851	99.6850	99.6850
6	99.4403	99.4188	99.4051	99.4081	99.4091	99.4086	99.4085	99.4085	99.4085

T = 40000 LOG BETA0(1,2) = -2.00

-LOG W	0.00	1.00	2.00	2.50	3.00	3.50	4.00	5.00	6.00	7.00	10.00
LOG X	-2.00	-1.00	0.00	0.50	1.00	1.50	2.00	3.00	4.00	5.00	8.00
LOG E(I)											
I=1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	99.2204	98.9770	98.3361	97.9149	97.4578	96.9736	96.4782	95.4800	94.4802	93.4802	90.4802
3	99.1765	98.8040	97.8424	97.1765	96.4192	95.7074	95.1131	94.0692	93.0647	92.0643	89.0642
4	99.2005	98.7422	97.5908	96.8953	96.2245	95.6687	95.1568	94.1528	93.1524	92.1524	89.1524
5	99.2338	98.7284	97.5559	96.8934	96.2867	95.7609	95.2549	94.2526	93.2523	92.2523	89.2523
6	99.2696	98.7437	97.5196	96.8807	96.3371	95.8284	95.3261	94.3252	93.3251	92.3251	89.3251
+	20.6420	19.5293	18.4231	17.9064	17.4003	16.8983	16.3976	15.3974	14.3973	13.3973	10.3973
LOG EN(I)											
I=1	99.9307	1.0434	2.1496	2.6664	3.1724	3.6744	4.1751	5.1754	6.1754	7.1754	10.1754
2	99.8339	0.7031	1.1685	1.2640	1.3129	1.3308	1.3361	1.3382	1.3384	1.3384	1.3384
3	99.6759	0.4162	0.5607	0.4116	0.1603	99.9505	99.8569	99.8133	99.8088	99.8084	99.8083
4	99.5332	0.1876	0.1424	99.9637	99.7939	99.7452	99.7339	99.7302	99.7298	99.7298	99.7298
5	99.4113	0.0186	99.9523	99.8066	99.7059	99.6821	99.6768	99.6747	99.6745	99.6745	99.6745
6	99.3097	99.8965	99.7786	99.6565	99.6189	99.6122	99.6106	99.6100	99.6099	99.6099	99.6099
LOG BETA(I,J)											
I=1 J=6	99.7132	99.7168	99.7210	99.7218	99.7221	99.7222	99.7222	99.7223	99.7223	99.7223	99.7223
2	99.5359	99.6933	99.9192	99.9686	99.9890	99.9964	99.9988	99.9999	0.0000	0.0000	0.0000
3	98.8854	99.2102	99.8487	99.9661	99.9946	99.9991	99.9998	0.0000	0.0000	0.0000	0.0000
4	98.1327	98.5355	99.5968	99.9125	99.9857	99.9966	99.9990	99.9999	0.0000	0.0000	0.0000
5	98.0977	98.5531	99.5816	99.9032	99.9833	99.9957	99.9987	99.9999	0.0000	0.0000	0.0000
I=1 J=5	99.5372	99.5419	99.5477	99.5488	99.5493	99.5494	99.5495	99.5495	99.5495	99.5495	99.5495
2	99.2542	99.4551	99.8352	99.9342	99.9766	99.9923	99.9975	99.9998	0.0000	0.0000	0.0000
3	98.4534	98.7603	99.6106	99.9026	99.9841	99.9975	99.9995	0.0000	0.0000	0.0000	0.0000
4	97.3717	97.7480	98.8752	99.5817	99.9230	99.9826	99.9949	99.9995	0.0000	0.0000	0.0000
I=1 J=4	99.2398	99.2449	99.2514	99.2527	99.2533	99.2535	99.2536	99.2536	99.2536	99.2536	99.2536
2	98.8230	99.0241	99.5822	99.8161	99.9319	99.9772	99.9927	99.9993	99.9999	0.0000	0.0000
3	97.7032	97.9820	98.8256	99.4639	99.8910	99.9833	99.9967	99.9997	0.0000	0.0000	0.0000
I=1 J=3	98.7836	98.7874	98.7927	98.7939	98.7944	98.7946	98.7947	98.7947	98.7947	98.7947	98.7947
2	98.0635	98.2457	98.8075	99.1993	99.5930	99.8443	99.9477	99.9946	99.9995	99.9999	0.0000
3	98.0000	98.0000	98.0000	98.0000	98.0000	98.0000	98.0000	98.0000	98.0000	98.0000	98.0000
LOG F(I)/F(4)											
I=3	99.8058	99.8728	0.0663	0.2538	0.4452	0.4951	0.5007	0.5012	0.5012	0.5012	0.5012
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	99.9924	99.9450	99.7460	99.6441	99.6347	99.6351	99.6308	99.6281	99.6278	99.6278	99.6278
6	99.9189	99.8077	99.4027	99.2749	99.3066	99.3157	99.3124	99.3100	99.3097	99.3097	99.3097

T = 40000												
LOG BETA(1,2) = -3.00												
-LOG W	0.00	1.00	2.00	3.00	4.00	4.50	5.00	6.00	7.00	8.00	9.00	10.00
LOG X	-3.00	-2.00	-1.00	0.00	1.00	1.50	2.00	3.00	4.00	5.00	6.00	7.00
LOG E(I)												
I=1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	99.2598	99.2197	98.9764	98.7467	97.4779	96.9995	96.5078	95.5103	94.5105	93.5106	92.5106	91.5106
3	99.2359	99.1757	98.9018	97.8398	96.3983	95.5177	94.5786	93.1768	92.1249	91.1196	90.1190	89.1190
4	99.2256	99.1996	98.7398	97.5619	95.8297	94.9172	94.2671	93.2246	92.2208	91.2205	90.2204	89.2204
5	99.2153	99.2299	98.7105	97.4206	95.6275	94.8896	94.3461	93.3344	92.3334	91.3333	90.3332	89.3332
6	99.3531	99.2561	98.6804	97.2705	95.4958	94.9234	94.4412	93.4071	92.4067	91.4067	90.4067	89.4067
+	20.6666	19.6413	18.5283	17.4233	16.4004	15.8983	15.3977	14.3974	13.3973	12.3973	11.3973	10.3973
LOG BH(I)												
I=1	99.9062	0.9314	2.0445	3.1495	4.1724	4.6744	5.1751	6.1754	7.1754	8.1754	9.1754	10.1754
2	99.8487	0.8339	2.2037	2.1789	2.3330	2.3667	2.3654	2.3685	2.3687	2.3687	2.3687	2.3687
3	99.7108	0.6758	1.4150	1.5580	1.1394	0.7609	0.3224	99.9209	99.8690	99.8637	99.8632	99.8631
4	99.5818	0.5330	1.1863	1.1135	0.4041	99.9937	99.8442	99.8020	99.7983	99.7979	99.7979	99.7979
5	99.4682	0.4081	1.0018	0.8168	0.0466	99.8108	99.7680	99.7566	99.7556	99.7554	99.7554	99.7554
6	99.3687	0.2970	0.8343	0.5294	99.7775	99.7072	99.6957	99.6919	99.6915	99.6915	99.6915	99.6915
LOG BETA(I,J)												
I=1 J=6	98.8207	98.8219	98.8283	98.8398	98.8378	98.8380	98.8381	98.8382	98.8382	98.8382	98.8382	98.8382
2	98.5310	98.5643	98.7848	99.3932	99.8883	99.9617	99.9875	99.9987	99.9999	0.0000	0.0000	0.0000
3	97.8355	97.8806	98.1977	99.1069	99.9381	99.9920	99.9992	0.0000	0.0000	0.0000	0.0000	0.0000
4	97.0693	97.1203	97.4943	98.5792	99.8961	99.9909	99.9986	99.9999	0.0000	0.0000	0.0000	0.0000
5	97.0207	97.0734	97.4726	98.6112	99.9210	99.9924	99.9983	99.9998	0.0000	0.0000	0.0000	0.0000
I=1 J=5	98.5659	98.5671	98.5730	98.5801	98.5822	98.5824	98.5825	98.5825	98.5825	98.5825	98.5825	98.5825
2	98.2237	98.2560	98.4689	99.0755	99.7738	99.9196	99.9735	99.9973	99.9997	0.0000	0.0000	0.0000
3	97.4083	97.4520	97.7559	98.6401	99.8196	99.9753	99.9953	99.9999	0.0000	0.0000	0.0000	0.0000
4	96.3160	96.3659	96.7261	97.7853	99.4578	99.9417	99.9923	99.9995	0.0000	0.0000	0.0000	0.0000
I=1 J=4	98.2402	98.2412	98.2464	98.2530	98.2549	98.2552	98.2552	98.2553	98.2553	98.2553	98.2553	98.2553
2	97.7931	97.8236	98.0245	98.6124	99.4529	99.7764	99.9229	99.9920	99.9992	0.0000	0.0000	0.0000
3	96.6630	96.7038	96.9841	97.8165	99.1783	99.8223	99.9815	99.9996	0.0000	0.0000	0.0000	0.0000
I=1 J=3	97.7829	97.7836	97.7874	97.7926	97.7944	97.7946	97.7947	97.7947	97.7947	97.7947	97.7947	97.7947
2	97.0365	97.0641	97.2457	97.7948	98.6174	99.0859	99.5426	99.9428	99.9942	99.9994	99.9999	0.0000
I=1 J=2	97.0000	97.0000	97.0000	97.0000	97.0000	97.0000	97.0000	97.0000	97.0000	97.0000	97.0000	97.0000
LOG F(I)/F(4)												
I=3	99.7949	99.8060	99.8725	0.0496	0.3224	0.4993	0.5206	0.4924	0.4884	0.4880	0.4879	0.4879
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	99.9905	99.9430	99.8496	99.6466	99.6434	99.6575	99.6430	99.6409	99.6407	99.6407	99.6407
6	99.9543	99.9342	99.8378	99.6262	99.2384	99.3283	99.3456	99.3261	99.3235	99.3232	99.3232	99.3232
T = 40000												
LOG BETA(1,2) = -4.00												
-LOG W	0.00	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	
LOG X	-4.00	-3.00	-2.00	-1.00	0.00	1.00	1.30	1.70	2.00	2.50	3.00	5.00
LOG E(I)												
I=1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	99.2642	99.2598	99.2197	98.9764	98.3468	97.4789	97.1944	96.8057	96.5100	96.0131	95.5140	94.5143
3	99.2425	99.2359	99.1757	98.8018	97.8397	96.4061	95.8976	95.1722	94.5956	93.5850	92.5997	91.1842
4	99.2817	99.2736	99.1996	98.7398	97.5619	95.8040	95.1765	94.2695	93.6057	92.8457	92.2677	90.2288
5	99.3246	99.3153	99.2299	98.7105	97.4203	95.4846	94.7763	93.8962	93.4447	92.8742	92.3533	90.3435
6	99.3637	99.3531	99.2561	98.6804	97.2670	95.0590	94.3747	93.7919	93.4235	92.9501	92.4225	90.4190
+	20.6695	19.6666	18.6413	17.5282	16.4233	15.4004	15.0989	14.6980	14.3977	13.8974	13.3974	12.3973
LOG BH(I)												
I=1	99.9033	0.9062	1.9314	3.0445	4.1495	5.1723	5.4739	5.8748	6.1751	6.6753	7.1754	9.1754
2	99.8503	0.8487	1.8339	2.7036	3.1790	3.3340	3.3510	3.3633	3.3679	3.3712	3.3721	3.3725
3	99.7144	0.7108	1.6758	2.4150	2.5579	2.1475	1.9402	1.6157	1.3393	0.8290	0.3438	99.9283
4	99.5870	0.5818	1.5330	2.1863	2.1134	1.3783	1.0523	0.5463	0.1829	99.9231	99.8451	99.8100
5	99.4746	0.4662	1.4081	2.0018	1.8165	0.9038	0.4969	0.0177	99.8066	99.7963	99.7755	99.7666
6	99.3764	0.3687	1.2970	1.8343	1.5259	0.3408	99.9580	99.7761	99.7380	99.7148	99.7073	99.7041
LOG BETA(I,J)												
I=1 J=6	97.8205	97.8207	97.8219	97.8283	97.8358	97.8378	97.8380	97.8381	97.8382	97.8382	97.8382	97.8382
2	97.5273	97.5310	97.5643	97.7848	98.4013	99.2654	99.5249	99.7746	99.8801	99.9605	99.9874	99.9987
3	96.8305	96.8355	96.8805	97.1979	98.1069	99.4960	99.8109	99.9621	99.9899	99.9991	99.9999	0.0000
4	96.0639	96.0693	96.1203	96.4944	97.5783	99.2615	99.7481	99.9684	99.9944	99.9993	99.9999	0.0000
5	96.0152	96.0207	96.0734	96.4728	97.6085	99.3795	99.8403	99.9860	99.9968	99.9994	99.9998	0.0000
I=1 J=5	97.5658	97.5659	97.5671	97.5730	97.5801	97.5822	97.5824	97.5825	97.5825	97.5825	97.5825	97.5825
2	97.2200	97.2237	97.2559	97.4689	98.0754	98.9378	99.2209	99.5715	99.7581	99.9170	99.9731	99.9977
3	96.4035	96.4083	96.4520	96.7561	97.6402	99.0308	99.5089	99.8848	99.9686	99.9970	99.9997	0.0000
4	95.3106	95.3160	95.3659	95.7262	96.7852	98.4348	99.0311	99.7779	99.9600	99.9960	99.9993	0.0000
I=1 J=4	97.2401	97.2402	97.2412	97.2464	97.2529	97.2549	97.2551	97.2552	97.2552	97.2553	97.2553	97.2553
2	96.7896	96.7931	96.8236	97.0244	97.6123	98.4663	98.7497	99.1375	99.4223	99.7697	99.9217	99.9919
3	95.6585	95.6630	95.7038	95.9843	96.8165	98.1651	98.6574	99.3596	99.7725	99.9768	99.9980	0.0000
I=1 J=3	96.7828	96.7829	96.7836	96.7874	96.7926	96.7944	96.7946	96.7946	96.7947	96.7947	96.7947	96.7947
2	96.0332	96.0365	96.0641	96.2456	96.7947	97.6166	97.8945	98.2779	98.5715	98.0667	99.5358	99.9422
I=1 J=2	96.0000	96.0000	96.0000	96.0000	96.0000	96.0000	96.0000	96.0000	96.0000	96.0000	96.0000	96.0000
LOG F(I)/F(4)												
I=3	99.7937	99.7949	99.8060	99.8725	0.0496	0.3421	0.4552	0.6325	0.7283	0.6256	0.5355	0.4913
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0001	0.0000	99.9905	99.9430	99.8494	99.6800	99.5989	99.5885	99.7026	99.7036	99.6449	99.6451
6	99.9566	99.9543	99.9342	99.8378	99.6311	99.1911	99.1103	99.2964	99.4425	99.4120	99.3574	99.3305

(Continued)
T = 40000

	LOG BETA0(1,2) = -4.00				LOG BETA0(1,2) = -5.00								
-LOG W	10.00	11.00			0.00	1.00	2.00	3.00	4.00	5.00	6.00	6.50	7.00
LOG X	6.00	7.00			-5.00	-4.00	-3.00	-2.00	-1.00	0.00	1.00	1.50	2.00
LOG E(I)													
I=1	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	92.5143	91.5143			99.2647	99.2642	99.2598	99.2197	98.9764	98.3468	97.4789	97.0010	96.5099
3	89.1260	88.1254			99.2431	99.2425	99.2359	99.1757	98.8018	97.8397	96.4008	95.5493	94.6206
4	89.2285	88.2284			99.2825	99.2817	99.2736	99.1996	98.7398	97.5619	95.8037	94.7310	93.5293
5	89.3434	88.3434			99.3255	99.3246	99.3153	99.2299	98.7105	97.4203	95.4841	94.2655	92.8786
6	89.4190	88.4190			99.3648	99.3637	99.3531	99.2561	98.6804	97.2670	95.0507	93.6059	92.5858
+	10.3973	9.3973			20.6698	19.6695	18.6666	17.6413	16.5282	15.4233	14.4004	13.8983	13.3977
LOG BN(I)													
I=1	10.1754	11.1754			99.9030	0.9033	1.9062	2.9314	4.0445	5.1495	6.1723	6.6744	7.1751
2	3.3725	3.3725			99.8504	0.8503	1.8487	2.8339	3.7036	4.41790	4.3340	4.3582	4.3678
3	99.8701	99.8695			99.7148	0.7144	1.7108	2.6758	3.4150	3.5579	3.1478	2.7925	2.3724
4	99.8059	99.8059			99.5875	0.5870	1.5818	2.5330	3.1863	3.1134	2.3781	1.8074	1.1064
5	99.7656	99.7656			99.4753	0.4746	1.4682	2.4081	3.0018	2.8165	1.9033	1.1867	0.3005
6	99.7038	99.7038			99.3772	0.3764	1.3687	2.2970	2.8343	2.5259	1.3324	0.3897	99.8703
LOG BETA(I,J)													
I=1 J=6	97.8382	97.8382			96.8205	96.8205	96.8207	96.8219	96.8283	96.8358	96.8378	96.8380	96.8381
2	0.0000	0.0000			96.5269	96.5273	96.5310	96.5643	96.7847	97.4013	98.2674	98.7454	99.2352
3	0.0000	0.0000			95.8301	95.8305	95.8355	95.8805	96.1979	97.1069	98.5167	99.3647	99.8937
4	0.0000	0.0000			95.0634	95.0639	95.0693	95.1203	95.4944	96.5783	98.2632	99.3118	99.9368
5	0.0000	0.0000			95.0146	95.0152	95.0207	95.0734	95.4728	96.6085	98.3841	99.5205	99.9809
I=1 J=5	97.5825	97.5825			96.5658	96.5658	96.5659	96.5671	96.5730	96.5801	96.5822	96.5824	96.5825
2	0.0000	0.0000			96.2196	96.2200	96.2237	96.2559	96.4689	97.0755	97.9378	98.4153	98.9064
3	0.0000	0.0000			95.4031	95.4035	95.4083	95.4520	95.7561	96.6401	98.0304	98.8772	99.6960
4	0.0000	0.0000			94.3100	94.3106	94.3160	94.3659	94.7262	95.7852	97.4355	98.4566	99.5771
I=1 J=4	97.2553	97.2553			96.2401	96.2401	96.2402	96.2412	96.2464	96.2529	96.2549	96.2552	96.2552
2	99.9999	99.9999			95.7893	95.7896	95.7931	95.8236	96.0244	96.6123	97.4663	97.9427	98.4334
3	0.0000	0.0000			94.6581	94.6585	94.6630	94.7038	94.9843	95.8165	97.1645	97.9953	98.8973
I=1 J=3	96.7947	96.7947			95.7828	95.7828	95.7829	95.7836	95.7874	95.7926	95.7944	95.7946	95.7947
2	99.9994	99.9999			95.0329	95.0332	95.0365	95.0641	95.2455	95.7947	96.6166	97.0850	97.5718
I=1 J=2	96.0000	96.0000			95.0000	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000
LOG F(I)/F(4)													
I=3	0.4863	0.4863			99.7936	99.7937	99.7949	99.8060	99.8725	0.0496	0.3427	0.5500	0.8270
4	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	99.6429	99.6429			0.0012	0.0011	0.0000	99.9905	99.9430	99.8494	99.6797	99.5350	99.3502
6	99.3275	99.3275			99.9568	99.9566	99.9543	99.9342	99.8378	99.6311	99.1849	98.8145	98.9953

(Continued)
T = 40000

	LOG BETA0(1,2) = -5.00												
-LOG W	7.25	7.50	7.75	8.00	8.30	8.70	9.00	10.00	11.00	12.00	13.00		
LOG X	2.25	2.50	2.75	3.00	3.30	3.70	4.00	5.00	6.00	7.00	8.00		
LOG E(I)													
I=1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	96.2619	96.0132	95.7639	95.5142	95.2145	94.8146	94.5147	93.5147	92.5147	91.5147	90.5147	90.5147	90.5147
3	94.1486	93.6540	93.1456	92.6290	92.0058	91.1842	90.6019	89.1850	88.1320	87.1266	86.1261	86.1261	86.1261
4	92.8698	92.2599	91.8132	91.4608	91.0772	90.6007	90.2677	89.2333	88.2296	87.2293	86.2292	86.2292	86.2292
5	92.3619	92.0106	91.7090	91.4205	91.0876	90.6631	90.3541	89.3454	88.3446	87.3445	86.3445	86.3445	86.3445
6	92.2785	91.9946	91.7191	91.4506	91.1366	90.7270	90.4237	89.4206	88.4202	87.4202	86.4202	86.4202	86.4202
+	13.1475	12.8974	12.6474	12.3974	12.0974	11.6973	11.3973	10.3973	9.3973	8.3973	7.3973	7.3973	7.3973
LOG BN(I)													
I=1	7.4252	7.6753	7.9254	8.1754	8.4754	8.8754	9.1754	10.1754	11.1754	12.1754	13.1754	13.1754	13.1754
2	4.3699	4.3712	4.3720	4.3724	4.3726	4.3728	4.3728	4.3729	4.3729	4.3729	4.3729	4.3729	4.3729
3	2.1425	1.8980	1.6596	1.3731	1.0499	0.6285	0.3460	99.9291	99.8761	99.8707	99.8702	99.8702	99.8702
4	0.6971	0.3372	0.1406	0.0382	99.9546	99.8782	99.8451	99.8108	99.8071	99.8067	99.8067	99.8067	99.8067
5	0.0339	99.9327	99.8811	99.8427	99.8098	99.7853	99.7763	99.7676	99.7668	99.7667	99.7667	99.7667	99.7667
6	99.8131	99.7793	99.7539	99.7354	99.7213	99.7118	99.7085	99.7054	99.7050	99.7050	99.7050	99.7050	99.7050
LOG BETA(I,J)													
I=1 J=6	96.8381	96.8381	96.8382	96.8382	96.8382	96.8382	96.8382	96.8382	96.8382	96.8382	96.8382	96.8382	96.8382
2	99.4678	99.6588	99.7934	99.8790	99.9378	99.9748	99.9873	99.9987	99.9999	0.0000	0.0000	0.0000	0.0000
3	99.9638	99.9883	99.9964	99.9989	99.9997	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	99.9868	99.9972	99.9992	99.9997	99.9999	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	99.9961	99.9987	99.9994	99.9997	99.9999	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
I=1 J=5	96.5825	96.5825	96.5825	96.5825	96.5825	96.5825	96.5825	96.5825	96.5825	96.5825	96.5825	96.5825	96.5825
2	99.1539	99.3947	99.6028	99.7560	99.8707	99.9468	99.9731	99.9973	99.9997	0.0000	0.0000	0.0000	0.0000
3	99.8892	99.9635	99.9886	99.9966	99.9992	99.9999	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	99.8972	99.9792	99.9942	99.9978	99.9993	99.9998	99.9999	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
I=1 J=4	96.2553	96.2553	96.2553	96.2553	96.2553	96.2553	96.2553	96.2553	96.2553	96.2553	96.2553	96.2553	96.2553
2	98.6813	98.9301	99.1788	99.4184	99.6559	99.8485	99.9216	99.9919	99.9992	99.9999	0.0000	0.0000	0.0000
3	99.3643	99.7352	99.9110	99.9726	99.9936	99.9991	99.9998	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
I=1 J=3	95.7947	95.7947	95.7947	95.7947	95.7947	95.7947	95.7947	95.7947	95.7947	95.7947	95.7947	95.7947	95.7947
2	97.8187	98.0669	98.3158	98.5652	98.8648	99.2627	99.5351	99.9422	99.9941	99.9994	99.9999	99.9999	99.9999
I=1 J=2	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000
LOG F(I)/F(4)													
I=3	1.0055	1.1202	1.0587	0.9044	0.7269	0.5871	0.5371	0.4912	0.4866	0.4862	0.4861	0.4861	0.4861
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	99.4925	99.7432	99.8476	99.8252	99.7531	99.6885	99.6657	99.6453	99.6433	99.6431	99.6431	99.6431	99.6431
6	99.3320	99.6004	99.6574	99.5873	99.4781	99.3895	99.3587	99.3309	99.3282	99.3279	99.3279	99.3279	99.3279

BALMER DECREMENTS

T = 45000										
LOG BETA0(1,2) = 1.00					LOG BETA0(1,2) = 0.00					
-LOG W	0.00	1.00	5.00	10.00	0.00	1.00	2.00	3.00	5.00	10.00
LOG X	1.00	2.00	6.00	11.00	0.00	1.00	2.00	3.00	5.00	10.00
LOG E(I)										
I=1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	98.5317	97.5985	93.6074	88.6074	98.6816	97.7765	96.7879	95.7891	93.7892	88.7892
3	98.7643	97.8999	93.9198	88.9198	98.7917	97.9197	96.9358	95.9374	93.9376	88.9376
4	98.9320	98.1345	94.1673	89.1673	98.9479	98.1404	97.1688	96.1718	94.1721	89.1721
5	99.0492	98.3052	94.3501	89.3501	99.0748	98.3105	97.3475	96.3516	94.3520	89.3520
6	99.1234	98.4184	94.4731	89.4731	99.1428	98.4225	97.4685	96.4734	94.4740	89.4740
+	20.7462	19.6830	15.6711	10.6711	20.7570	19.6846	18.6725	17.6712	15.6711	10.6711
LOG BN(I)										
I=1	0.0936	1.1567	5.1687	10.1687	0.0828	1.1552	2.1673	3.1686	5.1687	10.1687
2	99.1659	99.2955	99.3164	99.3164	99.3046	99.4719	99.4954	99.4979	99.4982	99.4982
3	99.2574	99.4561	99.4880	99.4880	99.2740	99.4744	99.5026	99.5055	99.5059	99.5059
4	99.2492	99.5148	99.5595	99.5595	99.2542	99.5191	99.5596	99.5639	99.5644	99.5644
5	99.2070	99.5260	99.5829	99.5829	99.2217	99.5298	99.5789	99.5842	99.5848	99.5849
6	99.1413	99.4994	99.5661	99.5661	99.1499	99.5020	99.5600	99.5663	99.5670	99.5670
LOG BETA(I,J)										
I=1 J=6	99.9997	99.9997	99.9997	99.9997	99.9968	99.9969	99.9969	99.9969	99.9969	99.9969
2	99.9999	0.0000	0.0000	0.0000	99.9987	99.9999	0.0000	0.0000	0.0000	0.0000
3	99.9993	0.0000	0.0000	0.0000	99.9928	99.9996	0.0000	0.0000	0.0000	0.0000
4	99.9946	99.9996	0.0000	0.0000	99.9461	99.9958	99.9997	0.0000	0.0000	0.0000
5	99.9922	99.9992	0.0000	0.0000	99.9139	99.9919	99.9993	99.9999	0.0000	0.0000
I=1 J=5	99.9994	99.9994	99.9994	99.9994	99.9943	99.9943	99.9943	99.9943	99.9943	99.9943
2	99.9999	0.0000	0.0000	0.0000	99.9976	99.9998	0.0000	0.0000	0.0000	0.0000
3	99.9985	99.9999	0.0000	0.0000	99.9840	99.9992	0.0000	0.0000	0.0000	0.0000
4	99.9751	99.9987	0.0000	0.0000	99.7890	99.9868	99.9991	99.9999	0.0000	0.0000
I=1 J=4	99.9988	99.9988	99.9988	99.9988	99.9879	99.9880	99.9880	99.9880	99.9880	99.9880
2	99.9997	0.0000	0.0000	0.0000	99.9935	99.9994	99.9999	0.0000	0.0000	0.0000
3	99.9932	99.9998	0.0000	0.0000	99.9202	99.9963	99.9998	0.0000	0.0000	0.0000
I=1 J=3	99.9965	99.9965	99.9965	99.9965	99.9655	99.9656	99.9656	99.9656	99.9656	99.9656
2	99.9985	99.9999	0.0000	0.0000	99.9629	99.9959	99.9996	0.0000	0.0000	0.0000
I=1 J=2	99.9785	99.9785	99.9785	99.9785	99.8008	99.8008	99.8008	99.8008	99.8008	99.8008
LOG F(1)/F(4)										
I=3	0.4205	0.3546	0.3419	0.3419	0.4206	0.3652	0.3560	0.3550	0.3549	0.3549
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	99.6452	99.6985	99.7107	99.7107	99.6588	99.6984	99.7066	99.7076	99.7078	99.7078
6	99.3285	99.4207	99.4427	99.4427	99.3370	99.4195	99.4366	99.4386	99.4388	99.4388

T = 45000										
LOG BETA0(1,2) = -1.00										
-LOG W	0.00	0.50	1.00	1.50	2.00	3.00	4.00	5.00	10.00	
LOG X	-1.00	-0.50	0.00	0.50	1.00	2.00	3.00	4.00	5.00	9.00
LOG E(I)										
I=1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	99.1505	98.8867	98.5200	98.0854	97.6116	96.6234	95.6246	94.6248	89.6248	
3	99.0685	98.7113	98.2146	97.6544	97.1045	96.0739	95.0704	94.0701	89.0700	
4	99.1243	98.7648	98.2726	97.7381	97.2213	96.2155	95.2151	94.2151	89.2150	
5	99.2108	98.8821	98.4091	97.8856	97.3746	96.3705	95.3701	94.3700	89.3700	
6	99.2757	98.9582	98.4910	97.9846	97.4828	96.4827	95.4827	94.4827	89.4827	
+	20.8339	20.2597	19.7073	19.1836	18.6752	17.6715	16.6711	15.6711	10.6711	
LOG BN(I)										
I=1	0.0059	0.5801	1.1325	1.6561	2.1646	3.1683	4.1687	5.1687	10.1687	
2	99.6966	0.0070	0.1927	0.2818	0.3165	0.3320	0.3336	0.3337	0.3337	
3	99.4739	99.6909	99.7466	99.7100	99.6686	99.6417	99.6386	99.6383	99.6383	
4	99.3537	99.5684	99.6287	99.6178	99.6094	99.6074	99.6073	99.6073	99.6073	
5	99.2808	99.5263	99.6055	99.6059	99.6033	99.6029	99.6029	99.6029	99.6029	
6	99.2059	99.4625	99.5478	99.5650	99.5718	99.5753	99.5756	99.5757	99.5757	
LOG BETA(I,J)										
I=1 J=6	99.9679	99.9683	99.9686	99.9688	99.9688	99.9689	99.9689	99.9689	99.9689	
2	99.9523	99.9737	99.9884	99.9957	99.9985	99.9998	0.0000	0.0000	0.0000	
3	99.8241	99.9256	99.9774	99.9945	99.9987	99.9999	0.0000	0.0000	0.0000	
4	99.3195	99.6835	99.9028	99.9763	99.9937	99.9994	99.9999	0.0000	0.0000	
5	99.2259	99.5719	99.8458	99.9616	99.9898	99.9991	99.9999	0.0000	0.0000	
I=1 J=5	99.9428	99.9436	99.9441	99.9443	99.9444	99.9444	99.9445	99.9445	99.9445	
2	99.9042	99.9461	99.9759	99.9909	99.9969	99.9997	0.0000	0.0000	0.0000	
3	99.5898	99.8130	99.9416	99.9856	99.9965	99.9997	0.0000	0.0000	0.0000	
4	98.5999	99.0997	99.6437	99.9041	99.9736	99.9975	99.9997	1.0000	0.0000	
I=1 J=4	99.8819	99.8832	99.8842	99.8846	99.8848	99.8849	99.8849	99.8849	99.8849	
2	99.7517	99.8518	99.9310	99.9734	99.9909	99.9991	99.9999	0.0000	0.0000	
3	98.8650	99.2241	99.6600	99.9062	99.9774	99.9982	99.9998	0.0000	0.0000	
I=1 J=3	99.6913	99.6937	99.6956	99.6966	99.6970	99.6972	99.6973	99.6973	99.6973	
2	99.1120	99.3326	99.6109	99.8284	99.9377	99.9934	99.9993	99.9999	0.0000	
I=1 J=2	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	
LOG F(1)/F(4)										
I=3	99.8939	0.0167	0.2112	0.3506	0.4194	0.4420	0.4441	0.4443	0.4443	
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
5	99.7668	99.7395	99.7090	99.6928	99.6872	99.6834	99.6829	99.6828	99.6828	
6	99.4889	99.4521	99.4126	99.4056	99.4061	99.4048	99.4045	99.4045	99.4045	

T = 45000 LOG BETA0(1,2) = -2.00

-LOG W	0.00	1.00	2.00	2.50	3.00	3.50	4.00	5.00	6.00	7.00	10.00
LOG X	-2.00	-1.00	0.00	0.50	1.00	1.50	2.00	3.00	4.00	5.00	8.00
LOG E(I)											
I=1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	99.3530	99.1362	98.5282	98.1185	97.6728	97.1978	96.7056	95.7085	94.7088	93.7088	90.7088
3	99.3333	99.0089	98.1168	97.4952	96.7698	96.0137	95.3702	94.2980	93.2904	92.2896	89.2896
4	99.3655	98.9705	97.8986	97.2106	96.5110	95.9061	95.3824	94.3754	93.3747	92.3747	89.3747
5	99.4030	98.9668	97.8504	97.1863	96.5405	95.9879	95.4768	94.4729	93.4726	92.4725	89.4725
6	99.4405	98.9857	97.8223	97.1472	96.5663	96.0490	95.5452	94.5437	93.5435	92.5435	89.5435
+	20.9147	19.8130	18.7013	18.1819	17.6747	17.1723	16.6714	15.6711	14.6711	13.6711	10.6711
LOG BN(I)											
I=1	99.9251	1.0268	2.1384	2.6578	3.1651	3.6675	4.1683	5.1687	6.1687	7.1687	10.1687
2	99.8183	0.7032	1.2068	1.3166	1.3781	1.4056	1.4142	1.4175	1.4178	1.4178	1.4178
3	99.6579	0.4352	0.6547	0.5525	0.3344	0.0807	99.9381	99.8662	99.8586	99.8579	99.8578
4	99.5142	0.2209	0.2606	0.0920	99.8996	99.7972	99.7743	99.7676	99.7670	99.7669	99.7669
5	99.3923	0.0577	0.0529	99.9083	99.7697	99.7195	99.7093	99.7057	99.7054	99.7054	99.7054
6	99.2899	99.9369	99.8850	99.7294	99.6557	99.6409	99.6378	99.6367	99.6366	99.6366	99.6366
LOG BETA(I,J)											
I=1 J=6	99.7099	99.7144	99.7203	99.7215	99.7220	99.7222	99.7222	99.7223	99.7223	99.7223	99.7223
2	99.4210	99.5867	99.8768	99.9503	99.9819	99.9939	99.9980	99.9998	0.0000	0.0000	0.0000
3	98.7282	99.0125	99.7329	99.9292	99.9871	99.9980	99.9996	0.0000	0.0000	0.0000	0.0000
4	97.9673	98.3138	99.3277	99.8131	99.9680	99.9938	99.9983	99.9998	0.0000	0.0000	0.0000
5	97.9266	98.3196	99.3380	99.7963	99.9643	99.9923	99.9978	99.9998	0.0000	0.0000	0.0000
I=1 J=5	99.5329	99.5387	99.5467	99.5484	99.5491	99.5494	99.5495	99.5495	99.5495	99.5495	99.5495
2	99.1239	99.3114	99.7546	99.8968	99.9618	99.9871	99.9958	99.9996	0.0000	0.0000	0.0000
3	98.2987	98.5662	99.3846	99.8034	99.9621	99.9944	99.9989	99.9999	0.0000	0.0000	0.0000
4	97.2093	97.5319	98.5476	99.2703	99.8287	99.9673	99.9911	99.9991	99.9999	0.0000	0.0000
I=1 J=4	99.2351	99.2413	99.2502	99.2522	99.2531	99.2534	99.2536	99.2536	99.2536	99.2536	99.2536
2	98.6944	98.8732	99.4262	99.7216	99.8904	99.9620	99.9876	99.9987	99.9999	0.0000	0.0000
3	97.5520	97.7962	98.5663	99.1589	99.7533	99.9614	99.9933	99.9996	0.0000	0.0000	0.0000
I=1 J=3	98.7801	98.7846	98.7917	98.7934	98.7942	98.7946	98.7947	98.7947	98.7947	98.7947	98.7947
2	97.9412	98.1028	98.6295	99.0078	99.4199	99.7519	99.9131	99.9909	99.9991	99.9999	0.0000
I=1 J=2	98.0000	98.0000	98.0000	98.0000	98.0000	98.0000	98.0000	98.0000	98.0000	98.0000	98.0000
LOG F(I)/F(4)											
I=3	99.8039	99.8573	0.0108	0.1601	0.3777	0.4868	0.5026	0.5042	0.5042	0.5042	0.5042
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	99.9949	99.9623	99.8080	99.6787	99.6288	99.6346	99.6304	99.6263	99.6258	99.6257	99.6257
6	99.9384	99.8656	99.5112	99.3022	99.2838	99.3117	99.3100	99.3063	99.3058	99.3058	99.3058

T = 45000 LOG BETA0(1,2) = -3.00

-LOG W	0.00	1.00	2.00	3.00	4.00	4.30	4.70	5.00	5.50	6.00	7.00	8.00	9.00
LOG X	-3.00	-2.00	-1.00	0.00	1.00	1.30	1.70	2.00	2.50	3.00	4.00	5.00	6.00
LOG E(I)													
I=1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	99.3867	99.3524	99.1346	98.5346	97.6905	97.4113	97.0273	96.7334	96.2374	95.7384	94.7387	93.7387	92.7387
3	99.3821	99.3326	99.0069	98.1134	96.7667	96.2757	95.5674	94.9987	94.1212	93.4401	92.4540	91.3451	90.3442
4	99.4252	99.3648	98.9682	97.8893	96.2556	95.6858	94.9555	94.5306	93.9589	93.4496	92.4433	91.4427	90.4426
5	99.4493	99.3998	98.9517	97.7726	96.0315	95.4941	94.9150	94.5772	94.0554	93.5536	92.5536	91.5534	90.5534
6	99.5083	99.4294	98.9334	97.6525	95.8203	95.3927	94.9429	94.6329	94.1274	93.6258	92.6252	91.6251	90.6251
+	20.9347	19.9140	18.8117	17.7014	16.6748	16.3730	15.9718	15.6715	15.1712	14.6711	13.6711	12.6711	11.6711
LOG BN(I)													
I=1	99.9051	0.9257	2.0280	3.1384	4.1650	4.4668	4.8680	5.1683	5.6686	6.1687	7.1687	8.1687	9.1687
2	99.8316	0.8183	1.7028	2.2133	2.3957	2.4184	2.4355	2.4420	2.4462	2.4473	2.4477	2.4477	2.4477
3	99.6867	0.6579	1.4344	1.6513	1.3312	1.1420	0.8349	0.5666	0.1893	0.0083	99.9223	99.9133	99.9124
4	99.5538	0.5141	1.2198	1.2512	0.6442	0.3762	0.0470	99.9225	99.8580	99.8419	99.8356	99.8349	99.8349
5	99.4385	0.3896	1.0439	0.9752	0.2806	0.0250	99.8471	99.8097	99.7926	99.7882	99.7864	99.7862	99.7862
6	99.3377	0.2795	0.8857	0.7152	99.9096	99.7838	99.7351	99.7256	99.7203	99.7188	99.7182	99.7181	99.7181
LOG BETA(I,J)													
I=1 J=6	98.8148	98.8163	98.8241	98.8345	98.8376	98.8379	98.8380	98.8381	98.8381	98.8382	98.8382	98.8382	98.8382
2	98.4022	98.4309	98.6283	99.2135	99.8230	99.9035	99.9592	99.9791	99.9933	99.9979	99.9998	0.0000	0.0000
3	97.6847	97.7241	98.0000	98.8414	99.8597	99.9531	99.9909	99.9977	99.9997	0.0000	0.0000	0.0000	0.0000
4	96.9149	96.9567	97.2776	98.2681	99.7304	99.9264	99.9897	99.9970	99.9993	99.9998	0.0000	0.0000	0.0000
5	96.8630	96.9065	97.2494	98.2887	99.7789	99.9457	99.9916	99.9969	99.9991	99.9997	0.0000	0.0000	0.0000
I=1 J=5	98.5604	98.5618	98.5690	98.5789	98.5820	98.5822	98.5824	98.5825	98.5825	98.5825	98.5825	98.5825	98.5825
2	98.0965	98.1243	98.3148	98.8001	99.6546	99.8031	99.9144	99.9558	99.9857	99.9955	99.9995	0.0000	0.0000
3	97.2612	97.2975	97.5620	98.3794	99.6232	99.8612	99.9722	99.9929	99.9993	99.9999	0.0000	0.0000	0.0000
4	96.1635	96.2043	96.5129	97.4792	99.0335	99.5819	99.9338	99.9825	99.9966	99.9991	99.9999	0.0000	0.0000
I=1 J=4	98.2353	98.2365	98.2427	98.2518	98.2547	98.2550	98.2552	98.2552	98.2552	98.2553	98.2553	98.2553	98.2553
2	97.6686	97.6950	97.8747	98.4301	99.2545	99.5098	99.7632	99.8731	99.9580	99.9865	99.9986	99.9999	0.0000
3	96.5184	96.5526	96.7978	97.5667	98.8215	99.2951	99.8019	99.9465	99.9991	99.9992	0.0000	0.0000	0.0000
I=1 J=3	97.7933	97.7801	97.7846	97.7916	97.7942	97.7944	97.7946	97.7947	97.7947	97.7947	97.7947	97.7947	97.7947
2	96.9178	96.9419	97.1043	97.6209	98.4118	98.6819	99.0585	99.3443	99.7251	99.9049	99.9901	99.9990	99.9999
I=1 J=2	97.0000	97.0000	97.0000	97.0000	97.0000	97.0000	97.0000	97.0000	97.0000	97.0000	97.0000	97.0000	97.0000
LOG F(I)/F(4)													
I=3	99.7954	99.8040	99.8576	0.0042	0.2477	0.3513	0.4965	0.5287	0.5118	0.4982	0.4916	0.4909	0.4908
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	99.9999	99.9921	99.9515	99.8712	99.7038	97.6295	99.6386	99.6571	99.6496	99.6425	99.6390	99.6387	99.6386
6	99.9536	99.9374	99.8556	99.6834	99.2701	99.2375	99.3203	99.3452	99.3338	99.3244	99.3199	99.3194	99.3194

(Continued)													
T = 45000													
LOG BETA0(1,2) = -5.00													
-LOG W	7.25	7.50	7.75	8.00	8.25	8.50	8.75	9.00	9.50	10.00	11.00	12.00	13.00
LOG X	2.25	2.50	2.75	3.00	3.25	3.50	3.75	4.00	4.50	5.00	6.00	7.00	8.00
LOG E(I)													
I=1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	96.4884	96.2403	95.9914	95.7420	95.4924	95.2426	94.9927	94.7428	94.2428	93.7428	92.7428	91.7428	90.7428
3	94.5836	94.1024	93.6063	93.0970	92.5801	92.0607	91.5443	91.0368	90.1358	89.4492	88.3612	87.3521	86.3512
4	93.4653	92.8028	92.2068	91.7733	91.4257	91.1061	90.8020	90.5132	89.9726	89.4583	88.4521	87.4514	86.4514
5	92.8128	92.3173	91.9749	91.6752	91.3877	91.1103	90.8419	90.5805	90.0698	89.5663	88.5648	87.5646	86.5646
6	92.5465	92.2132	91.9605	91.6856	91.4177	91.1560	90.8987	90.6444	90.1405	89.6392	88.6387	87.6386	86.6386
+	13.4213	13.1712	12.9211	12.6711	12.4211	12.1711	11.9211	11.6711	11.1711	10.6711	9.6711	8.6711	7.6711
LOG BN(I)													
I=1	7.4185	7.6686	7.9187	8.1687	8.4187	8.6687	8.9187	9.1687	9.6687	10.1687	11.1687	12.1687	13.1687
2	4.4471	4.4491	4.4503	4.4510	4.4513	4.4515	4.4517	4.4518	4.4518	4.4518	4.4518	4.4518	4.4518
3	2.4016	2.1705	1.9244	1.6652	1.3983	1.1290	0.8625	0.6051	0.2040	0.0175	99.9294	99.9203	99.9194
4	1.1073	0.6949	0.3490	0.1655	0.0679	99.9984	99.9942	99.9053	99.8649	99.8506	99.8443	99.8437	99.8436
5	0.2994	0.0500	99.9577	99.9080	99.8706	99.8431	99.8248	99.8134	99.8026	99.7991	99.7976	99.7974	99.7974
6	99.8893	99.8361	99.8034	99.7786	99.7607	99.7490	99.7417	99.7374	99.7355	99.7322	99.7317	99.7317	99.7317
LOG BETA(I,J)													
I=1 J=6	96.8381	96.8381	96.8381	96.8382	96.8382	96.8382	96.8382	96.8382	96.8382	96.8382	96.8382	96.8382	96.8382
2	99.2563	99.4865	99.6729	99.8026	99.8846	99.9337	99.9623	99.9787	99.9932	99.9978	99.9998	0.0000	0.0000
3	99.9038	99.9674	99.9895	99.9968	99.9990	99.9997	99.9999	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	99.9454	99.9888	99.9976	99.9992	99.9997	99.9999	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	99.9841	99.9966	99.9988	99.9995	99.9998	99.9999	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
I=1 J=5	96.5825	96.5825	96.5825	96.5825	96.5825	96.5825	96.5825	96.5825	96.5825	96.5825	96.5825	96.5825	96.5825
2	98.9279	99.1755	99.4147	99.6186	99.7667	99.8625	99.9207	99.9548	99.9855	99.9954	99.9995	0.0000	0.0000
3	99.7219	99.8999	99.9672	99.9898	99.9969	99.9991	99.9997	99.9999	0.0000	0.0000	0.0000	0.0000	0.0000
4	99.6238	99.9125	99.9820	99.9948	99.9980	99.9992	99.9997	99.9998	0.0000	0.0000	0.0000	0.0000	0.0000
I=1 J=4	96.2552	96.2552	96.2553	96.2553	96.2553	96.2553	96.2553	96.2553	96.2553	96.2553	96.2553	96.2553	96.2553
2	98.4549	99.7030	98.9519	99.2004	99.4381	99.6370	99.7792	99.8703	99.9374	99.9864	99.9986	99.9999	0.0000
3	98.9414	99.4066	99.7597	99.9202	99.9755	99.9927	99.9979	99.9994	99.9999	0.0000	0.0000	0.0000	0.0000
I=1 J=3	95.7947	95.7947	95.7947	95.7947	95.7947	95.7947	95.7947	95.7947	95.7947	95.7947	95.7947	95.7947	95.7947
2	97.5932	97.8403	98.0886	98.3376	98.5870	98.8367	99.0864	99.3321	99.7213	99.9037	99.9900	99.9990	99.9999
I=1 J=2	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000
LOG F(I)/F(4)													
I=3	0.8459	1.0262	1.1255	1.0502	0.8927	0.7437	0.6390	0.5747	0.5163	0.4977	0.4899	0.4891	0.4890
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	99.3484	99.5148	99.7588	99.8480	99.8185	99.7576	99.7094	99.6796	99.6531	99.6448	99.6414	99.6411	99.6411
6	99.0195	99.3608	99.6116	99.6515	99.5755	99.4835	99.4168	99.3764	99.3405	99.3293	99.3246	99.3242	99.3241
T = 50000													
LOG BETA0(1,2) = 1.00													
LOG BETA0(1,2) = 0.00													
-LOG W	0.00	1.00	5.00	10.00									
LOG X	1.00	2.00	6.00	11.00	0.00	1.00	2.00	3.00	5.00	10.00			
LOG E(I)													
I=1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
2	98.7047	97.7839	95.7947	88.7947	98.8481	97.9609	96.9748	95.9762	93.9764	88.9764			
3	98.9281	98.0801	94.1030	89.1030	98.9579	98.1007	97.1188	96.1207	94.1208	89.1208			
4	99.0890	98.3106	94.3477	89.3477	99.1082	98.3167	97.3488	96.3522	94.3526	89.3526			
5	99.2023	98.4780	94.5283	89.5283	99.2319	98.4848	97.5253	96.5297	94.5302	89.5302			
6	99.2733	98.5890	94.6501	89.6501	99.2966	98.5944	97.6449	96.6504	94.6510	89.6510			
+	20.9793	19.9115	15.8980	10.8980	20.9914	19.9134	18.8997	17.8982	15.8980	10.8980			
LOG BN(I)													
I=1	0.0814	1.1492	5.1627	10.1627	0.0693	1.1473	2.1610	3.1625	5.1627	10.1627			
2	99.2121	99.3592	99.3833	99.3833	99.3434	99.5342	99.5618	99.5647	99.5650	99.5650			
3	99.2737	99.4935	99.5299	99.5299	99.2914	99.5122	99.5440	99.5474	99.5477	99.5477			
4	99.2512	99.5406	99.5912	99.5912	99.2583	99.5448	99.5905	99.5954	99.5960	99.5960			
5	99.2015	99.5451	99.6089	99.6089	99.2191	99.5501	99.6042	99.6101	99.6108	99.6108			
6	99.1310	99.5146	99.5891	99.5891	99.1422	99.5181	99.5822	99.5892	99.5900	99.5900			
LOG BETA(I,J)													
I=1 J=6	99.9997	99.9997	99.9997	99.9997	99.9968	99.9968	99.9969	99.9969	99.9969	99.9969			
2	99.9999	0.0000	0.0000	0.0000	99.9981	99.9998	0.0000	0.0000	0.0000	0.0000			
3	99.9990	99.9999	0.0000	0.0000	99.9891	99.9992	99.9999	0.0000	0.0000	0.0000			
4	99.9920	99.9994	0.0000	0.0000	99.9884	99.9998	99.9999	0.0000	0.0000	0.0000			
5	99.9884	99.9988	0.0000	0.0000	99.8737	99.9873	99.9989	99.9999	0.0000	0.0000			
I=1 J=5	99.9994	99.9994	99.9994	99.9994	99.9943	99.9943	99.9943	99.9943	99.9943	99.9943			
2	99.9998	0.0000	0.0000	0.0000	99.9963	99.9996	0.0000	0.0000	0.0000	0.0000			
3	99.9977	99.9999	0.0000	0.0000	99.9755	99.9987	99.9999	0.0000	0.0000	0.0000			
4	99.9626	99.9978	0.0000	0.0000	99.6949	99.9784	99.9984	99.9998	0.0000	0.0000			
I=1 J=4	99.9988	99.9988	99.9988	99.9988	99.9879	99.9880	99.9880	99.9880	99.9880	99.9880			
2	99.9995	0.0000	0.0000	0.0000	99.9904	99.9990	99.9999	0.0000	0.0000	0.0000			
3	99.9893	99.9996	0.0000	0.0000	99.8781	99.9936	99.9996	0.0000	0.0000	0.0000			
I=1 J=3	99.9965	99.9965	99.9965	99.9965	99.9654	99.9656	99.9656	99.9656	99.9656	99.9656			
2	99.9976	99.9999	0.0000	0.0000	99.9456	99.9936	99.9993	99.9999	0.0000	0.0000			
I=1 J=2	99.9785	99.9785	99.9785	99.9785	99.8008	99.8008	99.8008	99.8008	99.8008	99.8008			
LOG F(I)/F(4)													
I=3	0.4265	0.3587	0.3447	0.3447	0.3942	0.3679	0.3588	0.3577	0.3576	0.3576			
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
5	99.6414	99.6952	99.7084	99.7084	99.6575	99.6966	99.7044	99.7054	99.7055	99.7055			
6	99.3215	99.4153	99.4393	99.4393	99.3330	99.4154	99.4331	99.4351	99.4353	99.4353			

BALMER DECREMENTS

T = 50000 LOG BETA(1,2) = -1.00										
-LOG W	0.00	0.50	1.00	1.50	2.00	3.00	4.00	5.00	10.00	
LOG X	-1.00	-0.50	0.00	0.50	1.00	2.00	3.00	4.00	9.00	
LOG E(I)										
I=1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
2	99.2792	99.0345	98.6822	98.2597	97.7936	96.8098	95.8114	94.8116	89.8116	
3	99.2230	98.8955	98.4218	97.8655	97.3034	96.2591	95.2538	94.2533	89.2532	
4	99.2833	98.9502	98.4737	97.9338	97.4064	96.3963	95.3956	94.3955	89.3955	
5	99.3648	99.0616	98.6057	98.0769	97.5569	96.5491	95.5483	94.5483	89.5482	
6	99.4284	99.1398	98.6844	98.1688	97.6617	96.6598	95.6597	94.6596	89.6596	
+	21.0681	20.4955	19.9394	19.4127	18.9028	17.8985	16.8981	15.8980	10.8980	
LOG BH(I)										
I=1	99.9926	0.5652	1.1213	1.6480	2.1579	3.1622	4.1626	5.1627	10.1627	
2	99.6978	0.0257	0.2295	0.3337	0.3775	0.3980	0.4001	0.4003	0.4003	
3	99.4798	99.7249	99.8072	99.7777	99.7254	99.6855	99.6806	99.6801	99.6801	
4	99.3566	99.5961	99.6757	99.6625	99.6450	99.6393	99.6390	99.6389	99.6389	
5	99.2753	99.5446	99.6445	99.6426	99.6327	99.6292	99.6289	99.6288	99.6288	
6	99.1973	99.4814	99.5819	99.5931	99.5959	99.5983	99.5986	99.5986	99.5986	
LOG BETA(I,J)										
I=1 J=6	99.9676	99.9681	99.9685	99.9687	99.9688	99.9689	99.9689	99.9689	99.9689	
2	99.9361	99.9633	99.9833	99.9935	99.9978	99.9998	0.0000	0.0000	0.0000	
3	99.7539	99.8867	99.9626	99.9904	99.9977	99.9998	0.0000	0.0000	0.0000	
4	99.1481	99.5433	99.8418	99.9595	99.9897	99.9991	99.9999	0.0000	0.0000	
5	99.0621	99.4275	99.7582	99.9348	99.9836	99.9986	99.9999	0.0000	0.0000	
I=1 J=5	99.9423	99.9432	99.9439	99.9442	99.9444	99.9444	99.9445	99.9445	99.9445	
2	99.8730	99.9254	99.9654	99.9865	99.9953	99.9995	0.0000	0.0000	0.0000	
3	99.4592	99.7216	99.9040	99.9749	99.9941	99.9996	0.0000	0.0000	0.0000	
4	98.4184	98.8810	99.4610	99.8391	99.9567	99.9959	99.9996	0.0000	0.0000	
I=1 J=4	99.8809	99.8825	99.8838	99.8845	99.8848	99.8849	99.8849	99.8849	99.8849	
2	99.6818	99.7995	99.9021	99.9607	99.9862	99.9986	99.9999	0.0000	0.0000	
3	98.7134	99.0398	99.4944	99.8406	99.9615	99.9972	99.9997	0.0000	0.0000	
I=1 J=3	99.6894	99.6924	99.6949	99.6963	99.6969	99.6972	99.6973	99.6973	99.6973	
2	98.9940	99.2012	99.4925	99.7566	99.9071	99.9898	99.9990	99.9999	0.0000	
I=1 J=2	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	
LOG F(I)/F(4)										
I=3	99.8412	99.9363	0.1278	0.3169	0.4071	0.4434	0.4467	0.4470	0.4470	
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
5	99.8006	99.7651	99.7228	99.6965	99.6874	99.6815	99.6807	99.6806	99.6806	
6	99.5363	99.4904	99.4287	99.4047	99.4037	99.4016	99.4011	99.4010	99.4010	
T = 50000 LOG BETA(1,2) = -2.00										
-LOG W	0.00	1.00	2.00	3.00	3.50	4.00	5.00	6.00	7.00	10.00
LOG X	-2.00	-1.00	0.00	1.00	1.50	2.00	3.00	4.00	5.00	8.00
LOG E(I)										
I=1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	99.4566	99.2623	98.6820	97.8439	97.3781	96.8899	95.8943	94.8947	93.8948	90.8948
3	99.4546	99.1679	98.3279	97.0490	96.2833	95.5923	94.4894	93.4737	92.4725	89.4724
4	99.4931	99.1455	98.1424	96.7626	96.1100	95.5677	94.5561	93.5551	92.5550	89.5550
5	99.5330	99.1492	98.0871	96.7641	96.1765	95.6574	94.6514	93.6508	92.6507	89.6507
6	99.5718	99.1722	98.0663	96.7607	96.2292	95.7229	94.7208	93.7206	92.7205	89.7205
+	21.1397	20.0477	18.9325	17.9023	17.3994	16.8985	15.8981	14.8980	13.8980	10.8980
LOG BH(I)										
I=1	99.9210	1.0130	2.1282	3.1584	3.6613	4.1622	5.1626	6.1627	7.1627	10.1627
2	99.8036	0.7012	1.2363	1.4283	1.4653	1.4781	1.4830	1.4834	1.4835	1.4835
3	99.6398	0.4451	0.7203	0.4715	0.2087	0.0187	99.9122	99.9006	99.8994	99.8993
4	99.4949	0.2392	0.3514	0.0017	99.8520	99.8107	99.7994	99.7985	99.7984	99.7984
5	99.3719	0.0800	0.1332	99.8404	99.7557	99.7375	99.7319	99.7313	99.7313	99.7313
6	99.2691	99.9615	99.9709	99.6954	99.6668	99.6615	99.6597	99.6595	99.6595	99.6595
LOG BETA(I,J)										
I=1 J=6	99.7065	99.7118	99.7194	99.7218	99.7221	99.7222	99.7223	99.7223	99.7223	99.7223
2	99.3219	99.4854	99.8286	99.9733	99.9908	99.9970	99.9997	0.0000	0.0000	0.0000
3	98.6046	98.8571	99.6009	99.9747	99.9961	99.9993	0.0000	0.0000	0.0000	0.0000
4	97.8368	98.1436	99.0866	99.9364	99.9892	99.9973	99.9997	0.0000	0.0000	0.0000
5	97.7938	98.1431	99.1192	99.9304	99.9873	99.9966	99.9997	0.0000	0.0000	0.0000
I=1 J=5	99.5284	99.5352	99.5455	99.5489	99.5493	99.5495	99.5495	99.5495	99.5495	99.5495
2	99.0195	99.1901	99.6678	99.9438	99.9805	99.9936	99.9994	99.9999	0.0000	0.0000
3	98.1768	98.4137	99.1852	99.9266	99.9886	99.9981	99.9999	0.0000	0.0000	0.0000
4	97.0803	97.3615	98.2925	99.6786	99.9422	99.9859	99.9987	99.9999	0.0000	0.0000
I=1 J=4	99.2303	99.2374	99.2488	99.2529	99.2533	99.2535	99.2536	99.2536	99.2536	99.2536
2	98.5924	98.7526	99.2860	99.8415	99.9430	99.9812	99.9981	99.9998	0.0000	0.0000
3	97.4334	97.6494	98.3714	99.5675	99.9215	99.9876	99.9993	99.9999	0.0000	0.0000
I=1 J=3	98.7765	98.7816	98.7905	98.7940	98.7945	98.7946	98.7947	98.7947	98.7947	98.7947
2	97.8442	97.9887	98.4870	99.2646	99.6478	99.8699	99.9861	99.9986	99.9999	0.0000
I=1 J=2	98.0000	98.0000	98.0000	98.0000	98.0000	98.0000	98.0000	98.0000	98.0000	98.0000
LOG F(I)/F(4)										
I=3	99.8026	99.8479	99.9759	0.2989	0.4675	0.5027	0.5067	0.5067	0.5067	0.5067
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	99.9949	99.9689	99.8543	99.6317	99.6318	99.6300	99.6244	99.6236	99.6236	99.6236
6	99.9450	99.8963	99.6034	99.2668	99.3039	99.3080	99.3032	99.3025	99.3024	99.3024

BALMER DECREMENTS

(Continued)
T = 50000

-LOG W LOG X	LOG BETA0(1,2) = -4.00			LOG BETA0(1,2) = -5.00								
	9.00 5.00	10.00 6.00	11.00 7.00	0.00 -5.00	1.00 -4.00	2.00 -3.00	3.00 -2.00	4.00 -1.00	5.00 0.00	6.00 1.00	6.50 1.50	7.00 2.00
LOG E(I)												
1=1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	93.9230	92.9280	91.9280	99.4884	99.4881	99.4850	99.4560	99.2604	98.6854	97.8608	97.3994	96.9174
3	90.5485	89.5346	88.5332	99.5005	99.5001	99.4957	99.4541	99.1661	98.3246	97.0498	96.2597	95.3887
4	90.6319	89.6309	88.6308	99.5491	99.5486	99.5432	99.4925	99.1433	98.1384	96.5858	95.6166	94.5196
5	90.7420	89.7417	88.7417	99.5935	99.5949	99.5887	99.5302	99.1351	98.0390	96.3472	95.2688	94.0115
6	90.8145	89.8144	88.8144	99.6363	99.6366	99.6286	99.5623	99.1248	97.9403	96.5053	94.7899	93.3348
+	11.8980	10.8980	9.8980	21.1585	20.1583	19.1564	18.1591	17.0465	15.9324	14.9024	14.3995	13.8985
LOG BN(I)												
1=1	9.1627	10.1627	11.1627	99.9022	0.9024	1.9043	2.9215	4.0142	5.1283	6.1583	6.6612	7.1622
2	3.5167	3.5167	3.5167	99.8166	0.8165	1.8153	2.8036	3.7006	4.2397	4.4451	4.4866	4.5056
3	99.9754	99.9614	99.9600	99.6669	0.6667	1.6642	2.6398	3.4445	4.3721	3.4723	3.1852	2.8151
4	99.8753	99.8743	99.8742	99.5321	0.5317	1.5283	2.4948	3.2383	3.3474	2.8249	2.3585	1.7626
5	99.8226	99.8223	99.8223	99.4156	0.4152	1.4109	2.3696	3.0673	3.0852	2.4234	1.8479	1.0916
6	99.7534	99.7534	99.7534	99.3148	0.3143	1.3092	2.2601	2.9154	2.8449	1.9849	1.2275	0.2734
LOG BETA(I,J)												
1=1 J=6	97.8382	97.8382	97.8382	96.8086	96.8086	96.8088	96.8104	96.8195	96.8330	96.8374	96.8379	96.8381
2	99.9997	99.9997	0.0000	96.2972	96.2975	96.3000	96.3248	96.3526	97.0645	97.8857	98.3469	98.8290
3	0.0000	0.0000	0.0000	95.5656	95.5659	95.5692	95.6009	95.8447	96.6366	97.8795	98.6627	99.5078
4	0.0000	0.0000	0.0000	94.7883	94.7886	94.7922	94.8275	95.1091	96.0317	97.5052	98.4447	99.5072
5	0.0000	0.0000	0.0000	94.7351	94.7355	94.7392	94.7760	95.0775	96.0460	97.5798	98.5849	99.6987
1=1 J=5	97.5825	97.5825	97.5825	96.5546	96.5547	96.5548	96.5563	96.5647	96.5774	96.5817	96.5822	96.5824
2	99.9993	99.9999	0.0000	95.9928	95.9930	95.9956	96.0196	96.1911	96.7415	97.5569	98.0172	98.4989
3	0.0000	0.0000	0.0000	95.1414	95.1417	95.1449	95.1756	95.4094	96.1783	97.4000	98.1747	99.0362
4	0.0000	0.0000	0.0000	94.0376	94.0379	94.0414	94.0759	94.3464	95.2458	96.6939	97.6109	98.6570
1=1 J=4	97.2553	97.2553	97.2553	96.2302	96.2302	96.2304	96.2316	96.2388	96.2504	96.2545	96.2550	96.2552
2	99.9979	99.9998	0.0000	95.5674	95.5677	95.5701	95.5929	95.6516	96.2844	97.0875	97.5454	98.0262
3	0.0000	0.0000	0.0000	94.4016	94.4019	94.4049	94.4339	94.7540	95.4783	96.5487	97.3054	98.1516
1=1 J=3	96.7947	96.7947	96.7947	95.7755	95.7755	95.7756	95.7765	95.7816	95.7905	95.7940	95.7945	95.7946
2	99.9848	99.9985	99.9998	94.8214	94.8216	94.8238	94.8447	94.9908	95.4819	96.2485	96.6938	97.1675
+	96.0000	96.0000	96.0000	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000
LOG F(I)/F(4)												
1=3	0.4929	0.4917	0.4916	99.7947	99.7948	99.7955	99.8027	99.8483	99.9730	0.2144	0.3809	0.5996
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	99.6394	99.6388	99.6388	99.9996	99.9995	99.9988	99.9922	99.9562	99.8856	99.7586	99.6518	99.4924
6	99.3213	99.3206	99.3205	99.9538	99.9537	99.9522	99.9385	99.8665	99.7189	99.3995	99.1118	98.7549

(Continued)
T = 50000

-LOG W LOG X	LOG BETA0(1,2) = -5.00												
	7.25 2.25	7.50 2.50	7.75 2.75	8.00 3.00	8.25 3.25	8.50 3.50	8.75 3.75	9.00 4.00	9.50 4.50	10.00 5.00	11.00 6.00	12.00 7.00	13.00 8.00
LOG E(I)													
1=1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	96.6718	96.4246	96.1762	95.9271	95.6777	95.4280	95.1782	94.9282	94.4283	93.9283	92.9283	91.9283	90.9283
3	94.9300	94.4574	93.9726	93.4725	92.9608	92.4428	91.9239	91.4096	90.4410	89.6810	88.5492	87.5352	86.5358
4	93.9222	93.2904	92.6268	92.0748	91.6730	91.3361	91.0208	90.7207	90.1639	89.6421	88.6327	87.6317	86.6316
5	93.3006	92.6533	92.2120	91.8483	91.5927	91.3078	91.0329	90.7666	90.2507	89.7453	88.7430	87.7428	86.7428
6	92.8065	92.4654	92.1606	91.8804	91.6073	91.3412	91.0807	90.8244	90.3185	89.8165	88.8157	87.8156	86.8156
+	13.6483	13.3982	13.1481	12.8981	12.6480	12.3980	12.1480	11.8980	11.3980	10.8980	9.8980	8.8980	7.8980
LOG BN(I)													
1=1	7.4124	7.6625	7.9126	8.1626	8.4126	8.6627	8.9127	9.1627	9.6627	10.1627	11.1627	12.1627	13.1627
2	4.5103	4.5131	4.5148	4.5158	4.5164	4.5167	4.5168	4.5169	4.5170	4.5170	4.5170	4.5170	4.5170
3	2.6066	2.3841	2.1494	1.8994	1.6377	1.3697	1.1008	0.8359	0.3678	0.1079	99.9761	99.9621	99.9607
4	1.4154	1.0336	0.6202	0.3182	0.1664	0.0795	0.0142	99.9641	99.9069	99.8855	99.8761	99.8751	99.8750
5	0.6309	0.2338	0.0425	99.9688	99.9232	99.8884	99.8634	99.8471	99.8312	99.8259	99.8236	99.8233	99.8233
6	99.9952	99.8942	99.8495	99.8193	99.7963	99.7801	99.7697	99.7634	99.7574	99.7555	99.7547	99.7546	99.7546
LOG BETA(I,J)													
1=1 J=6	96.8381	96.8381	96.8381	96.8381	96.8382	96.8382	96.8382	96.8382	96.8382	96.8382	96.8382	96.8382	96.8382
2	99.0745	99.3182	99.5597	99.7116	99.8278	99.8999	99.9426	99.9674	99.9896	99.9997	0.0000	0.0000	0.0000
3	99.7965	99.9273	99.9758	99.9923	99.9976	99.9993	99.9998	99.9999	0.0000	0.0000	0.0000	0.0000	0.0000
4	99.8471	99.9637	99.9928	99.9983	99.9994	99.9998	99.9999	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	99.9401	99.9901	99.9975	99.9990	99.9996	99.9999	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1=1 J=5	96.5825	96.5825	96.5825	96.5825	96.5825	96.5825	96.5825	96.5825	96.5825	96.5825	96.5825	96.5825	96.5825
2	98.7445	98.9917	99.2387	99.4718	99.6623	99.7959	99.8805	99.9313	99.9779	99.9999	99.9999	99.9999	0.0000
3	99.4744	99.7850	99.9250	99.9759	99.9926	99.9978	99.9993	99.9998	0.0000	0.0000	0.0000	0.0000	0.0000
4	99.2289	99.7339	99.9437	99.9875	99.9960	99.9984	99.9994	99.9997	99.9999	0.0000	0.0000	0.0000	0.0000
1=1 J=4	96.2552	96.2552	96.2552	96.2553	96.2553	96.2553	96.2553	96.2553	96.2553	96.2553	96.2553	96.2553	96.2553
2	98.2716	98.5187	98.7671	99.0161	99.2636	99.4943	99.6792	99.8070	99.9353	99.9792	99.9979	99.9998	0.0000
3	98.6007	99.0654	99.5188	99.8182	99.9413	99.9822	99.9947	99.9985	99.9999	0.0000	0.0000	0.0000	0.0000
1=1 J=3	95.7947	95.7947	95.7947	95.7947	95.7947	95.7947	95.7947	95.7947	95.7947	95.7947	95.7947	95.7947	95.7947
2	97.4108	97.6567	97.9042	98.1527	98.4019	98.6514	98.9011	99.1506	99.6947	99.8556	99.9847	99.9985	99.9998
+	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000
LOG F(I)/F(4)													
1=3	0.7364	0.8943	1.0723	1.1237	1.0154	0.8532	0.7144	0.6213	0.5332	0.5046	0.4927	0.4915	0.4914
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	99.3791	99.3638	99.5847	99.7971	99.8462	99.8012	99.7413	99.6981	99.6575	99.6448	99.6396	99.6391	99.6390
6	98.8241	99.1013	99.4453	99.6380	99.6354	99.5476	99.4603	99.4010	99.3461	99.3288	99.3217	99.3210	99.3209