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Atomic Structure Calculations
I. Hartree-Fock Energy Results for
the Elements Hydrogen to Lawrencium

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ATOMIC STRUCTURE CALCULATIONS. I. HARTREE-FOCK
ENERGY RESULTS FOR THE ELEMENTS HYDROGEN TO LAWRENCIUM

by
Joseph B. Mann

ABSTRACT

Hartree-Fock calculations of the electronic structure and energies of the elements from hydrogen to lawrencium were made. Exchange terms were included without approximation. Tabulations of total atom energies; orbital binding energies; I, F, and G energy integrals; and orthogonality parameters ϵ_{ij} for open shells are presented here. The procedures for solving the Hartree-Fock equations on the IBM 7030 (Stretch) computer are described.

The self-consistent field method of Hartree and Fock is one of the most important tools in the study of atomic structure. One wishes to obtain eigenfunctions and eigenvalues (wavefunctions and energies) of the many electron Schroedinger equation of an atom

$$H \Psi = \left(\sum_i -\frac{\hbar^2}{2m} \nabla_i^2 - \frac{Ze^2}{r_i} + \sum_{i<j} \frac{e^2}{r_{ij}} \right) \Psi = E \Psi \quad (1)$$

The interaction of each pair of electrons as a function of their separation distance r_{ij} causes extreme difficulty in the solution of (1), and very little progress has been made except for the lightest elements. The methods of Hartree and Fock showed that very good approximate solutions are obtained by assuming a factorization of the atom wavefunction Ψ into functions depending on the coordinates (including spin) of a single electron. Hartree implicitly assumed independence of these orbital wavefunctions by writing $\Psi = u_1(1) u_2(2) \cdots u_N(N)$. The contribution of Fock (and of Slater) was to recognize that the correct antisymmetry exchange properties of atoms were obtained by taking a sum of terms in the form of the de-

terminant

$$\Psi = (N!)^{-\frac{1}{2}} \begin{vmatrix} u_1(1) & u_1(2) & \cdots & u_1(N) \\ u_2(1) & u_2(2) & \cdots & u_2(N) \\ \dots & \dots & \dots & \dots \\ u_N(1) & u_N(2) & \cdots & u_N(N) \end{vmatrix}, \quad (2)$$

where the u subscripts stand for sets of quantum numbers of the electrons, whose space and spin coordinates are symbolized by 1, 2, ..., N . The complete wavefunction for an atom with a particular electron configuration in this approximation would be the sum of several such determinantal functions with appropriate coefficients. For example, if the atom has a single p electron there are six possible sets of quantum numbers designating the possible combinations of n , l , m_l , and m_s . The complete wavefunction would then have six determinants. Fortunately, one may use a single determinant, to calculate averaged properties and energies of the electron in such a configuration. Energies of the individual states may then be calculated as deviations from this average. For the derivation of the Hartree-Fock equations the reader is referred to any of

several good texts. In particular, the author has used Slater's Quantum Theory of Atomic Structure,¹ his nomenclature and system of atomic units have been employed here. The angular and spin dependence of the atom wavefunction are well known and are described in the texts. The resulting equations which remain to be solved are for the radial wavefunctions of the electron shells. As inferred above, all of the electrons of a particular n_l shell are assumed to have the same radial dependence. Two radial wavefunctions $R_{n_l}(r)$ and $P_{n_l}(r)$ have been used in the past, and are related by the expression $P_{n_l}(r) = r R_{n_l}(r)$. The equations are somewhat simpler in terms of $P_{n_l}(r)$, and this wavefunction has been used exclusively in the present calculations.

The Hartree-Fock equations for the n_l shells of an atom are derived by setting up an expression for the total energy of the atom (the closest approach to the Hamiltonian for the wavefunction approximation), and then using the variation method for the lowest energy consistent with orthonormality of the wavefunctions. The equation for one orbital, expressed in the atomic units used by Slater,¹ is

$$\left\{ -\frac{d^2}{dr^2} - \epsilon_i - \frac{2Z}{r} + \frac{l_i(l_i+1)}{r^2} + \sum(\text{all shells}) \frac{2\omega_j}{r} Y_0(n_j, l_j; n_j, l_j/r) \right\} P_{n_i, l_i}(r) \\ = \frac{2}{r} \left\{ Y_0(n_i, l_i, n_i, l_i/r) + \frac{\omega_i - 1}{4l_i + 1} \sum_{k=2,4,6} c^k(l_i, 0, l_i, 0) Y_k(n_i, l_i, n_i, l_i/r) \right\} P_i \\ + \sum_{n_j, l_j \neq n_i, l_i} \frac{\omega_j}{\sqrt{(4l_j+2)(4l_i+2)}} \sum_k (k) c^k(l_i, 0; l_j, 0) Y_k(n_i, l_i; n_j, l_j/r) P_{n_j, l_j}(r) + \sum_{j \neq i, l_j = l_i} \omega_j \epsilon_{ij} P_{n_j, l_j}(r). \quad (3)$$

The terms ϵ_i and ϵ_{ij} are variation parameters for maintaining normalization of all orbitals and orthogonality of the orbitals of equal azimuthal quantum number l_i . The orthonormalization condition is

$$\int_0^\infty P_{n_i, l_i}(r) P_{n_j, l_j}(r) dr = \delta(l_i, l_j) \begin{cases} = 1, & l_i = l_j \\ = 0, & l_i \neq l_j \end{cases}$$

The angular dependence of the wavefunctions assures orthogonality for orbitals of different l . Z is the

atomic number, and ω_j is the number of electrons in shell j . Radial units are the Bohr unit (a_0 cm = 0.5292 angstrom); all energies are expressed in rydbergs (approximately 13.605 eV). The Y_k terms are

$$Y_k(i, j) = r^{-k} \int_0^r r^k P_i P_j dr + r^{k+1} \int_r^\infty P_i P_j r^{-(k+1)} dr \quad (4)$$

where now and in future equations the complicated notation $n_i l_i$ will be shortened to simply i , and the notation of Y_k in (3) will be simply $Y_k(i, j)$. The $c^k(i, j)$ terms are coefficients, sometimes called Condon-Shortley coefficients, and are tabulated in various texts, including Appendix 20 of Reference 1. In this work further abbreviations have been used for the coulomb potential, the correction (or added) terms to the coulomb potential, and the sums of products of other wavefunctions P_j and remaining exchange potential terms:

$$V_{\text{coul}} = \sum_j \omega_j \frac{2}{r} Y_0(j, j) \quad (5)$$

$$V_{\text{add}_i} = \frac{2}{r} Y_0(i, i) + \frac{\omega_i - 1}{4l_i + 1} \sum_{k=2,4,6} c^k(i, i) Y_k(i, i) \quad (6)$$

$$V_{\text{pex}_i} = \frac{2}{r} \sum_{j \neq i} \frac{\omega_j}{\sqrt{(4l_j+2)(4l_i+2)}} \sum_k c^k(i, j) Y_k(i, j) P_j \\ + \sum_{j \neq i, l_j = l_i} \omega_j \epsilon_{ij} P_j \quad (7)$$

The equation for one orbital then becomes

$$\left\{ -\frac{d^2}{dr^2} - \epsilon_i - \frac{2Z}{r} + \frac{l_i(l_i+1)}{r^2} + V_{\text{coul}}(r) - V_{\text{add}_i}(r) \right\} P_i = V_{\text{pex}_i}(r) \quad (8)$$

The simultaneous solution of Equation (8) for all shells would be very complicated, and has not been done. Instead, one starts with approximate wavefunctions and ϵ_i parameters and calculates the various Y_k terms. The solution for each P_i then proceeds with the Y_k and P_j terms held constant. New Y_k terms are then calculated, and another iteration begun. The final wavefunctions are those obtained after various criteria of self-consistency are satisfied. Hartree² suggests the use of the ϵ_{ij} orthogonality parameter for all orbitals of equal l during the calculation. It was found, however, that this greatly increased the necessary machine time. With ϵ_{ij} set equal to 0 for closed-shell interactions, the worst orthogonality, $\int P_i P_j dr$, was less than 5×10^{-5} . The ϵ_{ij} terms have been included for the interaction of any open shell with all others of equal l .

In the Hartree method of atomic structure calculations without exchange, the second term of V_{add} and all of the V_{pex} term are missing. If one then neglects the ϵ_{ij} terms, which actually are small even for open shells, the resulting equation is homogeneous in P_i , and the solution is greatly simplified. In other Hartree-Fock calculations, such as that of Herman and Skillman,³ the Slater $\rho^{1/3}$ approximation,⁴ based on properties of a free-electron gas, has been employed to simplify the exchange potential calculations. (Reference 3 is highly recommended for its lucid discussion of many points encountered in numerical calculations of atomic structure. If one desires to make approximate relativistic corrections to the Hartree-Fock energies of this work, the tabulations of Herman and Skillman are probably applicable.) Only one exchange term summation, $\sum P_j^2$, is then required per iteration. If one considers the 492 separate evaluations of Y_k at each radial mesh point per iteration for a heavy element such as uranium, it becomes obvious why the approximation has been used, and why at the start of

this work Hartree-Fock calculation results were available for only a very few elements above atomic number 36. The large memory (98304 words) and word length (64 binary bits) of the IBM 7030 (Stretch) computer made this more correct Hartree-Fock calculation feasible. To date the calculations have been carried out for all the elements to atomic number 103 in their ground state configuration, as well as various other alternate configurations. Various ions such as Ar^+ (with a 1s, 2s, 2p, 3s, or 3p electron removed), Cl^- , H^- , Li^+ , and all of the triply ionized rare earth elements have been run, but are not reported here.

This report is primarily concerned with the various energies of the atom which are obtained during the solution for the wavefunctions (such as the ϵ_i and ϵ_{ij} parameters), or which can be calculated from the final self-consistent wavefunctions. Included in the latter category are I, F, and G integrals described below, and the total energy of the atom.

An understanding of the details of the wavefunction calculation is not needed for use of the energy results. For those interested in the calculation techniques, a fairly detailed description is included as an Appendix.

The Hartree-Fock equations deal with time-averaged electron distributions in the various shells. The exchange terms introduced by the use of Slater's determinantal wavefunctions prevent the close approach of two electrons of equal spin, but correlation effects due to the repulsion of electrons of unequal spin at small separations are not handled correctly. Correlation effects on the wavefunctions are generally small, and have been calculated only for the lightest elements. Relativistic effects become important for the heavier elements but are not included in the usual Hartree-Fock formulation. Hartree-Fock results are highly useful for many purposes, but it should be realized that the neglect of the above effects does reduce the accuracy of conclusions drawn for heavy elements such as the actinides.

Description of Tables

Table I shows the electron configurations for each atom, and provides a tabulation of the total atom energies. The total energy is not the energy of the lowest

level of the atom, but rather of the center of gravity of the configuration. The configurations of the first 103 elements listed are believed to be ground-state configurations. Since the ground-state configuration of the heaviest elements (97 to 102) have not been determined by analysis of the optical spectra, calculations have been made for likely alternate configurations of these elements. Cerium and terbium have also been included with alternate configurations. It should be mentioned here that although the total energy for terbium is lower for the $4f^9 6s^2$ configuration than for $4f^8 5d6s^2$, one finds that the lowest multiplet ($^8 G$) of $4f^8 5d6s^2$ is slightly lower than that of $4f^9 6s^2$ ($^8 H$), in agreement with experiment.

The ϵ_i term of Equation (3) has been referred to as a variational parameter which is adjusted to force normalization of the wavefunction P_i . It was shown by Koopmans⁵ that the ϵ_i is a "binding energy," and a fairly good approximation to the ionization potential of the electron. If Equation (3) is multiplied by P_i and integrated, an expression for ϵ_i is obtained which shows that it is the energy required to remove the electron from the atom to produce a somewhat fictitious ion in which the wavefunctions of all remaining orbitals is unchanged. In fact, the remaining orbitals are drawn toward the nucleus because of the absence of the partial shielding by the removed electron. The binding energy, as ϵ_i will henceforth be called, is thus greater than the difference that would be found by separate calculations of the total energies of atom and ion. Table II is a tabulation of the binding energies of all orbitals for the configurations of Table I.

The average energy of the atom, or the diagonal matrix component of the Hamiltonian in the Hartree-Fock approximation, may be derived from the atom wavefunction of Equation (2) and written as summations of one- and two-electron operators

$$(H)_{av} = \sum \int u_i^* f_i u_i dv + \sum (\text{pairs } i, j) \int u_i^* (1) u_j^* (2) g_{12} [u_i(1)u_j(2) - \delta(m_{s1} m_{sj})u_i(2)u_j(1)] dv_1 dv_2, \quad (9)$$

where the u_i and u_j now represent only the spatial orbitals.

The first term is the sum of the kinetic energy and the potential from the field of the nucleus. It is designated $I(n\ell)$:

$$I(n\ell) = \int u_i^* f_i u_i dv, \text{ where } f_i = -\nabla_i^2 - \frac{2Z}{r}$$

$$I(n\ell) = \int_0^\infty P_i \left\{ -\frac{d^2}{dr^2} - \frac{2Z}{r} + \frac{\ell_i(\ell_i+1)}{r^2} \right\} P_i dr \quad (10)$$

$$= \int_0^\infty \left[r^{\ell+1} \frac{d}{dr} \left(\frac{P}{r^{\ell+1}} \right) \right]^2 dr - 2Z \left\langle \frac{1}{r} \right\rangle, \quad (11)$$

where $\left\langle \frac{1}{r} \right\rangle$, the average or expectation value of $1/r$, is $\int (1/r) P_i^2 dr$. The last expression is the one used in this work; the transformation from (10) to (11) was suggested by Freeman and Löwdin,⁶ and is considerably more accurate for numerical computation. The one-electron energy integrals $I(n\ell)$ are listed in Table III.

The next part of the Hamiltonian of Equation (9) involves the so-called coulomb energy

$$(ij/g/ij) = \int u_i^*(1) u_j^*(2) g_{12} u_i(1) u_j(2) dv_1 dv_2, \quad (12)$$

where $g_{12} = 2/r_{ij}$, and r_{ij} is the distance between pairs of electrons. After a good deal of manipulation, the resulting expression is

$$(ij/g/ij) = \sum_k c^k(\ell_i m_{\ell_i}; \ell_i m_{\ell_i}) c^k(\ell_j m_{\ell_j}; \ell_j m_{\ell_j}) F^k(n_i \ell_i; n_j \ell_j), \quad (13)$$

where the c^k are coefficients previously mentioned, and

$$F^k(n_i \ell_i; n_j \ell_j) = \int_0^\infty \frac{2}{r} P_i^2 Y_k(n_j \ell_j; n_j \ell_j/r) dr. \quad (14)$$

The Y_k term has been previously defined in Equation (4).

The last part of the Hamiltonian, which enters only for electrons of equal spin, is the exchange energy term:

$$(ij/g/ji) = \delta(m_{s1}, m_{sj}) \int u_i^*(1) u_j^*(2) g_{12} u_i(2) u_j(1) dv_1 dv_2$$

$$= \delta(m_{s1}, m_{sj}) \sum_k [c^k(\ell_i m_{\ell_i}; \ell_j m_{\ell_j})]^2 G^k(n_i \ell_i; n_j \ell_j), \quad (15)$$

where

$$G^k(n_i, \ell_i, n_j, \ell_j) = \int_0^\infty \frac{2}{r} P_i P_j Y_k(n_i, \ell_i, n_j, \ell_j / r) dr. \quad (16)$$

Fortunately the summations over k in (13) and (15) are not infinite series, but break off at low values of k (a maximum k of 6 is found in $f-f$ electron interactions). All F^k integrals are tabulated in Table IV. The G^k integrals are given in Table V.

For many simple atoms the F^k and G^k integrals are sufficient for the calculation of multiplet splittings of the configuration. For others, a spin-orbit parameter and a

spin-spin parameter are needed. The theory for these parameters is not yet firm (particularly for the case of two or more open shells), and they have not been calculated in this work.

Table VI is a listing of the orthogonality parameters ϵ_{ij} , which were calculated only when either shell i or j was not fully occupied. The method of calculation of these parameters is described in the Appendix.

A later report⁷ will include tables of radial wavefunctions of the elements, as well as tables of radial expectation values.

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Table I. Electron Configurations and Total Energies of the Atoms
(The elements Ce, Tb, Tm, and Bk through 102 are included in two different configurations.)

Z		Configuration	-E, Rydberg Units	Z		Configuration	-E, Rydberg Units
1	H	1s	1.000000	37	Rb	[Kr] + 5s	5876.716
2	He	1s ²	5.723360	38	Sr	5s ²	6263.092
3	Li	1s ² 2s	14.86545	39	Y	4d5s ²	6663.369
4	Be	1s ² 2s ²	29.14605	40	Zr	4d ² 5s ²	7077.938
5	B	1s ² 2s ² 2p	49.05812	41	Nb	4d ⁴ 5s	7506.984
6	C	1s ² 2s ² 2p ²	75.31940	42	Mo	4d ⁵ 5s	7950.739
7	N	1s ² 2s ² 2p ³	108.5923	43	Tc	4d ⁵ 5s ²	8409.215
8	O	1s ² 2s ² 2p ⁴	149.5384	44	Ru	4d ⁷ 5s	8882.913
9	F	1s ² 2s ² 2p ⁵	198.8187	45	Rh	4d ⁸ 5s	9371.675
10	Ne	1s ² 2s ² 2p ⁶	257.0942	46	Pd	[Kr] + 4d ¹⁰	9875.844
11	Na	[Ne] + 3s	323.7178	47	Ag	4d ¹⁰ 5s	10395.40
12	Mg	3s ²	399.2293	48	Cd	4d ¹⁰ 5s ²	10930.27
13	Al	3s ² 3p	483.7535	49	In	4d ¹⁰ 5s ² 5p	11480.34
14	Si	3s ² 3p ²	577.6693	50	Sn	4d ¹⁰ 5s ² 5p ²	12045.83
15	P	3s ² 3p ³	681.2978	51	Sb	4d ¹⁰ 5s ² 5p ³	12626.85
16	S	3s ² 3p ⁴	794.9572	52	Te	4d ¹⁰ 5s ² 5p ⁴	13223.53
17	Cl	3s ² 3p ⁵	918.9642	53	I	4d ¹⁰ 5s ² 5p ⁵	13835.96
18	Ar	[Ne] + 3s ² 3p ⁶	1053.635	54	Xe	[Kr] + 4d ¹⁰ 5s ² 5p ⁶	14464.28
19	K	[Ar] + 4s	1198.330	55	Cs	[Xe] + 6s	15107.87
20	Ca	4s ²	1353.517	56	Ba	6s ²	15767.09
21	Sc	3d4s ²	1519.472	57	La	5d6s ²	16442.14
22	Ti	3d ² 4s ²	1696.740	58	Ce	4f5d6s ²	17133.70
23	V	3d ³ 4s ²	1885.607	59	Pr	4f ³ 6s ²	17842.13
24	Cr	3d ⁵ 4s	2086.284	60	Nd	4f ⁴ 6s ²	18567.40
25	Mn	3d ⁵ 4s ²	2299.252	61	Pm	4f ⁵ 6s ²	19309.73
26	Fe	3d ⁶ 4s ²	2524.582	62	Sm	4f ⁶ 6s ²	20069.27
27	Co	3d ⁷ 4s ²	2762.617	63	Eu	4f ⁷ 6s ²	20846.16
28	Ni	[Ar] + 3d ⁸ 4s ²	3013.632	64	Gd	[Xe] + 4f ⁷ 5d6s ²	21640.26
29	Cu	3d ¹⁰ 4s	3277.920	65	Tb	4f ⁸ 5d6s ²	22452.29
30	Zn	3d ¹⁰ 4s ²	3555.697	66	Dy	4f ¹⁰ 6s ²	23282.47
31	Ga	3d ¹⁰ 4s ² 4p	3846.522	67	Ho	4f ¹¹ 6s ²	24130.28
32	Ge	3d ¹⁰ 4s ² 4p ²	4150.681	68	Er	4f ¹² 6s ²	24996.19
33	As	3d ¹⁰ 4s ² 4p ³	4468.345	69	Tm	4f ¹³ 6s ²	25880.35
34	Se	3d ¹⁰ 4s ² 4p ⁴	4799.687	70	Yb	4f ¹⁴ 6s ²	26782.92
35	Br	3d ¹⁰ 4s ² 4p ⁵	5144.883	71	Lu	4f ¹⁴ 5d6s ²	27703.62
36	Kr	[Ar] + 3d ¹⁰ 4s ² 4p ⁶	5504.111	72	Hf	[Xe] + 4f ¹⁴ 5d ² 6s ²	28642.46

Table I (Continued)

Z	Configuration	-E, Rydberg Units	Z	Configuration	-E, Rydberg Units
73	Ta [Xe]+ 4f ¹⁴ 5d ³ 6s ²	29599.52	91	Pa [Rn]+ 5f ² 6d7s ²	50014.12
74	W 4f ¹⁴ 5d ⁴ 6s ²	30574.91	92	U 5f ³ 6d7s ²	51328.44
75	Re 4f ¹⁴ 5d ⁵ 6s ²	31568.73	93	Np 5f ⁴ 6d7s ²	52662.55
76	Os 4f ¹⁴ 5d ⁶ 6s ²	32581.09	94	Pu 5f ⁶ 7s ²	54016.96
77	Ir 4f ¹⁴ 5d ⁷ 6s ²	33612.09	95	Am 5f ⁷ 7s ²	55391.06
78	Pt 4f ¹⁴ 5d ⁹ 6s	34662.14	96	Cm 5f ⁷ 6d7s ²	56784.72
79	Au 4f ¹⁴ 5d ¹⁰ 6s	35730.82	97	Bk 5f ⁸ 6d7s ²	58199.08
80	Hg 4f ¹⁴ 5d ¹⁰ 6s ²	36817.99	98	Cf 5f ¹⁰ 7s ²	59634.51
81	Tl 4f ¹⁴ 5d ¹⁰ 6s ² 6p	37923.66	99	Es 5f ¹¹ 7s ²	61089.73
82	Pb [Xe]+ 4f ¹⁴ 5d ¹⁰ 6s ² 6p ²	39047.99	100	Fm [Rn]+ 5f ¹² 7s ²	62565.49
83	Bi 4f ¹⁴ 5d ¹⁰ 6s ² 6p ³	40191.07	101	Md 5f ¹³ 7s ²	64061.89
84	Po 4f ¹⁴ 5d ¹⁰ 6s ² 6p ⁴	41352.97	102	No 5f ¹⁴ 7s ²	65579.05
85	At 4f ¹⁴ 5d ¹⁰ 6s ² 6p ⁵	42533.77	103	Lw [Rn]+ 5f ¹⁴ 6d7s ²	67115.93
86	Rn [Xe]+ 4f ¹⁴ 5d ¹⁰ 6s ² 6p ⁶	43733.56			
87	Fr [Rn]+ 7s	44951.73			
88	Ra 7s ²	46188.62	58	Ce [Xe]+ 4f ² 6s ²	17133.76
89	Ac 6d7s ²	47444.40	65	Tb [Xe]+ 4f ⁹ 6s ²	22452.61
90	Th 6d ² 7s ²	48719.22	97	Bk [Rn]+ 5f ⁹ 7s ²	58199.74
			98	Cf 5f ⁹ 6d7s ²	59633.78
			99	Es 5f ¹⁰ 6d7s ²	61088.92
			100	Fm 5f ¹¹ 6d7s ²	62564.59
			101	Md 5f ¹⁰ 6d7s ²	64060.92
			102	No [Rn]+ 5f ¹³ 6d7s ²	65578.00

TABLE II. ORBITAL BINDING ENERGIES. VALUES IN RYDBERGS, ALL ARE NEGATIVE

	H	HE	LI	BE	B	C	N	O	F
1S	1.000000	1.835905	4.955481	9.465326	15.39064	22.67682	31.33277	41.36175	52.76547
2S			.3926455	.6185369	.9894115	1.424123	1.927336	2.500713	3.145058
2P					.6197130	.8137992	1.017308	1.232374	1.460029
	NE	NA	MG	AL	SI	P	S	CL	A
1S	65.54484	80.95690	98.06330	117.0018	137.6384	159.9777	184.0208	209.7678	237.2196
2S	3.860779	5.594043	7.535428	9.821326	12.32595	15.05748	18.01974	21.21483	24.64415
2P	1.700819	3.036273	4.564445	6.436595	8.524825	10.83686	13.37609	16.14438	19.14284
3S		.3642034	.5061048	.7868394	1.087187	1.412715	1.765305	2.145819	2.554698
3P				.4199015	.5574878	.7011242	.8526181	1.012791	1.182024
	K	CA	SC	TI	V	CR	MN	FE	CO
1S	267.0649	298.7261	331.7984	366.5654	403.0440	440.8826	481.1597	522.8002	566.1647
2S	28.97977	33.64532	38.16120	42.86982	47.79376	52.53670	58.31958	63.92929	69.77327
2P	23.03853	27.25850	31.33646	35.60602	40.08885	44.39684	49.72471	54.88511	60.27665
3S	3.497554	4.490738	5.134628	5.764083	6.397667	6.664795	7.701961	8.378373	9.073120
3P	1.908842	2.681403	3.149085	3.605791	4.066920	4.192335	5.022263	5.520982	6.035327
3D			.6874181	.8116391	.9223623	.6449884	1.122340	1.215704	1.306100
4S	.2949502	.3910574	.4202156	.4438204	.4648526	.4150455	.5026975	.5202591	.5371718
	NI	CU	ZN	GA	GE	AS	SE	BR	KR
1S	611.2537	657.5853	706.6083	757.6361	810.5001	865.2028	921.7433	980.1191	1040.329
2S	75.85291	81.63772	88.72322	96.33663	104.3120	112.6501	121.3469	130.3995	139.8057
2P	65.90059	71.23574	77.84950	84.98788	92.48376	100.3380	108.5470	117.1081	126.0192
3S	9.787123	10.02388	11.27554	12.78923	14.39352	16.08919	17.87337	19.74375	21.69889
3P	6.566067	6.649583	7.678681	8.964677	10.33456	11.79099	13.33210	14.95639	16.66297
3D	1.394161	.9824537	1.565049	2.386721	3.281275	4.255167	5.308416	6.440338	7.650453
4S	.5535508	.4769883	.5850136	.8491881	1.114111	1.390269	1.680334	1.985351	2.305856
4P				.4170030	.5386567	.6602704	.7850149	.9141667	1.048368
	RB	SR	Y	ZR	NB	MO	TC	RU	RH
1S	1102.913	1167.374	1233.496	1301.420	1370.931	1442.473	1516.137	1591.051	1668.090
2S	150.0980	160.7809	171.6211	182.7686	193.9949	205.7726	218.1952	230.3441	243.1401
2P	135.8119	145.9915	156.3283	166.9704	177.6919	188.9600	200.8682	212.5061	224.7860
3S	24.26633	26.94998	29.51776	32.12349	34.53911	37.23919	40.31722	42.85477	45.77307
3P	18.97534	21.39989	23.70833	26.05293	28.20828	30.64376	33.45259	35.72482	38.37327
3D	9.464555	11.38876	13.19893	15.04493	16.70401	18.63894	20.94224	22.71406	24.85678
4S	3.047067	3.792590	4.337727	4.849465	5.115683	5.587480	6.345251	6.538416	7.020606
4P	1.620130	2.196309	2.602353	2.984983	3.154392	3.507277	4.118876	4.226807	4.595478
4D			.4996989	.6218672	.5353252	.6244373	.9613322	.8022378	.8920492
5S	.2757325	.3569127	.3922884	.4172063	.3899858	.4008706	.4699750	.4188306	.4264807
	PD	AG	CD	IN	SN	SB	TE	I	XE
1S	1746.627	1827.663	1910.623	1995.593	2082.448	2171.194	2261.832	2354.363	2448.785
2S	255.9314	269.7550	284.0118	298.7889	313.9625	329.5380	345.5160	361.8962	378.6779
2P	237.0612	250.3621	264.0937	278.3435	292.9875	308.0314	323.4757	339.3202	355.5643
3S	48.41799	51.83541	55.41698	59.24906	63.20682	67.29592	71.51663	75.86843	80.35077
3P	40.74840	43.89067	47.19425	50.74835	54.42699	58.23577	62.17501	66.24421	70.44286
3D	26.72677	29.35627	32.14379	35.17897	38.33580	41.61987	45.03177	48.57109	52.23739
4S	7.174598	8.002965	8.901031	9.953355	11.03405	12.14954	13.30099	14.48863	15.71249
4P	4.660169	5.353619	6.106976	7.014400	7.947092	8.912373	9.912039	10.94666	12.01658
4D	.6719916	1.074781	1.527290	2.126261	2.747089	3.398708	4.083514	4.802376	5.555705
5S		.4399604	.5297131	.7453204	.9586370	1.177868	1.405410	1.642226	1.888815
5P				.3945640	.4971657	.5984838	.7011736	.8063518	.9145651

TABLE II. ORBITAL BINDING ENERGIES. VALUES IN RYDBERGS, ALL ARE NEGATIVE

	CS	BA	LA	CE	PR	ND	PM	SM	EU
1S	2545.527	2644.176	2744.549	2846.201	2949.145	3054.456	3161.618	3270.624	3381.474
2S	396.2851	414.3064	432.5514	450.5104	468.2021	486.8265	505.7906	525.0967	544.7468
2P	372.6317	390.1112	407.8140	425.2412	442.4141	460.5085	478.9426	497.7187	516.8387
3S	85.38550	90.56110	95.68792	100.1572	104.0040	108.5902	113.2412	117.9602	122.7500
3P	75.19140	80.07890	84.91755	89.10349	92.67145	96.97287	101.3382	105.7708	110.2732
3D	56.45209	60.80423	65.10680	68.77131	71.83054	75.60825	79.44887	83.35504	87.32942
4S	17.39087	19.11264	20.69089	21.61962	21.92763	22.84230	23.75532	24.66940	25.58677
4P	13.53698	15.09854	16.51771	17.30693	17.49167	18.26605	19.03836	19.81125	20.58658
4D	6.759036	8.002939	9.107107	9.635579	9.604272	10.11668	10.62651	11.13601	11.64667
4F				1.397523	.9510403	1.027701	1.095212	1.155315	1.209181
5S	2.463208	3.025432	3.408844	3.508060	3.323620	3.410863	3.495160	3.577292	3.657775
5P	1.366946	1.807719	2.098871	2.155750	1.975944	2.022551	2.066754	2.109111	2.150008
5D			.5376954	.5408379					
6S	.2473359	.3150540	.3408080	.3452463	.3282479	.3320609	.3357256	.3392701	.3427156
	GD	TB	DY	HO	ER	TM	YB	LU	HF
1S	3494.746	3609.298	3725.104	3843.343	3963.431	4085.368	4209.155	4335.432	4463.603
2S	565.3725	585.7228	605.7738	626.8113	648.1973	669.9326	692.0171	715.1434	738.6706
2P	536.9240	556.7439	576.2748	596.7816	617.6366	638.8408	660.3940	682.9790	705.9629
3S	128.3149	133.2584	137.5605	142.6485	147.8136	153.0565	158.3777	164.5363	170.8355
3P	115.5450	120.1992	124.2158	129.0125	133.8852	138.8354	143.8621	149.7203	155.7166
3D	92.05886	96.18177	99.67759	103.9390	108.2745	112.6848	117.1701	122.4726	127.9094
4S	27.15182	28.08813	28.37131	29.31338	30.26348	31.22216	32.18980	33.87544	35.60703
4P	21.99459	22.78735	22.93939	23.73553	24.53857	25.34902	26.16724	27.68985	29.25558
4D	12.75000	13.27555	13.19563	13.71982	14.24883	14.78302	15.32266	16.52961	17.77372
4F	1.845469	1.899959	1.341072	1.376891	1.409256	1.438472	1.464763	2.153736	2.872318
5S	4.045143	4.130250	3.892656	3.969502	4.045856	4.121855	4.197588	4.634048	5.049586
5P	2.448888	2.493615	2.266318	2.303501	2.340056	2.376093	2.411661	2.751682	3.074264
5D	.5306595	.5259394						.4867174	.5983434
6S	.3699395	.3739158	.3525770	.3557413	.3588454	.3619072	.3649246	.3977152	.4207944
	TA	W	RE	OS	IR	PI	AU	IIG	TL
1S	4593.674	4725.645	4859.516	4995.284	5132.950	5272.149	5413.586	5557.278	5703.010
2S	762.6050	786.9466	811.6936	836.8448	862.3987	888.0262	914.3632	941.4683	969.1185
2P	729.3527	753.1477	777.3466	801.9482	826.9511	852.0274	877.8103	904.3588	931.4515
3S	177.2786	183.8646	190.5913	197.4566	204.4587	211.2690	218.5211	226.2727	234.3004
3P	161.8559	168.1366	174.5563	181.1132	187.8054	194.3054	201.2447	208.6811	216.3932
3D	133.4860	139.2008	145.0517	151.0368	157.1544	163.0779	169.4373	176.2904	183.4167
4S	37.38982	39.22201	41.10132	43.02602	44.99391	46.67557	48.70736	51.14661	53.76673
4P	30.87003	32.53168	34.23851	35.98874	37.78100	39.28801	41.14118	43.39774	45.83526
4D	19.06176	20.39301	21.76606	23.17960	24.63245	25.80090	27.31089	29.21915	31.30584
4F	3.670328	4.428591	5.266560	6.143438	7.058340	7.686867	8.656580	10.02471	11.57043
5S	5.459336	5.867722	6.276879	6.687972	7.101742	7.213434	7.617564	8.363940	9.237464
5P	3.393216	3.712606	4.034267	4.359220	4.680041	4.746578	5.068593	5.701677	6.462661
5D	.7032887	.8057730	.9075671	1.009620	1.112445	.9528966	1.042032	1.428389	1.936527
6S	.4394609	.4553761	.4693412	.4818373	.4931710	.4359399	.4415528	.5220913	.7222321
6P									.3848011
	PB	BI	PO	AT	RN	FR	RA	AC	TH
1S	5850.662	6000.239	6151.743	6305.174	6460.531	6618.192	6777.783	6939.151	7102.431
2S	997.1948	1025.703	1054.644	1084.017	1113.823	1144.438	1175.485	1206.812	1238.553
2P	958.9691	986.9176	1015.298	1044.109	1073.351	1103.401	1133.883	1164.643	1195.817
3S	242.4846	250.8309	259.3397	268.0106	276.8431	286.2123	295.7426	305.2806	314.9615
3P	224.2607	232.2892	240.4793	248.8306	257.3424	266.3896	275.5966	284.8106	294.1664
3D	190.6959	198.1339	205.7312	213.4876	221.4022	229.8506	238.4569	247.0689	255.8211
4S	56.44805	59.19618	62.01143	64.89334	67.84123	71.22978	74.68289	78.04747	81.45898
4P	48.33301	50.89650	53.52617	56.22160	58.98215	62.18136	65.44379	68.61753	71.83745
4D	33.45008	35.65765	37.92911	40.26423	42.66247	45.49809	48.39543	51.20395	54.05768
4F	13.17316	14.83873	16.56777	18.36008	20.21517	22.50728	24.86087	27.12505	29.43401
5S	10.11927	11.01635	11.93040	12.86203	13.81155	15.15141	16.50628	17.72467	18.94330
5P	7.229455	8.009975	8.806377	9.619683	10.45036	11.66833	12.89970	13.99604	15.09246
5D	2.448956	2.974816	3.516699	4.075764	4.652550	5.616434	6.593665	7.437851	8.283414
6S	.9177094	1.116327	1.320357	1.530738	1.747963	2.254577	2.741366	3.071238	3.386279

TABLE II. ORBITAL BINDING ENERGIES. VALUES IN RYDBERGS, ALL ARE NEGATIVE

	PB	BI	PO	AT	RN	FR	RA	AC	TH
6P	.4796904	.5723707	.6653579	.7597265	.8560029	1.257037	1.639641	1.891963	2.135172
6D								.5029767	.5916698
7S						.2358225	.2975396	.3220241	.3415490
	PA	U	NP	PU	AM	CM	BK	CF	ES
1S	7266.822	7433.478	7602.020	7772.035	7944.340	8118.982	8295.087	8472.608	8652.484
2S	1269.850	1301.940	1334.415	1366.838	1400.076	1434.176	1468.214	1502.143	1536.953
2P	1226.558	1258.085	1289.998	1321.863	1354.539	1388.073	1421.548	1454.919	1489.166
3S	323.8753	333.3312	342.8990	352.1187	361.9024	372.2980	382.3345	391.9665	402.2287
3P	302.7579	311.8888	321.1309	330.0257	339.4820	349.5479	359.2557	368.5595	378.4912
3D	263.8155	272.3442	280.9825	289.2756	298.1252	307.5791	316.6771	325.3733	334.6919
4S	84.02711	87.03783	90.06890	92.66615	95.73039	99.30925	102.4438	105.0891	108.2673
4P	74.21401	77.03203	79.86967	82.27316	85.14255	88.52546	91.46380	93.91254	96.89319
4D	56.06804	58.51813	60.98666	63.02062	65.51856	68.52807	71.09269	73.16721	75.77168
4F	30.90748	32.81643	34.74340	36.23848	38.19355	40.65626	42.67636	44.20845	46.26628
5S	19.33846	20.11943	20.88972	21.22016	21.96345	23.16198	23.91215	24.17362	24.90717
5P	15.39150	16.06539	16.72959	16.96589	17.60479	18.68797	19.33451	19.50442	20.13507
5D	8.413868	8.884312	9.348123	9.421055	9.864354	10.71842	11.17211	11.18605	11.62622
5F	1.141923	1.268872	1.391233	1.160888	1.262594	1.739940	1.851929	1.555493	1.650052
6S	3.275320	3.364734	3.448519	3.289756	3.358333	3.676197	3.746338	3.547301	3.605974
6P	2.018012	2.071534	2.120837	1.964737	2.001848	2.250873	2.289867	2.100595	2.130252
6D	.5259439	.5330760	.5382740			.5456425	.5460765		
7S	.3299046	.3334427	.3368222	.3204514	.3233138	.3463305	.3493624	.3313049	.3338118
	FM	MD	NO	LW					
1S	8834.254	9017.918	9203.477	9391.479					
2S	1572.158	1607.757	1643.752	1680.720					
2P	1523.806	1558.842	1594.272	1630.670					
3S	412.6123	423.1177	433.7454	445.0960					
3P	388.5434	398.7166	409.0112	420.0264					
3D	344.1297	353.6869	363.3640	373.7562					
4S	111.4761	114.7160	117.9874	121.8851					
4P	99.90373	102.9446	106.0165	109.7134					
4D	78.40485	81.06717	83.75922	87.07427					
4F	48.35168	50.46503	52.60694	55.36756					
5S	25.64040	26.37382	27.10799	28.39971					
5P	20.76559	21.39644	22.02812	23.20510					
5D	12.06704	12.50882	12.95192	13.90376					
5F	1.743414	1.835695	1.926966	2.496697					
6S	3.662945	3.718395	3.772508	4.129517					
6P	2.158611	2.185802	2.211957	2.494798					
6D				.5347909					
7S	.3362527	.3386336	.3409636	.3665888					
	CE	TB	BK	CF	ES	FM	MD	NO	
1S	2845.662	3608.713	8294.626	8473.083	8652.974	8834.758	9018.437	9204.011	
2S	449.9133	585.0843	1467.727	1502.645	1537.470	1572.690	1608.305	1644.314	
2P	424.6553	556.1158	1421.066	1455.415	1489.677	1524.333	1559.384	1594.829	
3S	99.47733	132.5487	381.8252	392.4909	402.7683	413.1672	423.6878	434.3307	
3P	88.42888	119.4943	358.7480	369.0824	379.0292	389.0967	399.2850	409.5949	
3D	68.11062	95.48944	316.1731	325.8924	335.2262	344.6792	354.2515	363.9438	
4S	21.00709	27.43668	101.9407	105.6073	108.8007	112.0247	115.2798	118.5665	
4P	16.71126	22.14963	90.96110	94.43035	97.42619	100.4519	103.5080	106.5951	
4D	9.086000	12.67570	70.59075	73.68424	76.30389	78.95225	81.62975	84.33698	
4F	.8625178	1.301457	42.17754	44.72240	46.79545	48.89609	51.02466	53.18169	
5S	3.232203	3.815201	23.43906	24.66042	25.40778	26.15491	26.90228	27.65044	
5P	1.926021	2.228423	18.87303	19.97946	20.62380	21.26809	21.91277	22.55832	
5D			10.74607	11.62538	12.07897	12.53331	12.98866	13.44540	
5F			1.459555	1.962242	2.071234	2.179081	2.285858	2.391757	
6S	.3242297	.3493542	3.486679	3.814223	3.880233	3.944604	4.007485	4.069076	
6P			2.069459	2.327129	2.362956	2.397518	2.430922	2.463315	
6D				.5456852	.5446147	.5429407	.5407026	.5379694	
7S			.3287265	.3523197	.3552401	.3581284	.3609751	.3637940	

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TABLE III. ONE ELECTRON INTEGRALS I(INL). VALUES IN RYDBERGS, ALL ARE NEGATIVE

	H	HE	LI	BE	B	C	N	O	F
1S	1.000000	3.887450	8.886289	15.88425	24.87798	35.86954	48.85960	63.84851	80.83641
2S			1.654717	3.177925	5.210903	7.693773	10.63455	14.03581	17.89863
2P					4.558612	6.841280	9.541402	12.66342	16.20920
	NE	NA	MG	AL	SI	P	S	CL	A
1S	99.82342	120.8120	143.8016	168.7918	195.7825	224.7737	255.7652	288.7570	323.7491
2S	22.22355	27.39615	33.10081	39.30519	46.00781	53.20731	60.90348	69.09638	77.78618
2P	20.17971	25.53988	31.33812	37.62078	44.38238	51.62821	59.36219	67.58706	76.32430
3S		6.096179	8.514168	11.30449	14.13406	17.09503	20.22120	23.52858	27.02602
3P				8.719268	11.41377	14.21762	17.17031	20.29049	23.56882
	K	CA	SC	TI	V	CR	MN	FE	CO
1S	360.7419	399.7351	440.7295	483.7245	528.7198	575.7163	624.7119	675.7084	728.7051
2S	86.98551	96.68945	106.8946	117.5973	128.7976	140.4961	152.6914	165.3853	178.5772
2P	85.54663	95.26917	105.4929	116.2113	127.4248	139.1374	151.3400	164.0423	177.2418
3S	31.21640	35.63712	39.89928	44.30723	48.88695	53.41485	58.60165	63.74663	69.08722
3P	27.99404	32.51895	36.70540	41.01348	45.48085	49.80102	54.94853	59.96225	65.16760
3D			27.40668	31.74133	36.03865	37.92387	44.87080	49.47397	54.22381
4S	8.461348	11.01597	12.33348	13.60378	14.87481	14.71554	17.47342	18.81177	20.17945
	NI	CU	ZN	GA	GE	AS	SE	BR	KR
1S	783.7020	840.6995	899.6964	960.6931	1023.690	1088.687	1155.684	1224.681	1295.678
2S	192.2675	206.4570	221.1433	236.3284	252.0137	268.1993	284.8857	302.0728	319.7608
2P	190.9388	205.1366	219.8258	235.0151	250.7053	266.8963	283.5882	300.7813	318.4756
3S	74.62524	80.11160	86.29832	92.75564	99.48812	106.4797	113.7194	121.1995	128.9149
3P	70.56690	75.81839	81.95352	88.41694	95.17473	102.1991	109.4746	116.9910	124.7728
3D	59.12930	61.87204	69.42978	77.02198	84.62112	92.29855	100.0956	108.0387	116.1451
4S	21.57768	20.75919	24.46816	28.96361	33.10809	37.15553	41.19271	45.26211	49.38827
4P				21.52621	25.91423	30.03775	34.07166	38.09066	42.10384
	RB	SR	Y	ZR	NB	MO	TC	RU	RH
1S	1368.674	1443.672	1520.669	1599.666	1680.664	1763.661	1848.659	1935.657	2024.655
2S	337.9514	356.6439	375.8376	395.5322	415.7274	436.4239	457.6222	479.3198	501.5191
2P	336.6712	355.3684	374.5668	394.2663	414.4667	435.1679	456.3700	478.0726	500.2760
3S	136.8758	145.0749	153.4948	162.1385	170.9953	180.0841	189.4060	198.9273	208.6808
3P	132.7641	140.9884	149.4373	158.1070	166.9925	176.1006	185.4334	194.9740	204.7389
3D	124.4603	132.9736	141.6929	150.6028	159.7129	169.0130	178.5092	188.2182	198.1283
4S	54.50396	59.70532	64.55122	69.36158	73.85874	78.72865	84.02636	88.68467	93.78759
4P	47.78068	53.25128	58.15381	62.96069	67.35233	72.16696	77.48129	81.98234	87.00524
4D			37.93358	43.64133	46.33306	51.55909	58.95661	61.68844	66.71739
5S	15.49893	19.33808	21.38009	23.12583	23.07383	24.40558	27.80331	26.95772	28.19940
	PD	AG	CD	IN	SN	SB	TE	I	XE
1S	2115.653	2208.651	2303.648	2400.647	2499.645	2600.643	2703.641	2808.638	2915.637
2S	524.2188	547.4196	571.1217	595.3243	620.0278	645.2318	670.9369	697.1422	723.8493
2P	522.9801	546.1845	569.8894	594.0955	618.8025	644.0103	669.7190	695.9285	722.6388
3S	218.6506	228.8503	239.2775	249.9261	260.7996	271.8979	283.2208	294.7683	306.5402
3P	214.7211	224.9249	235.3533	246.0073	256.8873	267.9930	279.3242	290.8807	302.6622
3D	208.2963	218.6250	229.1689	239.9297	250.9087	262.1066	273.5237	285.1607	297.0174
4S	98.72035	104.2698	110.0520	115.9719	122.0532	128.2817	134.6484	141.1474	147.7749
4P	91.74043	97.31473	103.1072	109.1144	115.2895	121.6091	128.0611	134.6388	141.3915
4D	69.24607	76.80477	84.02782	91.22283	98.29763	105.3265	112.3538	119.4084	126.5101
5S		30.64472	35.10076	40.28498	44.88802	49.25042	53.49578	57.68609	61.85710
5P				30.77638	35.82868	40.43241	44.81569	49.08099	53.23168

TABLE III. ONE ELECTRON INTEGRALS I(NL). VALUES IN RYDBERGS, ALL ARE NEGATIVE

	CS	BA	LA	CE	PR	ND	PM	SM	EU
1S	3024.635	3135.633	3248.631	3363.630	3480.628	3599.627	3720.626	3843.625	3968.623
2S	751.0567	778.7654	806.9751	835.6937	864.9215	894.6432	924.8660	955.5893	986.8147
2P	749.8499	777.5619	805.7746	834.4978	863.7299	893.4553	923.6819	954.4095	985.6380
3S	318.5394	330.7650	343.2113	355.8891	368.7956	381.9124	395.2491	408.8057	422.5821
3P	314.6681	326.8990	339.3516	352.0364	364.9506	378.0728	391.4142	404.9750	418.7547
3D	309.0965	321.3975	333.9201	346.6737	359.6556	372.8402	386.2407	399.8584	413.6932
4S	154.5469	161.4545	168.4720	175.1696	181.6108	188.4954	195.4742	202.5508	209.7279
4P	148.2246	155.1829	162.2616	168.8933	175.1627	181.9728	188.8722	195.8654	202.9558
4D	133.7380	141.0581	148.4860	155.0238	160.8344	167.5286	174.2980	181.1499	188.0895
4F				121.8207	122.9723	129.7858	136.4930	143.1491	149.7891
5S	67.22981	72.58810	77.33014	80.32710	81.65589	84.64623	87.64775	90.66740	93.71012
5P	59.25992	64.91713	69.73505	72.44660	73.10733	75.77775	78.44914	81.12899	83.82287
5D				48.50806	50.22268				
6S	20.50755	25.08405	27.23219	28.07433	27.54675	28.34929	29.15139	29.95484	30.76084
	GD	TB	DY	HD	ER	TM	YB	LU	HF
1S	4095.622	4224.621	4355.621	4488.618	4623.617	4760.616	4899.616	5040.615	5183.614
2S	1018.534	1050.761	1083.494	1116.722	1150.450	1184.679	1219.409	1254.634	1290.359
2P	1017.361	1049.591	1082.328	1115.559	1149.291	1183.524	1218.257	1253.485	1289.213
3S	436.5706	450.7869	465.2312	479.8875	494.7641	509.8609	525.1780	540.7077	556.4570
3P	432.7449	446.9638	461.4115	476.0695	490.9475	506.0443	521.3622	536.8910	552.6408
3D	427.7336	442.0035	456.5031	471.2091	486.1335	501.2767	516.6387	532.2077	547.9974
4S	217.3102	224.6885	231.8810	239.4772	247.1810	254.9934	262.9148	271.2161	279.6840
4P	210.5347	217.8193	224.8336	232.3337	239.9399	247.6529	255.4735	263.7483	272.2013
4D	195.8069	202.9198	209.4719	216.7957	224.2207	231.7482	239.3792	247.7223	256.2730
4F	160.8915	167.4815	169.8244	176.5857	183.4032	190.2829	197.2297	208.3798	219.2186
5S	98.57991	101.7146	103.0077	106.1702	109.3665	112.5981	115.8653	121.2535	126.6703
5P	88.79364	91.58218	92.02106	94.79987	97.60410	100.4350	103.2932	108.8820	114.4196
5D	59.55108	60.99660						69.08013	77.00925
6S	33.20005	34.07697	33.20041	34.02230	34.84884	35.68041	36.51711	39.51688	41.98094
	TA	W	RE	OS	IR	PT	AU	HG	TL
1S	5328.613	5475.612	5624.611	5775.609	5928.609	6083.608	6240.608	6399.605	6560.603
2S	1326.584	1363.308	1400.533	1438.257	1476.482	1515.206	1554.431	1594.156	1634.380
2P	1325.440	1362.168	1399.395	1437.122	1475.349	1514.076	1553.304	1593.030	1633.258
3S	572.4290	588.6230	605.0391	621.6776	638.5386	655.6190	672.9252	690.4572	708.2118
3P	568.6115	584.8042	601.2189	617.8559	634.7152	651.7948	669.0994	686.6286	704.3816
3D	564.0081	580.2401	596.6939	613.3695	630.2673	647.3873	664.7296	682.2941	700.0814
4S	288.3104	297.0898	306.0177	315.0894	324.3044	333.6470	343.1387	352.7793	362.5523
4P	280.8205	289.5984	298.5288	307.6070	316.8279	326.1910	335.6914	345.3296	355.1092
4D	265.0069	273.9088	282.9684	292.1778	301.5313	311.0425	320.7338	330.4966	340.3923
4F	229.8774	240.4296	250.9235	261.3934	271.8647	282.3159	292.8453	303.4578	314.1412
5S	132.1295	137.6331	143.1824	148.7788	154.4242	159.5143	165.2558	171.6723	178.1641
5P	119.9564	125.5090	131.0863	136.6948	142.3399	147.2988	153.0196	159.5341	166.2550
5D	84.02394	90.58345	96.87964	103.0144	109.0469	112.0122	117.9758	126.7906	135.4513
6S	44.20117	46.27197	48.23998	50.13216	51.96640	49.62894	51.09854	57.22759	64.36785
6P									49.18774
	PB	BI	PO	AT	RN	FR	RA	AC	TH
1S	6723.603	6888.603	7055.602	7224.600	7395.601	7568.600	7743.599	7920.598	8099.598
2S	1675.105	1716.330	1758.056	1800.281	1843.007	1886.233	1929.959	1974.185	2018.912
2P	1673.985	1715.212	1756.940	1799.167	1841.896	1885.124	1928.852	1973.080	2017.809
3S	726.1899	744.3918	762.8172	781.4662	800.3392	819.4366	838.7582	858.3026	878.0705
3P	722.3585	740.5596	758.9846	777.6335	796.5069	815.6038	834.9247	854.4686	874.2360
3D	718.0918	736.3252	754.7817	773.4611	792.3643	811.4907	830.8405	850.4137	870.2102
4S	372.4620	382.5074	392.6881	403.0028	413.4511	424.0367	434.7572	445.6059	456.5853
4P	365.0281	375.0849	385.2788	395.6085	406.0729	416.6704	427.4014	438.2631	449.2556
4D	350.4247	360.5909	370.8900	381.3210	391.8833	402.5792	413.4070	424.3683	435.4594
4F	324.9039	335.7494	346.6811	357.7025	368.8163	380.0305	391.3460	402.7614	414.2786
5S	184.7821	191.5062	198.3223	205.2222	212.2001	219.2788	226.4459	233.6627	240.9494
5P	173.1005	180.0367	187.0474	194.1226	201.3502	208.5667	215.8511	223.2049	230.6200
5D	143.7648	151.8579	159.8062	167.6594	175.4520	183.3351	191.2335	199.1805	207.1247
6S	70.51032	76.17849	81.56809	86.77942	91.87173	98.68703	105.3716	111.0653	116.5494

TABLE III. ONE ELECTRON INTEGRALS I(INL). VALUES IN RYDBERGS, ALL ARE NEGATIVE

	PB	BI	PO	AT	RN	FR	RA	AC	TH
6P	56.21943	62.43439	68.19841	73.68010	78.88249	86.69960	93.84392	99.70358	105.2859
6D								68.76920	75.50266
7S						30.89164	37.28145	40.19842	42.72261
	PA	U	NP	PU	AM	CM	BK	CF	ES
1S	8280.597	8463.596	8648.597	8835.596	9024.595	9215.595	9408.592	9603.594	9800.593
2S	2064.143	2109.872	2156.103	2202.834	2250.065	2297.794	2346.025	2394.758	2443.990
2P	2063.042	2108.774	2155.007	2201.740	2248.973	2296.704	2344.937	2393.673	2442.907
3S	898.0622	918.2767	938.7145	959.3750	980.2587	1001.365	1022.695	1044.248	1066.023
3P	894.2280	914.4424	934.8803	955.5410	976.4248	997.5311	1018.860	1040.414	1062.189
3D	890.2324	910.4760	930.9423	951.6326	972.5444	993.6774	1015.034	1036.615	1058.417
4S	467.6614	478.8776	490.2194	501.6746	513.2665	524.9949	536.8361	548.7901	560.8802
4P	460.3395	471.5645	482.9139	494.3737	505.9709	517.7056	529.5502	541.5044	553.5960
4D	446.6223	457.9284	469.3542	480.8807	492.5452	504.3487	516.2530	528.2581	540.4025
4F	425.8637	437.5547	449.3426	461.2238	473.2119	485.3093	497.5052	509.8018	522.2109
5S	247.5933	254.5924	261.6245	268.4017	275.5103	282.9675	290.1758	297.1262	304.4362
5P	237.1470	244.1311	251.1383	257.7876	264.8570	272.3638	279.5224	286.3244	293.5769
5D	213.3041	220.3182	227.3273	233.6077	240.6428	248.4407	255.5331	261.9231	269.0919
5F	153.6694	161.6794	169.4387	172.7408	180.3709	191.8593	199.1737	202.6777	210.0090
6S	118.3263	121.8188	125.2558	126.6701	129.9822	135.3699	138.7045	139.8070	143.0629
6P	106.4348	109.6386	112.7752	113.4093	116.3810	121.9368	124.9391	125.1376	128.0227
6D	73.66436	75.85416	77.93056			83.67468	85.46650		
7S	42.10532	43.02379	43.93143	42.80985	43.65588	46.62528	47.52051	46.17085	47.00555
	FM	MD	NO	LW					
1S	9999.593	200.593	403.592	608.592					
2S	2493.722	2543.955	2594.688	2645.918					
2P	2492.641	2542.876	2593.611	2644.844					
3S	1088.021	1110.243	1132.687	1155.354					
3P	1084.188	1106.409	1128.853	1151.520					
3D	1080.442	1102.689	1125.159	1147.850					
4S	573.0946	585.4331	597.8955	610.4939					
4P	565.8110	578.1493	590.6106	603.2096					
4D	552.6671	565.0520	577.5573	590.2025					
4F	534.7289	547.3560	560.2409	573.1095					
5S	311.8016	319.2241	326.7049	334.5709					
5P	300.8817	308.2406	315.6555	323.5471					
5D	276.3047	283.5643	290.8734	298.9787					
5F	217.3170	224.6150	231.7647	242.5226					
6S	146.3157	149.5682	152.8230	158.6468					
6P	130.8978	133.7659	136.6297	142.7557					
6D				95.29857					
7S	47.83962	48.67357	49.50796	52.92723					
	CE	TB	BK	CF	ES	FM	MD	NO	
1S	3363.630	4224.621	9408.594	9603.594	9800.593	9999.593	200.593	403.593	
2S	835.7013	1050.767	2346.028	2394.757	2443.988	2493.721	2543.953	2594.686	
2P	834.5057	1049.597	2344.940	2393.671	2442.905	2492.640	2542.874	2593.609	
3S	355.8986	450.7946	1022.695	1044.248	1066.023	1088.021	1110.243	1132.687	
3P	352.0476	446.9729	1018.861	1040.413	1062.189	1084.187	1106.409	1128.853	
3D	346.6872	442.0154	1015.036	1036.614	1058.416	1080.441	1102.688	1125.158	
4S	174.8153	224.3914	536.8243	548.8021	560.8922	573.1065	585.4451	597.9076	
4P	168.4356	217.4380	529.5363	541.5186	553.6103	565.8252	578.1635	590.6250	
4D	154.2049	202.2478	516.2338	528.2776	540.4220	552.6867	565.0715	577.5768	
4F	115.9599	163.1115	497.4992	509.8074	522.2171	534.7354	547.3629	560.1002	
5S	78.66559	99.87795	289.8701	297.4357	304.7492	312.1180	319.5436	327.0276	
5P	70.42546	89.26640	279.1221	286.7281	293.9839	301.2919	308.6541	316.0720	
5D			254.7950	262.6621	269.8317	277.0456	284.3064	291.6167	
5F			195.3091	206.4483	213.6987	220.9380	228.1764	235.4224	
6S	26.74055	32.38307	136.5446	142.0303	145.3513	148.6710	151.9919	155.3166	
6P			122.2388	127.9259	130.9015	133.8699	136.8333	139.7945	
6D				87.20853	88.90539	90.56070	92.17658	93.75542	
7S			45.33499	48.41618	49.31333	50.21268	51.11438	52.01913	

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TABLE IV. TWO ELECTRON INTEGRALS F(K)

	H	HE	LI	BE	B	C	N	O	F
FO(1S,1S)	1.250000	2.051539	3.299771	4.545979	5.784091	7.018643	8.251233	9.482660	10.71333
FO(1S,2S)			.6453304	.9618146	1.297264	1.624453	1.948399	2.270743	2.592187
FO(1S,2P)					1.200249	1.535398	1.864086	2.189392	2.512693
FO(2S,2S)			.4680216	.6864550	.9205248	1.148260	1.373507	1.597525	1.820852
FO(2S,2P)					.8746893	1.101354	1.324031	1.544675	1.764134
FO(2P,2P)					.8353630	1.061678	1.283256	1.502332	1.719909
F2(2P,2P)					.3794553	.4774119	.5731744	.6677871	.7617149
	NE	NA	MG	AL	SI	P	S	CL	A
FO(1S,1S)	11.94349	13.17652	14.41161	15.64787	16.88513	18.12324	19.36204	20.60141	21.84130
FO(1S,2S)	2.913072	3.315729	3.726065	4.136555	4.546815	4.956527	5.365629	5.774141	6.182113
FO(1S,2P)	2.834707	3.346333	3.845220	4.340308	4.830716	5.317585	5.801780	6.283918	6.768025
FO(1S,3S)		.5933902	.7807350	.9838869	1.166846	1.340211	1.508053	1.672367	1.834277
FO(1S,3P)				.7563652	.9440292	1.121037	1.291738	1.458277	1.618298
FO(2S,2S)	2.043750	2.334986	2.631108	2.926521	3.221169	3.514973	3.808012	4.100383	4.392181
FO(2S,2P)	1.982843	2.319634	2.650647	2.978568	3.303351	3.625732	3.946284	4.265415	4.585012
FO(2S,3S)		.5732726	.7440797	.9259805	1.088716	1.242392	1.390856	1.535978	1.678812
FO(2S,3P)				.7196661	.8877067	1.045014	1.196068	1.343054	1.485614
FO(2P,2P)	1.936518	2.322493	2.696120	3.066550	3.432807	3.795970	4.156833	4.515954	4.877416
F2(2P,2P)	.8552026	1.042815	1.223674	1.402990	1.580048	1.755418	1.929531	2.102694	2.277412
FO(2P,3S)		.5729853	.7447332	.9283663	1.093273	1.249386	1.400460	1.548319	1.694121
FO(2P,3P)				.7220391	.8923259	1.052275	1.206244	1.356341	1.502011
F2(2P,3P)				.0795106	.1131587	.1457405	.1775702	.2088460	.2383505
FO(3S,3S)		.4305118	.5574171	.6967817	.8210706	.9382754	1.051406	1.161922	1.270647
FO(3S,3P)				.5955450	.7220927	.8403579	.9539133	1.064461	1.172807
FO(3P,3P)				.5288591	.6516576	.7670397	.8782019	.9866649	1.093043
F2(3P,3P)				.2653503	.3263108	.3832311	.4378535	.4910114	.5435745
	K	CA	SC	TI	V	CR	MN	FE	CO
FO(1S,1S)	23.08215	24.32369	25.56687	26.81079	28.05528	29.30083	30.54562	31.79140	33.03750
FO(1S,2S)	6.592120	7.003108	7.414506	7.825512	8.236101	8.646474	9.056180	9.465747	9.875039
FO(1S,2P)	7.249260	7.730424	8.212142	8.692817	9.172557	9.652319	10.12973	10.60735	11.08445
FO(1S,3S)	2.042006	2.250786	2.422406	2.587101	2.747724	2.884772	3.061393	3.215660	3.368704
FO(1S,3P)	1.865194	2.101694	2.285950	2.461439	2.632042	2.772108	2.964551	3.127959	3.290052
FO(1S,3D)			1.597881	1.793330	1.971155	1.981117	2.300713	2.457896	2.611830
FO(1S,4S)	.4691650	.5922590	.6326817	.6663639	.6967567	.6515983	.7519745	.7777569	.8026620
FO(2S,2S)	4.685526	4.979594	5.273754	5.567501	5.860854	6.153913	6.446552	6.738985	7.031178
FO(2S,2P)	4.904067	5.223410	5.542683	5.861203	6.179062	6.496580	6.813164	7.129553	7.445584
FO(2S,3S)	1.858132	2.037338	2.186979	2.331136	2.472079	2.594691	2.748000	2.883947	3.018933
FO(2S,3P)	1.697109	1.898189	2.057083	2.208894	2.356759	2.480672	2.645456	2.787504	2.928487
FO(2S,3D)			1.580964	1.771393	1.944316	1.954109	2.264185	2.416544	2.565657
FO(2S,4S)	.4623660	.5802078	.6195607	.6525633	.6824628	.6407833	.7369864	.7625090	.7871912
FO(2P,2P)	5.236011	5.594625	5.953290	6.310937	6.667714	7.024269	7.379162	7.734021	8.088425
F2(2P,2P)	2.450372	2.623367	2.796145	2.968279	3.139880	3.311213	3.481813	3.652266	3.822451
FO(2P,3S)	1.877317	2.060666	2.213731	2.361184	2.505345	2.630565	2.787549	2.926577	3.064619
FO(2P,3P)	1.718932	1.925698	2.089103	2.245268	2.397407	2.524667	2.694524	2.840738	2.985873
F2(2P,3P)	.2924799	.3453394	.3834180	.4190178	.4532393	.4782846	.5192321	.5514286	.5832577
FO(2P,3D)			1.584407	1.776128	1.950388	1.960463	2.273064	2.426879	2.577479
F2(2P,3D)			.2300247	.2769800	.3198988	.3143502	.3994097	.4372346	.4742009
FO(2P,4S)	.4630706	.5815144	.6210393	.6541696	.6841729	.6421098	.7388613	.7644510	.7891941
FO(3S,3S)	1.412826	1.554509	1.669530	1.779920	1.887631	1.978577	2.098128	2.201719	2.304527
FO(3S,3P)	1.330770	1.482286	1.600821	1.713945	1.824025	1.914481	2.038706	2.144231	2.248909
FO(3S,3D)			1.324285	1.461551	1.585882	1.599983	1.815557	1.924900	2.031904
FO(3S,4S)	.4475897	.5558136	.5937112	.6258840	.6552178	.6200559	.7089839	.7342281	.7586719
FO(3P,3P)	1.260844	1.419001	1.539794	1.654765	1.766542	1.856333	1.984468	2.091601	2.197892
F2(3P,3P)	.6338763	.7173419	.7777451	.8348111	.8900854	.9317799	.9975293	1.050255	1.102526
FO(3P,3D)			1.284075	1.419307	1.542647	1.559305	1.771974	1.881643	1.989198
F2(3P,3D)			.5924023	.6615202	.7224949	.7130272	.8327880	.8846468	.9351391
FO(3P,4S)	.4450955	.5525315	.5906303	.6230200	.6525599	.6181068	.7066900	.7320936	.7566839
FO(3D,3D)			1.109792	1.250119	1.376401	1.349473	1.608214	1.718085	1.825374
F2(3D,3D)			.5044722	.5707326	.6296318	.5997939	.7365607	.7868708	.8358356
F4(3D,3D)			.3121729	.3536440	.3903759	.3687170	.4568418	.4880459	.5183861
FO(3D,4S)			.5715555	.6066925	.6379518	.6017489	.6941651	.7202498	.7453782
FO(4S,4S)	.3448522	.4286881	.4568721	.4805486	.5019888	.4715068	.5409888	.5591836	.5767367

TABLE IV. TWO ELECTRON INTEGRALS F(K)

	NI	CU	ZN	GA	GE	AS	SE	BR	KR
FO(1S,1S)	34.28388	35.53094	36.77733	38.02371	39.27008	40.51648	41.76290	43.00934	44.25582
FO(1S,2S)	10.28410	10.69315	11.10161	11.50988	11.91824	12.32674	12.73543	13.14430	13.55338
FO(1S,2P)	11.56110	12.03812	12.51323	12.98836	13.46360	13.93901	14.41459	14.89038	15.36638
FO(1S,3S)	3.520761	3.652540	3.822569	3.996728	4.175305	4.356985	4.540851	4.726282	4.912859
FO(1S,3P)	3.451103	3.585618	3.770826	3.964281	4.163493	4.366310	4.571506	4.778285	4.988222
FO(1S,3D)	2.763283	2.782160	3.060718	3.329315	3.586350	3.835429	4.078710	4.317608	4.553070
FO(1S,4S)	.8268429	.7571445	.8734387	1.016401	1.140128	1.254760	1.363840	1.469141	1.571708
FO(1S,4P)				.7431737	.8813813	1.004836	1.120119	1.230093	1.334240
FO(2S,2S)	7.323175	7.615104	7.906656	8.198103	8.489660	8.781365	9.073244	9.365301	9.657545
FO(2S,2P)	7.761307	8.077019	8.391974	8.706885	9.021927	9.337125	9.652505	9.968076	10.28384
FO(2S,3S)	3.153149	3.271697	3.419782	3.570937	3.725347	3.881988	4.040163	4.199403	4.359401
FO(2S,3P)	3.068629	3.188162	3.346989	3.511971	3.681100	3.852709	4.025878	4.200017	4.376363
FO(2S,3D)	2.712289	2.731181	3.000081	3.258581	3.505292	3.743829	3.976367	4.204338	4.428702
FO(2S,4S)	.8111778	.7458082	.8574463	.9936045	1.110788	1.218925	1.321506	1.420283	1.516289
FO(2S,4P)				.7313756	.8633561	.9804437	1.089230	1.192600	1.290532
FO(2P,2P)	8.442430	8.796614	9.149437	9.502362	9.855493	10.20884	10.56243	10.91627	11.27036
F2(2P,2P)	3.992401	4.162359	4.331717	4.501170	4.670783	4.840561	5.010509	5.180627	5.350914
FO(2P,3S)	3.201866	3.322848	3.474501	3.629396	3.787730	3.948438	4.110793	4.274308	4.438654
FO(2P,3P)	3.130150	3.252889	3.416748	3.587152	3.762013	3.939584	4.118891	4.299313	4.482142
F2(2P,3P)	.6147958	.6382234	.6772104	.7188773	.7625354	.8075153	.8534233	.8999927	.9476823
FO(2P,3D)	2.725624	2.744767	3.016506	3.278031	3.527890	3.769690	4.005598	4.237040	4.464968
F2(2P,3D)	.5104973	.5049849	.5815796	.6582912	.7337244	.8082361	.8820574	.9553500	1.028217
FO(2P,4S)	.8132353	.7473180	.8595995	.9967049	1.114816	1.223887	1.327414	1.427152	1.524134
FO(2P,4P)				.7333214	.8663543	.9845328	1.094446	1.198973	1.298009
F2(2P,4P)				.0218865	.0323004	.0426759	.0530630	.0634678	.0732538
FO(3S,3S)	2.406705	2.494253	2.609588	2.727679	2.848586	2.971369	3.095410	3.220299	3.345776
FO(3S,3P)	2.352911	2.439708	2.559349	2.683242	2.810308	2.939310	3.069532	3.200525	3.332848
FO(3S,3D)	2.137125	2.158936	2.343641	2.519505	2.686974	2.848933	3.007007	3.162211	3.315205
FO(3S,4S)	.7824483	.7248400	.8283540	.9528561	1.059263	1.157081	1.249661	1.338677	1.425113
FO(3S,4P)				.7115038	.8335583	.9408371	1.039920	1.133693	1.222894
FO(3P,3P)	2.303519	2.389603	2.513257	2.642667	2.775719	2.910897	3.047382	3.184671	3.324133
F2(3P,3P)	1.154442	1.194124	1.257469	1.324227	1.392931	1.462650	1.532906	1.603419	1.675148
FO(3P,3D)	2.095145	2.118340	2.303521	2.482139	2.653683	2.820559	2.984134	3.145252	3.305306
F2(3P,3D)	.9846064	.9807795	1.081326	1.176647	1.266313	1.352111	1.435119	1.516030	1.595855
FO(3P,4S)	.7805950	.7235111	.8267414	.9509683	1.057320	1.155241	1.248045	1.337383	1.424297
FO(3P,4P)				.7107101	.8326195	.9398980	1.039101	1.133098	1.222663
F2(3P,4P)				.0857984	.1171549	.1462531	.1739138	.2005302	.2256416
FO(3D,3D)	1.930689	1.909449	2.136966	2.354431	2.559993	2.757615	2.949572	3.137322	3.321812
F2(3D,3D)	.8837736	.8564863	.9773915	1.093454	1.202838	1.307728	1.409399	1.508676	1.606100
F4(3D,3D)	.5480677	.5280226	.6059850	.6811174	.7520279	.8200758	.8860653	.9505194	1.013784
FO(3D,4S)	.7697230	.7122117	.8165188	.9413551	1.048910	1.148286	1.242682	1.333694	1.422256
FO(3D,4P)				.7065653	.8283055	.9359499	1.035860	1.130798	1.221414
F2(3D,4P)				.1050584	.1348052	.1612706	.1858935	.2093067	.2313112
FO(4S,4S)	.5937521	.5450896	.6264499	.7280301	.8141085	.8929182	.9673302	1.038770	1.108065
FO(4S,4P)				.6060269	.7009373	.7846322	.8621478	.9356916	1.006381
FO(4P,4P)				.5308437	.6254949	.7087263	.7856899	.8586337	.9286637
F2(4P,4P)				.2688384	.3199025	.3644988	.4054709	.4440911	.4813459

	RB	SR	Y	ZR	NB	MO	TC	RU	RH
FO(1S,1S)	45.50242	46.74915	47.99611	49.24324	50.49062	51.73798	52.98533	54.23303	55.48070
FO(1S,2S)	13.96297	14.37296	14.78319	15.19365	15.60423	16.01510	16.42629	16.83742	17.24884
FO(1S,2P)	15.84264	16.31918	16.79602	17.27307	17.75034	18.22773	18.70527	19.18299	19.66083
FO(1S,3S)	5.101260	5.290923	5.480475	5.670192	5.859231	6.049095	6.239848	6.428882	6.618736
FO(1S,3P)	5.197445	5.407537	5.617826	5.828070	6.037883	6.247803	6.457965	6.667089	6.876420
FO(1S,3D)	4.787621	5.020736	5.252862	5.483118	5.712051	5.939074	6.164536	6.389405	6.612997
FO(1S,4S)	1.709215	1.845642	1.962584	2.072885	2.165290	2.267838	2.382616	2.466695	2.563758
FO(1S,4P)	1.498739	1.651567	1.777297	1.894246	1.989787	2.097248	2.219488	2.305066	2.406366
FO(1S,4D)			1.091122	1.242312	1.291345	1.418334	1.611310	1.649690	1.758201
FO(1S,5S)	.4335924	.5340009	.5777990	.6108953	.5912650	.6107165	.6853666	.6437951	.6582303
FO(2S,2S)	9.950211	10.24321	10.53641	10.82980	11.12329	11.41702	11.71102	12.00497	12.29917
FO(2S,2P)	10.59995	10.91638	11.23300	11.54981	11.86673	12.18386	12.50122	12.81857	13.13613
FO(2S,3S)	4.520698	4.682864	4.844908	5.007016	5.168590	5.330709	5.493423	5.654866	5.816864
FO(2S,3P)	4.551985	4.728110	4.904257	5.080248	5.255814	5.431363	5.607007	5.781813	5.956708
FO(2S,3D)	4.651898	4.873452	5.093807	5.312171	5.529075	5.744017	5.957348	6.169951	6.381244
FO(2S,4S)	1.643856	1.769818	1.877773	1.979544	2.065181	2.159782	2.265115	2.343144	2.432612
FO(2S,4P)	1.443180	1.584058	1.699769	1.807256	1.895389	1.994029	2.105605	2.184558	2.277338

TABLE IV. TWO ELECTRON INTEGRALS F(K)

	RB	SR	Y	ZR	NB	MO	TC	RU	RH
F0(2S,4D)			1.084174	1.232951	1.281144	1.405848	1.594939	1.632618	1.738816
F0(2S,5S)	.4306983	.5289655	.5718338	.6042778	.5855178	.6047396	.6775233	.6375302	.6518823
F0(2P,2P)	11.62472	11.97937	12.33429	12.68940	13.04469	13.40015	13.75578	14.11153	14.46743
F2(2P,2P)	5.521372	5.692021	5.862805	6.033706	6.204690	6.375800	6.547039	6.718300	6.889677
F0(2P,3S)	4.604382	4.771050	4.937613	5.104270	5.270387	5.437099	5.604453	5.770491	5.937124
F0(2P,3P)	4.664272	4.846995	5.029800	5.212495	5.394791	5.577110	5.759563	5.941172	6.122901
F2(2P,3P)	.9952892	1.043281	1.091414	1.139614	1.187734	1.235966	1.284348	1.332415	1.380607
F0(2P,3D)	4.691835	4.917154	5.141369	5.363659	5.584558	5.803537	6.020941	6.237684	6.453144
F2(2P,3D)	1.101466	1.174803	1.248311	1.321535	1.394624	1.467255	1.539514	1.611785	1.683722
F0(2P,4S)	1.653166	1.780681	1.889988	1.993055	2.079741	2.175569	2.282352	2.361341	2.451999
F0(2P,4P)	1.452739	1.595734	1.713245	1.822449	1.911949	2.012213	2.125746	2.205952	2.300325
F2(2P,4P)	.0915214	.1096152	.1245831	.1385938	.1494829	.1623927	.1779175	.1875096	.1998126
F0(2P,4D)			1.086236	1.235747	1.284209	1.409621	1.599911	1.637828	1.744758
F2(2P,4D)			.0530717	.0693007	.0740777	.0885599	.1131406	.1164207	.1299964
F0(2P,5S)	.4311101	.5296858	.5726915	.6052341	.5863522	.6056113	.6786715	.6384512	.6528188
F0(3S,3S)	3.472361	3.599675	3.726918	3.854202	3.981042	4.108295	4.236007	4.362677	4.489775
F0(3S,3P)	3.465257	3.598223	3.731162	3.864027	3.996469	4.129077	4.261933	4.393899	4.526101
F0(3S,3D)	3.467716	3.619377	3.770076	3.919558	4.067873	4.215315	4.362131	4.507904	4.653229
F0(3S,4S)	1.537926	1.648681	1.744053	1.834174	1.911002	1.995141	2.087934	2.158529	2.238379
F0(3S,4P)	1.358476	1.482579	1.584731	1.679723	1.758501	1.845904	1.943803	2.014859	2.097189
F0(3S,4D)			1.036610	1.170890	1.215371	1.327488	1.494843	1.530487	1.625292
F0(3S,5S)	.4260440	.5209926	.5625181	.5940742	.5767548	.5957259	.6658221	.6282669	.6425801
F0(3P,3P)	3.462754	3.601833	3.740996	3.880030	4.018719	4.157363	4.296073	4.434096	4.572183
F2(3P,3P)	1.746128	1.817236	1.888329	1.959242	2.029895	2.100392	2.170811	2.240832	2.310791
F0(3P,3D)	3.464181	3.622293	3.779725	3.936016	4.091345	4.245659	4.399215	4.552035	4.704264
F2(3P,3D)	1.674567	1.752475	1.829704	1.906000	1.981517	2.056239	2.130355	2.203909	2.276997
F0(3P,4S)	1.537556	1.648856	1.744867	1.835676	1.913210	1.998088	2.091676	2.163009	2.243644
F0(3P,4P)	1.358640	1.483270	1.586039	1.681707	1.761171	1.849317	1.948048	2.019841	2.102988
F2(3P,4P)	.2701912	.3122233	.3457651	.3764897	.3999621	.4275201	.4602296	.4802586	.5057433
F0(3P,4D)			1.037066	1.171715	1.216471	1.329038	1.497094	1.533055	1.628416
F2(3P,4D)			.1358007	.1705790	.1803215	.2102419	.2595660	.2660832	.2926721
F0(3P,5S)	.4260285	.5210055	.5625760	.5941807	.5768808	.5958875	.6660693	.6284913	.6428317
F0(3D,3D)	3.505599	3.688045	3.869593	4.049366	4.227903	4.404626	4.579879	4.754611	4.928149
F2(3D,3D)	1.703275	1.799742	1.895782	1.990787	2.085096	2.178298	2.270604	2.362654	2.453972
F4(3D,3D)	1.076934	1.139650	1.202123	1.263922	1.325280	1.385897	1.445917	1.505787	1.565165
F0(3D,4S)	1.537344	1.650710	1.748922	1.841964	1.921638	2.008711	2.104628	2.177976	2.260757
F0(3D,4P)	1.358663	1.484918	1.589511	1.687092	1.768411	1.858519	1.959403	2.033023	2.118175
F2(3D,4P)	.2724433	.3106897	.3403371	.3672204	.3870299	.4109317	.4399001	.4565701	.4786002
F0(3D,4D)			1.040270	1.176606	1.222329	1.336714	1.507676	1.544600	1.641985
F2(3D,4D)			.1387543	.1728197	.1811681	.2099451	.2581713	.2630842	.2881862
F4(3D,4D)			.0539134	.0692074	.0729443	.0860429	.1084980	.1105438	.1222171
F0(3D,5S)	.4260239	.5211337	.5628632	.5946248	.5773605	.5964682	.6669219	.6292392	.6436471
F0(4S,4S)	1.202545	1.294846	1.372504	1.445466	1.505894	1.573604	1.649870	1.704818	1.768843
F0(4S,4P)	1.113058	1.211899	1.292651	1.367752	1.428887	1.497947	1.576499	1.631409	1.696415
F0(4S,4D)			.9372567	1.044877	1.082179	1.171515	1.301625	1.332264	1.407036
F0(4S,5S)	.4130070	.5004285	.5396223	.5698946	.5562819	.5751694	.6400509	.6079224	.6224555
F0(4P,4P)	1.041762	1.143983	1.226113	1.302107	1.363215	1.432798	1.512666	1.567173	1.632607
F2(4P,4P)	.5469322	.6046835	.6489683	.6893655	.7201222	.7565848	.7998431	.8266189	.8605858
F0(4P,4D)			.9108760	1.014639	1.051936	1.138652	1.264621	1.295559	1.368882
F2(4P,4D)			.4104819	.4730198	.4865006	.5366127	.6155107	.6246846	.6649278
F0(4P,5S)	.4098205	.4960781	.5352000	.5655578	.5527798	.5718492	.6361822	.6049578	.6196580
F0(4D,4D)			.7515150	.8552084	.8789151	.9653687	1.104657	1.121803	1.194879
F2(4D,4D)			.3667132	.4210578	.4258337	.4703362	.5488371	.5499601	.5868359
F4(4D,4D)			.2346265	.2710173	.2725676	.3022246	.3563793	.3552338	.3797520
F0(4D,5S)			.5024987	.5379669	.5269503	.5494977	.6162778	.5872370	.6035982
F0(5S,5S)	.3209489	.3900936	.4203476	.4433597	.4300390	.4437092	.4957716	.4671091	.4773682
	PD	AG	CD	IN	SN	SB	TE	I	XE
F0(1S,1S)	56.72855	57.97628	59.22406	60.47188	61.71970	62.96754	64.21541	65.46330	66.71121
F0(1S,2S)	17.66039	18.07215	18.48414	18.89623	19.30847	19.72086	20.13342	20.54610	20.95896
F0(1S,2P)	20.13884	20.61687	21.09499	21.57333	22.05182	22.53047	23.00927	23.48821	23.96729
F0(1S,3S)	6.808163	6.998260	7.188773	7.379259	7.569956	7.760862	7.951959	8.143240	8.334690
F0(1S,3P)	7.085422	7.294430	7.503636	7.713107	7.922849	8.132898	8.343167	8.553668	8.764375
F0(1S,3D)	6.838507	7.060492	7.282032	7.503241	7.724189	7.944921	8.165462	8.385842	8.606070
F0(1S,4S)	2.649457	2.754375	2.863572	2.973301	3.084531	3.196706	3.309468	3.422573	3.535870
F0(1S,4P)	2.492247	2.605198	2.721878	2.842025	2.963982	3.086838	3.210114	3.333534	3.458872

TABLE IV. TWO ELECTRON INTEGRALS F(K)

	PD	AG	CD	IN	SN	SB	TE	I	XE
F0(1S,4D)	1.785158	1.963188	2.128261	2.289137	2.442835	2.591410	2.736115	2.877784	3.016998
F0(1S,5S)		.6841107	.7747924	.8813730	.9717665	1.054189	1.131671	1.205756	1.277348
F0(1S,5P)				.6630039	.7658811	.8564177	.9398655	1.018609	1.092042
F0(2S,2S)	12.59346	12.88794	13.18262	13.47737	13.77227	14.06728	14.36244	14.65769	14.95310
F0(2S,2P)	13.45381	13.77161	14.08957	14.40766	14.72589	15.04424	15.36274	15.68135	16.00010
F0(2S,3S)	5.978532	6.140636	6.303019	6.465357	6.627830	6.790433	6.953164	7.116007	7.278971
F0(2S,3P)	6.131307	6.305858	6.480512	6.655308	6.830276	7.005396	7.180660	7.356054	7.531576
F0(2S,3D)	6.594169	6.803737	7.012791	7.221436	7.429749	7.637772	7.845542	8.053082	8.260422
F0(2S,4S)	2.511978	2.608266	2.708199	2.808486	2.909964	3.012144	3.114723	3.217488	3.320324
F0(2S,4P)	2.356406	2.459298	2.565275	2.674111	2.784325	2.895127	3.006116	3.117062	3.229525
F0(2S,4D)	1.765363	1.939349	2.100311	2.256894	2.406241	2.550401	2.690632	2.827765	2.962387
F0(2S,5S)		.6776803	.7660374	.8694354	.9568415	1.036342	1.110924	1.182111	1.250796
F0(2S,5P)				.6563983	.7563073	.8438676	.9243081	1.000010	1.070627
F0(2P,2P)	14.82348	15.17960	15.53583	15.89227	16.24888	16.60564	16.96256	17.31962	17.67683
F2(2P,2P)	7.061132	7.232661	7.404264	7.575999	7.747837	7.919775	8.091810	8.263933	8.436149
F0(2P,3S)	6.103425	6.270198	6.437272	6.604317	6.771515	6.938865	7.106356	7.273981	7.441732
F0(2P,3P)	6.304347	6.485763	6.667308	6.849039	7.030975	7.213101	7.395398	7.577859	7.760466
F2(2P,3P)	1.428274	1.476892	1.525165	1.573553	1.622069	1.670700	1.719437	1.768275	1.817202
F0(2P,3D)	6.670345	6.884152	7.097481	7.310445	7.523115	7.735535	7.947735	8.159743	8.371572
F2(2P,3D)	1.756722	1.828329	1.899905	1.971471	2.043053	2.114658	2.186287	2.257943	2.329621
F0(2P,4S)	2.532374	2.630014	2.731397	2.833167	2.936178	3.039935	3.144121	3.248524	3.353017
F0(2P,4P)	2.380690	2.485462	2.593441	2.704398	2.816818	2.929890	3.043199	3.156507	3.271409
F2(2P,4P)	.2096127	.2240530	.2393495	.2554381	.2720668	.2890615	.3063186	.3237699	.3417266
F0(2P,4D)	1.771456	1.946716	2.108980	2.266930	2.417668	2.563248	2.704923	2.843527	2.979641
F2(2P,4D)	.1313642	.1553894	.1791682	.2034851	.2276098	.2516147	.2755433	.2994216	.3232655
F0(2P,5S)		.6786354	.7673415	.8712187	.9590769	1.039022	1.114047	1.185679	1.254811
F0(2P,5P)				.6575875	.7580350	.8461382	.9271291	1.003390	1.074527
F2(2P,5P)				.0106933	.0152471	.0197517	.0242527	.0287627	.0329311
F0(3S,3S)	4.616603	4.743749	4.871129	4.998472	5.125930	5.253511	5.381202	5.509006	5.636912
F0(3S,3P)	4.658034	4.790092	4.922313	5.054580	5.186981	5.319517	5.452174	5.584951	5.717837
F0(3S,3D)	4.799102	4.943552	5.087851	5.231897	5.375820	5.519651	5.663400	5.807091	5.950723
F0(3S,4S)	2.310030	2.395354	2.483526	2.571900	2.661132	2.750838	2.840774	2.930789	3.020790
F0(3S,4P)	2.168242	2.258746	2.351585	2.446587	2.542513	2.638743	2.734969	2.831031	2.928187
F0(3S,4D)	1.651731	1.805150	1.945863	2.081820	2.210822	2.334060	2.455147	2.572494	2.687463
F0(3S,5S)		.6684106	.7535182	.8524995	.9358258	1.011393	1.082121	1.149502	1.214409
F0(3S,5P)				.6475299	.7435481	.8272584	.9038558	.9757168	1.042825
F0(3P,3P)	4.710033	4.847826	4.985732	5.123797	5.262041	5.400455	5.539021	5.677738	5.816588
F2(3P,3P)	2.380578	2.450243	2.519921	2.589644	2.659425	2.729264	2.799155	2.869097	2.939085
F0(3P,3D)	4.857174	5.008449	5.159547	5.310550	5.461504	5.612427	5.763325	5.914215	6.065091
F2(3P,3D)	2.350346	2.422688	2.494845	2.566872	2.638804	2.710657	2.782440	2.854168	2.925842
F0(3P,4S)	2.316049	2.402219	2.491282	2.580592	2.670801	2.761521	2.852507	2.943602	3.034711
F0(3P,4P)	2.174804	2.266228	2.360043	2.456096	2.553132	2.650522	2.747954	2.845263	2.943720
F2(3P,4P)	.5258879	.5554178	.5863251	.6184857	.6513441	.6845675	.7179737	.7514543	.7856208
F0(3P,4D)	1.655111	1.809412	1.951055	2.088022	2.218083	2.343225	2.464659	2.583192	2.699385
F2(3P,4D)	.2964696	.3433380	.3882889	.4331550	.4766861	.5192085	.5609348	.6020110	.6425428
F0(3P,5S)		.6687084	.7539485	.8531186	.9366380	1.012407	1.083347	1.150950	1.216088
F0(3P,5P)				.6478988	.7441055	.8280172	.9048294	.9769178	1.044248
F2(3P,5P)				.0306012	.0421275	.0531668	.0639143	.0744560	.0841672
F0(3D,3D)	5.103753	5.275861	5.447569	5.618983	5.790170	5.961168	6.132000	6.302697	6.473260
F2(3D,3D)	2.546763	2.637261	2.727533	2.817647	2.907642	2.997540	3.087356	3.177104	3.266788
F4(3D,3D)	1.625586	1.684429	1.743127	1.801726	1.860252	1.918719	1.977137	2.035516	2.093857
F0(3D,4S)	2.335315	2.423766	2.515208	2.606933	2.699615	2.792854	2.886398	2.980083	3.073809
F0(3D,4P)	2.191962	2.285614	2.381769	2.480271	2.579844	2.679843	2.779940	2.879963	2.981215
F2(3D,4P)	.4952860	.5212537	.5485612	.5770819	.6062893	.6358655	.6656353	.6954963	.7260273
F0(3D,4D)	1.669450	1.827066	1.972134	2.112710	2.246457	2.375358	2.500615	2.623030	2.743155
F2(3D,4D)	.2901039	.3352052	.3783748	.4214366	.4631685	.5038979	.5438381	.5831378	.6219033
F4(3D,4D)	.1227411	.1439254	.1645712	.1854351	.2058753	.2259900	.2458444	.2654842	.2849420
F0(3D,5S)		.6696405	.7552726	.8549902	.9390521	1.015373	1.086878	1.155061	1.220792
F0(3D,5P)				.6488337	.7455031	.8298998	.9072192	.9798359	1.047672
F2(3D,5P)				.0280985	.0386277	.0486720	.0584167	.0679459	.0766697
F0(4S,4S)	1.824874	1.894561	1.966998	2.039672	2.113138	2.187024	2.261106	2.335243	2.409358
F0(4S,4P)	1.751761	1.823917	1.898479	1.974329	2.050960	2.127893	2.204882	2.281790	2.359309
F0(4S,4D)	1.431256	1.549324	1.657106	1.760495	1.858543	1.952892	2.044510	2.134022	2.221859
F0(4S,5S)		.6488462	.7277072	.8183583	.8943631	.9631650	1.027509	1.088785	1.147807
F0(4S,5P)				.6306652	.7198443	.7970642	.8674245	.9332523	.9950823
F0(4P,4P)	1.687073	1.760949	1.836997	1.915264	1.994367	2.073734	2.153092	2.232305	2.312743
F2(4P,4P)	.8872637	.9270138	.9679775	1.010309	1.052964	1.095584	1.138021	1.180207	1.223123

TABLE IV. TWO ELECTRON INTEGRALS F(K)

	PD	AG	CD	IN	SN	SB	TE	I	XE
F0(4P,4D)	1.393418	1.508933	1.614870	1.717623	1.815649	1.910374	2.002645	2.093013	2.182478
F2(4P,4D)	.6697392	.7409379	.8045182	.8651633	.9216835	.9752740	1.026671	1.076362	1.125052
F0(4P,5S)		.6463556	.7246306	.8146176	.8901879	.9586968	1.022848	1.084007	1.143058
F0(4P,5P)				.6288421	.7174977	.7943234	.8643882	.9299999	.9917760
F2(4P,5P)				.0974642	.1260360	.1517444	.1756348	.1982260	.2191663
F0(4D,4D)	1.202155	1.334357	1.453470	1.568226	1.676213	1.779582	1.879579	1.977009	2.072417
F2(4D,4D)	.5816940	.6573081	.7242393	.7882873	.8476232	.9037273	.9574673	1.009407	1.059930
F4(4D,4D)	.3742751	.4265579	.4730039	.5176180	.5589442	.5979921	.6353602	.6714408	.7065025
F0(4D,5S)		.6328568	.7106447	.7996714	.8749524	.9434719	1.007801	1.069247	1.128569
F0(4D,5P)				.6218859	.7092488	.7852611	.8548179	.9201359	.9818127
F2(4D,5P)				.1279306	.1575909	.1832508	.2065614	.2282945	.2485214
F0(5S,5S)		.4958054	.5597404	.6360673	.6996439	.7570035	.8105336	.8614388	.9104163
F0(5S,5P)				.5405723	.6113053	.6729140	.7293044	.7822614	.8326796
F0(5P,5P)				.4800487	.5514802	.6134334	.6699816	.7229775	.7732000
F2(5P,5P)				.2497963	.2897969	.3242405	.3554738	.3845845	.4125025
	CS	BA	LA	CE	PR	ND	PM	SM	EU
F0(1S,1S)	67.95919	69.20723	70.45535	71.70377	72.95243	74.20095	75.44954	76.69820	77.94685
F0(1S,2S)	21.37202	21.78528	22.19868	22.61353	23.02986	23.44522	23.86078	24.27649	24.69238
F0(1S,2P)	24.44653	24.92592	25.40546	25.88675	26.36956	26.85124	27.33311	27.81516	28.29735
F0(1S,3S)	8.526506	8.718611	8.910623	9.103278	9.296385	9.488690	9.680844	9.872849	10.06470
F0(1S,3P)	8.975235	9.186302	9.397319	9.609106	9.821444	10.03275	10.24385	10.45475	10.66545
F0(1S,3D)	8.826289	9.046487	9.266640	9.487675	9.709366	9.929623	10.14952	10.36914	10.58846
F0(1S,4S)	3.649966	3.764507	3.878428	3.974751	4.056324	4.150555	4.243755	4.336086	4.427670
F0(1S,4P)	3.582633	3.706456	3.830123	3.931309	4.013751	4.112572	4.210198	4.306825	4.402602
F0(1S,4D)	3.156225	3.294425	3.432126	3.535600	3.610960	3.711758	3.811073	3.909174	4.006261
F0(1S,4F)				2.594920	2.567360	2.679336	2.785576	2.887540	2.986170
F0(1S,5S)	1.377160	1.475089	1.555452	1.588857	1.579286	1.610437	1.640586	1.669942	1.698656
F0(1S,5P)	1.209705	1.317302	1.402306	1.432388	1.411399	1.438869	1.465260	1.490794	1.515637
F0(1S,5D)			.9339598	.9499884					
F0(1S,6S)	.3832269	.4653729	.4980457	.5043541	.4844787	.4900729	.4954674	.5007034	.5058086
F0(2S,2S)	15.24866	15.54439	15.84022	16.13720	16.43534	16.73272	17.03024	17.32788	17.62569
F0(2S,2P)	16.31900	16.63805	16.95721	17.27768	17.59936	17.92020	18.24119	18.56230	18.88357
F0(2S,3S)	7.442186	7.605603	7.768956	7.932868	8.097220	8.260867	8.424428	8.587878	8.751234
F0(2S,3P)	7.707183	7.882921	8.058610	8.234927	8.411721	8.587692	8.763515	8.939191	9.114732
F0(2S,3D)	8.467678	8.674850	8.881922	9.089674	9.297932	9.504886	9.711474	9.917757	10.12375
F0(2S,4S)	3.423752	3.527475	3.630605	3.718732	3.794330	3.880667	3.966120	4.050824	4.134897
F0(2S,4P)	3.340481	3.451367	3.562011	3.653645	3.729493	3.819118	3.907723	3.995474	4.082509
F0(2S,4D)	3.096888	3.230274	3.363059	3.463094	3.536289	3.633733	3.729740	3.824566	3.918414
F0(2S,4F)				2.594057	2.566500	2.678365	2.784495	2.886346	2.984866
F0(2S,5S)	1.346012	1.439118	1.515493	1.547906	1.540118	1.570430	1.599802	1.628430	1.656460
F0(2S,5P)	1.182853	1.285019	1.365643	1.394862	1.376306	1.403084	1.428852	1.453815	1.478133
F0(2S,5D)			.9292228	.9451753					
F0(2S,6S)	.3816309	.4626456	.4948582	.5011659	.4817380	.4873349	.4927335	.4979740	.5030852
F0(2P,2P)	18.03419	18.39170	18.74933	19.10857	19.46918	19.82878	20.18856	20.54849	20.90856
F2(2P,2P)	8.608456	8.780853	8.953319	9.126720	9.300915	9.474524	9.648239	9.822044	9.995930
F0(2P,3S)	7.609760	7.778006	7.946186	8.114959	8.284161	8.452674	8.621079	8.789375	8.957562
F0(2P,3P)	7.943185	8.126055	8.308884	8.492400	8.676423	8.859579	9.042586	9.225448	9.408159
F2(2P,3P)	1.866201	1.915287	1.964368	2.013673	2.063133	2.112288	2.161379	2.210408	2.259374
F0(2P,3D)	8.583358	8.795087	9.006743	9.219171	9.432168	9.643819	9.855118	10.06613	10.27685
F2(2P,3D)	2.401386	2.473222	2.545116	2.617508	2.690275	2.762384	2.834358	2.906230	2.977990
F0(2P,4S)	3.458141	3.563584	3.668434	3.757892	3.834484	3.922108	4.008827	4.094783	4.180087
F0(2P,4P)	3.384801	3.498151	3.611281	3.704773	3.781941	3.873364	3.963738	4.053235	4.141991
F2(2P,4P)	.3595278	.3774636	.3954736	.4087956	.4181543	.4309983	.4436032	.4560075	.4682414
F0(2P,4D)	3.115684	3.250645	3.385041	3.486225	3.560167	3.658738	3.755860	3.851794	3.946737
F2(2P,4D)	.3475043	.3719049	.3965597	.4131595	.4229843	.4390047	.4547113	.4701604	.4853957
F0(2P,4F)				2.594388	2.566831	2.678740	2.784914	2.886811	2.985374
F2(2P,4F)				.1031353	.1007446	.1092283	.1174292	.1254202	.1332480
F0(2P,5S)	1.350732	1.444580	1.521572	1.554148	1.546101	1.576551	1.606054	1.634806	1.662950
F0(2P,5P)	1.187753	1.290922	1.372359	1.401750	1.382760	1.409678	1.435572	1.460654	1.485080
F2(2P,5P)	.0409044	.0487837	.0550776	.0563132	.0528190	.0538153	.0547156	.0555406	.0563054
F0(2P,5D)			.9307265	.9467067					
F2(2P,5D)			.0273770	.0276386					
F0(2P,6S)	.3818727	.4630596	.4953428	.5016516	.4821564	.4877537	.4931524	.4983932	.5035039
F0(3S,3S)	5.765051	5.893378	6.021656	6.150312	6.279228	6.407648	6.535967	6.664190	6.792314
F0(3S,3P)	5.850887	5.984096	6.117265	6.250808	6.384610	6.517869	6.651009	6.784035	6.916941

TABLE IV. TWO ELECTRON INTEGRALS F(K)

	CS	BA	LA	CE	PR	ND	PM	SM	EU
F0(3S,3D)	6.094435	6.238198	6.381861	6.525770	6.669827	6.813227	6.956399	7.099375	7.242158
F0(3S,4S)	3.111209	3.201813	3.291919	3.370554	3.439622	3.516873	3.593439	3.669427	3.744921
F0(3S,4P)	3.024052	3.119781	3.215238	3.296155	3.365027	3.444392	3.522969	3.600887	3.678247
F0(3S,4D)	2.802075	2.915536	3.028250	3.115438	3.181801	3.266948	3.350958	3.434036	3.516333
F0(3S,4F)				2.552052	2.525402	2.633006	2.734963	2.832706	2.927162
F0(3S,5S)	1.303593	1.390428	1.461711	1.493060	1.487881	1.517305	1.545871	1.573757	1.601091
F0(3S,5P)	1.148200	1.243600	1.318862	1.347199	1.331904	1.357993	1.383152	1.407572	1.431394
F0(3S,5D)			.9069390	.9227869					
F0(3S,6S)	.3794613	.4589616	.4905772	.4969050	.4780897	.4837062	.4891251	.4943867	.4995181
F0(3P,3P)	5.955544	6.094640	6.233718	6.373190	6.512940	6.652097	6.791122	6.930023	7.068791
F2(3P,3P)	3.009110	3.079188	3.149248	3.219340	3.289436	3.359306	3.429082	3.498771	3.568371
F0(3P,3D)	6.215994	6.366942	6.517835	6.669019	6.820393	6.971051	7.121475	7.271701	7.421724
F2(3P,3D)	2.997482	3.069102	3.140644	3.212028	3.283257	3.354285	3.425156	3.495890	3.566490
F0(3P,4S)	3.126257	3.218009	3.309281	3.388913	3.458825	3.537052	3.614586	3.691536	3.767983
F0(3P,4P)	3.040894	3.137960	3.234784	3.316833	3.386629	3.467108	3.546789	3.625805	3.704254
F2(3P,4P)	.8192462	.8528979	.8864983	.9118804	.9304155	.9549533	.9790631	1.002817	1.026268
F0(3P,4D)	2.815260	2.930018	3.044072	3.132287	3.199394	3.285555	3.370572	3.454652	3.537946
F2(3P,4D)	.6833162	.7239532	.7646249	.7925499	.8099147	.8368678	.8632873	.8892700	.9148883
F0(3P,4F)				2.555035	2.528451	2.636511	2.738933	2.837153	2.932093
F2(3P,4F)				.6140310	.5954114	.6366852	.6757850	.7132228	.7493344
F0(3P,5S)	1.305620	1.392830	1.464445	1.495927	1.490685	1.520227	1.548905	1.576899	1.604336
F0(3P,5P)	1.150031	1.245852	1.321478	1.349933	1.334514	1.360704	1.385958	1.410469	1.434376
F2(3P,5P)	.1023221	.1198051	.1334717	.1360517	.1283551	.1304551	.1323535	.1340954	.1357134
F0(3P,5D)				.9079779	.9238574				
F2(3P,5D)			.0584214	.0589199					
F0(3P,6S)	.3795648	.4591430	.4907946	.4971274	.4782853	.4839056	.4893279	.4945928	.4997270
F0(3D,3D)	6.643821	6.814364	6.984867	7.155625	7.326542	7.496552	7.666213	7.835600	8.004708
F2(3D,3D)	3.356483	3.446182	3.535866	3.625392	3.714758	3.803796	3.892604	3.981233	4.069680
F4(3D,3D)	2.152211	2.210573	2.268930	2.327119	2.385153	2.443006	2.500701	2.558271	2.615718
F0(3D,4S)	3.168022	3.262475	3.356462	3.438318	3.510021	3.590395	3.670038	3.749064	3.827562
F0(3D,4P)	3.081199	3.181111	3.280823	3.365180	3.436771	3.519483	3.601362	3.682546	3.763139
F2(3D,4P)	.7560513	.7861112	.8161208	.8382869	.8539263	.8753261	.8963362	.9170191	.9374293
F0(3D,4D)	2.863076	2.981951	3.100213	3.191469	3.260602	3.349719	3.437646	3.524601	3.610742
F2(3D,4D)	.6609079	.6997840	.7386975	.7648085	.7803212	.8054730	.8300979	.8542884	.8781199
F4(3D,4D)	.3045991	.3242628	.3440160	.3568592	.3639574	.3762877	.3883381	.4001574	.4117858
F0(3D,4F)				2.565171	2.538570	2.647891	2.751573	2.851053	2.947260
F2(3D,4F)				.5226620	.5056322	.5400474	.5725944	.6037122	.6336954
F4(3D,4F)				.2342043	.2258707	.2434161	.2600911	.2760935	.2915577
F0(3D,5S)	1.311232	1.399409	1.471858	1.503627	1.498146	1.527935	1.556846	1.585059	1.612707
F0(3D,5P)	1.154398	1.251183	1.327617	1.356904	1.340554	1.366936	1.392368	1.417044	1.441108
F2(3D,5P)	.0931618	.1090196	.1213396	.1234326	.1160933	.1177717	.1192713	.1206328	.1218868
F0(3D,5D)			.9116726	.9276257					
F2(3D,5D)			.0552392	.0555814					
F4(3D,5D)			.0218034	.0218963					
F0(3D,6S)	.3798515	.4596402	.4913837	.4977248	.4788057	.4844314	.4898585	.4951274	.5002656
F0(4S,4S)	2.483865	2.558546	2.632838	2.696267	2.750602	2.812797	2.874379	2.935443	2.996070
F0(4S,4P)	2.436299	2.513310	2.590042	2.654386	2.708397	2.771429	2.833799	2.895613	2.956958
F0(4S,4D)	2.309519	2.396422	2.482600	2.550040	2.602100	2.667918	2.732854	2.797063	2.860659
F0(4S,4F)				2.196379	2.180353	2.261445	2.338144	2.411581	2.482487
F0(4S,5S)	1.227252	1.304202	1.367872	1.397779	1.396779	1.424961	1.452378	1.479186	1.505496
F0(4S,5P)	1.089726	1.174850	1.242380	1.269594	1.259283	1.284471	1.308825	1.332512	1.355656
F0(4S,5D)			.8731103	.8888887					
F0(4S,6S)	.3755914	.4525024	.4831870	.4895797	.4717875	.4774573	.4829270	.4882367	.4934140
F0(4P,4P)	2.391879	2.470934	2.549844	2.614989	2.668664	2.732440	2.795515	2.858007	2.920006
F2(4P,4P)	1.265045	1.306822	1.348486	1.382173	1.409223	1.442201	1.474809	1.507110	1.539154
F0(4P,4D)	2.271213	2.359235	2.446755	2.514636	2.566334	2.632586	2.697951	2.762587	2.826610
F2(4P,4D)	1.173105	1.220443	1.267272	1.302085	1.327057	1.360955	1.394338	1.427300	1.459910
F0(4P,4F)				2.170693	2.155813	2.236400	2.312730	2.385903	2.456628
F2(4P,4F)				1.044762	1.019628	1.063747	1.104705	1.143321	1.180124
F0(4P,5S)	1.222232	1.298968	1.362637	1.392698	1.391974	1.420292	1.447841	1.474775	1.501208
F0(4P,5P)	1.086005	1.170825	1.238280	1.265626	1.255614	1.280919	1.305386	1.329182	1.352432
F2(4P,5P)	.2565411	.2908951	.3169104	.3226017	.3093848	.3142394	.3187472	.3229856	.3270107
F0(4P,5D)			.8712825	.8871468					
F2(4P,5D)			.1454449	.1467453					
F0(4P,6S)	.3753397	.4521153	.4827805	.4891945	.4714592	.4771453	.4826299	.4879534	.4931435
F0(4D,4D)	2.167917	2.262555	2.356699	2.426597	2.476451	2.544582	2.611723	2.678057	2.743715
F2(4D,4D)	1.110496	1.160421	1.209934	1.245053	1.268236	1.302427	1.336081	1.369303	1.402165
F4(4D,4D)	.7416302	.7763047	.8106993	.8343218	.8489970	.8719509	.8945157	.9167680	.9387606

TABLE IV. TWO ELECTRON INTEGRALS F(K)

	CS	BA	LA	CE	PR	ND	PM	SM	EU
FO(4D,4F)				2.106914	2.094148	2.174188	2.250258	2.323386	2.394230
F2(4D,4F)				1.014907	.9924009	1.034100	1.073046	1.109969	1.145334
F4(4D,4F)				.6484582	.6304778	.6578679	.6833077	.7073128	.7302133
FO(4D,5S)	1.207516	1.284209	1.348372	1.378952	1.378767	1.407536	1.435508	1.462842	1.489651
FO(4D,5P)	1.075175	1.159501	1.227078	1.254842	1.245488	1.271153	1.295961	1.320081	1.343637
F2(4D,5P)	.2857798	.3193400	.3438931	.3488221	.3353774	.3395475	.3434148	.3470496	.3505023
FO(4D,5D)				.8666839	.8828003				
F2(4D,5D)				.1600168	.1609141				
F4(4D,5D)				.0648388	.0648697				
FO(4D,6S)	.3746097	.4510349	.4816830	.4881616	.4705652	.4763003	.4818293	.4871933	.4924203
FO(4F,4F)				1.877835	1.829011	1.912626	1.991285	2.066260	2.138369
F2(4F,4F)				.8969973	.8565914	.8980571	.9367061	.9732633	1.008193
F4(4F,4F)				.5636758	.5349031	.5612649	.5857722	.6089020	.6309597
F6(4F,4F)				.4057746	.3841042	.4031685	.4208745	.4375712	.4534825
FO(4F,5S)				1.310301	1.295924	1.329198	1.360675	1.390809	1.419896
FO(4F,5P)				1.201608	1.182266	1.211459	1.239026	1.265362	1.290733
F2(4F,5P)				.4244409	.4191610	.4214193	.4236962	.4260010	.4283401
FO(4F,5D)				.8619674					
F2(4F,5D)				.2168572					
F4(4F,5D)				.1055386					
FO(4F,6S)				.4833913	.4654100	.4715224	.4773501	.4829576	.4883876
FO(5S,5S)	.9793172	1.045666	1.099159	1.122751	1.118835	1.140942	1.162402	1.183347	1.203873
FO(5S,5P)	.9096977	.9799758	1.035234	1.057513	1.049126	1.069764	1.089721	1.109134	1.128105
FO(5S,5D)			.7934081	.8081736					
FO(5S,6S)	.3645126	.4354542	.4645306	.4709323	.4548340	.4605064	.4659687	.4712635	.4764198
FO(5P,5P)	.8546522	.9268583	.9827917	1.003943	.9925217	1.011936	1.030654	1.048814	1.066520
F2(5P,5P)	.4611662	.5030886	.5340682	.5452459	.5376345	.5477940	.5575690	.5670335	.5762443
FO(5P,5D)			.7710142	.7853991					
F2(5P,5D)			.3678362	.3739104					
FO(5P,6S)	.3616721	.4315471	.4605410	.4669506	.4509809	.4566520	.4621078	.4673912	.4725332
FO(5D,5D)			.6581106	.6691898					
F2(5D,5D)			.3398389	.3447031					
F4(5D,5D)			.2232348	.2260890					
FO(5D,6S)			.4382354	.4442432					
FO(6S,6S)	.2865377	.3436283	.3663340	.3710924	.3580665	.3622600	.3662885	.3701850	.3739732

	GD	TB	DY	HO	ER	TM	YB	LU	HF
FO(1S,1S)	79.19540	80.44416	81.69318	82.94197	84.19085	85.43976	86.68871	87.93752	89.18636
FO(1S,2S)	25.10747	25.52365	25.94085	26.35722	26.77372	27.19031	27.60700	28.02300	28.43897
FO(1S,2P)	28.77861	29.26110	29.74472	30.22738	30.71016	31.19304	31.67600	32.15817	32.64029
FO(1S,3S)	10.25589	10.44748	10.63946	10.83077	11.02198	11.21308	11.40406	11.59443	11.78464
FO(1S,3P)	10.87530	11.08565	11.29649	11.50650	11.71636	11.92600	12.13558	12.34439	12.55311
FO(1S,3D)	10.80659	11.02539	11.24485	11.46316	11.68127	11.89918	12.11690	12.33357	12.55012
FO(1S,4S)	4.529889	4.619944	4.698837	4.788245	4.877249	4.965890	5.054195	5.151614	5.250583
FO(1S,4P)	4.512056	4.606063	4.685917	4.779263	4.872168	4.964675	5.056817	5.160623	5.266393
FO(1S,4D)	4.124211	4.219067	4.292834	4.387123	4.480915	4.574265	4.667213	4.777791	4.890934
FO(1S,4F)	3.188982	3.279697	3.267856	3.358255	3.447326	3.535242	3.622150	3.800270	3.969227
FO(1S,5S)	1.768311	1.796222	1.781923	1.808942	1.835664	1.862136	1.888375	1.957545	2.025762
FO(1S,5P)	1.590512	1.614727	1.587043	1.610036	1.632705	1.655091	1.677220	1.753330	1.826957
FO(1S,5D)	1.015618	1.023136						1.053217	1.169439
FO(1S,6S)	.5391445	.5446683	.5205028	.5252332	.5298908	.5344846	.5390191	.5771079	.6059961
FO(2S,2S)	17.92284	18.22085	18.51966	18.81783	19.11608	19.41441	19.71280	20.01067	20.30852
FO(2S,2P)	19.20412	19.52561	19.84797	20.16961	20.49135	20.81316	21.13504	21.45633	21.77758
FO(2S,3S)	8.914033	9.077195	9.240710	9.403683	9.566577	9.729392	9.892130	10.05437	10.21649
FO(2S,3P)	9.289593	9.464879	9.640582	9.815623	9.990562	10.16535	10.34008	10.51422	10.68829
FO(2S,3D)	10.32866	10.53411	10.74008	10.94504	11.14978	11.35431	11.55865	11.76206	11.96534
FO(2S,4S)	4.227952	4.310712	4.384041	4.466253	4.548121	4.629680	4.710954	4.799911	4.890165
FO(2S,4P)	4.180992	4.266518	4.340191	4.425161	4.509756	4.594015	4.677965	4.771659	4.866968
FO(2S,4D)	4.032084	4.123765	4.195392	4.286517	4.377157	4.467367	4.557185	4.663720	4.772652
FO(2S,4F)	3.187449	3.278047	3.266204	3.356485	3.445436	3.533230	3.620015	3.797889	3.966597
FO(2S,5S)	1.722788	1.750068	1.737851	1.764290	1.790452	1.816377	1.842084	1.907993	1.972926
FO(2S,5P)	1.549275	1.573011	1.548152	1.570730	1.593004	1.615012	1.636776	1.709148	1.779068
FO(2S,5D)	1.010748	1.018296						1.048699	1.166363
FO(2S,6S)	.5359622	.5414866	.5177982	.5225353	.5271997	.5318004	.5363417	.5739212	.6024258
FO(2P,2P)	21.26779	21.62814	21.98951	22.35001	22.71063	23.07133	23.43211	23.79218	24.15220
F2(2P,2P)	10.16933	10.34338	10.51802	10.69216	10.86636	11.04062	11.21492	11.38881	11.56267

TABLE IV. TWO ELECTRON INTEGRALS F(K)

	GD	TB	DY	HO	ER	TM	YB	LU	HF
F0(2P,3S)	9.125178	9.293172	9.461532	9.629326	9.797041	9.964673	10.13223	10.29926	10.46617
F0(2P,3P)	9.590160	9.772618	9.955525	10.13773	10.31983	10.50177	10.68366	10.86492	11.04610
F2(2P,3P)	2.308088	2.356942	2.405935	2.454681	2.503381	2.552007	2.600616	2.648990	2.697341
F0(2P,3D)	10.486466	10.696666	10.90745	11.11717	11.32669	11.53602	11.74515	11.95332	12.16136
F2(2P,3D)	3.049199	3.120759	3.192662	3.264031	3.335316	3.406522	3.477650	3.548278	3.618866
F0(2P,4S)	4.274630	4.358593	4.432859	4.516259	4.599308	4.682040	4.764479	4.854825	4.946506
F0(2P,4P)	4.242610	4.329815	4.404743	4.491374	4.577621	4.663522	4.749104	4.844790	4.942157
F2(2P,4P)	.4834339	.4953105	.5041314	.5158736	.5275255	.5390965	.5505923	.5646327	.5791271
F0(2P,4D)	4.061841	4.154604	4.226981	4.319185	4.410903	4.502189	4.593081	4.700988	4.811347
F2(2P,4D)	.5058614	.5206201	.5301126	.5447586	.5592994	.5737476	.5881115	.6069657	.6265720
F0(2P,4F)	3.188049	3.278695	3.266854	3.357183	3.446183	3.534028	3.620864	3.798838	3.867646
F2(2P,4F)	.1504601	.1579267	.1560422	.1634721	.1708388	.1781508	.1854151	.2015503	.2174883
F0(2P,5S)	1.729801	1.757189	1.744662	1.771200	1.797458	1.823478	1.849277	1.915702	1.981155
F0(2P,5P)	1.556924	1.580761	1.555389	1.578055	1.600414	1.622502	1.644344	1.717426	1.788050
F2(2P,5P)	.0616627	.0623622	.0583339	.0589431	.0595262	.0600871	.0606280	.0659976	.0713038
F0(2P,5D)	1.012316	1.019858						1.050170	1.165526
F2(2P,5D)	.0271757	.0269065						.0246911	.0313805
F0(2P,6S)	.5364522	.5419773	.5182161	.5229526	.5276166	.5322168	.5367576	.5744168	.6029814
F0(3S,3S)	6.920025	7.047976	7.176167	7.303951	7.431663	7.559306	7.686881	7.814068	7.941170
F0(3S,3P)	7.049399	7.182104	7.315062	7.447574	7.580006	7.712333	7.844607	7.976460	8.108251
F0(3S,3D)	7.384399	7.526824	7.669476	7.811603	7.953595	8.095458	8.237198	8.378434	8.519580
F0(3S,4S)	3.827253	3.901734	3.969027	4.043078	4.116862	4.190404	4.263725	4.342892	4.423037
F0(3S,4P)	3.764304	3.840499	3.907678	3.983438	4.058907	4.134115	4.209083	4.291450	4.375022
F0(3S,4D)	3.613917	3.694506	3.759615	3.839754	3.919510	3.998922	4.078024	4.169995	4.263738
F0(3S,4F)	3.120904	3.207535	3.196511	3.282840	3.367855	3.451728	3.534603	3.793884	3.863951
F0(3S,5S)	1.663286	1.689945	1.680609	1.706475	1.732083	1.757472	1.782656	1.844560	1.905475
F0(3S,5P)	1.498074	1.521376	1.500139	1.522345	1.544265	1.565935	1.587377	1.655329	1.720883
F0(3S,5D)	.9893200	.9971678						1.029744	1.139444
F0(3S,6S)	.5318109	.5373500	.5142916	.5190480	.5237314	.5283506	.5329101	.5698491	.5978762
F0(3P,3P)	7.207069	7.345619	7.484448	7.622790	7.761046	7.899162	8.037248	8.174874	8.312469
F2(3P,3P)	3.637782	3.707231	3.776738	3.846057	3.915321	3.984498	4.053654	4.122622	4.191584
F0(3P,3D)	7.571147	7.720815	7.870746	8.020100	8.169317	8.318372	8.467333	8.615740	8.764097
F2(3P,3D)	3.636916	3.707281	3.777615	3.847787	3.917874	3.987857	4.057785	4.127540	4.197277
F0(3P,4S)	3.851394	3.926815	3.994913	4.069895	4.144605	4.219066	4.293306	4.373510	4.454723
F0(3P,4P)	3.791580	3.868852	3.936925	4.013754	4.090290	4.166556	4.242584	4.326177	4.411015
F2(3P,4P)	1.054728	1.077549	1.095205	1.117801	1.140243	1.162552	1.184729	1.211174	1.238338
F0(3P,4D)	3.636777	3.718355	3.784206	3.865334	3.946077	4.026472	4.106559	4.199746	4.294755
F2(3P,4D)	.9484526	.9732670	.9900620	1.014678	1.039115	1.063402	1.087540	1.118431	1.150356
F0(3P,4F)	3.126754	3.213896	3.202950	3.289797	3.375339	3.459743	3.543157	3.713462	3.845583
F2(3P,4F)	.8334521	.8664679	.8518534	.8845567	.9166879	.9483230	.9795072	1.053780	1.125737
F0(3P,5S)	1.666839	1.693598	1.684148	1.710106	1.735804	1.761280	1.786551	1.848771	1.910008
F0(3P,5P)	1.501397	1.524783	1.503358	1.525637	1.547629	1.569368	1.590876	1.659187	1.725103
F2(3P,5P)	.1472527	.1487321	.1400286	.1413331	.1425863	.1437971	.1449683	.1565237	.1678343
F0(3P,5D)	.9904767	.9983271						1.030873	1.140901
F2(3P,5D)	.0580687	.0575592						.0533048	.0664864
F0(3P,6S)	.5320585	.5376011	.5145082	.5192668	.5239523	.5285735	.5331348	.5701191	.5981817
F0(3D,3D)	8.173040	8.341642	8.510543	8.678712	8.846686	9.014479	9.182097	9.348999	9.515837
F2(3D,3D)	4.157826	4.245941	4.334068	4.421916	4.509641	4.597251	4.684751	4.771944	4.859125
F4(3D,3D)	2.672992	2.730208	2.787400	2.844435	2.901384	2.958256	3.015053	3.071665	3.128274
F0(3D,4S)	3.913345	3.990761	4.060498	4.137443	4.214097	4.290490	4.366642	4.449051	4.532521
F0(3D,4P)	3.853004	3.932367	4.002105	4.080998	4.159580	4.237884	4.315930	4.401899	4.489183
F2(3D,4P)	.9626339	.9824656	.9973807	1.017023	1.036527	1.055908	1.075178	1.098523	1.122554
F0(3D,4D)	3.713243	3.797601	3.865393	3.949281	4.032767	4.115894	4.198696	4.295331	4.393923
F2(3D,4D)	.9099253	.9329586	.9479589	.9708055	.9934777	1.015996	1.038376	1.067517	1.097698
F4(3D,4D)	.4277597	.4389626	.4457924	.4568983	.4679117	.4788437	.4897023	.5042483	.5193802
F0(3D,4F)	3.144478	3.232902	3.221938	3.310069	3.396899	3.482598	3.567308	3.740252	3.904051
F2(3D,4F)	.7047946	.7321162	.7186900	.7457767	.7723811	.7985634	.8243739	.8869891	.9477164
F4(3D,4F)	.3283868	.3426035	.3355739	.3496429	.3634761	.3771019	.3905442	.4233775	.4555820
F0(3D,5S)	1.675941	1.702900	1.693100	1.719240	1.745114	1.770761	1.796198	1.859148	1.921125
F0(3D,5P)	1.508859	1.532394	1.510514	1.532922	1.555038	1.576897	1.598520	1.667581	1.734245
F2(3D,5P)	.1321909	.1333168	.1251882	.1261768	.1271231	.1280345	.1289149	.1391875	.1492371
F0(3D,5D)	.9943510	1.002184						1.034502	1.145561
F2(3D,5D)	.0540764	.0534968						.0490075	.0612706
F4(3D,5D)	.0209721	.0206868						.0186075	.0236829
F0(3D,6S)	.5326927	.5382403	.5150558	.5198171	.5245048	.5291280	.5336912	.5707844	.5989304
F0(4S,4S)	3.063317	3.123039	3.175837	3.235184	3.294294	3.353191	3.411893	3.476307	3.541670
F0(4S,4P)	3.025876	3.086244	3.138749	3.198737	3.258477	3.317994	3.377306	3.443141	3.510034
F0(4S,4D)	2.935570	2.997851	3.048574	3.110443	3.172001	3.233277	3.294296	3.364946	3.436916

TABLE IV. TWO ELECTRON INTEGRALS F(K)

	GD	TB	DY	HO	ER	TM	YB	LU	HF
F0(4S,4F)	2.622634	2.687490	2.684463	2.749154	2.812846	2.875672	2.937741	3.059041	3.172764
F0(4S,5S)	1.561304	1.587005	1.582163	1.607130	1.631858	1.656380	1.680712	1.736256	1.790907
F0(4S,5P)	1.415720	1.438395	1.422594	1.444252	1.465644	1.486801	1.507744	1.568989	1.628033
F0(4S,5D)	.9570065	.9652948						1.001023	1.103008
F0(4S,6S)	.5247624	.5303328	.5083115	.5131054	.5178246	.5224779	.5270700	.5629552	.5902174
F0(4P,4P)	2.990482	3.051450	3.103669	3.164259	3.224594	3.284700	3.344596	3.411797	3.480172
F2(4P,4P)	1.576199	1.607702	1.634075	1.665393	1.696581	1.727652	1.758618	1.793944	1.829927
F0(4P,4D)	2.902680	2.965383	3.015822	3.078130	3.140133	3.201859	3.263334	3.335114	3.408338
F2(4P,4D)	1.499890	1.531736	1.556107	1.587738	1.619197	1.650499	1.681660	1.719157	1.757438
F0(4P,4F)	2.595855	2.660744	2.658433	2.723162	2.786930	2.849865	2.912073	3.033169	3.147011
F2(4P,4F)	1.265572	1.297980	1.282892	1.315290	1.346990	1.378088	1.408663	1.480307	1.546388
F0(4P,5S)	1.557029	1.582848	1.578219	1.603292	1.628124	1.652747	1.677177	1.732733	1.787431
F0(4P,5P)	1.412456	1.435234	1.419667	1.441416	1.462898	1.484142	1.505169	1.566382	1.625431
F2(4P,5P)	.3496107	.3534603	.3381479	.3416241	.3450083	.3483135	.3515478	.3746495	.3968682
F0(4P,5D)	.9557365	.9640932						1.000175	1.102013
F2(4P,5D)	.1467234	.1459278						.1382244	.1675954
F0(4P,6S)	.5244708	.5300530	.5080748	.5128785	.5176071	.5222693	.5268698	.5627338	.5899881
F0(4D,4D)	2.824587	2.888769	2.937583	3.001386	3.064860	3.128039	3.190950	3.266939	3.344688
F2(4D,4D)	1.444280	1.476347	1.499104	1.530984	1.562694	1.594250	1.625668	1.665145	1.705611
F4(4D,4D)	.9677288	.9891451	1.003556	1.024844	1.046012	1.067069	1.088029	1.115074	1.142863
F0(4D,4F)	2.533096	2.598539	2.597104	2.662362	2.726727	2.790313	2.853220	2.975361	3.091103
F2(4D,4F)	1.226849	1.258463	1.244918	1.276539	1.307573	1.338099	1.368186	1.438028	1.503053
F4(4D,4F)	.7856510	.8058761	.7942999	.8145479	.8343818	.8538580	.8730249	.9200826	.9638296
F0(4D,5S)	1.545774	1.571933	1.567683	1.593068	1.618197	1.643104	1.667806	1.723573	1.778579
F0(4D,5P)	1.403722	1.426783	1.411707	1.433712	1.455438	1.476915	1.498165	1.559395	1.618567
F2(4D,5P)	.3722210	.3755699	.3600738	.3630700	.3659911	.3688487	.3716496	.3941099	.4154947
F0(4D,5D)	.9526805	.9612156						.9981904	1.099746
F2(4D,5D)	.1586060	.1574538						.1477429	.1779664
F4(4D,5D)	.0617246	.0609000						.0550388	.0685421
F0(4D,6S)	.5237092	.5293244	.5074472	.5122789	.5170336	.5217201	.5263432	.5621625	.5894089
F0(4F,4F)	2.312538	2.377960	2.342498	2.407543	2.471448	2.534360	2.596407	2.750320	2.894206
F2(4F,4F)	1.107715	1.138848	1.106068	1.136996	1.167280	1.197003	1.226240	1.314249	1.396327
F4(4F,4F)	.6967514	.7162968	.6925793	.7120022	.7310020	.7496337	.7679456	.8260656	.8803797
F6(4F,4F)	.5017680	.5158340	.4978804	.5118616	.5255330	.5389351	.5521033	.5947320	.6346193
F0(4F,5S)	1.489330	1.516463	1.502667	1.529145	1.555194	1.580873	1.606223	1.671298	1.733455
F0(4F,5P)	1.360252	1.384125	1.362644	1.385557	1.408057	1.430195	1.452012	1.519559	1.583659
F2(4F,5P)	.4407489	.4435468	.4355453	.4380022	.4404816	.4429832	.4455039	.4606450	.4749855
F0(4F,5D)	.9373666	.9464995						.9862626	1.087457
F2(4F,5D)	.2052914	.2031716						.1889460	.2176898
F4(4F,5D)	.0949109	.0932912						.0836459	.0971211
F0(4F,6S)	.5201513	.5258732	.5038607	.5088038	.5136566	.5184303	.5231317	.5591181	.5866346
F0(5S,5S)	1.250871	1.270921	1.263549	1.282946	1.302143	1.321168	1.340032	1.387084	1.433052
F0(5S,5P)	1.177162	1.195735	1.182992	1.200757	1.218306	1.235667	1.252854	1.302761	1.350862
F0(5S,5D)	.8746425	.8831414						.9221453	1.006195
F0(5S,6S)	.5058290	.5113188	.4912314	.4959915	.5006752	.5052919	.5098461	.5433497	.5691089
F0(5P,5P)	1.116551	1.133917	1.117551	1.134012	1.150250	1.166289	1.182147	1.233564	1.282744
F2(5P,5P)	.6045009	.6135955	.6026925	.6111929	.6195638	.6278183	.6359665	.6655377	.6933189
F0(5P,5D)	.8504025	.8587618						.8974808	.9782283
F2(5P,5D)	.3966693	.3988210						.4039156	.4568918
F0(5P,6S)	.5017567	.5072181	.4872874	.4920248	.4966849	.5012766	.5058052	.5390370	.5647110
F0(5D,5D)	.7139347	.7188395						.7364337	.8195968
F2(5D,5D)	.3617888	.3631896						.3648527	.4120537
F4(5D,5D)	.2350361	.2355597						.2342728	.2666841
F0(5D,6S)	.4749769	.4795272						.5043841	.5349068
F0(6S,6S)	.3969248	.4009798	.3848201	.3882969	.3917134	.3950774	.3983924	.4246310	.4445209

	TA	W	RE	US	IR	PT	AU	HG	TL
F0(1S,1S)	90.43522	91.68409	92.93299	94.18188	95.43084	96.67982	97.92885	99.17775	100.4267
F0(1S,2S)	28.85490	29.27083	29.68676	30.10268	30.51862	30.93451	31.35047	31.76648	32.18248
F0(1S,2P)	33.12236	33.60440	34.08643	34.56844	35.05045	35.53244	36.01446	36.49644	36.97848
F0(1S,3S)	11.97491	12.16518	12.35546	12.54577	12.73611	12.92628	13.11671	13.30740	13.49812
F0(1S,3P)	12.76177	12.97042	13.17906	13.38772	13.59640	13.80497	14.01373	14.22266	14.43172
F0(1S,3D)	12.76659	12.98299	13.19936	13.41569	13.63201	13.84834	14.06465	14.28096	14.49731
F0(1S,4S)	5.350806	5.452082	5.554247	5.657127	5.760699	5.864393	5.968992	6.074477	6.180252
F0(1S,4P)	5.373699	5.482265	5.591868	5.702337	5.813490	5.925305	6.037606	6.150394	6.263789
F0(1S,4D)	5.005899	5.122223	5.239587	5.357749	5.476532	5.596340	5.717711	5.837534	5.957741

TABLE IV. TWO ELECTRON INTEGRALS F(K)

	TA	W	RE	OS	IR	PT	AU	HG	TL
F0(1S,4F)	4.131622	4.288939	4.442176	4.592049	4.739103	4.882882	5.025481	5.167030	5.307310
F0(1S,5S)	2.093268	2.160085	2.226232	2.291739	2.356641	2.408732	2.472436	2.548135	2.623768
F0(1S,5P)	1.899057	1.969938	2.039768	2.108676	2.176768	2.229760	2.296312	2.376957	2.460151
F0(1S,5D)	1.269096	1.359747	1.444571	1.525276	1.602862	1.626995	1.699987	1.820486	1.937663
F0(1S,6S)	.6304014	.6518897	.6712538	.6889634	.7053378	.6609651	.6719569	.7484065	.8385139
F0(1S,6P)									.6320396
F0(2S,2S)	20.60632	20.90413	21.20193	21.49974	21.79755	22.09533	22.39317	22.69105	22.98890
F0(2S,2P)	22.09880	22.42000	22.74120	23.06239	23.38359	23.70476	24.02597	24.34719	24.66843
F0(2S,3S)	10.37865	10.54080	10.70296	10.86514	11.02734	11.18941	11.35167	11.51412	11.67657
F0(2S,3P)	10.86230	11.03630	11.21029	11.38429	11.55830	11.73222	11.90627	12.08044	12.25469
F0(2S,3D)	12.16852	12.37163	12.57469	12.77770	12.98069	13.18365	13.38660	13.58953	13.79247
F0(2S,4S)	4.981454	5.073613	5.166501	5.259968	5.353995	5.448109	5.542958	5.638521	5.734305
F0(2S,4P)	4.963526	5.061102	5.159510	5.258605	5.358233	5.458375	5.558890	5.659782	5.761143
F0(2S,4D)	4.883267	4.995130	5.107936	5.221459	5.335528	5.450523	5.566965	5.681910	5.797179
F0(2S,4F)	4.128732	4.285785	4.438751	4.588346	4.735117	4.878606	5.020909	5.162156	5.302123
F0(2S,5S)	2.037125	2.100620	2.163439	2.225613	2.287181	2.336812	2.397206	2.468676	2.540018
F0(2S,5P)	1.847455	1.914617	1.980723	2.045902	2.110259	2.160558	2.223397	2.299218	2.377293
F0(2S,5D)	1.262063	1.351510	1.435139	1.514651	1.591041	1.614843	1.686735	1.805165	1.920184
F0(2S,6S)	.6265137	.6477318	.6668622	.6843683	.7005646	.6571005	.6680233	.7432219	.8316288
F0(2S,6P)									.6282533
F0(2P,2P)	24.51218	24.87214	25.23208	25.59201	25.95194	26.31185	26.67178	27.03171	27.39168
F2(2P,2P)	11.73651	11.91034	12.08415	12.25797	12.43178	12.60557	12.77938	12.95320	13.12704
F0(2P,3S)	10.63312	10.80007	10.96702	11.13400	11.30100	11.46787	11.63494	11.80220	11.96948
F0(2P,3P)	11.22724	11.40836	11.58947	11.77060	11.95174	12.13280	12.31399	12.49531	12.67673
F2(2P,3P)	2.745680	2.794020	2.842365	2.890721	2.939090	2.987424	3.035829	3.084304	3.132825
F0(2P,3D)	12.36931	12.57720	12.78504	12.99285	13.20063	13.40841	13.61618	13.82393	14.03171
F2(2P,3D)	3.689432	3.759987	3.830540	3.901098	3.971666	4.042255	4.112857	4.183468	4.254113
F0(2P,4S)	5.039260	5.132913	5.227320	5.322329	5.417920	5.513605	5.610052	5.707238	5.804662
F0(2P,4P)	5.040831	5.140570	5.241180	5.342514	5.444411	5.546852	5.649689	5.752923	5.856658
F2(2P,4P)	.5939876	.6091559	.6245855	.6402395	.6560779	.6720967	.6882554	.7045517	.7210134
F0(2P,4D)	4.923438	5.036815	5.151168	5.266266	5.381936	5.498568	5.616686	5.733289	5.850243
F2(2P,4D)	.6467495	.6673838	.6883922	.7097116	.7312931	.7532509	.7756889	.7978098	.8201154
F0(2P,4F)	4.129889	4.287049	4.440127	4.589837	4.736724	4.880334	5.022760	5.164130	5.304230
F2(2P,4F)	.2333132	.2490685	.2647820	.2804731	.2961560	.3117512	.3274428	.3432336	.3590946
F0(2P,5S)	2.045879	2.109902	2.173250	2.235956	2.298056	2.348082	2.409006	2.481148	2.553176
F0(2P,5P)	1.857146	1.925017	1.991834	2.057727	2.122800	2.173619	2.237172	2.313915	2.392973
F2(2P,5P)	.0765950	.0818777	.0871524	.0924192	.0976789	.1014565	.1066617	.1134199	.1205655
F0(2P,5D)	1.264359	1.354202	1.438225	1.518130	1.594916	1.618830	1.691087	1.810200	1.925933
F2(2P,5D)	.0376489	.0437203	.0496798	.0555725	.0614190	.0628536	.0681642	.0782416	.0886411
F0(2P,6S)	.6271196	.6483805	.6675480	.6850866	.7013114	.6577058	.6686400	.7440350	.8327098
F0(2P,6P)									.6289695
F2(2P,6P)									.0056880
F0(3S,3S)	8.068317	8.195478	8.322659	8.449865	8.577105	8.704258	8.831573	8.959049	9.086557
F0(3S,3P)	8.240051	8.371862	8.503687	8.635537	8.767415	8.899220	9.031169	9.163263	9.295409
F0(3S,3D)	8.660726	8.801860	8.942990	9.084124	9.225272	9.366357	9.507543	9.648832	9.790146
F0(3S,4S)	4.503969	4.585555	4.667687	4.750250	4.833230	4.916263	4.999847	5.083967	5.168250
F0(3S,4P)	4.459526	4.544782	4.630645	4.717005	4.803745	4.890839	4.978207	5.065853	5.153837
F0(3S,4D)	4.358706	4.454559	4.551063	4.648045	4.745379	4.843334	4.942369	5.040215	5.138260
F0(3S,4F)	4.017383	4.165661	4.309778	4.450450	4.588223	4.722685	4.855850	4.987851	5.118477
F0(3S,5S)	1.965648	2.025117	2.083916	2.142082	2.199656	2.246402	2.302858	2.369259	2.435476
F0(3S,5P)	1.784922	1.847746	1.909524	1.970387	2.030439	2.077693	2.136282	2.206541	2.278733
F0(3S,5D)	1.232970	1.317669	1.396643	1.471558	1.543394	1.566153	1.633958	1.744501	1.851378
F0(3S,6S)	.6215740	.6424633	.6613126	.6785767	.6945640	.6522541	.6631023	.7367510	.8230575
F0(3S,6P)									.6237586
F0(3P,3P)	8.450037	8.587616	8.725209	8.862827	9.000475	9.138067	9.275789	9.413638	9.551570
F2(3P,3P)	4.260541	4.329511	4.398495	4.467500	4.536525	4.605533	4.674608	4.743749	4.812935
F0(3P,3D)	8.912415	9.060724	9.209032	9.357349	9.505682	9.653985	9.802364	9.950823	10.09934
F2(3P,3D)	4.267002	4.336727	4.406456	4.476192	4.545939	4.615665	4.685438	4.755260	4.825116
F0(3P,4S)	4.536738	4.619427	4.702679	4.786377	4.870506	4.954699	5.039457	5.124767	5.210252
F0(3P,4P)	4.496810	4.583383	4.670586	4.758309	4.846430	4.934926	5.023708	5.112780	5.202211
F2(3P,4P)	1.266065	1.294253	1.322822	1.351707	1.380841	1.410220	1.439772	1.469497	1.499437
F0(3P,4D)	4.391022	4.488207	4.586069	4.684435	4.783175	4.882566	4.983069	5.082369	5.181889
F2(3P,4D)	1.183032	1.216284	1.249987	1.284045	1.318388	1.353174	1.388575	1.423426	1.458456
F0(3P,4F)	4.029094	4.178479	4.323731	4.465564	4.604524	4.740195	4.874596	5.007860	5.139776
F2(3P,4F)	1.195953	1.2644758	1.332379	1.398985	1.464710	1.529257	1.593510	1.657506	1.721135
F0(3P,5S)	1.970507	2.030306	2.089440	2.147944	2.205858	2.252870	2.309669	2.376498	2.443152
F0(3P,5P)	1.789506	1.852700	1.914852	1.976092	2.036525	2.084067	2.143041	2.213791	2.286504
F2(3P,5P)	.1790197	.1901030	.2010925	.2119946	.2228157	.2305213	.2411280	.2548469	.2692616

TABLE IV. TWO ELECTRON INTEGRALS F(K)

	TA	W	RE	OS	IR	PT	AU	HG	TL
F0(3P,5D)	1.234741	1.319750	1.399033	1.474258	1.546407	1.569258	1.637351	1.748433	1.855872
F2(3P,5D)	.0786048	.0901691	.1013824	.1123530	.1231387	.1256665	.1355445	.1539175	.1726270
F0(3P,6S)	.6219094	.6428250	.6616976	.6789826	.6949887	.6526003	.6634570	.7372214	.8236857
F0(3P,6P)									.6241126
F2(3P,6P)									.0137269
F0(3D,3D)	9.682633	9.849406	10.01617	10.18293	10.34971	10.51650	10.68331	10.85014	11.01701
F2(3D,3D)	4.946303	5.033489	5.120690	5.207909	5.295150	5.382420	5.469714	5.557032	5.644390
F4(3D,3D)	3.184888	3.241511	3.298149	3.354804	3.411477	3.468175	3.524891	3.581628	3.638395
F0(3D,4S)	4.616844	4.701879	4.787512	4.873621	4.960191	5.046842	5.134086	5.221912	5.309926
F0(3D,4P)	4.577485	4.666612	4.756413	4.846770	4.937559	5.028763	5.120268	5.212081	5.304279
F2(3D,4P)	1.147125	1.172137	1.197514	1.223197	1.249120	1.275272	1.301600	1.328106	1.354822
F0(3D,4D)	4.493880	4.594839	4.696550	4.798827	4.901531	5.004970	5.109600	5.212976	5.316609
F2(3D,4D)	1.128640	1.160165	1.192150	1.224501	1.257146	1.290239	1.323962	1.357151	1.390530
F4(3D,4D)	.5349469	.5508535	.5670318	.5834303	.6000093	.6168549	.6340587	.6509868	.6680346
F0(3D,4F)	4.061290	4.213445	4.361513	4.506206	4.648069	4.786675	4.924058	5.060352	5.195345
F2(3D,4F)	1.007036	1.065224	1.122469	1.178913	1.234667	1.289462	1.344073	1.398536	1.452747
F4(3D,4F)	.4873297	.5187137	.5497962	.5806229	.6112294	.6414545	.6716919	.7019538	.7321824
F0(3D,5S)	1.982373	2.042927	2.102820	2.162080	2.220768	2.278922	2.336525	2.393718	2.461352
F0(3D,5P)	1.799403	1.863356	1.926272	1.988282	2.049488	2.097604	2.157351	2.229095	2.302863
F2(3D,5P)	.1591711	.1690103	.1787622	.1884327	.1980278	.2048004	.2141972	.2264111	.2392557
F0(3D,5D)	1.240379	1.326345	1.406577	1.482747	1.555839	1.578945	1.647899	1.760610	1.869741
F2(3D,5D)	.0725579	.0833360	.0937908	.1040214	.1140800	.1163600	.1255166	.1427202	.1602678
F4(3D,5D)	.0284191	.0329864	.0374502	.0418452	.0461881	.0471489	.0510424	.0585596	.0663006
F0(3D,6S)	.6227284	.6437044	.6626300	.6799618	.6960092	.6534295	.6643035	.7383403	.8251753
F0(3D,6P)									.6248574
F2(3D,6P)									.0120223
F0(4S,4S)	3.607782	3.674513	3.741756	3.809399	3.877429	3.945533	4.014117	4.083171	4.152378
F0(4S,4P)	3.577747	3.646123	3.715039	3.784385	3.854099	3.924024	3.994299	4.064929	4.135794
F0(4S,4D)	3.509817	3.583408	3.657519	3.732012	3.806820	3.881938	3.957859	4.033306	4.108897
F0(4S,4F)	3.281166	3.385536	3.486730	3.585341	3.681846	3.775919	3.869162	3.961685	4.053207
F0(4S,5S)	1.844899	1.898279	1.951086	2.003355	2.055129	2.097935	2.148798	2.207857	2.266711
F0(4S,5P)	1.685684	1.742229	1.797832	1.852613	1.906674	1.949928	2.002731	2.065287	2.129366
F0(4S,5D)	1.189406	1.267299	1.339687	1.408179	1.473729	1.495345	1.557644	1.657302	1.753043
F0(4S,6S)	.6133066	.6336977	.6521343	.6690555	.6847578	.6443786	.6551521	.7263593	.8093776
F0(4S,6P)									.6170079
F0(4P,4P)	3.549442	3.619428	3.689991	3.761024	3.832413	3.904156	3.976131	4.048355	4.120904
F2(4P,4P)	1.866393	1.903229	1.940349	1.977689	2.015183	2.052846	2.090577	2.128391	2.166351
F0(4P,4D)	3.482584	3.557591	3.633176	3.709203	3.785555	3.862375	3.939899	4.016869	4.094090
F2(4P,4D)	1.796232	1.835377	1.874760	1.914301	1.953934	1.993754	2.033950	2.073678	2.113475
F0(4P,4F)	3.255791	3.360755	3.462724	3.562276	3.659829	3.755193	3.849701	3.943465	4.036385
F2(4P,4F)	1.608374	1.667153	1.723345	1.777406	1.829680	1.880071	1.929571	1.978280	2.026139
F0(4P,5S)	1.841498	1.894979	1.947910	2.000324	2.052256	2.095284	2.146332	2.205549	2.264587
F0(4P,5P)	1.683118	1.739727	1.795416	1.850307	1.904494	1.947935	2.000894	2.063585	2.127822
F2(4P,5P)	.4185197	.4396996	.4604620	.4808493	.5009014	.5151420	.5345319	.5593136	.5850677
F0(4P,5D)	1.188312	1.266143	1.338499	1.406986	1.472554	1.494290	1.556645	1.656305	1.752084
F2(4P,5D)	.1937490	.2180951	.2412276	.2634707	.2850178	.2897691	.3100423	.3460151	.3817859
F0(4P,6S)	.6130771	.6334731	.6519184	.6688510	.6845664	.6442407	.6550272	.7262141	.8092098
F0(4P,6P)									.6169397
F2(4P,6P)									.0346539
F0(4D,4D)	3.423645	3.503475	3.583953	3.664911	3.746227	3.828186	3.911368	3.993267	4.075392
F2(4D,4D)	1.746721	1.788269	1.830119	1.872174	1.914366	1.956860	2.000112	2.042465	2.084896
F4(4D,4D)	1.171136	1.199737	1.228562	1.257537	1.286612	1.315912	1.345786	1.374969	1.404209
F0(4D,4F)	3.202427	3.310437	3.415853	3.519175	3.620775	3.720572	3.820191	3.918517	4.016112
F2(4D,4F)	1.564618	1.623524	1.680315	1.735383	1.789025	1.841196	1.893075	1.943954	1.994183
F4(4D,4F)	1.005149	1.044571	1.082468	1.119110	1.154704	1.189221	1.223496	1.257023	1.290057
F0(4D,5S)	1.833029	1.886951	1.940372	1.993317	2.045815	2.089531	2.141312	2.201112	2.260764
F0(4D,5P)	1.676461	1.733342	1.789361	1.844631	1.899240	1.943229	1.996771	2.059920	2.124646
F2(4D,5P)	.4361843	.4563116	.4759548	.4951739	.5140174	.5269320	.5448984	.5684577	.5929668
F0(4D,5D)	1.185893	1.263670	1.336054	1.404639	1.470364	1.492455	1.555106	1.654969	1.751030
F2(4D,5D)	.2045608	.2290842	.2522047	.2742918	.2955664	.2994977	.3192604	.3551012	.3906065
F4(4D,5D)	.0807384	.0921867	.1031210	.1136708	.1239121	.1256755	.1350574	.1526914	.1704646
F0(4D,6S)	.6125100	.6329310	.6514099	.6683821	.6841406	.6439438	.6547756	.7259375	.8089113
F0(4D,6P)									.6167994
F2(4D,6P)									.0353795
F0(4F,4F)	3.031165	3.162886	3.290469	3.414684	3.536107	3.654134	3.771217	3.887438	4.002428
F2(4F,4F)	1.474288	1.549121	1.621473	1.691800	1.760445	1.826936	1.892968	1.958571	2.023456
F4(4F,4F)	.9320389	.9816711	1.029690	1.076387	1.121985	1.166145	1.210028	1.253652	1.296813
F6(4F,4F)	.6725901	.7090947	.7444302	.7788072	.8123850	.8449091	.8772396	.9093891	.9412058

TABLE IV. TWO ELECTRON INTEGRALS F(K)

	TA	W	RE	OS	IR	PT	AU	HG	TL
F0(4F,5S)	1.793735	1.852595	1.910314	1.967077	2.023026	2.069944	2.124495	2.186953	2.249170
F0(4F,5P)	1.645644	1.706059	1.765218	1.823332	1.880560	1.927076	1.982782	2.048011	2.114768
F2(4F,5P)	.4890487	.5029815	.5168364	.5306359	.5443898	.5526109	.5662414	.5854212	.6056847
F0(4F,5D)	1.173763	1.251986	1.325001	1.394345	1.460924	1.484420	1.547922	1.648388	1.745244
F2(4F,5D)	.2417527	.2633242	.2833235	.3022378	.3203471	.3205721	.3375936	.3708673	.4035536
F4(4F,5D)	.1083643	.1184393	.1277894	.1366475	.1451451	.1443671	.1522715	.1688049	.1852213
F0(4F,6S)	.6100250	.6307306	.6494805	.6667064	.6827015	.6429754	.6539680	.7250934	.8080475
F0(4F,6P)									.6163764
F2(4F,6P)									.0369763
F0(5S,5S)	1.478284	1.522878	1.566906	1.610418	1.653461	1.687590	1.729781	1.780189	1.830425
F0(5S,5P)	1.397832	1.443908	1.489226	1.533884	1.577961	1.612199	1.655249	1.707311	1.760175
F0(5S,5D)	1.076856	1.140293	1.199106	1.254673	1.307809	1.326724	1.377715	1.457078	1.532783
F0(5S,6S)	.5911440	.6107729	.6286563	.6451812	.6606083	.6250461	.6359285	.7018895	.7779659
F0(5S,6P)									.6017962
F0(5P,5P)	1.330573	1.377371	1.423312	1.468523	1.513100	1.547161	1.590623	1.643738	1.698461
F2(5P,5P)	.7200333	.7459574	.7712442	.7960010	.8203056	.8375243	.8610740	.8910767	.9221049
F0(5P,5D)	1.046467	1.107993	1.165234	1.219474	1.271471	1.290638	1.340643	1.418139	1.492904
F2(5P,5D)	.5002755	.5384141	.5731763	.6055679	.6361883	.6417742	.6711386	.7210411	.7684460
F0(5P,6S)	.5867444	.6064199	.6243772	.6409937	.6565232	.6218402	.6328426	.6981400	.7734451
F0(5P,6P)									.5995866
F2(5P,6P)									.1022456
F0(5D,5D)	.8895724	.9523961	1.010633	1.065656	1.118273	1.128680	1.179278	1.266146	1.349292
F2(5D,5D)	.4513131	.4861912	.5182322	.5482736	.5768161	.5769076	.6045805	.6566637	.7061787
F4(5D,5D)	.2937081	.3177339	.3398046	.3604896	.3801310	.3787963	.3978074	.4350189	.4705742
F0(5D,6S)	.5600780	.5820791	.6018871	.6200431	.6368887	.6047521	.6169690	.6815819	.7556076
F0(5D,6P)									.5913016
F2(5D,6P)									.1383166
F0(6S,6S)	.4613797	.4762862	.4897774	.5021694	.5136732	.4819579	.4896594	.5441544	.6095526
F0(6S,6P)									.5188753
F0(6P,6P)									.4616457
F2(6P,6P)									.2426953
	PS	BI	PO	AT	RN	FR	RA	AC	TH
F0(1S,1S)	101.6757	102.9247	104.1737	105.4226	106.6717	107.9207	109.1697	110.4188	111.6678
F0(1S,2S)	32.59852	33.01459	33.43068	33.84679	34.26296	34.67916	35.09542	35.51171	35.92803
F0(1S,2P)	37.46053	37.94262	38.42473	38.90684	39.38902	39.87121	40.35344	40.83570	41.31799
F0(1S,3S)	13.68895	13.87990	14.07095	14.26210	14.45338	14.64481	14.83638	15.02799	15.21969
F0(1S,3P)	14.64091	14.85023	15.05968	15.26926	15.47899	15.68882	15.89877	16.10878	16.31888
F0(1S,3D)	14.711370	14.93014	15.14663	15.36316	15.57977	15.79644	16.01318	16.23000	16.44687
F0(1S,4S)	6.286459	6.393067	6.500044	6.607356	6.714982	6.823036	6.931439	7.039956	7.148678
F0(1S,4P)	6.377714	6.492120	6.606965	6.722207	6.837806	6.953701	7.069900	7.186310	7.302941
F0(1S,4D)	6.078253	6.199043	6.320083	6.441339	6.562793	6.684509	6.806441	6.928636	7.050986
F0(1S,4F)	5.446510	5.584712	5.721993	5.858429	5.994088	6.129152	6.263643	6.397528	6.530848
F0(1S,5S)	2.700407	2.777653	2.855215	2.932916	3.010640	3.088844	3.167210	3.245063	3.322615
F0(1S,5P)	2.544399	2.629020	2.713675	2.798146	2.884124	2.968399	3.052505	3.136432	3.220044
F0(1S,5D)	2.048131	2.153805	2.255846	2.355019	2.451864	2.548960	2.645026	2.740677	2.834947
F0(1S,6S)	.9137533	.9814129	1.044245	1.103676	1.160557	1.241994	1.321132	1.384879	1.444677
F0(1S,6P)	.7200564	.7962071	.8653913	.9298919	.9892243	1.085541	1.172168	1.239484	1.301968
F0(1S,6D)								.8260257	.9039207
F0(1S,7S)						.3624177	.4358927	.4660698	.4909229
F0(2S,2S)	23.28680	23.58472	23.88266	24.18061	24.47861	24.77664	25.07471	25.37281	25.67092
F0(2S,2P)	24.98970	25.31098	25.63229	25.95361	26.27498	26.59637	26.91780	27.23925	27.56073
F0(2S,3S)	11.83911	12.00172	12.16441	12.32717	12.49001	12.65296	12.81602	12.97910	13.14225
F0(2S,3P)	12.42902	12.60344	12.77795	12.95254	13.12724	13.30200	13.47685	13.65173	13.82668
F0(2S,3D)	13.99544	14.19843	14.40146	14.60451	14.80762	15.01077	15.21397	15.41722	15.62051
F0(2S,4S)	5.830431	5.926872	6.023603	6.120594	6.217831	6.315406	6.413257	6.511188	6.609273
F0(2S,4P)	5.862915	5.965054	6.067529	6.170305	6.273350	6.376613	6.480105	6.583746	6.687544
F0(2S,4D)	5.912705	6.028458	6.144417	6.260549	6.376837	6.493342	6.610023	6.726922	6.843938
F0(2S,4F)	5.441006	5.578883	5.715831	5.851930	5.987245	6.121957	6.256092	6.389615	6.522566
F0(2S,5S)	2.612216	2.684899	2.757802	2.830364	2.903681	2.976973	3.050407	3.123217	3.195810
F0(2S,5P)	2.456223	2.535379	2.614456	2.693263	2.773360	2.851804	2.930013	3.007986	3.085600
F0(2S,5D)	2.028491	2.131994	2.231850	2.328824	2.423452	2.518261	2.612002	2.705276	2.797147
F0(2S,6S)	.9052910	.9714219	1.032749	1.090684	1.146072	1.225101	1.301721	1.363391	1.421193
F0(2S,6P)	.7146886	.7892685	.8568767	.9197893	.9776649	1.071158	1.154987	1.220053	1.280380
F0(2S,6D)								.8232620	.9004779
F0(2S,7S)						.3614912	.4343296	.4642215	.4888330

TABLE IV. TWO ELECTRON INTEGRALS F(K)

	PB	BI	PO	AT	RN	FR	RA	AC	TH
F0(3D,4D)	5.420441	5.524453	5.628627	5.732936	5.837372	5.941981	6.046730	6.151651	6.256666
F2(3D,4D)	1.424064	1.457741	1.491548	1.525472	1.559502	1.593662	1.627932	1.662331	1.696814
F4(3D,4D)	.6851821	.7024218	.7197465	.7371477	.7546196	.7721743	.7898012	.8075112	.8252781
F0(3D,4F)	5.329224	5.462075	5.593978	5.725010	5.855242	5.984850	6.113858	6.242241	6.370040
F2(3D,4F)	1.506754	1.560563	1.614180	1.667614	1.720875	1.774033	1.827083	1.879987	1.932750
F4(3D,4F)	.7623944	.7925857	.8227524	.8528939	.8830089	.9131331	.9432592	.9733600	1.003434
F0(3D,5S)	2.529725	2.598496	2.667422	2.736356	2.805209	2.874366	2.943614	3.012269	3.080696
F0(3D,5P)	2.377331	2.451926	2.526372	2.600498	2.675752	2.749427	2.822833	2.895983	2.968759
F2(3D,5P)	.2524829	.2659472	.2795659	.2932801	.3074167	.3213116	.3352662	.3492580	.3632630
F0(3D,5D)	1.972232	2.069969	2.164094	2.255365	2.344314	2.433318	2.521214	2.608563	2.694518
F2(3D,5D)	.1774581	.1943915	.2111306	.2277156	.2441750	.2609438	.2777733	.2947784	.3117190
F4(3D,5D)	.0739502	.0815389	.0890853	.0966006	.1040925	.1117550	.1194747	.1273046	.1351304
F0(3D,6S)	.8973932	.9621368	1.022108	1.078708	1.132772	1.209650	1.284032	1.343884	1.399150
F0(3D,6P)	.7098941	.7830961	.8493323	.9108722	.9674997	1.058557	1.139988	1.203151	1.261666
F2(3D,6P)	.0166261	.0210906	.0254836	.0298359	.0338097	.0414101	.0487980	.0546213	.0601340
F0(3D,6D)								.8157567	.8911909
F2(3D,6D)								.0240408	.0294571
F4(3D,6D)								.0097639	.0120756
F0(3D,7S)						.3606442	.4329059	.4625444	.4869437
F0(4S,4S)	4.221818	4.291475	4.361335	4.431374	4.501583	4.572034	4.642679	4.713390	4.784213
F0(4S,4P)	4.206915	4.278268	4.349837	4.421597	4.493532	4.565664	4.637973	4.710366	4.782868
F0(4S,4D)	4.184653	4.260558	4.336600	4.412759	4.489027	4.565466	4.642038	4.718690	4.795414
F0(4S,4F)	4.143924	4.233912	4.323243	4.411983	4.500186	4.588010	4.675460	4.762478	4.849127
F0(4S,5S)	2.326061	2.385637	2.445249	2.504788	2.564189	2.623764	2.683351	2.742442	2.801311
F0(4S,5P)	2.193838	2.258249	2.322390	2.386141	2.450687	2.513865	2.576742	2.639343	2.701570
F0(4S,5D)	1.842369	1.927108	2.008370	2.086889	2.163182	2.239292	2.314252	2.388521	2.461453
F0(4S,6S)	.8781111	.9395271	.9962655	1.049694	1.100632	1.172409	1.241510	1.297103	1.349129
F0(4S,6P)	.6988436	.7689093	.8320391	.8904872	.9443159	1.029894	1.105961	1.164902	1.219421
F0(4S,6D)								.7988360	.8703062
F0(4S,7S)						.3586064	.4294900	.4585310	.4824339
F0(4P,4P)	4.193737	4.266825	4.340150	4.413682	4.487402	4.561281	4.635325	4.709475	4.783738
F2(4P,4P)	2.204432	2.242620	2.280905	2.319274	2.357716	2.396222	2.434793	2.473401	2.512049
F0(4P,4D)	4.171519	4.249135	4.326923	4.404861	4.482931	4.561146	4.639493	4.717956	4.796504
F2(4P,4D)	2.153322	2.193209	2.233132	2.273081	2.313049	2.353048	2.393072	2.433110	2.473150
F0(4P,4F)	4.128593	4.220155	4.311136	4.401593	4.491574	4.581176	4.670430	4.759312	4.847861
F2(4P,4F)	2.073263	2.119720	2.165576	2.210889	2.255710	2.300114	2.344136	2.387779	2.431080
F0(4P,5S)	2.324140	2.383936	2.443786	2.503580	2.563252	2.623105	2.682982	2.742378	2.801564
F0(4P,5P)	2.192474	2.257085	2.321448	2.385441	2.450248	2.513699	2.576863	2.639770	2.702318
F2(4P,5P)	.6112406	.6375574	.6638752	.6901015	.7168766	.7429692	.7689632	.7948589	.8206000
F0(4P,5D)	1.841482	1.926324	2.007720	2.086400	2.162879	2.239192	2.314376	2.388892	2.462091
F2(4P,5D)	.4159821	.4489784	.4810166	.5122623	.5428379	.5736248	.6041533	.6346433	.6646964
F0(4P,6S)	.8779347	.9393527	.9961022	1.049550	1.100514	1.172320	1.241459	1.297101	1.349185
F0(4P,6P)	.6987637	.7688270	.8319627	.8904245	.9442750	1.029879	1.105983	1.164971	1.219545
F2(4P,6P)	.0464809	.0576177	.0683214	.0787164	.0882032	.1058602	.1225893	.1355320	.1476214
F0(4P,6D)								.7988653	.8703640
F2(4P,6D)								.0578445	.0695670
F0(4P,7S)						.3586016	.4294861	.4585310	.4824390
F0(4D,4D)	4.157697	4.240166	4.322782	4.405525	4.488383	4.571405	4.654560	4.737871	4.821270
F2(4D,4D)	2.127385	2.169924	2.212506	2.255122	2.297765	2.340468	2.383213	2.426009	2.468822
F4(4D,4D)	1.433488	1.462801	1.492143	1.521506	1.550886	1.580309	1.609759	1.639244	1.668739
F0(4D,4F)	4.113089	4.209503	4.305407	4.400851	4.495875	4.590609	4.685058	4.779231	4.873125
F2(4D,4F)	2.043852	2.093014	2.141718	2.190007	2.237921	2.285548	2.332901	2.379996	2.426841
F4(4D,4F)	1.322662	1.354876	1.386737	1.418277	1.449524	1.480544	1.511345	1.541943	1.572343
F0(4D,5S)	2.320956	2.381419	2.441962	2.502475	2.562892	2.623320	2.684199	2.744428	2.804470
F0(4D,5P)	2.189824	2.254997	2.319960	2.384588	2.448063	2.5114221	2.578125	2.641809	2.705164
F2(4D,5P)	.6178699	.6428940	.6679005	.6928008	.7182358	.7429693	.7675924	.7920954	.8164360
F0(4D,5D)	1.840790	1.926066	2.007959	2.087196	2.164285	2.241266	2.317169	2.392459	2.466478
F2(4D,5D)	.4244029	.4568977	.4883551	.5189576	.5488391	.5788883	.6086408	.6383136	.6675201
F4(4D,5D)	.1876401	.2043480	.2206741	.2366781	.2524045	.2683059	.2841335	.3000032	.3156877
F0(4D,6S)	.8776467	.9390999	.9959053	1.049428	1.100482	1.172398	1.241674	1.297472	1.349728
F0(4D,6P)	.6986086	.7686795	.8318426	.8903499	.9442625	1.029950	1.106165	1.165282	1.220001
F2(4D,6P)	.0472648	.0583880	.0690223	.0793024	.0886377	.1061130	.1225997	.1352593	.1470362
F0(4D,6D)								.7991390	.8707559
F2(4D,6D)								.0581758	.0698337
F4(4D,6D)								.0216522	.0264709
F0(4D,7S)						.3586060	.4295036	.4585630	.4824874

TABLE IV. TWO ELECTRON INTEGRALS F(K)

	PB	BI	PO	AT	RN	FR	RA	AC	TH
F0(4F,4F)	4.116382	4.229373	4.341475	4.452766	4.563304	4.673277	4.782701	4.891546	4.999852
F2(4F,4F)	2.087738	2.151455	2.214646	2.277356	2.339617	2.401548	2.463157	2.524421	2.585361
F4(4F,4F)	1.339588	1.381998	1.424069	1.465826	1.507292	1.548546	1.589593	1.630415	1.671025
F6(4F,4F)	.9727447	1.004021	1.035052	1.065857	1.096451	1.126894	1.157187	1.187318	1.217296
F0(4F,5S)	2.311850	2.374737	2.437652	2.500497	2.563206	2.626103	2.689026	2.751467	2.813696
F0(4F,5P)	2.181963	2.249151	2.316128	2.382775	2.450269	2.516458	2.582396	2.648109	2.713491
F2(4F,5P)	.6264497	.6474426	.6685239	.6896035	.7113084	.7324108	.7534886	.7745436	.7955213
F0(4F,5D)	1.835996	1.922422	2.005592	2.086212	2.164771	2.243304	2.320830	2.397802	2.473554
F2(4F,5D)	.4343295	.4636926	.4919624	.5193568	.5460320	.5728773	.5994393	.6259524	.6520349
F4(4F,5D)	.2007936	.2157313	.2301719	.2442105	.2579162	.2717563	.2854877	.2992430	.3127995
F0(4F,6S)	.8768650	.9384702	.9954811	1.049252	1.100590	1.172845	1.242521	1.298743	1.351447
F0(4F,6P)	.6981645	.7682835	.8315507	.8902098	.9443138	1.030252	1.106783	1.166244	1.221334
F2(4F,6P)	.0487744	.0596179	.0698360	.0795968	.0883437	.1050723	.1207016	.1324869	.1433573
F0(4F,6D)								.7995484	.8713857
F2(4F,6D)								.0570477	.0681436
F4(4F,6D)								.0215441	.0261840
F0(4F,7S)						.3586307	.4295720	.4586724	.4826403
F0(5S,5S)	1.881113	1.931987	1.982868	2.033661	2.084306	2.135113	2.185933	2.236342	2.286553
F0(5S,5P)	1.813396	1.866622	1.919677	1.972466	2.025666	2.078171	2.130533	2.182604	2.234401
F0(5S,5D)	1.603436	1.670571	1.735086	1.797566	1.858413	1.919167	1.979110	2.038386	2.096689
F0(5S,6S)	.8407445	.8967725	.9485195	.9972586	1.043744	1.107842	1.169235	1.219040	1.265787
F0(5S,6P)	.6780233	.7428791	.8010880	.8548442	.9046658	.9819279	1.050182	1.103387	1.152688
F0(5S,6D)								.7735539	.8396919
F0(5S,7S)						.3551096	.4237500	.4519144	.4751313
F0(5P,5P)	1.753505	1.808444	1.863103	1.917380	1.972578	2.026388	2.079946	2.133336	2.186404
F2(5P,5P)	.9531367	.9839053	1.014316	1.044325	1.074895	1.104399	1.133651	1.162784	1.191640
F0(5P,5D)	1.563067	1.629984	1.694462	1.757023	1.818561	1.879509	1.939659	1.999313	2.058044
F2(5P,5D)	.8118084	.8522892	.8906011	.9272139	.9627381	.9978400	1.032206	1.066102	1.099187
F0(5P,6S)	.8356841	.8913092	.9427484	.9912466	1.037634	1.101247	1.162198	1.211811	1.258437
F0(5P,6P)	.6751851	.7395392	.7973402	.8507586	.9004117	.9770420	1.044774	1.097720	1.146840
F2(5P,6P)	.1295193	.1536655	.1758051	.1965044	.2154566	.2493670	.2799868	.3028790	.3238224
F0(5P,6D)								.7711345	.8369219
F2(5P,6D)								.1380698	.1613285
F0(5P,7S)						.3547564	.4231982	.4513100	.4744965
F0(5D,5D)	1.426025	1.498341	1.567403	1.633962	1.698531	1.763297	1.827116	1.890385	1.952478
F2(5D,5D)	.7510120	.7926072	.8318109	.8691752	.9050773	.9411316	.9764588	1.011295	1.045240
F4(5D,5D)	.5027730	.5326252	.5607291	.5874791	.6131462	.6389697	.6642645	.6892110	.7134843
F0(5D,6S)	.8172140	.8724890	.9237350	.9721400	1.018412	1.081179	1.141450	1.191045	1.237792
F0(5D,6P)	.6652709	.7284648	.7853994	.8381543	.8873646	.9625009	1.029133	1.081713	1.130650
F2(5D,6P)	.1674949	.1923836	.2147147	.2353044	.2543374	.2890860	.3197615	.3419386	.3620546
F0(5D,6D)								.7645399	.8295100
F2(5D,6D)								.1581294	.1825072
F4(5D,6D)								.0654646	.0775392
F0(5D,7S)						.3536953	.4215914	.4495938	.4727325
F0(6S,6S)	.6632318	.7110177	.7550870	.7965514	.8360689	.8930166	.9472312	.9901051	1.030188
F0(6S,6P)	.5799026	.6322106	.6794281	.7232358	.7644818	.8284649	.8859413	.9303842	.9716335
F0(6S,6D)								.7094849	.7646764
F0(6S,7S)						.3448740	.4082568	.4348459	.4569541
F0(6P,6P)	.5238645	.5769423	.6246995	.6689002	.7104052	.7780977	.8371271	.8821744	.9238420
F2(6P,6P)	.2783280	.3085299	.3355425	.3604135	.3840660	.4254506	.4604129	.4859516	.5093685
F0(6P,6D)								.6900712	.7433966
F2(6P,6D)								.3309932	.3646314
F0(6P,7S)						.3420638	.4043919	.4308382	.4528980
F0(6D,6D)								.5909165	.6444915
F2(6D,6D)								.3114890	.3415843
F4(6D,6D)								.2065176	.2275944
F0(6D,7S)								.4089421	.4328567
F0(7S,7S)						.2725198	.3240374	.3450632	.3624060
	PA	U	NP	PU	AM	CM	BK	CF	ES
F0(1S,1S)	112.9170	114.1662	115.4155	116.6647	117.9139	119.1631	120.4124	121.6618	122.9110
F0(1S,2S)	36.34503	36.76180	37.17864	37.59579	38.01273	38.42947	38.84652	39.26389	39.68104
F0(1S,2P)	41.80104	42.28382	42.76670	43.24990	43.73286	44.21558	44.69864	45.18209	45.66525
F0(1S,3S)	15.41148	15.60332	15.79524	15.98720	16.17923	16.37133	16.56346	16.75566	16.94791
F0(1S,3P)	16.52913	16.73940	16.94975	17.16017	17.37063	17.58114	17.79170	18.00235	18.21303
F0(1S,3D)	16.66405	16.88114	17.09827	17.31554	17.53273	17.74983	17.96707	18.18447	18.40176

TABLE IV. TWO ELECTRON INTEGRALS F(K)

	PA	U	NP	PU	AM	CM	BK	CF	ES
F0(5S,6D)	.8113514	.8268898	.8408949			.8761564	.8861605		
F0(5S,7S)	.4632363	.4683199	.4731710	.4562334	.4604348	.4867847	.4910990	.4722674	.4760099
F0(5P,5P)	2.226947	2.272401	2.317147	2.356336	2.399912	2.448030	2.490750	2.528037	2.570018
F2(5P,5P)	1.212658	1.236785	1.260495	1.280772	1.303813	1.329684	1.352229	1.371449	1.393582
F0(5P,5D)	2.097946	2.145451	2.192037	2.230447	2.275607	2.327555	2.371604	2.407849	2.451043
F2(5P,5D)	1.119676	1.145276	1.170284	1.189885	1.214007	1.242611	1.266015	1.284330	1.307215
F0(5P,5F)	1.646904	1.711402	1.772173	1.789281	1.846962	1.939483	1.991700	2.008159	2.058968
F2(5P,5F)	.7451660	.7855272	.8230617	.8270637	.8621905	.9241177	.9550361	.9584629	.9882757
F0(5P,6S)	1.265605	1.290272	1.313874	1.316503	1.338073	1.379923	1.400706	1.399160	1.418543
F0(5P,6P)	1.148436	1.171345	1.193096	1.188806	1.208228	1.253266	1.272013	1.262631	1.279721
F2(5P,6P)	.3177595	.3239263	.3295040	.3204334	.3248341	.3437082	.3478052	.3361805	.3394722
F0(5P,6D)	.8089833	.8245670	.8386239			.8740598	.8841252		
F2(5P,6D)	.1457485	.1483163	.1503167			.1538984	.1544910		
F0(5P,7S)	.4626820	.4677875	.4726585	.4557990	.4600155	.4863228	.4906518	.4718875	.4756413
F0(5D,5D)	1.991438	2.039929	2.087404	2.124836	2.170766	2.225193	2.269909	2.305050	2.348862
F2(5D,5D)	1.064593	1.090021	1.114848	1.133344	1.157282	1.186623	1.209845	1.227061	1.249773
F4(5D,5D)	.7264423	.7441344	.7613734	.7736963	.7902665	.8110543	.8270877	.8384504	.8541021
F0(5D,5F)	1.594901	1.657321	1.716305	1.733478	1.789589	1.879460	1.930586	1.947053	1.996867
F2(5D,5F)	.7624141	.7994935	.8339875	.8372380	.8696512	.9271140	.9557193	.9587397	.9864313
F4(5D,5F)	.4911692	.5174834	.5418983	.5429488	.5657768	.6074634	.6274966	.6282276	.6475492
F0(5D,6S)	1.245633	1.270693	1.294679	1.298028	1.319964	1.361820	1.382947	1.382090	1.401800
F0(5D,6P)	1.132984	1.156187	1.178234	1.174750	1.194463	1.239273	1.258298	1.249705	1.267063
F2(5D,6P)	.3555779	.3611922	.3662516	.3566609	.3605816	.3790569	.3827270	.3705992	.3734778
F0(5D,6D)	.8026242	.8183674	.8325961			.8685736	.8788193		
F2(5D,6D)	.1654667	.1678043	.1695533			.1723088	.1726119		
F4(5D,6D)	.0683570	.0691378	.0696288			.0699044	.0697091		
F0(5D,7S)	.4611336	.4663100	.4712449	.4545934	.4588582	.4850681	.4894415	.4708525	.4746415
F0(5F,5F)	1.365006	1.428624	1.488596	1.494641	1.551662	1.653893	1.705543	1.711130	1.761435
F2(5F,5F)	.6844490	.7177428	.7489034	.7455170	.7750680	.8339131	.8602688	.8569668	.8826125
F4(5F,5F)	.4467009	.4693272	.4904626	.4864658	.5064602	.5479325	.5656983	.5617204	.5789812
F6(5F,5F)	.3276299	.3446040	.3604531	.3569299	.3719049	.4035127	.4168124	.4132662	.4261768
F0(5F,6S)	1.141125	1.172526	1.201779	1.201689	1.228387	1.280709	1.304879	1.301504	1.324115
F0(5F,6P)	1.053064	1.081136	1.107240	1.102127	1.125526	1.177417	1.198818	1.189319	1.208947
F2(5F,6P)	.4576395	.4621800	.4661144	.4584968	.4613871	.4755869	.4782047	.4682907	.4701654
F0(5F,6D)	.7720707	.7898000	.8057433			.8458097	.8571738		
F2(5F,6D)	.2478719	.2471580	.2461918			.2421727	.2405435		
F4(5F,6D)	.1301733	.1281647	.1261830			.1203422	.1184206		
F0(5F,7S)	.4537261	.4595131	.4649466	.4488125	.4534611	.4798487	.4844903	.4663164	.4703257
F0(6S,6S)	1.033755	1.053613	1.072537	1.071906	1.089033	1.125170	1.141648	1.137280	1.152521
F0(6S,6P)	.9724842	.9914690	1.009480	1.005439	1.021505	1.059230	1.074713	1.066462	1.080575
F0(6S,6D)	.7436752	.7579605	.7709546			.8042185	.8138169		
F0(6S,7S)	.4465158	.4517233	.4566702	.4414448	.4457004	.4704422	.4747759	.4576171	.4613672
F0(6P,6P)	.9227807	.9409747	.9581767	.9518023	.9669736	1.005448	1.020092	1.009210	1.022406
F2(6P,6P)	.5078132	.5175875	.5268201	.5219466	.5300168	.5521606	.5600007	.5524252	.5594065
F0(6P,6D)	.7233174	.7372207	.7498728			.7822938	.7916593		
F2(6P,6D)	.3475807	.3541732	.3599897			.3739951	.3777631		
F0(6P,7S)	.4426413	.4478917	.4528702	.4378709	.4421391	.4666894	.4710270	.4540646	.4578099
F0(6D,6D)	.6192831	.6307521	.6409766			.6661339	.6730822		
F2(6D,6D)	.3254214	.3308822	.3356527			.3468899	.3498298		
F4(6D,6D)	.2154076	.2188033	.2217207			.2283552	.2300148		
F0(6D,7S)	.4210983	.4263265	.4311939			.4442896	.4482832		
F0(7S,7S)	.3538645	.3577735	.3614783	.3491208	.3522892	.3717559	.3749805	.3611191	.3638858

	FM	MD	NO	LW
F0(1S,1S)	124.1603	125.4097	126.6590	127.9083
F0(1S,2S)	40.09823	40.51547	40.93275	41.34980
F0(1S,2P)	46.14846	46.63171	47.11500	47.59804
F0(1S,3S)	17.14021	17.33256	17.52496	17.71743
F0(1S,3P)	18.42375	18.63453	18.84535	19.05622
F0(1S,3D)	18.61908	18.83642	19.05379	19.27107
F0(1S,4S)	8.230634	8.338930	8.447206	8.555898
F0(1S,4P)	8.461227	8.577005	8.692738	8.808944
F0(1S,4D)	8.257595	8.377611	8.497498	8.617830
F0(1S,4F)	7.824959	7.951743	8.081583	8.208116
F0(1S,5S)	3.967632	4.030216	4.092407	4.160717
F0(1S,5P)	3.887779	3.952605	4.017000	4.089306

TABLE IV. TWO ELECTRON INTEGRALS F(K)

	FM	MD	NO	LW
F0(1S,5D)	3.508204	3.573946	3.639187	3.717183
F0(1S,5F)	2.611552	2.681416	2.746679	2.864090
F0(1S,6S)	1.634125	1.654286	1.674002	1.727644
F0(1S,6P)	1.454486	1.471742	1.488536	1.547457
F0(1S,6D)				.9892825
F0(1S,7S)	.4911593	.4946833	.4981417	.5287662
F0(2S,2S)	28.65746	28.95628	29.25514	29.55381
F0(2S,2P)	30.78130	31.10353	31.42580	31.74786
F0(2S,3S)	14.77674	14.94040	15.10411	15.26783
F0(2S,3P)	15.57934	15.75481	15.93031	16.10581
F0(2S,3D)	17.65594	17.85954	18.06317	18.26669
F0(2S,4S)	7.585420	7.683057	7.780671	7.878596
F0(2S,4P)	7.718337	7.821291	7.924200	8.027455
F0(2S,4D)	7.997195	8.111819	8.226311	8.341194
F0(2S,4F)	7.812774	7.939147	8.068562	8.194673
F0(2S,5S)	3.801306	3.860048	3.918427	3.982303
F0(2S,5P)	3.708054	3.768449	3.828445	3.895499
F0(2S,5D)	3.453589	3.517624	3.581166	3.656993
F0(2S,5F)	2.609818	2.679574	2.744744	2.861966
F0(2S,6S)	1.607334	1.627119	1.646479	1.698307
F0(2S,6P)	1.430800	1.447771	1.464300	1.521154
F0(2S,6D)				.9859056
F0(2S,7S)	.4895346	.4930584	.4965169	.5268600
F0(2P,2P)	34.24157	34.60266	34.96378	35.32468
F2(2P,2P)	16.43615	16.61064	16.78515	16.95953
F0(2P,3S)	15.16231	15.33088	15.49950	15.66815
F0(2P,3P)	16.13924	16.32202	16.50484	16.68766
F2(2P,3P)	4.062099	4.111251	4.160420	4.209623
F0(2P,3D)	17.98884	18.19744	18.40607	18.61460
F2(2P,3D)	5.603890	5.675198	5.746523	5.817831
F0(2P,4S)	7.688561	7.787958	7.887333	7.987038
F0(2P,4P)	7.861445	7.966952	8.072413	8.178249
F2(2P,4P)	1.047411	1.064766	1.082123	1.099617
F0(2P,4D)	8.084487	8.200970	8.317322	8.434086
F2(2P,4D)	1.259116	1.282319	1.305510	1.328877
F0(2P,4F)	7.817836	7.944384	8.073980	8.200272
F2(2P,4F)	.6693744	.6858549	.7029390	.7195293
F0(2P,5S)	3.827757	3.887123	3.946122	4.010717
F0(2P,5P)	3.742490	3.803752	3.864610	3.932690
F2(2P,5P)	.2530895	.2590751	.2650151	.2720922
F0(2P,5D)	3.471769	3.536382	3.600498	3.677058
F2(2P,5D)	.2549343	.2621505	.2693183	.2785473
F0(2P,5F)	2.610536	2.680337	2.745546	2.862847
F2(2P,5F)	.0809282	.0849124	.0882769	.0955926
F0(2P,6S)	1.611589	1.631437	1.650854	1.702973
F0(2P,6P)	1.435333	1.452361	1.468942	1.526195
F2(2P,6P)	.0338334	.0342227	.0345841	.0374516
F0(2P,6D)				.9870299
F2(2P,6D)				.0158866
F0(2P,7S)	.4897926	.4933166	.4967751	.5271631
F0(3S,3S)	11.52203	11.65069	11.77938	11.90811
F0(3S,3P)	11.81948	11.95280	12.08616	12.21955
F0(3S,3D)	12.48571	12.62796	12.77024	12.91253
F0(3S,4S)	6.793177	6.878861	6.964528	7.050417
F0(3S,4P)	6.847688	6.936755	7.025784	7.115059
F0(3S,4D)	7.003148	7.100262	7.197267	7.294548
F0(3S,4F)	7.439563	7.555658	7.674379	7.790128
F0(3S,5S)	3.601064	3.655491	3.709595	3.768471
F0(3S,5P)	3.501375	3.556973	3.612215	3.673556
F0(3S,5D)	3.256437	3.315025	3.373163	3.441962
F0(3S,5F)	2.562488	2.629721	2.692772	2.805392
F0(3S,6S)	1.575221	1.594607	1.613590	1.663306
F0(3S,6P)	1.403666	1.420349	1.436613	1.491151
F0(3S,6D)				.9739508
F0(3S,7S)	.4875883	.4911149	.4945762	.5245871
F0(3P,3P)	12.18679	12.32599	12.46522	12.60449
F2(3P,3P)	6.135101	6.204953	6.274824	6.344716

TABLE IV. TWO ELECTRON INTEGRALS F(K)

	FM	MO	NO	LW
F0(3P,3D)	12.93345	13.08303	13.23264	13.38226
F2(3P,3D)	6.158103	6.228443	6.298797	6.369173
F0(3P,4S)	6.859479	6.946480	7.033465	7.120682
F0(3P,4P)	6.925515	7.016182	7.106814	7.197704
F2(3P,4P)	2.083018	2.113750	2.144464	2.175338
F0(3P,4D)	7.076846	7.175593	7.274234	7.373163
F2(3P,4D)	2.133464	2.168694	2.203881	2.239257
F0(3P,4F)	7.489196	7.606914	7.727319	7.844716
F2(3P,4F)	2.874799	2.932727	2.992606	3.050437
F0(3P,5S)	3.617611	3.672473	3.727009	3.786380
F0(3P,5P)	3.519622	3.575727	3.631473	3.693407
F2(3P,5P)	.5241857	.5353695	.5464515	.5595985
F0(3P,5D)	3.270830	3.329881	3.388481	3.457865
F2(3P,5D)	.4519468	.4636020	.4751575	.4899848
F0(3P,5F)	2.568610	2.636196	2.699549	2.812798
F2(3P,5F)	.3310879	.3453651	.3572837	.3842049
F0(3P,6S)	1.577868	1.597299	1.616325	1.666229
F0(3P,6P)	1.406055	1.422775	1.439073	1.493828
F2(3P,6P)	.0732106	.0739703	.0746747	.0804738
F0(3P,6D)				.9748331
F2(3P,6D)				.0300891
F0(3P,7S)	.4877486	.4912758	.4947376	.5247768
F0(3D,3D)	14.19834	14.36615	14.53397	14.70178
F2(3D,3D)	7.311695	7.399688	7.487697	7.575729
F4(3D,3D)	4.722348	4.779568	4.836800	4.894056
F0(3D,4S)	7.009110	7.098774	7.188423	7.278318
F0(3D,4P)	7.082562	7.176164	7.269732	7.363575
F2(3D,4P)	1.877077	1.904603	1.932113	1.959786
F0(3D,4D)	7.293184	7.396274	7.499260	7.602562
F2(3D,4D)	2.035639	2.069341	2.103002	2.136866
F4(3D,4D)	.9998941	1.017283	1.034654	1.052146
F0(3D,4F)	7.609152	7.730441	7.854556	7.975564
F2(3D,4F)	2.444982	2.495183	2.547157	2.597348
F4(3D,4F)	1.297208	1.326139	1.356173	1.385148
F0(3D,5S)	3.654939	3.710705	3.766140	3.826545
F0(3D,5P)	3.556355	3.613411	3.670103	3.733154
F2(3D,5P)	.4663441	.4762644	.4860918	.4978037
F0(3D,5D)	3.312950	3.373264	3.433120	3.504110
F2(3D,5D)	.4230405	.4339804	.4448250	.4588112
F4(3D,5D)	.1862489	.1912924	.1962935	.2028122
F0(3D,5F)	2.583609	2.652024	2.716077	2.830819
F2(3D,5F)	.2842472	.2967165	.3071009	.3305975
F4(3D,5F)	.1351563	.1413726	.1463441	.1581672
F0(3D,6S)	1.583837	1.603358	1.622470	1.672784
F0(3D,6P)	1.410864	1.427647	1.444004	1.499184
F2(3D,6P)	.0644865	.0651328	.0657298	.0708660
F0(3D,6D)				.9773964
F2(3D,6D)				.0276210
F4(3D,6D)				.0111439
F0(3D,7S)	.4881103	.4916378	.4951000	.5252023
F0(4S,4S)	5.489725	5.560274	5.630806	5.701526
F0(4S,4P)	5.504158	5.576228	5.648270	5.720517
F0(4S,4D)	5.554357	5.629928	5.705434	5.781164
F0(4S,4F)	5.690442	5.773014	5.856857	5.939322
F0(4S,5S)	3.304876	3.353946	3.402760	3.455331
F0(4S,5P)	3.214318	3.264236	3.313868	3.368330
F0(4S,5D)	2.997601	3.049884	3.101792	3.162289
F0(4S,5F)	2.396023	2.456342	2.514127	2.613113
F0(4S,6S)	1.528457	1.547421	1.566014	1.612852
F0(4S,6P)	1.366502	1.382917	1.398943	1.450472
F0(4S,6D)				.9585672
F0(4S,7S)	.4847592	.4882995	.4917741	.5213169
F0(4P,4P)	5.521829	5.595538	5.669213	5.743112
F2(4P,4P)	2.895803	2.934026	2.972220	3.010481
F0(4P,4D)	5.573290	5.650636	5.727915	5.805443
F2(4P,4D)	2.867613	2.906722	2.945774	2.984906
F0(4P,4F)	5.708614	5.793175	5.879033	5.963524
F2(4P,4F)	2.844666	2.884785	2.925514	2.965485

TABLE IV. TWO ELECTRON INTEGRALS F(K)

	FM	MD	NO	LW
F0(4P,5S)	3.308428	3.357838	3.406993	3.459927
F0(4P,5P)	3.218410	3.268679	3.318663	3.373506
F2(4P,5P)	1.011834	1.030133	1.048256	1.069409
F0(4P,5D)	3.001129	3.053726	3.105951	3.166806
F2(4P,5D)	.8623570	.8815005	.9004485	.9243506
F0(4P,5F)	2.397667	2.458180	2.516143	2.615415
F2(4P,5F)	.5388664	.5601463	.5803302	.6191651
F0(4P,6S)	1.529022	1.548033	1.566673	1.613595
F0(4P,6P)	1.367033	1.383487	1.399549	1.451163
F2(4P,6P)	.1567750	.1581955	.1595136	.1706391
F0(4P,6D)				.9588137
F2(4P,6D)				.0656577
F0(4P,7S)	.4847934	.4883361	.4918129	.5213651
F0(4D,4D)	5.643327	5.725043	5.806667	5.888585
F2(4D,4D)	2.889485	2.931171	2.972793	3.014543
F4(4D,4D)	1.958057	1.986688	2.015268	2.043936
F0(4D,4F)	5.785818	5.875526	5.966592	6.056281
F2(4D,4F)	2.876959	2.920851	2.965459	3.009284
F4(4D,4F)	1.862690	1.890875	1.919522	1.947640
F0(4D,5S)	3.319497	3.369715	3.419675	3.473469
F0(4D,5P)	3.229070	3.280126	3.330895	3.386591
F2(4D,5P)	.9949915	1.012076	1.028996	1.048899
F0(4D,5D)	3.013350	3.066769	3.119819	3.181624
F2(4D,5D)	.8564411	.8747216	.8928097	.9158394
F4(4D,5D)	.4141537	.4236862	.4331120	.4454440
F0(4D,5F)	2.404272	2.465346	2.523805	2.623960
F2(4D,5F)	.5319078	.5522381	.5713582	.6089489
F4(4D,5F)	.2239188	.2336116	.2425942	.2609073
F0(4D,6S)	1.530767	1.549888	1.568634	1.615770
F0(4D,6P)	1.368407	1.384943	1.401086	1.452897
F2(4D,6P)	.1538775	.1550865	.1561982	.1669254
F0(4D,6D)				.9596232
F2(4D,6D)				.0646627
F4(4D,6D)				.0232364
F0(4D,7S)	.4848990	.4884467	.4919285	.5215060
F0(4F,4F)	6.045400	6.147476	6.252834	6.354729
F2(4F,4F)	3.170908	3.227891	3.287309	3.344222
F4(4F,4F)	2.060971	2.098898	2.138581	2.176472
F6(4F,4F)	1.505127	1.533120	1.562449	1.590420
F0(4F,5S)	3.347621	3.399541	3.451523	3.507090
F0(4F,5P)	3.255239	3.307935	3.360651	3.418090
F2(4F,5P)	.9452632	.9597771	.9737497	.9910783
F0(4F,5D)	3.036200	3.091150	3.146005	3.209542
F2(4F,5D)	.8140741	.8298943	.8451623	.8656293
F4(4F,5D)	.3924342	.4002238	.4076040	.4180691
F0(4F,5F)	2.426672	2.489302	2.549265	2.651992
F2(4F,5F)	.5271729	.5463497	.5635493	.6000998
F4(4F,5F)	.2356291	.2450129	.2530632	.2714175
F6(4F,5F)	.1468541	.1528364	.1578357	.1696218
F0(4F,6S)	1.535180	1.554523	1.573534	1.621142
F0(4F,6P)	1.371769	1.388470	1.404809	1.457056
F2(4F,6P)	.1448440	.1456014	.1461762	.1559389
F0(4F,6D)				.9611435
F2(4F,6D)				.0601643
F4(4F,6D)				.0218981
F0(4F,7S)	.4851657	.4887230	.4922167	.5218538
F0(5S,5S)	2.705717	2.746497	2.787040	2.831392
F0(5S,5P)	2.657169	2.698294	2.739169	2.784422
F0(5S,5D)	2.532713	2.575153	2.617283	2.666056
F0(5S,5F)	2.132023	2.181185	2.229104	2.307272
F0(5S,6S)	1.443550	1.462065	1.480247	1.522526
F0(5S,6P)	1.300973	1.317159	1.332989	1.379761
F0(5S,6D)				.9330531
F0(5S,7S)	.4796686	.4832514	.4867663	.5155163
F0(5P,5P)	2.611689	2.653077	2.694206	2.740229
F2(5P,5P)	1.415543	1.437345	1.459004	1.483666
F0(5P,5D)	2.493865	2.536349	2.578528	2.627711
F2(5P,5D)	1.329870	1.352317	1.374574	1.401365

TABLE IV. TWO ELECTRON INTEGRALS F(K)

	FM	MD	NO	LW									
F0(5P,5F)	2.108655	2.157365	2.204883	2.282236									
F2(5P,5F)	1.017209	1.045368	1.073260	1.123293									
F0(5P,6S)	1.437518	1.456125	1.474397	1.516569									
F0(5P,6P)	1.296378	1.312644	1.328553	1.375165									
F2(5P,6P)	.3425656	.3454816	.3482387	.3680249									
F0(5P,6D)				.9313740									
F2(5P,6D)				.1539224									
F0(5P,7S)	.4793107	.4829037	.4864282	.5151378									
F0(5D,5D)	2.392280	2.435341	2.478080	2.529504									
F2(5D,5D)	1.272259	1.294541	1.316639	1.344207									
F4(5D,5D)	.8695850	.8849157	.9001093	.9195732									
F0(5D,5F)	2.045658	2.093557	2.140386	2.216571									
F2(5D,5F)	1.013360	1.039623	1.065695	1.112591									
F4(5D,5F)	.6662983	.6845461	.7026761	.7365700									
F0(5D,6S)	1.421094	1.440009	1.458581	1.500679									
F0(5D,6P)	1.283982	1.300503	1.316661	1.362995									
F2(5D,6P)	.3761705	.3786967	.3810742	.4006599									
F0(5D,6D)				.9270858									
F2(5D,6D)				.1702495									
F4(5D,6D)				.0667163									
F0(5D,7S)	.4783437	.4819674	.4855208	.5141357									
F0(5F,5F)	1.810649	1.858914	1.905985	1.993380									
F2(5F,5F)	.9076327	.9321054	.9566950	1.006757									
F4(5F,5F)	.5958029	.6122398	.6287722	.6641147									
F6(5F,5F)	.4387541	.4510404	.4633838	.4903835									
F0(5F,6S)	1.346032	1.367338	1.388048	1.435744									
F0(5F,6P)	1.227924	1.246325	1.264170	1.313874									
F2(5F,6P)	.4718810	.4734582	.4750193	.4907039									
F0(5F,6D)				.9106193									
F2(5F,6D)				.2286674									
F4(5F,6D)				.1070677									
F0(5F,7S)	.4742247	.4780252	.4817356	.5102835									
F0(6S,6S)	1.167412	1.181990	1.196283	1.232954									
F0(6S,6P)	1.094327	1.107755	1.120886	1.159822									
F0(6S,6D)				.8601308									
F0(6S,7S)	.4650253	.4686008	.4721020	.4990797									
F0(6P,6P)	1.035235	1.047736	1.059936	1.100086									
F2(6P,6P)	.5661844	.5727787	.5792049	.6027197									
F0(6P,6D)				.8369628									
F2(6P,6D)				.3934481									
F0(6P,7S)	.4614601	.4650253	.4685138	.4952771									
F0(6D,6D)				.7038689									
F2(6D,6D)				.3612896									
F4(6D,6D)				.2357864									
F0(6D,7S)				.4696234									
F0(7S,7S)	.3665747	.3692077	.3717768	.3930009									

	CE	TB	BK	CF	ES	FM	MD	NO
F0(1S,1S)	71.70397	80.44433	120.4125	121.6617	122.9110	124.1603	125.4096	126.6590
F0(1S,2S)	22.61471	25.52456	38.84681	39.26363	39.68078	40.09797	40.51521	40.93248
F0(1S,2P)	25.88808	29.26213	44.69896	45.18178	45.66494	46.14816	46.63141	47.11470
F0(1S,3S)	9.103933	10.44800	16.56346	16.75567	16.94792	17.14023	17.33258	17.52498
F0(1S,3P)	9.609933	11.08631	17.79172	18.00234	18.21302	18.42375	18.63453	18.84535
F0(1S,3D)	9.488764	11.02630	17.96719	18.18436	18.40165	18.61897	18.83631	19.05368
F0(1S,4S)	3.960835	4.608972	7.905681	8.014449	8.122767	8.231073	8.339367	8.447643
F0(1S,4P)	3.913456	4.592063	8.113662	8.230070	8.345926	8.461743	8.577521	8.693255
F0(1S,4D)	3.508290	4.197984	7.896747	8.017746	8.138028	8.258174	8.378188	8.498073
F0(1S,4F)	2.447237	3.175906	7.442141	7.570318	7.697917	7.825105	7.951899	8.078312
F0(1S,5S)	1.546804	1.754573	3.777199	3.847426	3.910942	3.973995	4.036620	4.098852
F0(1S,5P)	1.382492	1.563683	3.690306	3.764806	3.830657	3.895992	3.960854	4.025282
F0(1S,5D)			3.307423	3.388346	3.455225	3.521494	3.587211	3.652426
F0(1S,5F)			2.393198	2.523015	2.594393	2.664410	2.733232	2.800999
F0(1S,6S)	.4786149	.5156941	1.570460	1.623391	1.645224	1.666518	1.687323	1.707687
F0(1S,6P)			1.399415	1.456464	1.475676	1.494334	1.512485	1.530179
F0(1S,6D)				.9537425	.9621271	.9698268	.9768892	.9833616
F0(1S,7S)			.4801150	.5088261	.5129231	.5169606	.5209418	.5248755

TABLE IV. TWO ELECTRON INTEGRALS F(K)

	CE	TB	BK	CF	ES	FM	MD	NO
F0(2S,2S)	16.13813	18.22157	27.76123	28.05972	28.35848	28.65726	28.95608	29.25493
F0(2S,2P)	17.27870	19.52640	29.81485	30.13673	30.45889	30.78108	31.10331	31.42557
F0(2S,3S)	7.933431	9.077641	14.28597	14.44950	14.61309	14.77672	14.94039	15.10409
F0(2S,3P)	8.235603	9.465417	15.05316	15.22848	15.40388	15.57931	15.75478	15.93028
F0(2S,3D)	9.090618	10.53490	17.04522	17.24868	17.45225	17.65584	17.85945	18.06306
F0(2S,4S)	3.706913	4.301440	7.292401	7.390433	7.488107	7.585762	7.683397	7.781009
F0(2S,4P)	3.638610	4.254794	7.409211	7.512694	7.615738	7.718736	7.821691	7.924597
F0(2S,4D)	3.437032	4.103722	7.652481	7.768065	7.882969	7.997731	8.112353	8.226840
F0(2S,4F)	2.446486	3.174371	7.431171	7.558943	7.686139	7.812920	7.939302	8.065302
F0(2S,5S)	1.508561	1.711101	3.622585	3.688270	3.747874	3.807048	3.865823	3.924233
F0(2S,5P)	1.348181	1.525227	3.524087	3.593210	3.654550	3.715412	3.775835	3.835854
F0(2S,5D)			3.257972	3.336711	3.401865	3.466417	3.530424	3.593935
F0(2S,5F)			2.391781	2.521416	2.592688	2.662597	2.731311	2.798969
F0(2S,6S)	.4758736	.5129832	1.544933	1.596098	1.617479	1.638344	1.658743	1.678719
F0(2S,6P)			1.376729	1.431803	1.450640	1.468949	1.486774	1.504163
F0(2S,6D)				.9503662	.9587388	.9664329	.9734957	.9799741
F0(2S,7S)			.4784918	.5069340	.5110282	.5150629	.5190413	.5229721
F0(2P,2P)	19.10978	21.62907	33.15854	33.51924	33.88025	34.24130	34.60239	34.96351
F2(2P,2P)	9.127419	10.34392	15.91281	16.08708	16.26153	16.43600	16.61049	16.78500
F0(2P,3S)	8.115541	9.293633	14.65681	14.82525	14.99375	15.16229	15.33087	15.49949
F0(2P,3P)	8.493116	9.773189	15.59114	15.77376	15.95647	16.13921	16.32199	16.50481
F2(2P,3P)	2.013913	2.357134	3.914754	3.963862	4.012979	4.062113	4.111266	4.160436
F0(2P,3D)	9.220169	10.69750	17.36313	17.57158	17.78014	17.98873	18.19734	18.40596
F2(2P,3D)	2.618044	3.121202	5.390067	5.461291	5.532564	5.603857	5.675166	5.746491
F0(2P,4S)	3.745754	4.349059	7.390268	7.490073	7.589504	7.688918	7.788314	7.887688
F0(2P,4P)	3.689223	4.317669	7.544669	7.650723	7.756316	7.861865	7.967373	8.072834
F2(2P,4P)	.4050160	.4922869	.9953621	1.012846	1.030196	1.047549	1.064905	1.082261
F0(2P,4D)	3.459767	4.134225	7.734213	7.851662	7.968419	8.085036	8.201517	8.317867
F2(2P,4D)	.4065659	.5153488	1.189448	1.212869	1.236092	1.259306	1.282508	1.305699
F0(2P,4F)	2.446773	3.174973	7.435712	7.563659	7.691027	7.817982	7.944540	8.070716
F2(2P,4F)	.0918574	.1485379	.6199718	.6364635	.6529318	.6694077	.6858900	.7023773
F0(2P,5S)	1.514391	1.717808	3.647134	3.713554	3.773793	3.833597	3.892999	3.952030
F0(2P,5P)	1.354479	1.532372	3.555882	3.626052	3.688275	3.750011	3.811303	3.872186
F2(2P,5P)	.0516943	.0576947	.2348176	.2420900	.2481914	.2542384	.2602350	.2661852
F0(2P,5D)			3.274407	3.353881	3.419618	3.484751	3.549336	3.613424
F2(2P,5D)			.2329407	.2423864	.2497278	.2570092	.2642362	.2714140
F0(2P,5F)			2.392365	2.522077	2.593393	2.663348	2.732107	2.799811
F2(2P,5F)			.0687966	.0763408	.0803723	.0843741	.0883516	.0923098
F0(2P,6S)	.4762912	.5134012	1.548981	1.600429	1.621883	1.642819	1.663284	1.683324
F0(2P,6P)			1.381063	1.436510	1.455429	1.473807	1.491697	1.509146
F2(2P,6P)			.0324677	.0352145	.0357249	.0362009	.0366455	.0370616
F0(2P,6D)				.9514877	.9598648	.9675613	.9746245	.9811014
F2(2P,6D)				.0160576	.0160762	.0160657	.0160291	.0159678
F0(2P,7S)			.4787490	.5072342	.5113289	.5153643	.5193432	.5232747
F0(3S,3S)	6.150708	7.048296	11.13627	11.26481	11.39340	11.52203	11.65069	11.77938
F0(3S,3P)	6.251229	7.182448	11.41973	11.55293	11.68619	11.81948	11.95280	12.08616
F0(3S,3D)	6.526196	7.527198	12.05912	12.20127	12.34347	12.48570	12.62795	12.77023
F0(3S,4S)	3.361537	3.894672	6.536038	6.622006	6.707719	6.793417	6.879102	6.964768
F0(3S,4P)	3.284690	3.831585	6.580271	6.669727	6.758867	6.847970	6.937037	7.026066
F0(3S,4D)	3.095219	3.679041	6.711120	6.808968	6.906309	7.003534	7.100646	7.197650
F0(3S,4F)	2.409781	3.108649	7.088688	7.206226	7.323177	7.439695	7.555799	7.671507
F0(3S,5S)	1.457319	1.654453	3.435554	3.496065	3.551256	3.606064	3.660517	3.714645
F0(3S,5P)	1.304579	1.477609	3.332092	3.395313	3.451749	3.507758	3.563375	3.618632
F0(3S,5D)			3.077477	3.148976	3.208571	3.267618	3.326169	3.384271
F0(3S,5F)			2.352078	2.477051	2.545777	2.613152	2.679337	2.744472
F0(3S,6S)	.4722075	.5094566	1.514187	1.563282	1.584173	1.604578	1.624541	1.644107
F0(3S,6P)			1.350622	1.403470	1.421920	1.439871	1.457365	1.474446
F0(3S,6D)				.9381950	.9465706	.9542900	.9613980	.9679404
F0(3S,7S)			.4765375	.5046604	.5087549	.5127898	.5167684	.5206993
F0(3P,3P)	6.373648	7.345996	11.76941	11.90848	12.04761	12.18678	12.32598	12.46522
F2(3P,3P)	3.219465	3.707349	5.925665	5.995458	6.065271	6.135104	6.204955	6.274826
F0(3P,3D)	6.669498	7.721236	12.48488	12.63435	12.78387	12.93342	13.08301	13.23262
F2(3P,3D)	3.212061	3.707345	5.947164	6.017473	6.087785	6.158113	6.228453	6.298807
F0(3P,4S)	3.379753	3.919622	6.598405	6.685690	6.772714	6.859727	6.946728	7.033713
F0(3P,4P)	3.305167	3.859756	6.653317	6.744373	6.835107	6.925806	7.016474	7.107106
F2(3P,4P)	.9053483	1.072432	1.990725	2.021686	2.052450	2.083198	2.113930	2.144643
F0(3P,4D)	3.111791	3.702641	6.779936	6.879418	6.978387	7.077242	7.175987	7.274627
F2(3P,4D)	.7822868	.9652453	2.027502	2.063105	2.098426	2.133700	2.168930	2.204115

TABLE IV. TWO ELECTRON INTEGRALS F(K)

	CE	TB	BK	CF	ES	FM	MD	NO
F0(3P,4F)	2.412384	3.114576	7.133512	7.252644	7.371198	7.489330	7.607057	7.724395
F2(3P,4F)	.5511373	.8184910	2.699643	2.758364	2.816747	2.874902	2.932835	2.990553
F0(3P,5S)	1.459999	1.657897	3.450785	3.511795	3.567426	3.622671	3.677560	3.732122
F0(3P,5P)	1.307082	1.480752	3.348806	3.412623	3.469572	3.526091	3.582215	3.637978
F2(3P,5P)	.1259820	.1386644	.4899311	.5035606	.5149930	.5263039	.5375027	.5485986
F0(3P,5D)			3.090471	3.162556	3.222618	3.282131	3.341146	3.399712
F2(3P,5D)			.4162745	.4316139	.4435112	.4552864	.4669504	.4785139
F0(3P,5F)			2.357146	2.482739	2.551819	2.619547	2.686087	2.751579
F2(3P,5F)			.2868247	.3156138	.3302226	.3445956	.3587623	.3727492
F0(3P,6S)	.4723990	.5096708	1.516684	1.565960	1.586904	1.607360	1.627372	1.646985
F0(3P,6P)			1.352889	1.405942	1.424438	1.442432	1.459966	1.477086
F2(3P,6P)			.0705342	.0761147	.0771123	.0780409	.0789067	.0797161
F0(3P,6D)				.9390735	.9474530	.9551746	.9622831	.9688247
F2(3P,6D)				.0304334	.0304561	.0304281	.0303545	.0302401
F0(3P,7S)			.4766962	.5048459	.5089413	.5129771	.5169565	.5208882
F0(3D,3D)	7.156188	8.342167	13.69507	13.86276	14.03051	14.19830	14.36610	14.53393
F2(3D,3D)	3.625490	4.246089	7.047818	7.135772	7.223727	7.311705	7.399698	7.487706
F4(3D,3D)	2.327139	2.730275	4.550762	4.607961	4.665154	4.722363	4.779583	4.836814
F0(3D,4S)	3.428760	3.983229	6.740054	6.830015	6.919700	7.009375	7.099038	7.188686
F0(3D,4P)	3.353033	3.922860	6.801566	6.895572	6.989238	7.082871	7.176474	7.270042
F2(3D,4P)	.8320387	.9775821	1.794419	1.822163	1.849717	1.877256	1.904782	1.932292
F0(3D,4D)	3.169988	3.781055	6.983243	7.087100	7.190412	7.293611	7.396700	7.499683
F2(3D,4D)	.7544986	.9249165	1.934281	1.968357	2.002143	2.035886	2.069587	2.103247
F4(3D,4D)	.3512703	.4345827	.9476099	.9652006	.9826293	1.000038	1.017427	1.034796
F0(3D,4F)	2.421232	3.132288	7.242830	7.365501	7.487601	7.609292	7.730589	7.851509
F2(3D,4F)	.4686300	.6910470	2.293379	2.344179	2.394712	2.445080	2.495286	2.545334
F4(3D,4F)	.2071311	.3212342	1.209964	1.239179	1.268261	1.297269	1.326203	1.355064
F0(3D,5S)	1.467194	1.666664	3.485363	3.547431	3.603980	3.660137	3.715932	3.771393
F0(3D,5P)	1.312912	1.487774	3.382646	3.447603	3.505518	3.562996	3.620073	3.676784
F2(3D,5P)	.1141697	.1241504	.4359413	.4480929	.4582403	.4682768	.4782110	.4880512
F0(3D,5D)			3.128755	3.202473	3.263816	3.324602	3.384882	3.444706
F2(3D,5D)			.3895458	.4040179	.4151899	.4262451	.4371941	.4480469
F4(3D,5D)			.1708178	.1775424	.1826916	.1877887	.1928383	.1978449
F0(3D,5F)			2.369653	2.496743	2.566656	2.635215	2.702587	2.768910
F2(3D,5F)			.2456733	.2706855	.2834294	.2959807	.3083645	.3206028
F4(3D,5F)			.1159806	.1284840	.1348334	.1410944	.1472789	.1533978
F0(3D,6S)	.4729130	.5102160	1.522352	1.572027	1.593078	1.613636	1.633746	1.653451
F0(3D,6P)			1.357477	1.410935	1.429513	1.447584	1.465191	1.482378
F2(3D,6P)			.0621926	.0671400	.0679977	.0687936	.0695334	.0702228
F0(3D,6D)				.9416541	.9500391	.9577612	.9648660	.9713995
F2(3D,6D)				.0280183	.0280240	.0279824	.0278986	.0277764
F4(3D,6D)				.0113747	.0113650	.0113350	.0112869	.0112224
F0(3D,7S)			.4770563	.5052660	.5093625	.5133994	.5173799	.5213127
F0(4S,4S)	2.687657	3.116222	5.277991	5.348786	5.419364	5.489928	5.560479	5.631011
F0(4S,4P)	2.644549	3.078478	5.287805	5.360172	5.432291	5.504384	5.576455	5.648499
F0(4S,4D)	2.535182	2.986353	5.327243	5.403303	5.479008	5.554644	5.630216	5.705722
F0(4S,4F)	2.092986	2.618605	5.441267	5.524766	5.607820	5.690629	5.773206	5.855560
F0(4S,5S)	1.367594	1.556929	3.155908	3.209782	3.259451	3.308818	3.357907	3.406738
F0(4S,5P)	1.232996	1.400637	3.062569	3.118557	3.169142	3.219384	3.269314	3.318955
F0(4S,5D)			2.838083	2.900879	2.953991	3.006648	3.058892	3.110762
F0(4S,5F)			2.207261	2.317397	2.378996	2.439394	2.498737	2.557145
F0(4S,6S)	.4658501	.5034373	1.468923	1.515166	1.535515	1.555419	1.574918	1.594053
F0(4S,6P)			1.314478	1.364403	1.382462	1.400060	1.417235	1.434028
F0(4S,6D)				.9222808	.9307149	.9385195	.9457365	.9524091
F0(4S,7S)			.4736664	.5013338	.5054407	.5094874	.5134773	.5174190
F0(4P,4P)	2.604022	3.042785	5.300515	5.374566	5.448339	5.522079	5.595790	5.669468
F2(4P,4P)	1.375781	1.602607	2.780947	2.819352	2.857639	2.895894	2.934120	2.972315
F0(4P,4D)	2.498971	2.953164	5.340837	5.418704	5.496189	5.573603	5.650950	5.728229
F2(4P,4D)	1.292509	1.524276	2.749925	2.789346	2.828576	2.867744	2.906854	2.945907
F0(4P,4F)	2.069137	2.592579	5.453503	5.538997	5.624031	5.708825	5.793392	5.877741
F2(4P,4F)	.9709955	1.249674	2.723181	2.763986	2.804478	2.844780	2.884903	2.924858
F0(4P,5S)	1.362648	1.552873	3.158446	3.212672	3.262681	3.312388	3.361818	3.410992
F0(4P,5P)	1.229208	1.397613	3.065622	3.121975	3.172909	3.223501	3.273782	3.323776
F2(4P,5P)	.3040585	.3345657	.9557209	.9777773	.9964903	1.014993	1.033304	1.051438
F0(4P,5D)			2.840688	2.903816	2.957239	3.010208	3.062769	3.114958
F2(4P,5D)			.8835415	.8285611	.8481534	.8675078	.8866462	.9055886
F0(4P,5F)			2.208354	2.318732	2.380520	2.441112	2.500653	2.559264
F2(4P,5F)			.4726850	.5145076	.5362700	.5576604	.5787214	.5994884

TABLE IV. TWO ELECTRON INTEGRALS F(K)

	CE	TB	BK	CF	ES	FM	MD	NO
F0(4P,6S)	.4655042	.5031900	1.469339	1.515657	1.536058	1.556013	1.575563	1.594748
F0(4P,6P)			1.314890	1.364888	1.382990	1.400630	1.417846	1.434679
F2(4P,6P)			.1517714	.1625220	.1643778	.1661055	.1677173	.1692254
F0(4P,6D)				.9224680	.9309158	.9387331	.9459620	.9526455
F2(4P,6D)				.0663874	.0664189	.0663521	.0661969	.0659631
F0(4P,7S)			.4736928	.5013678	.5054777	.5095273	.5135201	.5174645
F0(4D,4D)	2.407069	2.873410	5.397603	5.479992	5.561901	5.643711	5.725426	5.807050
F2(4D,4D)	1.233363	1.467027	2.764017	2.806096	2.847919	2.889673	2.931359	2.972982
F4(4D,4D)	.8255456	.9821270	1.871844	1.900769	1.929508	1.958191	1.986823	2.015404
F0(4D,4F)	2.008425	2.530799	5.515196	5.605940	5.696145	5.786098	5.875810	5.965293
F2(4D,4F)	.9467341	1.212605	2.744239	2.788821	2.833059	2.877121	2.921017	2.964756
F4(4D,4F)	.6002834	.7735621	1.777345	1.806042	1.834489	1.862803	1.890991	1.919061
F0(4D,5S)	1.348960	1.542015	3.167072	3.222163	3.272989	3.323511	3.373750	3.423731
F0(4D,5P)	1.218701	1.389390	3.073914	3.131112	3.182839	3.234222	3.285293	3.336075
F2(4D,5P)	.3307900	.3569914	.9425799	.9633407	.9808189	.9980976	1.015194	1.032123
F0(4D,5D)			2.850462	2.914504	2.968747	3.022541	3.075928	3.128945
F2(4D,5D)			.8002307	.8243715	.8430935	.8615805	.8798544	.8979354
F4(4D,5D)			.3847986	.3977247	.4075066	.4171581	.4266910	.4361168
F0(4D,5F)			2.213326	2.324512	2.386855	2.448010	2.508121	2.567309
F2(4D,5F)			.4684302	.5092151	.5300576	.5505042	.5705996	.5903818
F4(4D,5F)			.1938777	.2133523	.2232650	.2330220	.2426414	.2521384
F0(4D,6S)	.4645554	.5025332	1.470738	1.517253	1.537776	1.557850	1.577516	1.596813
F0(4D,6P)			1.316000	1.366174	1.384371	1.402104	1.419409	1.436329
F2(4D,6P)			.1495397	.1599279	.1615495	.1630482	.1644362	.1657255
F0(4D,6D)				.9231495	.9316282	.9394737	.9467280	.9534345
F2(4D,6D)				.0658018	.0657439	.0655915	.0653544	.0650425
F4(4D,6D)				.0240839	.0239804	.0238396	.0236660	.0234639
F0(4D,7S)			.4737815	.5014781	.5055947	.5096508	.5136496	.5175998
F0(4F,4F)	1.738325	2.276124	5.736856	5.840256	5.943099	6.045556	6.147642	6.249372
F2(4F,4F)	.8111069	1.074388	2.998488	3.056316	3.113787	3.171014	3.228006	3.284771
F4(4F,4F)	.5058976	.6726617	1.946189	1.984691	2.022950	2.061044	2.098978	2.136757
F6(4F,4F)	.3631045	.4835369	1.420407	1.448826	1.477065	1.505181	1.533179	1.561062
F0(4F,5S)	1.260092	1.475694	3.189910	3.246864	3.299456	3.351715	3.403661	3.455320
F0(4F,5P)	1.150779	1.339257	3.095016	3.154016	3.207437	3.260491	3.313208	3.365614
F2(4F,5P)	.4168854	.4331141	.9008484	.9188576	.9336695	.9483291	.9628515	.9772502
F0(4F,5D)			2.868650	2.934410	2.990216	3.045561	3.100487	3.155033
F2(4F,5D)			.7654692	.7869236	.8031073	.8190933	.8349022	.8505530
F4(4F,5D)			.3684513	.3794568	.3874417	.3953200	.4031032	.4108022
F0(4F,5F)			2.231077	2.344736	2.408648	2.471374	2.533058	2.593820
F2(4F,5F)			.4670567	.5070734	.5267689	.5460513	.5649701	.5835680
F4(4F,5F)			.2062764	.2262073	.2358531	.2453031	.2545813	.2637085
F6(4F,5F)			.1281561	.1409269	.1470772	.1531044	.1590236	.1648486
F0(4F,6S)	.4589035	.4988189	1.474422	1.521385	1.542165	1.562485	1.582387	1.601910
F0(4F,6P)			1.318812	1.369384	1.387780	1.405701	1.423187	1.440278
F2(4F,6P)			.1419741	.1514577	.1525625	.1535635	.1544721	.1552997
F0(4F,6D)				.9244141	.9329523	.9408512	.9481530	.9549014
F2(4F,6D)				.0621823	.0619307	.0615989	.0611964	.0607327
F4(4F,6D)				.0230429	.0228717	.0226694	.0224403	.0221886
F0(4F,7S)			.4740150	.5017636	.5058933	.5099618	.5139723	.5179335
F0(5S,5S)	1.095877	1.243927	2.581750	2.627288	2.668627	2.709687	2.750487	2.791051
F0(5S,5P)	1.027591	1.164985	2.532058	2.578596	2.620311	2.661729	2.702872	2.743764
F0(5S,5D)			2.403219	2.453788	2.496923	2.539686	2.582110	2.624225
F0(5S,5F)			1.977832	2.065546	2.115792	2.165014	2.213332	2.260847
F0(5S,6S)	.4488814	.4863890	1.385638	1.427408	1.447158	1.466512	1.485503	1.504166
F0(5S,6P)			1.249901	1.295231	1.312902	1.330157	1.347028	1.363553
F0(5S,6D)				.8954489	.9040874	.9121304	.9196149	.9265803
F0(5S,7S)			.4684333	.4953269	.4994813	.5035723	.5076031	.5115830
F0(5P,5P)	.9721893	1.100839	2.485719	2.533089	2.575089	2.616777	2.658182	2.699326
F2(5P,5P)	.5269709	.5940468	1.349125	1.374558	1.396698	1.418664	1.440472	1.462136
F0(5P,5D)			2.364247	2.415194	2.458374	2.501184	2.543658	2.585826
F2(5P,5D)			1.261189	1.289131	1.311995	1.334630	1.357058	1.379298
F0(5P,5F)			1.956054	2.042595	2.092354	2.141124	2.189025	2.236152
F2(5P,5F)			.9276326	.9849154	1.013899	1.042100	1.069608	1.096497
F0(5P,6S)	.4450224	.4824660	1.379327	1.420993	1.440838	1.460284	1.479367	1.498120
F0(5P,6P)			1.245061	1.290234	1.307987	1.325323	1.342275	1.358880
F2(5P,6P)			.3326653	.3516526	.3552798	.3587127	.3619696	.3650689
F0(5P,6D)				.8934741	.9021732	.9102760	.9178200	.9248438
F2(5P,6D)				.1548487	.1549992	.1549656	.1547645	.1544128

TABLE IV. TWO ELECTRON INTEGRALS F(K)

	CE	TB	BK	CF	ES	FM	MD	NO
F0(5P,7S)			.4680411	.4948929	.4990599	.5031625	.5072045	.5111947
F0(5D,5D)			2.260802	2.314133	2.357922	2.401319	2.444360	2.487080
F2(5D,5D)			1.204098	1.232785	1.255477	1.277944	1.300210	1.322292
F4(5D,5D)			.8226115	.8429100	.8585463	.8740155	.8893339	.9045158
F0(5D,5F)			1.896056	1.980504	2.029383	2.077361	2.124546	2.171026
F2(5D,5F)			.9301590	.9834244	1.010360	1.036627	1.062306	1.087464
F4(5D,5F)			.6082405	.6468521	.6656262	.6838946	.7017166	.7191410
F0(5D,6S)			1.361920	1.403568	1.423738	1.443499	1.462889	1.481940
F0(5D,6P)			1.231861	1.276793	1.294813	1.312410	1.329616	1.346468
F2(5D,6P)			.3675108	.3861632	.3893930	.3924409	.3953237	.3980588
F0(5D,6D)				.8883465	.8972210	.9054958	.9132078	.9203956
F2(5D,6D)				.1726759	.1725297	.1721972	.1716955	.1710421
F4(5D,6D)				.0694062	.0690107	.0685352	.0679886	.0673801
F0(5D,7S)			.4669685	.4937237	.4979287	.5020669	.5061420	.5101633
F0(5F,5F)			1.659563	1.755916	1.805189	1.853508	1.900986	1.947717
F2(5F,5F)			.8305876	.8858948	.9108974	.9353596	.9593446	.9829042
F4(5F,5F)			.5439449	.5829510	.5997649	.6161983	.6322953	.6480921
F6(5F,5F)			.3999664	.4297229	.4422999	.4545881	.4666204	.4784245
F0(5F,6S)			1.278104	1.328233	1.350876	1.372893	1.394348	1.415303
F0(5F,6P)			1.168955	1.219453	1.239417	1.258791	1.277631	1.295992
F2(5F,6P)			.4662282	.4806251	.4828767	.4849834	.4869607	.4888257
F0(5F,6D)				.8677300	.8775564	.8867164	.8952550	.9032175
F2(5F,6D)				.2387955	.2369408	.2349894	.2329468	.2308220
F4(5F,6D)				.1165079	.1146032	.1127060	.1108145	.1089296
F0(5F,7S)			.4621833	.4890094	.4934253	.4977525	.5019981	.5061741
F0(6S,6S)	.3536526	.3812792	1.121654	1.157700	1.173373	1.188705	1.203727	1.218470
F0(6S,6P)			1.051948	1.089758	1.104410	1.118714	1.132698	1.146392
F0(6S,6D)				.8228025	.8312310	.8391476	.8465829	.8535701
F0(6S,7S)			.4537662	.4790097	.4831586	.4872338	.4912399	.4951869
F0(6P,6P)			.9956092	1.034293	1.048096	1.061550	1.074680	1.087516
F2(6P,6P)			.5452193	.5675982	.5749779	.5821659	.5891745	.5960209
F0(6P,6D)				.8004326	.8086665	.8164080	.8236845	.8305282
F2(6P,6D)				.3811578	.3842108	.3869498	.3893905	.3915520
F0(6P,7S)			.4502149	.4752605	.4794044	.4834722	.4874673	.4914002
F0(6D,6D)				.6794381	.6852555	.6905779	.6954347	.6998578
F2(6D,6D)				.3524352	.3547358	.3567555	.3585100	.3600173
F4(6D,6D)				.2314466	.2326716	.2337067	.2345631	.2352534
F0(6D,7S)				.4521290	.4558450	.4594449	.4629349	.4663260
F0(7S,7S)			.3582720	.3781267	.3812066	.3842293	.3871978	.3901205

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TABLE V. TWO ELECTRON INTEGRALS G(K)

	H	HE	LI	BE	B	C	N	O	F
G0(1S,2S)			.0285897	.0506982	.0771609	.1032017	.1291148	.1549836	.1808370
G1(1S,2P)					.0863852	.1274579	.1686980	.2099975	.2513211
G1(2S,2P)					.5465473	.6810737	.8121393	.9414693	1.069799
	NE	NA	MG	AL	SI	P	S	CL	A
G0(1S,2S)	.2066856	.2449131	.2850149	.3256404	.3665792	.4076745	.4488423	.4900364	.5312302
G1(1S,2P)	.2926551	.3768267	.4632419	.5522369	.6426666	.7341168	.8263305	.9191325	1.013410
G0(1S,3S)		.0053346	.0101388	.0165554	.0229329	.0293320	.0357700	.0422502	.0487716
G1(1S,3P)				.0165941	.0266252	.0372480	.0482747	.0595920	.0701114
G1(2S,2P)	1.197498	1.403343	1.600208	1.791929	1.979304	2.163454	2.345178	2.525037	2.704275
G0(2S,3S)		.0143228	.0246917	.0375131	.0492608	.0604431	.0712930	.0819330	.0924349
G1(2S,3P)				.0224165	.0323450	.0417989	.0509550	.0599260	.0679385
G1(2P,3S)		.0196064	.0325515	.0482986	.0626049	.0762144	.0894373	.1024264	.1150187
G0(2P,3P)				.0279434	.0410148	.0536222	.0658755	.0778597	.0879023
G2(2P,3P)				.0264654	.0396673	.0526415	.0654057	.0779941	.0890884
G1(3S,3P)				.3734610	.4630406	.5451454	.6228782	.6977455	.7708463
	K	CA	SC	TI	V	CR	MN	FE	CO
G0(1S,2S)	.5728514	.6147072	.6566351	.6985101	.7403217	.7820757	.8237600	.8653997	.9069906
G1(1S,2P)	1.107659	1.202540	1.298351	1.394314	1.490366	1.586857	1.682632	1.778804	1.874997
G0(1S,3S)	.0583415	.0684081	.0761024	.0833610	.0903604	.0956363	.1038658	.1104481	.1169471
G1(1S,3P)	.0905517	.1115241	.1272815	.1422678	.1568482	.1677160	.1853258	.1993492	.2132776
G2(1S,3D)			.0011767	.0015957	.0020294	.0021071	.0029438	.0034228	.0039145
G0(1S,4S)	.0021609	.0038692	.0042486	.0045016	.0046927	.0035700	.0049738	.0050831	.0051784
G1(2S,2P)	2.882655	3.060683	3.237871	3.414219	3.589873	3.764875	3.939547	4.113732	4.287571
G0(2S,3S)	.1079251	.1237995	.1354947	.1464152	.1568830	.1646127	.1769838	.1867541	.1963917
G1(2S,3P)	.0845488	.1008772	.1122525	.1228269	.1329733	.1400493	.1525424	.1621036	.1715677
G2(2S,3D)			.1286466	.1629970	.1956264	.1945718	.2582172	.2886875	.3187802
G0(2S,4S)	.0037241	.0064485	.0069488	.0072532	.0074682	.0056574	.0077628	.0078714	.0079641
G1(2P,3S)	.1342446	.1540232	.1685445	.1820919	.1950704	.2045776	.2199734	.2320698	.2439973
G0(2P,3P)	.1093995	.1304496	.1452557	.1590224	.1722170	.1815561	.1976010	.2099685	.2221885
G2(2P,3P)	.1118375	.1343598	.1503019	.1651454	.1793811	.1894300	.2067775	.2201264	.2333158
G1(2P,3D)			.1449772	.1817044	.2161319	.2133677	.2813076	.3127420	.3436488
G3(2P,3D)			.0819714	.1028562	.1224533	.1209003	.1595884	.1775101	.1951362
G1(2P,4S)	.0047327	.0082261	.0088717	.0092644	.0095411	.0072161	.0099183	.0100565	.0101738
G1(3S,3P)	.8840810	.9893928	1.068554	1.143478	1.216017	1.273715	1.356791	1.425745	1.494026
G2(3S,3D)			.5480257	.6184900	.6786174	.6623367	.7836111	.8317215	.8779885
G0(3S,4S)	.0115539	.0181003	.0191875	.0198663	.0203678	.0160303	.0211087	.0214038	.0216669
G1(3P,3D)			.7389915	.8263631	.9020893	.8870244	1.037003	1.099844	1.160788
G3(3P,3D)			.4402417	.4943295	.5412012	.5290845	.6246033	.6633968	.7009886
G1(3P,4S)	.0186681	.0279718	.0290503	.0296297	.0300172	.0234057	.0305459	.0307490	.0309301
G2(3D,4S)			.0878157	.0811039	.0768968	.0770888	.0719639	.0704427	.0692983
	NI	CU	ZN	GA	GE	AS	SE	BR	KR
G0(1S,2S)	.9485383	.9900642	1.031519	1.072945	1.114394	1.155877	1.197401	1.238967	1.280576
G1(1S,2P)	1.971203	2.067781	2.163641	2.259625	2.355747	2.452019	2.548445	2.645027	2.741765
G0(1S,3S)	.1233779	.1282535	.1360774	.1442762	.1528903	.1618209	.1709949	.1803598	.1898778
G1(1S,3P)	.2271316	.2374649	.2546748	.2732349	.2928721	.3132924	.3343146	.3558075	.3779799
G2(1S,3D)	.0044179	.0044983	.0054550	.0064788	.0075510	.0086693	.0098315	.0110355	.0122789
G0(1S,4S)	.0052630	.0038210	.0054078	.0077314	.0099787	.0122193	.0144707	.0167397	.0190294
G1(1S,4P)				.0071847	.0110384	.0150157	.0191082	.0233012	.0272831
G1(2S,2P)	4.461113	4.634367	4.807460	4.980431	5.153405	5.326399	5.499429	5.672499	5.845615
G0(2S,3S)	.2059232	.2130851	.2247398	.2369060	.2496210	.2627286	.2761166	.2897078	.3034479
G1(2S,3P)	.1809580	.1876256	.1995799	.2124880	.2261192	.2402440	.2547261	.2694709	.2846321
G2(2S,3D)	.3485723	.3462976	.4074586	.4703945	.5337847	.5976181	.6618680	.7265035	.7914831
G0(2S,4S)	.0080449	.0058392	.0081815	.0115808	.0148039	.0179609	.0210828	.0241834	.0272708
G1(2S,4P)				.0053516	.0081316	.0109482	.0137988	.0166765	.0193583
G1(2P,3S)	.2557891	.2645732	.2790570	.2941979	.3100483	.3264110	.3431441	.3601495	.3773577
G0(2P,3P)	.2342923	.2430014	.2582379	.2746004	.2917951	.3095375	.3276590	.3460450	.3648943
G2(2P,3P)	.2463791	.2557175	.2722201	.2899883	.3087168	.3280955	.3479391	.3681195	.3888491
G1(2P,3D)	.3741367	.3702332	.4341478	.4996465	.5653690	.6313407	.6975639	.7640320	.8307219
G3(2P,3D)	.2125275	.2102996	.2467688	.2841911	.3217920	.3595812	.3975561	.4357092	.4740239

TABLE V. TWO ELECTRON INTEGRALS G(K)

	NI	CU	ZN	GA	GE	AS	SE	BR	KR
G1(2P,4S)	.0102757	.0074465	.0104467	.0148068	.0189525	.0230236	.0270588	.0310754	.0350827
G0(2P,4P)				.0067244	.0101873	.0136748	.0171839	.0207064	.0239609
G2(2P,4P)				.0073449	.0111715	.0150531	.0189849	.0229559	.0266585
G1(3S,3P)	1.561768	1.616646	1.695999	1.778277	1.862411	1.947477	2.032979	2.118625	2.204936
G2(3S,3D)	.9228660	.9138262	1.009608	1.097367	1.176890	1.250428	1.319455	1.384985	1.447735
G0(3S,4S)	.0219056	.0164793	.0223290	.0305716	.0379485	.0448562	.0514451	.0578013	.0639819
G1(3S,4P)				.0189289	.0272994	.0351090	.0424909	.0495290	.0556053
G1(3P,3D)	1.220320	1.214812	1.336356	1.448320	1.550878	1.646916	1.738207	1.825911	1.911247
G3(3P,3D)	.7376826	.7308405	.8091417	.8825718	.9507193	1.015125	1.076763	1.136280	1.194522
G1(3P,4S)	.0310956	.0232793	.0313958	.0425602	.0523928	.0615076	.0701441	.0784381	.0862474
G0(3P,4P)				.0170631	.0246804	.0318701	.0387486	.0453833	.0510427
G2(3P,4P)				.0191970	.0281011	.0366067	.0448038	.0527451	.0597718
G2(3D,4S)	.0684287	.0636135	.0672602	.0755089	.0816138	.0871102	.0924133	.0976707	.1029400
G1(3D,4P)				.0347696	.0434214	.0508860	.0577990	.0644045	.0703867
G3(3D,4P)				.0288439	.0375264	.0452218	.0523966	.0592463	.0654756
G1(4S,4P)				.3730818	.4457687	.5080775	.5647746	.6178970	.6687608

	RB	SR	Y	ZR	NB	MO	TC	RU	RH
G0(1S,2S)	1.322291	1.364087	1.405922	1.447799	1.489688	1.531644	1.573674	1.615670	1.657733
G1(1S,2P)	2.838664	2.935732	3.032985	3.130375	3.227911	3.325539	3.423258	3.521111	3.619040
G0(1S,3S)	.1995986	.2094748	.2193701	.2293146	.2392204	.2492402	.2593796	.2693659	.2794610
G1(1S,3P)	.4002533	.4228446	.4456242	.4685456	.4915276	.5146567	.5379451	.5611513	.5844917
G2(1S,3D)	.0135717	.0149074	.0162858	.0176967	.0191406	.0206087	.0221000	.0236211	.0251623
G0(1S,4S)	.0224894	.0261418	.0292955	.0322991	.0346986	.0375129	.0408542	.0430195	.0457271
G1(1S,4P)	.0348277	.0424892	.0489808	.0551559	.0600550	.0658783	.0729096	.0773726	.0830734
G2(1S,4D)			.0007444	.0010178	.0011240	.0013936	.0018507	.0019516	.0022409
G0(1S,5S)	.0009958	.0017360	.0020605	.0022898	.0019919	.0020748	.0027269	.0021812	.0022133
G1(2S,2P)	6.018888	6.192287	6.365716	6.539191	6.712652	6.886213	7.059884	7.233461	7.407142
G0(2S,3S)	.3174064	.3315175	.3456058	.3597106	.3737225	.3878368	.4020609	.4160560	.4301518
G1(2S,3P)	.2997794	.3150756	.3304393	.3458430	.3612380	.3766826	.3921898	.4076044	.4230686
G2(2S,3D)	.8573904	.9239218	.9911124	1.058475	1.126112	1.193633	1.261073	1.328819	1.396452
G0(2S,4S)	.0319576	.0368415	.0409711	.0448483	.0478675	.0514209	.0556486	.0582805	.0616140
G1(2S,4P)	.0245010	.0296481	.0339191	.0379242	.0410210	.0447158	.0491885	.0519114	.0554395
G2(2S,4D)			.0391941	.0520352	.0559759	.0676325	.0875483	.0903250	.1014736
G0(2S,5S)	.0013992	.0024130	.0028384	.0031284	.0027041	.0027967	.0036464	.0029021	.0029272
G1(2P,3S)	.3948552	.4125571	.4302383	.4479485	.4655470	.4832835	.5011667	.5187617	.5364905
G0(2P,3P)	.3836819	.4026113	.4215857	.4405689	.4595032	.4784595	.4974533	.5163038	.5351828
G2(2P,3P)	.4095574	.4304611	.4514441	.4724683	.4934629	.5145143	.5356381	.5566162	.5776529
G1(2P,3D)	.8983087	.9664683	1.035242	1.104132	1.173246	1.242200	1.311032	1.380140	1.449107
G3(2P,3D)	.5128851	.5521057	.5917043	.6313946	.6712349	.7110057	.7507290	.7906240	.8304569
G1(2P,4S)	.0411682	.0475248	.0529187	.0579949	.0619636	.0666323	.0721860	.0756641	.0800607
G0(2P,4P)	.0302362	.0364835	.0416322	.0464378	.0501259	.0545278	.0598568	.0630645	.0672335
G2(2P,4P)	.0337570	.0408672	.0467739	.0523167	.0566084	.0617261	.0679195	.0716983	.0765885
G1(2P,4D)			.0412806	.0547999	.0589437	.0712226	.0922159	.0951494	.1069172
G3(2P,4D)			.0238764	.0317424	.0341858	.0419600	.0536200	.0553827	.0622986
G1(2P,5S)	.0018089	.0031263	.0036836	.0040661	.0035178	.0036428	.0047575	.0037889	.0038255
G1(3S,3P)	2.290904	2.376973	2.462833	2.548425	2.633568	2.718596	2.803589	2.887906	2.972209
G2(3S,3D)	1.508866	1.568346	1.626314	1.682780	1.737899	1.791944	1.845150	1.897330	1.948902
G0(3S,4S)	.0734316	.0830041	.0907780	.0979198	.1032744	.1096584	.1173028	.1218334	.1276984
G1(3S,4P)	.0680188	.0797802	.0888365	.0969670	.1027509	.1098441	.1185800	.1232628	.1296925
G2(3S,4D)			.0252658	.0316993	.0326987	.0380689	.0477016	.0481679	.0530799
G0(3S,5S)	.0029896	.0049933	.0057425	.0062113	.0053098	.0054155	.0069372	.0054910	.0054843
G1(3P,3D)	1.994627	2.076361	2.156674	2.235460	2.312946	2.389255	2.464639	2.539107	2.612886
G3(3P,3D)	1.251571	1.307679	1.362980	1.417321	1.470850	1.523592	1.575721	1.627266	1.678343
G1(3P,4S)	.0987202	.1113637	.1215719	.1309329	.1378842	.1462369	.1562969	.1621569	.1698228
G0(3P,4P)	.0626426	.0737165	.0823860	.0902602	.0960217	.1030170	.1115613	.1163852	.1228453
G2(3P,4P)	.0737695	.0872255	.0978037	.1074130	.1144184	.1229237	.1333314	.1391283	.1469345
G1(3P,4D)			.0287237	.0358628	.0368310	.0426370	.0530579	.0532839	.0583343
G3(3P,4D)			.0267875	.0341930	.0356978	.0419541	.0529334	.0536389	.0592242
G1(3P,5S)	.0040720	.0068073	.0078284	.0084667	.0072290	.0073718	.0094533	.0074727	.0074626
G2(3D,4S)	.1132803	.1237291	.1315289	.1385820	.1432548	.1495728	.1577569	.1617339	.1676500
G1(3D,4P)	.0836377	.0959672	.1051069	.1132902	.1188787	.1261069	.1353036	.1399393	.1466388
G3(3D,4P)	.0786863	.0910997	.1004339	.1088026	.1145787	.1219358	.1312274	.1359600	.1427275
G0(3D,4D)			.0408419	.0517634	.0538000	.0627966	.0785281	.0792041	.0868666
G2(3D,4D)			.0444026	.0570108	.0597529	.0703913	.0889024	.0901205	.0994529
G4(3D,4D)			.0330192	.0425957	.0447881	.0529426	.0671054	.0681616	.0753959

TABLE V. TWO ELECTRON INTEGRALS G(K)

	RB	SR	Y	ZR	NB	MO	TC	RU	RH
G2(3D,5S)	.0045068	.0073261	.0082562	.0087861	.0074052	.0074654	.0094794	.0074300	.0073643
G1(4S,4P)	.7504116	.8233935	.8810690	.9340256	.9759310	1.023964	1.079326	1.116227	1.160951
G2(4S,4D)			.3280776	.3971864	.4130610	.4685735	.5568266	.5662157	.6105435
G0(4S,5S)	.0106909	.0159959	.0176628	.0186203	.0161880	.0162991	.0199782	.0162503	.0161412
G1(4P,4D)			.4852067	.5714056	.5894290	.6580285	.7660845	.7777162	.8319574
G1(4P,4D)			.2921085	.3454415	.3555691	.3979563	.4662761	.4720692	.5057052
G1(4P,5S)	.0190136	.0272607	.0292739	.0302537	.0257526	.0256184	.0311973	.0250545	.0246898
G2(4D,5S)			.1268286	.1160650	.1079396	.0991302	.0958503	.0857442	.0804684
	PD	AG	CD	IN	SN	SB	TE	I	XE
G0(1S,2S)	1.699815	1.741953	1.784142	1.826352	1.868596	1.910872	1.953184	1.995526	2.037902
G1(1S,2P)	3.717082	3.815158	3.913297	4.011561	4.109921	4.208373	4.306915	4.405543	4.504258
G0(1S,3S)	.2895302	.2996953	.3099207	.3201611	.3304392	.3407532	.3511004	.3614791	.3718871
G1(1S,3P)	.6078588	.6313094	.6548696	.6785507	.7023515	.7262670	.7502875	.7744079	.7986218
G2(1S,3D)	.0267505	.0283342	.0299400	.0315675	.0332166	.0348859	.0365748	.0382827	.0400086
G0(1S,4S)	.0479977	.0510756	.0543807	.0577530	.0612396	.0648158	.0684642	.0721714	.0759276
G1(1S,4P)	.0876905	.0944237	.1016000	.1091944	.1170963	.1252258	.1335337	.1419859	.1507277
G2(1S,4D)	.0023125	.0028138	.0033318	.0038803	.0044445	.0050244	.0056200	.0062309	.0068566
G0(1S,5S)		.0022477	.0030639	.0041825	.0052351	.0062667	.0072924	.0083193	.0093511
G1(1S,5P)				.0043029	.0062515	.0082137	.0102048	.0122258	.0141061
G1(2S,2P)	7.580833	7.754605	7.928451	8.102312	8.276217	8.450158	8.624147	8.798167	8.972236
G0(2S,3S)	.4441835	.4583003	.4724627	.4866134	.5007833	.5149714	.5291760	.5433956	.5576300
G1(2S,3P)	.4385169	.4539882	.4694993	.4850656	.5006854	.5163554	.5320683	.5478229	.5636168
G2(2S,3D)	1.465328	1.533010	1.600810	1.668770	1.736887	1.805156	1.873566	1.942108	2.010776
G0(2S,4S)	.0643515	.0681339	.0721866	.0763017	.0805382	.0848632	.0892547	.0936957	.0981743
G1(2S,4P)	.0582286	.0623957	.0668259	.0714990	.0763425	.0813009	.0863485	.0914614	.0967327
G2(2S,4D)	.1025564	.1222456	.1419147	.1621662	.1823769	.2025783	.2227887	.2430131	.2632537
G0(2S,5S)		.0029407	.0039833	.0054051	.0067265	.0080075	.0092684	.0105192	.0117652
G1(2S,5P)				.0027881	.0040294	.0052680	.0065134	.0077669	.0089226
G1(2P,3S)	.5541413	.5719056	.5897299	.6075464	.6253919	.6432653	.6611627	.6790830	.6970243
G0(2P,3P)	.5540130	.5728424	.5916912	.6105796	.6295065	.6484679	.6674599	.6864812	.7055290
G2(2P,3P)	.5986531	.6196755	.6407443	.6618700	.6830559	.7042967	.7255865	.7469235	.7683025
G1(2P,3D)	1.519347	1.588323	1.657421	1.726641	1.796003	1.865507	1.935141	2.004902	2.074778
G3(2P,3D)	.8710394	.9109086	.9508633	.9909025	1.031037	1.071264	1.111579	1.151978	1.192454
G1(2P,4S)	.0836826	.0886729	.0940218	.0994582	.1050586	.1107798	.1165948	.1224802	.1284202
G0(2P,4P)	.0705067	.0754261	.0806456	.0861430	.0918280	.0976375	.1035345	.1094937	.1156266
G2(2P,4P)	.0804588	.0862313	.0923660	.0988370	.1055419	.1124081	.1193930	.1264668	.1337581
G1(2P,4D)	.1080863	.1288855	.1496864	.1711244	.1925425	.2139735	.2354405	.2569480	.2784971
G3(2P,4D)	.0630450	.0752539	.0874855	.1001101	.1127438	.1254057	.1381054	.1508459	.1636272
G1(2P,5S)		.0038501	.0052220	.0070940	.0088379	.0105319	.0122025	.0138626	.0155191
G0(2P,5P)				.0033388	.0048149	.0062807	.0077498	.0092233	.0105717
G2(2P,5P)				.0038586	.0055777	.0072929	.0090183	.0107556	.0123555
G1(3S,3P)	3.056228	3.140184	3.224138	3.308009	3.391862	3.475709	3.559544	3.643375	3.727198
G2(3S,3D)	2.000160	2.050633	2.100736	2.150427	2.199796	2.248883	2.297712	2.346313	2.394703
G0(3S,4S)	.1324157	.1391041	.1462490	.1534664	.1608556	.1683557	.1759260	.1835383	.1911735
G1(3S,4P)	.1344440	.1421537	.1503039	.1588484	.1676187	.1765066	.1854519	.1944183	.2035977
G2(3S,4D)	.0530855	.0624860	.0718274	.08114687	.0911267	.1008449	.1106520	.1205656	.1305967
G0(3S,5S)		.0054170	.0072446	.0097090	.0119424	.0140611	.0161072	.0181026	.0200603
G1(3S,5P)				.0057523	.0081701	.0105094	.0127959	.0150400	.0170351
G1(3P,3D)	2.686473	2.759086	2.831320	2.903242	2.974900	3.046322	3.117532	3.188553	3.259399
G3(3P,3D)	1.729431	1.779733	1.829799	1.879679	1.929406	1.978996	2.028464	2.077825	2.127085
G1(3P,4S)	.1759454	.1847259	.1941236	.2036169	.2133440	.2232232	.2332005	.2432382	.2533110
G0(3P,4P)	.1277598	.1354507	.1435742	.1520893	.1608359	.1697120	.1786598	.1876445	.1968489
G2(3P,4P)	.1528181	.1621197	.1719595	.1822800	.1928911	.2036660	.2145329	.2254473	.2363630
G1(3P,4D)	.0579366	.0676845	.0772092	.0868881	.0964243	.1058719	.1152681	.1246380	.1339996
G3(3P,4D)	.0592196	.0696199	.0798336	.0902285	.1004812	.1106338	.1207149	.1307434	.1407328
G1(3P,5S)		.0073690	.0098657	.0132322	.0162879	.0191904	.0219966	.0247361	.0274263
G0(3P,5P)				.0054014	.0076795	.0098881	.0120516	.0141178	.0160722
G2(3P,5P)				.0067185	.0095804	.0123693	.0151127	.0178204	.0202484
G2(3D,4S)	.1717953	.1789162	.1866749	.1945459	.2026620	.2109411	.2193272	.2277827	.2362814
G1(3D,4P)	.1512315	.1594455	.1681879	.1773969	.1868819	.1965202	.2062414	.2160034	.2260179
G3(3D,4P)	.1474139	.1556600	.1644374	.1736851	.1832188	.1929166	.2027079	.2125505	.2225577
G0(3D,4D)	.0858530	.1000618	.1137554	.1274739	.1407762	.1537424	.1664290	.1788776	.1911197
G2(3D,4D)	.0990338	.1161600	.1328472	.1497047	.1661956	.1823943	.1983514	.2141038	.2296784
G4(3D,4D)	.0752727	.0884975	.1014353	.1145460	.1274137	.1400904	.1526103	.1649983	.1772721
G2(3D,5S)		.0071773	.0095618	.0127692	.0165682	.0208387	.02510128	.02935670	.03360678

TABLE V. TWO ELECTRON INTEGRALS G(K)

	PD	AG	CD	IN	SN	SB	TE	I	XE
G1(3D,5P)				.0064101	.0090959	.0116934	.0142315	.0167226	.0189398
G3(3D,5P)				.0064425	.0091694	.0118204	.0144230	.0169883	.0192873
G1(4S,4P)	1.197848	1.248344	1.300361	1.353464	1.406914	1.460332	1.513543	1.566467	1.619801
G2(4S,4D)	.6148469	.6934747	.7636906	.8302379	.8914671	.9486923	1.002782	1.054341	1.103814
G0(4S,5S)		.0158262	.0204212	.0264804	.0316713	.0363931	.0408074	.0450043	.0490399
G1(4S,5P)				.0202850	.0274839	.0339495	.0398995	.0454586	.0499853
G1(4P,4D)	.8375061	.9335369	1.018440	1.098357	1.171966	1.241054	1.306731	1.369738	1.430753
G3(4P,4D)	.5077854	.5688357	.6233532	.6751668	.7231303	.7682873	.8113009	.8526206	.8927910
G1(4P,5S)		.0238839	.0306907	.0393161	.0465472	.0530314	.0590319	.0646943	.0698207
G0(4P,5P)				.0155220	.0210751	.0261241	.0308323	.0352895	.0388967
G2(4P,5P)				.0195103	.0267569	.0334007	.0396205	.0455167	.0504939
G2(4D,5S)		.0717982	.0774451	.0859073	.0915612	.0961273	.1001716	.1039434	.1075663
G1(4D,5P)				.0389791	.0467154	.0529492	.0583983	.0633794	.0678948
G3(4D,5P)				.0331437	.0411851	.0479378	.0539549	.0594945	.0644741
G1(5S,5P)				.3393604	.3944051	.4411579	.4832779	.5223898	.5596613
	CS	BA	LA	CE	PR	ND	PM	SM	EU
G0(1S,2S)	2.080325	2.122790	2.165278	2.208066	2.251157	2.294056	2.336995	2.379970	2.422981
G1(1S,2P)	4.603056	4.701939	4.800902	4.900638	5.001038	5.100993	5.201042	5.301186	5.401410
G0(1S,3S)	.3823421	.3928358	.4033273	.4138787	.4244726	.4350051	.4455293	.4560447	.4665513
G1(1S,3P)	.8229113	.8472866	.8716940	.8963028	.9210661	.9456570	.9702410	.9948137	1.019380
G2(1S,3D)	.0417539	.0435175	.0452985	.0471284	.0490010	.0508557	.0527211	.0545984	.0564852
G0(1S,4S)	.0797601	.0836501	.0875359	.0915124	.0927104	.0955853	.0984107	.1011942	.1039415
G1(1S,4P)	.1594442	.1682703	.1771749	.1838113	.1885092	.1949306	.2012448	.2074690	.2136176
G2(1S,4D)	.0075066	.0081752	.0088645	.0093702	.0097151	.0102169	.0107163	.0112143	.0117115
G3(1S,4F)				.0000163	.0000165	.0000188	.0000211	.0000236	.0000261
G0(1S,5S)	.0109798	.0126910	.0141103	.0144733	.0138557	.0141649	.0144517	.0147207	.0149753
G1(1S,5P)	.0177235	.0213496	.0242910	.0249080	.0233327	.0238321	.0242863	.0247046	.0250941
G2(1S,5D)			.0006149	.0006292					
G0(1S,6S)	.0005626	.0009622	.0011255	.0011268	.0009695	.0009693	.0009687	.0009677	.0009664
G1(2S,2P)	9.146368	9.320558	9.494779	9.669528	9.844806	10.01970	10.19465	10.36964	10.54467
G0(2S,3S)	.5719021	.5862027	.6004831	.6147630	.6290463	.6432708	.6574669	.6716352	.6857782
G1(2S,3P)	.5794351	.5952871	.6111418	.6270513	.6429781	.6588277	.6746557	.6904620	.7062454
G2(2S,3D)	2.079611	2.148600	2.217732	2.287569	2.357914	2.427560	2.497120	2.566622	2.636086
G0(2S,4S)	.1027233	.1073203	.1118921	.1153014	.1177290	.1210020	.1242076	.1273563	.1304560
G1(2S,4P)	.1019613	.1072345	.1125339	.1163943	.1190310	.1227417	.1263793	.1299553	.1334794
G2(2S,4D)	.2838643	.3046433	.3256687	.3397230	.3478901	.3614184	.3746658	.3876802	.4005004
G3(2S,4F)				.0110227	.0117465	.0131817	.0146202	.0160666	.0175231
G0(2S,5S)	.0137445	.0158078	.0174931	.0178777	.0170671	.0173903	.0176868	.0179623	.0182211
G1(2S,5P)	.0111607	.0133861	.0151676	.0155024	.0144849	.0147512	.0149901	.0152075	.0154078
G2(2S,5D)			.0217580	.0219551					
G0(2S,6S)	.0007019	.0011934	.0013889	.0013853	.0011892	.0011851	.0011807	.0011760	.0011712
G1(2P,3S)	.7150156	.7330446	.7510489	.7690624	.7870676	.8049984	.8228925	.8407510	.8585749
G0(2P,3P)	.7245918	.7436786	.7627504	.7818491	.8009547	.8199602	.8389252	.8578511	.8767386
G2(2P,3P)	.7897122	.8111614	.8326042	.8541117	.8756560	.8970773	.9184611	.9398081	.9611189
G1(2P,3D)	2.144836	2.215054	2.285416	2.356471	2.428063	2.498933	2.569712	2.640429	2.711070
G3(2P,3D)	1.233046	1.273739	1.314525	1.355732	1.397267	1.438381	1.479448	1.520485	1.561484
G1(2P,4S)	.1344588	.1405659	.1466439	.1511933	.1544458	.1588133	.1630919	.1672954	.1714337
G0(2P,4P)	.1216955	.1278039	.1339328	.1383380	.1412891	.1455120	.1496438	.1536991	.1576891
G2(2P,4P)	.1409905	.1482838	.1556130	.1609386	.1645673	.1696852	.1746994	.1796265	.1844795
G1(2P,4D)	.3004667	.3226424	.3451069	.3601723	.3689844	.3835126	.3977525	.4117546	.4255585
G3(2P,4D)	.1766716	.1898528	.2032187	.2122246	.2175378	.2262337	.2347633	.2431559	.2514346
G2(2P,4F)				.0095588	.0094782	.0106171	.0117554	.0128970	.0140439
G4(2P,4F)				.0061517	.0061011	.0068358	.0075703	.0083072	.0090477
G1(2P,5S)	.0181476	.0208920	.0231404	.0236629	.0225980	.0230378	.0234418	.0238176	.0241708
G0(2P,5P)	.0131979	.0157997	.0178710	.0182391	.0170228	.0173132	.0175716	.0178051	.0180189
G2(2P,5P)	.0154567	.0185410	.0210110	.0214737	.0200616	.0204294	.0207590	.0210586	.0213343
G1(2P,5D)			.0231474	.0233715					
G3(2P,5D)			.0136729	.0138150					
G1(2P,6S)	.0009276	.0015793	.0018399	.0018363	.0015767	.0015720	.0015668	.0015613	.0015556
G1(3S,3P)	3.811069	3.894978	3.978814	4.062701	4.146597	4.230205	4.313692	4.397067	4.480329
G2(3S,3D)	2.442951	2.491054	2.538943	2.586429	2.633569	2.680688	2.727649	2.774463	2.821145
G0(3S,4S)	.1988881	.2066459	.2143332	.2201000	.2242614	.2298224	.2352806	.2406534	.2459533
G1(3S,4P)	.2125936	.2215869	.2305589	.2368500	.2409212	.2469639	.2528779	.2586868	.2644082
G2(3S,4D)	.1409180	.1514383	.1622126	.1695348	.1739166	.1811325	.1882824	.1953857	.2024571
G3(3S,4F)				.2749776	.2670571	.2912967	.3146378	.3372844	.3593697

TABLE V. TWO ELECTRON INTEGRALS, G(K)

	CS	BA	LA	CE	PR	ND	PM	SM	EU
G0(3S,5S)	.0232063	.0264365	.0290014	.0295292	.0282003	.0286482	.0290595	.0294427	.0298040
G1(3S,5P)	.0210128	.0248694	.0278347	.0282515	.0263294	.0266541	.0269381	.0271913	.0274209
G2(3S,5D)			.0107470	.0108842					
G0(3S,6S)	.0011669	.0019594	.0022569	.0022435	.0019304	.0019185	.0019067	.0018952	.0018841
G1(3P,3D)	3.330077	3.400614	3.470960	3.540976	3.610705	3.680322	3.749769	3.819059	3.888204
G3(3P,3D)	2.176254	2.225349	2.274327	2.323027	2.371482	2.419865	2.468110	2.516229	2.564232
G1(3P,4S)	.2634957	.2737428	.2838995	.2914563	.2968401	.3041205	.3112624	.3182899	.3252194
G0(3P,4P)	.2058938	.2149509	.2240007	.2305343	.2349725	.2412688	.2474433	.2535173	.2595066
G2(3P,4P)	.2476266	.2586377	.2696364	.2774489	.2826082	.2901120	.2974579	.3046735	.3117795
G1(3P,4D)	.1435430	.1531760	.1629506	.1693415	.1728969	.1791336	.1852783	.1913529	.1973732
G3(3P,4D)	.1508803	.1610853	.1713974	.1780626	.1816795	.1881181	.1944298	.2006399	.2067675
G2(3P,4F)				.3259917	.3159653	.3439294	.3707814	.3967730	.4220686
G4(3P,4F)				.2146802	.2081093	.2266499	.2444656	.2617208	.2785226
G1(3P,5S)	.0317541	.0362062	.0397504	.0404719	.0386224	.0392323	.0397909	.0403100	.0407985
G0(3P,5P)	.0198408	.0235009	.0263263	.0267645	.0249981	.0253450	.0256527	.0259306	.0261852
G2(3P,5P)	.0250537	.0297395	.0333753	.0339305	.0316458	.0320811	.0324666	.0328085	.0331217
G1(3P,5D)			.0104454	.0105158					
G3(3P,5D)			.0111276	.0111911					
G1(3P,6S)	.0016024	.0026958	.0031088	.0030901	.0026556	.0026388	.0026222	.0026059	.0025899
G2(3D,4S)	.2448949	.2535739	.2621687	.2683604	.2725534	.2785184	.2843669	.2901198	.2957919
G1(3D,4P)	.2358435	.2456795	.2555014	.2624080	.2668956	.2735388	.2800445	.2864377	.2927368
G3(3D,4P)	.2325800	.2425233	.2524538	.2593993	.2638641	.2705341	.2770618	.2834720	.2897842
G0(3D,4D)	.2034182	.2156480	.2278774	.2356944	.2398845	.2473904	.2547186	.2619062	.2689765
G2(3D,4D)	.2453904	.2610818	.2768282	.2869022	.2922790	.3019433	.3113805	.3206325	.3297315
G4(3D,4D)	.1896748	.2020823	.2145511	.2225354	.2267956	.2344535	.2419319	.2492632	.2564731
G1(3D,4F)				.3491015	.3368577	.3651054	.3920804	.4180661	.4432568
G3(3D,4F)				.2040906	.1969174	.2135533	.2294490	.2447689	.2596262
G5(3D,4F)				.1408291	.1358765	.1473904	.1583946	.1690024	.1792915
G2(3D,5S)	.0301213	.0342842	.0375787	.0381762	.0363328	.0368322	.0372844	.0377008	.0380897
G1(3D,5P)	.0233632	.0276551	.0309589	.0314240	.0292811	.0296432	.0299595	.0302412	.0304965
G3(3D,5P)	.0238491	.0282950	.0317394	.0322342	.0300180	.0304024	.0307382	.0310369	.0313071
G0(3D,5D)			.0138390	.0138373					
G2(3D,5D)			.0175692	.0176128					
G4(3D,5D)			.0138318	.0138798					
G2(3D,6S)	.0015235	.0025604	.0029490	.0029248	.0025060	.0024852	.0024648	.0024449	.0024257
G1(4S,4P)	1.672385	1.724809	1.776975	1.820351	1.856441	1.898920	1.940937	1.982569	2.023876
G2(4S,4D)	1.152417	1.199750	1.246083	1.280067	1.304200	1.337060	1.369287	1.400988	1.432247
G3(4S,4F)				.7345377	.7098920	.7432231	.7737011	.8020387	.8287044
G0(4S,5S)	.0556211	.0621947	.0671901	.0683821	.0660667	.0671138	.0680978	.0690335	.0699312
G1(4S,5P)	.0598213	.0688826	.0753281	.0762254	.0719744	.0727034	.0733606	.0739651	.0745294
G2(4S,5D)			.0370712	.0365628					
G0(4S,6S)	.0025730	.0041837	.0047175	.0046949	.0041212	.0041014	.0040831	.0040661	.0040503
G1(4P,4D)	1.490892	1.549784	1.607707	1.651214	1.683107	1.725396	1.766997	1.808034	1.848596
G3(4P,4D)	.9323593	.9711572	1.009389	1.037128	1.056344	1.083260	1.109709	1.135776	1.161522
G2(4P,4F)				.9061851	.8778928	.9170665	.9529470	.9863798	1.017916
G4(4P,4F)				.6235442	.6029291	.6307657	.6562947	.6801029	.7025736
G1(4P,5S)	.0788246	.0877951	.0944985	.0960081	.0927220	.0940498	.0952986	.0964874	.0976299
G0(4P,5P)	.0466920	.0539342	.0592069	.0601515	.0570428	.0578218	.0585352	.0591983	.0598221
G2(4P,5P)	.0608950	.0706066	.0776851	.0788092	.0743891	.0753068	.0761391	.0769069	.0776250
G1(4P,5D)			.0391288	.0386434					
G3(4P,5D)			.0328723	.0326243					
G1(4P,6S)	.0036748	.0059666	.0067147	.0066730	.0058498	.0058142	.0057813	.0057509	.0057225
G1(4D,4F)				1.203967	1.174097	1.222711	1.267675	1.309972	1.350227
G3(4D,4F)				.7531184	.7311941	.7629443	.7923022	.8199019	.8461501
G5(4D,4F)				.5318558	.5154303	.5382030	.5592561	.5790428	.5978544
G2(4D,5S)	.1160447	.1242563	.1293652	.1298944	.1260214	.1265124	.1270010	.1274938	.1279958
G1(4D,5P)	.0781876	.0872705	.0931783	.0938132	.0894022	.0899126	.0903851	.0908318	.0912617
G3(4D,5P)	.0752960	.0850037	.0915200	.0922152	.0874261	.0879749	.0884692	.0889250	.0893537
G0(4D,5D)			.0326012	.0326049					
G2(4D,5D)			.0394969	.0394207					
G4(4D,5D)			.0326043	.0325304					
G2(4D,6S)	.0049997	.0078114	.0085603	.0084417	.0074512	.0073542	.0072664	.0071861	.0071123
G3(4F,5S)				.2422124	.2506254	.2475299	.2450658	.2431074	.2415653
G2(4F,5P)				.2203871	.2316127	.2270648	.2234500	.2205445	.2181998
G4(4F,5P)				.1705330	.1754155	.1727866	.1706933	.1690126	.1676618
G1(4F,5D)				.0998887					
G3(4F,5D)				.0806255					
G5(4F,5D)				.0614377					

TABLE V. TWO ELECTRON INTEGRALS G(K)

	CS	BA	LA	CE	PR	ND	PM	SM	EU
G3(4F,6S)				.0125128	.0122671	.0118083	.0114495	.0111583	.0109156
G1(5S,5P)	.6193121	.6716924	.7117635	.7272526	.7196527	.7338724	.7475885	.7609007	.7738810
G2(5S,5D)			.2831929	.2887471					
G0(5S,6S)	.0093335	.0136272	.0148125	.0148651	.0137330	.0137804	.0138321	.0138870	.0139443
G1(5P,5D)			.4259985	.4336497					
G3(5P,5D)			.2630015	.2673934					
G1(5P,6S)	.0168691	.0239045	.0253659	.0254512	.0240452	.0241361	.0242402	.0243543	.0244760
G2(5D,6S)			.1016343	.1030374					
	GD	TB	DY	HO	ER	TM	YB	LU	HF
G0(1S,2S)	2.465829	2.508905	2.552191	2.595313	2.638458	2.681626	2.724815	2.767865	2.810907
G1(1S,2P)	5.501254	5.601644	5.702539	5.803043	5.903612	6.004237	6.104915	6.205266	6.305602
G0(1S,3S)	.4770054	.4874952	.4980202	.5084930	.5189580	.5294155	.5398656	.5502637	.5606496
G1(1S,3P)	1.043799	1.068349	1.093025	1.117553	1.142073	1.166570	1.191073	1.215431	1.239788
G2(1S,3D)	.0583549	.0602608	.0622015	.0641240	.0660545	.0679923	.0699375	.0718647	.0737971
G0(1S,4S)	.1072727	.1099455	.1120077	.1146480	.1172682	.1198703	.1224552	.1255491	.1287355
G1(1S,4P)	.2212527	.2272414	.2317026	.2376324	.2435221	.2493762	.2551965	.2623100	.2696661
G2(1S,4D)	.0123502	.0128450	.0132030	.0137010	.0141995	.0146989	.0151990	.0158273	.0164826
G3(1S,4F)	.0000309	.0000336	.0000339	.0000367	.0000395	.0000424	.0000454	.0000510	.0000568
G0(1S,5S)	.0161675	.0164037	.0156752	.0158921	.0161026	.0163075	.0165074	.0176808	.0188634
G1(1S,5P)	.0276323	.0279931	.0261331	.0264464	.0267466	.0270355	.0273143	.0298738	.0324190
G2(1S,5D)	.0006610	.0006604						.0006349	.0008200
G0(1S,6S)	.0011301	.0011307	.0009619	.0009602	.0009584	.0009566	.0009547	.0011370	.0012746
G1(2S,2P)	10.71939	10.89450	11.06996	11.24510	11.42027	11.59546	11.77066	11.94561	12.12054
G0(2S,3S)	.6998704	.7139637	.7280621	.7421123	.7561425	.7701535	.7841464	.7980886	.8120120
G1(2S,3P)	.7219700	.7377182	.7534962	.7692118	.7849109	.8005851	.8162590	.8318614	.8474646
G2(2S,3D)	2.704895	2.774197	2.843944	2.913110	2.982214	3.051261	3.120251	3.188689	3.257105
G0(2S,4S)	.1342732	.1372720	.1395177	.1424731	.1454017	.1483061	.1511878	.1546873	.1582934
G1(2S,4P)	.1379166	.1413312	.1438035	.1471748	.1505215	.1538437	.1571378	.1612291	.1654549
G2(2S,4D)	.4178594	.4302481	.4380460	.4503172	.4624891	.4745723	.4865722	.5024771	.5190325
G3(2S,4F)	.0205012	.0219910	.0219641	.0234695	.0249869	.0265163	.0280581	.0311910	.0343883
G0(2S,5S)	.0196070	.0198421	.0189242	.0191404	.0193494	.0195527	.0197505	.0211016	.0224573
G1(2S,5P)	.0169171	.0170982	.0159336	.0160899	.0162391	.0163821	.0165192	.0180279	.0195213
G2(2S,5D)	.0214549	.0212145						.0193007	.0246763
G0(2S,6S)	.0013646	.0013619	.0011568	.0011520	.0011473	.0011426	.0011381	.0013515	.0015110
G1(2P,3S)	.8763358	.8940951	.9118574	.9295593	.9472344	.9648839	.9825091	1.0000071	1.017608
G0(2P,3P)	.8955432	.9143612	.9331967	.9519522	.9706795	.9893674	1.008042	1.026637	1.045220
G2(2P,3P)	.9823270	1.003572	1.024857	1.046042	1.067199	1.088316	1.109422	1.130429	1.151425
G1(2P,3D)	2.781099	2.851601	2.922560	2.992919	3.063216	3.133453	3.203628	3.273237	3.342823
G3(2P,3D)	1.602125	1.643053	1.684258	1.725111	1.765933	1.806723	1.847481	1.887907	1.928321
G1(2P,4S)	.1765211	.1805260	.1835337	.1874793	.1913900	.1952682	.1991162	.2037825	.2085907
G0(2P,4P)	.1627531	.1666067	.1693479	.1731491	.1769156	.1806511	.1843576	.1889831	.1937694
G2(2P,4P)	.1905979	.1952955	.1986837	.2033210	.2079193	.2124820	.2170115	.2226292	.2284410
G1(2P,4D)	.4442169	.4575806	.4660479	.4792977	.4924512	.5055169	.5185022	.5356702	.5535486
G3(2P,4D)	.2625944	.2706195	.2757415	.2837043	.2916103	.2994662	.3072763	.3175743	.3283004
G2(2P,4F)	.0164067	.0175730	.0175257	.0187016	.0198847	.0210752	.0222729	.0247323	.0272381
G4(2P,4F)	.0105722	.0113257	.0112967	.0120564	.0128210	.0135905	.0143649	.0159537	.0175727
G1(2P,5S)	.0260241	.0263456	.0251311	.0254263	.0257119	.0259894	.0262596	.0280673	.0298826
G0(2P,5P)	.0197583	.0199486	.0185740	.0187377	.0188932	.0190418	.0191843	.0209141	.0226237
G2(2P,5P)	.0234241	.0236726	.0220563	.0222705	.0224746	.0226701	.0228578	.0249434	.0270086
G1(2P,5D)	.0229157	.0226705						.0206831	.0264620
G3(2P,5D)	.0135936	.0134549						.0123074	.0157547
G1(2P,6S)	.0018136	.0018106	.0015380	.0015321	.0015263	.0015205	.0015149	.0017999	.0020132
G1(3S,3P)	4.563355	4.646422	4.729545	4.812439	4.895257	4.977990	5.060665	5.143121	5.225526
G2(3S,3D)	2.867816	2.914264	2.960521	3.006785	3.052968	3.099073	3.145108	3.191142	3.237120
G0(3S,4S)	.2524259	.2575745	.2615087	.2666011	.2716557	.2766767	.2816668	.2876604	.2938150
G1(3S,4P)	.2717607	.2772949	.2811692	.2866500	.2920889	.2974910	.3028595	.3096086	.3165921
G2(3S,4D)	.2119856	.2189677	.2235674	.2305888	.2376081	.2446285	.2516507	.2608334	.2704445
G3(3S,4F)	.4093963	.4302264	.4231112	.4437087	.4640471	.4841553	.5040568	.5501184	.5957505
G0(3S,5S)	.0319198	.0322508	.0307950	.0311030	.0314026	.0316954	.0319820	.0340609	.0361284
G1(3S,5P)	.0298863	.0300869	.0280120	.0281861	.0283520	.0285112	.0286646	.0311193	.0335213
G2(3S,5D)	.0109173	.0108443						.0101320	.0130047
G0(3S,6S)	.0021820	.0021748	.0018527	.0018429	.0018334	.0018243	.0018155	.0021466	.0023895
G1(3P,3D)	3.957262	4.026154	4.094913	4.163602	4.232201	4.300695	4.369132	4.437498	4.505826
G3(3P,3D)	2.612173	2.659968	2.707648	2.755279	2.802835	2.850304	2.897726	2.945087	2.992427
G1(3P,4S)	.3337373	.3404637	.3455475	.3521998	.3588017	.3653589	.3718753	.3797496	.3878521

TABLE V. TWO ELECTRON INTEGRALS G(K)

	GD	TB	DY	HO	ER	TM	YB	LU	HF
G0(3P,4P)	.2670460	.2728559	.2770810	.2828338	.2885444	.2942127	.2998515	.3068108	.3139924
G2(3P,4P)	.3208383	.3277123	.3325869	.3393863	.3461309	.3528295	.3594816	.3677936	.3763854
G1(3P,4D)	.2056608	.2115477	.2152130	.2211090	.2269873	.2328584	.2387112	.2465200	.2546779
G3(3P,4D)	.2152620	.2212002	.2247842	.2306974	.2365746	.2424264	.2482456	.2560900	.2642773
G2(3P,4F)	.4800603	.5037875	.4948423	.5182977	.5414342	.5642965	.5868974	.6399097	.6923504
G4(3P,4F)	.3170025	.3327856	.3269022	.3425066	.3579036	.3731223	.3881709	.4234212	.4583240
G1(3P,5S)	.0437106	.0441556	.0421338	.0425477	.0429497	.0433424	.0437265	.0465802	.0494228
G0(3P,5P)	.0285645	.0287933	.0268514	.0270499	.0272396	.0274218	.0275980	.0299814	.0323153
G2(3P,5P)	.0361581	.0364346	.0339320	.0341711	.0343987	.0346172	.0348272	.0378522	.0408194
G1(3P,5D)	.0102435	.0101338						.0092737	.0118503
G3(3P,5D)	.0108096	.0106771						.0096796	.0123549
G1(3P,6S)	.0030016	.0029910	.0025451	.0025311	.0025175	.0025044	.0024917	.0029478	.0032831
G2(3D,4S)	.3029346	.3084341	.3124315	.3178783	.3232847	.3286555	.3339939	.3405781	.3473713
G1(3D,4P)	.3008218	.3069181	.3111973	.3172349	.3232261	.3291765	.3350894	.3425136	.3501911
G3(3D,4P)	.2979257	.3040274	.3082653	.3143049	.3202958	.3262441	.3321534	.3396109	.3473294
G0(3D,4D)	.2787610	.2855659	.2896534	.2964078	.3031073	.3097586	.3163668	.3252572	.3344949
G2(3D,4D)	.3423726	.3511277	.3563276	.3650111	.3736215	.3821680	.3906569	.4021407	.4140950
G4(3D,4D)	.2664993	.2734367	.2775451	.2844241	.2912448	.2980144	.3047379	.3138471	.3233359
G1(3D,4F)	.5026434	.5260132	.5152953	.5384053	.5611598	.5836009	.6057636	.6593204	.7121834
G3(3D,4F)	.2946572	.3084566	.3021401	.3157854	.3292235	.3424789	.3555718	.3872164	.4184887
G5(3D,4F)	.2035515	.2131127	.2087416	.2181959	.2275075	.2366931	.2457667	.2676964	.2893786
G2(3D,5S)	.0407604	.0411073	.0391424	.0394666	.0397810	.0400877	.0403874	.0429862	.0455741
G1(3D,5P)	.0332461	.0334688	.0311520	.0313446	.0315277	.0317031	.0318719	.0346076	.0372860
G3(3D,5P)	.0341664	.0344008	.0319989	.0322014	.0323935	.0325773	.0327538	.0355917	.0383761
G0(3D,5D)	.0129901	.0127803						.0113517	.0144031
G2(3D,5D)	.0167242	.0164775						.0147348	.0187476
G4(3D,5D)	.0132342	.0130455						.0116936	.0148944
G2(3D,6S)	.0028087	.0027941	.0023718	.0023551	.0023390	.0023235	.0023085	.0027294	.0030384
G1(4S,4P)	2.070520	2.111150	2.146246	2.186616	2.226815	2.266860	2.306764	2.351273	2.396480
G2(4S,4D)	1.470394	1.500699	1.523932	1.553930	1.583700	1.613263	1.642638	1.677730	1.713373
G3(4S,4F)	.8950181	.9175882	.9015834	.9241334	.9460265	.9673514	.9881832	1.041437	1.089769
G0(4S,5S)	.0742377	.0750983	.0724614	.0732649	.0740529	.0748284	.0755922	.0799408	.0841815
G1(4S,5P)	.0801795	.0807228	.0760593	.0765314	.0769889	.0774370	.0778747	.0837043	.0892485
G2(4S,5D)	.0325879	.0318760						.0275787	.0340734
G0(4S,6S)	.0046256	.0046216	.0040084	.0039960	.0039842	.0039730	.0039623	.0046276	.0050922
G1(4P,4D)	1.897508	1.937044	1.968059	2.007287	2.046277	2.085050	2.123629	2.169238	2.215610
G3(4P,4D)	1.193547	1.218598	1.237270	1.262122	1.286817	1.311368	1.335790	1.365563	1.395946
G2(4P,4F)	1.095164	1.122045	1.104540	1.131478	1.157694	1.183288	1.208343	1.270855	1.327366
G4(4P,4F)	.7585124	.7777102	.7643283	.7835361	.8022278	.8204740	.8383346	.8838839	.9254822
G1(4P,5S)	.1034562	.1045588	.1008632	.1018938	.1029065	.1039051	.1048903	.1108051	.1165568
G0(4P,5P)	.0644790	.0650812	.0615249	.0620508	.0625606	.0630570	.0635412	.0683590	.0729630
G2(4P,5P)	.0838196	.0845061	.0795700	.0801674	.0807458	.0813085	.0818570	.0882298	.0943312
G1(4P,5D)	.0347498	.0340406						.0296952	.0366234
G3(4P,5D)	.0299273	.0293855						.0259139	.0323287
G1(4P,6S)	.0065313	.0065200	.0056478	.0056257	.0056047	.0055848	.0055658	.0065000	.0071519
G1(4D,4F)	1.443987	1.479260	1.462550	1.497972	1.532649	1.566686	1.600172	1.678440	1.749487
G3(4D,4F)	.9101003	.9330566	.9192653	.9422830	.9647988	.9868822	1.008593	1.062227	1.111602
G5(4D,4F)	.6444900	.6609275	.6502176	.6666906	.6827994	.6985942	.7141178	.7532881	.7895414
G2(4D,5S)	.1331308	.1337120	.1295752	.1301288	.1306938	.1312719	.1318614	.1374626	.1427463
G1(4D,5P)	.0969226	.0973975	.0924956	.0928976	.0932964	.0936940	.0940907	.1001940	.1059022
G3(4D,5P)	.0953335	.0957793	.0905404	.0909163	.0912851	.0916496	.0920104	.0983242	.1042586
G0(4D,5D)	.0310582	.0306551						.0277700	.0345045
G2(4D,5D)	.0371184	.0365717						.0328068	.0410065
G4(4D,5D)	.0305286	.0300602						.0268660	.0336998
G2(4D,6S)	.0079907	.0079429	.0069211	.0068655	.0068131	.0067636	.0067168	.0077525	.0084383
G3(4F,5S)	.2326719	.2322579	.2388075	.2383645	.2381056	.2380096	.2380554	.2332206	.2288164
G2(4F,5P)	.2071273	.2063275	.2135621	.2126027	.2118629	.2113134	.2109278	.2053408	.2006594
G4(4F,5P)	.1629914	.1625843	.1650377	.1645166	.1641291	.1638581	.1636877	.1624961	.1615661
G1(4F,5D)	.0842975	.0825171						.0733309	.0796382
G3(4F,5D)	.0694184	.0679888						.0601857	.0679412
G5(4F,5D)	.0531292	.0520293						.0459355	.0525236
G3(4F,6S)	.0112074	.0110931	.0103743	.0102361	.0101126	.0100016	.0099013	.0106759	.0110721
G1(5S,5P)	.8099019	.8226541	.8112854	.8233460	.8352395	.8469842	.8585928	.8957701	.9310741
G2(5S,5D)	.3063589	.3074508						.3057544	.3619235
G0(5S,6S)	.0153564	.0154556	.0141243	.0141858	.0142474	.0143091	.0143708	.0161132	.0172034
G1(5P,5D)	.4602096	.4623234						.4641797	.5361086
G3(5P,5D)	.2817101	.2826678						.2818177	.3271011
G1(5P,6S)	.0263661	.0265577	.0248711	.0250096	.0251502	.0252925	.0254362	.0278448	.0292020

TABLE V. TWO ELECTRON INTEGRALS G(K)

	GD	TB	DY	HO	ER	TM	YB	LU	HF
G2 (5D,6S)	.1154700	.1180193						.1355179	.1260596
	TA	W	RE	OS	IR	PT	AU	HG	TL
G0 (1S,2S)	2.853944	2.896979	2.940013	2.983047	3.026084	3.069112	3.112156	3.155214	3.198272
G1 (1S,2P)	6.405932	6.506260	6.606591	6.706926	6.807269	6.907639	7.008000	7.108365	7.208758
G0 (1S,3S)	.5710444	.5814416	.5918429	.6022491	.6126616	.6230562	.6334820	.6439412	.6544061
G1 (1S,3P)	1.264147	1.288518	1.312901	1.337301	1.361718	1.386125	1.410579	1.435086	1.459625
G2 (1S,3D)	.0757352	.0776793	.0796295	.0815858	.0835483	.0855186	.0874934	.0894741	.0914621
G0 (1S,4S)	.1319997	.1353312	.1387216	.1421617	.1456501	.1491520	.1527174	.1563459	.1599996
G1 (1S,4P)	.2772215	.2849475	.2928210	.3008234	.3089345	.3171538	.3254574	.3338446	.3423302
G2 (1S,4D)	.0171600	.0178567	.0185702	.0192990	.0200415	.0208017	.0215819	.0223582	.0231459
G3 (1S,4F)	.0000628	.0000691	.0000755	.0000822	.0000891	.0000962	.0001035	.0001110	.0001188
G0 (1S,5S)	.0200550	.0212525	.0224537	.0236571	.0248618	.0257543	.0269518	.0284796	.0300303
G1 (1S,5P)	.0349710	.0375320	.0401013	.0426784	.0452630	.0471420	.0497181	.0530588	.0566028
G2 (1S,5D)	.0009979	.0011740	.0013503	.0015278	.0017070	.0017619	.0019292	.0022396	.0025649
G0 (1S,6S)	.0013886	.0014859	.0015702	.0016438	.0017083	.0017838	.0014091	.0018581	.0024685
G1 (1S,6P)									.0025877
G1 (2S,2P)	12.29544	12.47033	12.64520	12.82007	12.99493	13.16977	13.34463	13.51950	13.69435
G0 (2S,3S)	.8259432	.8398743	.8538066	.8677414	.8816800	.8955939	.9095418	.9235252	.9375109
G1 (2S,3P)	.8630682	.8786750	.8942873	.9099066	.9255340	.9411531	.9567985	.9724711	.9881657
G2 (2S,3D)	3.325510	3.393919	3.462342	3.530784	3.599251	3.667761	3.736291	3.804839	3.873437
G0 (2S,4S)	.1619870	.1657554	.1695880	.1734732	.1774096	.1813574	.1853719	.1894520	.1935551
G1 (2S,4P)	.1697946	.1742302	.1787475	.1833352	.1879809	.1926843	.1974311	.2022207	.2070582
G2 (2S,4D)	.5360828	.5535288	.5712983	.5893358	.6075984	.6261886	.6451915	.6639086	.6827793
G3 (2S,4F)	.0376549	.0409922	.0444000	.0478777	.0514241	.0550200	.0586985	.0624592	.0662963
G0 (2S,5S)	.0238176	.0251791	.0265393	.0278969	.0292507	.0302352	.0315719	.0332878	.0350243
G1 (2S,5P)	.0210131	.0225046	.0239957	.0254863	.0269765	.0280428	.0295194	.0314439	.0334819
G2 (2S,5D)	.0297345	.0346473	.0394790	.0442631	.0490142	.0501586	.0544436	.0626612	.0711620
G0 (2S,6S)	.0016417	.0017521	.0018467	.0019284	.0019991	.0016161	.0016418	.0021590	.0028609
G1 (2S,6P)									.0015260
G1 (2P,3S)	1.035155	1.052701	1.070249	1.087800	1.105355	1.122879	1.140446	1.158057	1.175674
G0 (2P,3P)	1.063797	1.082371	1.100944	1.119520	1.138099	1.156659	1.175247	1.193863	1.212498
G2 (2P,3P)	1.172416	1.193406	1.214398	1.235396	1.256399	1.277383	1.298403	1.319458	1.340536
G1 (2P,3D)	3.412403	3.481990	3.551594	3.621221	3.690878	3.760579	3.830310	3.900061	3.969866
G3 (2P,3D)	1.968735	2.009155	2.049588	2.090037	2.130505	2.171002	2.211518	2.252048	2.292612
G1 (2P,4S)	.2135161	.2185419	.2236540	.2288374	.2340899	.2393586	.2447177	.2501656	.2556444
G0 (2P,4P)	.1986846	.2037076	.2088215	.2140130	.2192675	.2245860	.2299492	.2353561	.2408182
G2 (2P,4P)	.2344096	.2405102	.2467233	.2530329	.2594221	.2658905	.2724181	.2790035	.2856591
G1 (2P,4D)	.5719712	.5908317	.6100531	.6295764	.6493554	.6695011	.6901039	.7104131	.7308982
G3 (2P,4D)	.3393552	.3506760	.3622169	.3739429	.3858266	.3979340	.4103191	.4225346	.4348630
G2 (2P,4F)	.0297944	.0324025	.0350624	.0377735	.0405350	.0433317	.0461901	.0491099	.0520867
G4 (2P,4F)	.0192247	.0209106	.0226303	.0243834	.0261695	.0279787	.0298281	.0317175	.0336435
G1 (2P,5S)	.0317055	.0335315	.0353571	.0371804	.0390000	.0403274	.0421263	.0444330	.0467688
G0 (2P,5P)	.0243283	.0260297	.0277279	.0294229	.0311148	.0323171	.0339892	.0361729	.0384839
G2 (2P,5P)	.0290715	.0311340	.0331960	.0352572	.0373178	.0387923	.0408341	.0434953	.0463139
G1 (2P,5D)	.0319080	.0372052	.0424223	.0475951	.0527390	.0540047	.0586584	.0675582	.0767753
G3 (2P,5D)	.0190074	.0221748	.0252974	.0283966	.0314815	.0322523	.0350491	.0403868	.0459193
G1 (2P,6S)	.0021884	.0023367	.0024640	.0025741	.0026697	.0021588	.0021940	.0028871	.0038275
G0 (2P,6P)									.0017513
G2 (2P,6P)									.0021117
G1 (3S,3P)	5.307934	5.390341	5.472747	5.555158	5.637579	5.719949	5.802394	5.884912	5.967442
G2 (3S,3D)	3.283088	3.329029	3.374946	3.420839	3.466712	3.512514	3.558347	3.604216	3.650058
G0 (3S,4S)	.3001096	.3065159	.3130158	.3195896	.3262349	.3328898	.3396384	.3464782	.3533432
G1 (3S,4P)	.3237511	.3310563	.3384816	.3460056	.3536067	.3612872	.3690165	.3767935	.3846363
G2 (3S,4D)	.2803805	.2905988	.3010608	.3117360	.3226005	.3337225	.3451168	.3564111	.3678574
G3 (3S,4F)	.6410971	.6862429	.7312316	.7760913	.8208418	.8652605	.9098191	.9545176	.9992954
G0 (3S,5S)	.0381872	.0402329	.0422622	.0442741	.0462678	.0476785	.0496257	.0521445	.0546814
G1 (3S,5P)	.0358943	.0382430	.0405676	.0428707	.0451527	.0467176	.0489442	.0518845	.0549848
G2 (3S,5D)	.0157312	.0184014	.0210484	.0236893	.0263317	.0270316	.0294782	.0340492	.0388054
G0 (3S,6S)	.0025850	.0027471	.0028833	.0029984	.0030959	.0024955	.0025256	.0033054	.0043590
G1 (3S,6P)									.0024678
G1 (3P,3D)	4.574117	4.642381	4.710620	4.778838	4.847037	4.915178	4.983342	5.051532	5.119723
G3 (3P,3D)	3.039748	3.087060	3.134362	3.181659	3.228952	3.276212	3.323499	3.370814	3.418142
G1 (3P,4S)	.3961373	.4045755	.4131422	.4218109	.4305780	.4393633	.4482739	.4573058	.4663749
G0 (3P,4P)	.3213479	.3288456	.3364602	.3441719	.3519594	.3598240	.3677384	.3757018	.3837306
G2 (3P,4P)	.3851963	.3941870	.4033261	.4125884	.4219476	.4314045	.4409262	.4505112	.4601781

TABLE V. TWO ELECTRON INTEGRALS G(K)

	TA	M	RE	OS	IR	PT	AU	HG	TL
G1(3P,4D)	.2631066	.2717573	.2805945	.2895902	.2987233	.3080509	.3175970	.3270247	.3365511
G3(3P,4D)	.2727257	.2813838	.2902147	.2991893	.3082858	.3175592	.3270418	.3363867	.3458151
G2(3P,4F)	.7444172	.7962049	.8477704	.8991512	.9503754	1.001181	1.052135	1.103239	1.154407
G4(3P,4F)	.4930080	.5275344	.5619394	.5962464	.6304730	.6644434	.6985336	.7327454	.7670205
G1(3P,5S)	.0522560	.0550738	.0578720	.0606485	.0634024	.0653562	.0680492	.0715319	.0750418
G0(3P,5P)	.0346234	.0369096	.0391751	.0414208	.0436481	.0451867	.0473636	.0502289	.0532499
G2(3P,5P)	.0437581	.0466727	.0495645	.0524342	.0552831	.0572554	.0600439	.0637148	.0675888
G1(3P,5D)	.0142739	.0166284	.0189453	.0212413	.0235242	.0240848	.0261523	.0301054	.0341976
G3(3P,5D)	.0148645	.0172959	.0196823	.0220410	.0243800	.0249293	.0270362	.0310857	.0352691
G1(3P,6S)	.0035538	.0037787	.0039684	.0041291	.0042656	.0034382	.0034814	.0045614	.0060199
G0(3P,6P)									.0023814
G2(3P,6P)									.0030433
G2(3D,4S)	.3543324	.3614335	.3686523	.3759646	.3833670	.3907838	.3983175	.4059647	.4136449
G1(3D,4P)	.3580664	.3661029	.3742717	.3825501	.3909140	.3993661	.4078725	.4164321	.4250634
G3(3D,4P)	.3552529	.3633444	.3715747	.3799208	.3883580	.3968850	.4054753	.4141281	.4228590
G0(3D,4D)	.3439837	.3536627	.3634889	.3734298	.3834610	.3936418	.4040279	.4142087	.4244427
G2(3D,4D)	.4263957	.4389649	.4517466	.4646985	.4777881	.4910897	.5046754	.5180188	.5314500
G4(3D,4D)	.3331063	.3430966	.3532625	.3635705	.3739945	.3845929	.3954227	.4060677	.4167885
G1(3D,4F)	.7645733	.8166008	.8683359	.9198281	.9711142	1.021911	1.072850	1.123944	1.175092
G3(3D,4F)	.4495150	.4803581	.5110568	.5416385	.5721233	.6023421	.6326662	.6631032	.6935930
G5(3D,4F)	.3108998	.3323027	.3536137	.3748512	.3960288	.4170288	.4381080	.4592716	.4804779
G2(3D,5S)	.0481529	.0507170	.0532624	.0557876	.0582915	.0600563	.0625038	.0656794	.0688792
G1(3D,5P)	.0399347	.0425579	.0451571	.0477334	.0502881	.0520456	.0545415	.0578340	.0613067
G3(3D,5P)	.0411348	.0438719	.0465885	.0492855	.0519639	.0538176	.0564412	.0598972	.0635462
G0(3D,5D)	.0172272	.0199291	.0225493	.0251102	.0276222	.0280984	.0302964	.0346441	.0390954
G2(3D,5D)	.0224848	.0260812	.0295884	.0330338	.0364304	.0371438	.0401575	.0460377	.0520839
G4(3D,5D)	.0178827	.0207650	.0235817	.0263544	.0290930	.0296894	.0321316	.0368735	.0417573
G2(3D,6S)	.0032873	.0034939	.0036678	.0038150	.0039398	.0031737	.0032127	.0042095	.0055557
G1(3D,6P)									.0027546
G3(3D,6P)									.0028695
G1(4S,4P)	2.442204	2.488329	2.534765	2.581435	2.628292	2.675256	2.722374	2.769654	2.817046
G2(4S,4D)	1.749308	1.785379	1.821486	1.857553	1.893543	1.929490	1.965711	2.001342	2.036853
G3(4S,4F)	1.134232	1.175510	1.214109	1.250422	1.284773	1.317095	1.348268	1.378404	1.407425
G0(4S,5S)	.0883357	.0924069	.0963987	.1003142	.1041630	.1067865	.1105013	.1153551	.1202090
G1(4S,5P)	.0945982	.0997836	.1048236	.1097338	.1145287	.1175698	.1221460	.1283325	.1348050
G2(4S,5D)	.0397463	.0449080	.0496978	.0541997	.0584676	.0585225	.0620078	.0696428	.0772600
G0(4S,6S)	.0054492	.0057316	.0059578	.0061392	.0062846	.0050485	.0050710	.0065591	.0085483
G1(4S,6P)									.0056180
G1(4P,4D)	2.262438	2.309536	2.356780	2.404084	2.451380	2.498761	2.546492	2.593591	2.640670
G3(4P,4D)	1.426706	1.457702	1.488837	1.520044	1.551271	1.582594	1.614193	1.645331	1.676475
G2(4P,4F)	1.379243	1.427362	1.472366	1.514746	1.554891	1.592766	1.629357	1.664784	1.699005
G4(4P,4F)	.9640177	1.000059	1.034022	1.066227	1.096927	1.126075	1.154367	1.181883	1.208594
G1(4P,5S)	.1221793	.1276795	.1330641	.1383414	.1435208	.1469866	.1519746	.1585482	.1651126
G0(4P,5P)	.0774274	.0817762	.0860244	.0901840	.0942636	.0969418	.1008727	.1061215	.1116208
G2(4P,5P)	.1002514	.1060180	.1116474	.1171535	.1225498	.1260545	.1312306	.1381723	.1454446
G1(4P,5D)	.0426565	.0481329	.0532042	.0579623	.0624642	.0624926	.0661199	.0741610	.0822612
G3(4P,5D)	.0380610	.0433833	.0484127	.0532172	.0578382	.0582723	.0622302	.0703685	.0785670
G1(4P,6S)	.0076522	.0080477	.0083640	.0086176	.0088205	.0070778	.0071081	.0092015	.0119974
G0(4P,6P)									.0045602
G2(4P,6P)									.0061608
G1(4D,4F)	1.815207	1.876765	1.934979	1.990448	2.043632	2.094534	2.144423	2.193000	2.240417
G3(4D,4F)	1.157800	1.201487	1.243137	1.283098	1.321641	1.358747	1.395358	1.431032	1.465994
G5(4D,4F)	.8236113	.8559499	.8868780	.9166336	.9454016	.9731623	1.000619	1.027388	1.053665
G2(4D,5S)	.1478074	.1526866	.1574118	.1620065	.1664887	.1689894	.1729784	.1790469	.1850905
G1(4D,5P)	.1113575	.1166164	.1217127	.1266727	.1315163	.1343817	.1387476	.1451798	.1519409
G3(4D,5P)	.1099439	.1154291	.1207442	.1259128	.1309535	.1339632	.1385497	.1451897	.1521642
G0(4D,5D)	.0404985	.0460525	.0512960	.0563045	.0611226	.0616097	.0655284	.0739379	.0823834
G2(4D,5D)	.0483651	.0552230	.0617250	.0679544	.0739607	.0746230	.0797222	.0902210	.1008043
G4(4D,5D)	.0398720	.0456541	.0511600	.0564545	.0615754	.0622164	.0666404	.0755831	.0846270
G2(4D,6S)	.0089394	.0093160	.0096014	.0098165	.0099763	.0079590	.0079416	.0102149	.0132397
G1(4D,6P)									.0062175
G3(4D,6P)									.0064131
G3(4F,5S)	.2250526	.2219401	.2194339	.2174732	.2159962	.2130517	.2123924	.2139367	.2157195
G2(4F,5P)	.1969342	.1940643	.1919302	.1904230	.1894493	.1868456	.1867292	.1890144	.1919333
G4(4F,5P)	.1610510	.1609430	.1612002	.1617763	.1626284	.1617602	.1630606	.1664929	.1704265
G1(4F,5D)	.0841547	.0879271	.0913506	.0946056	.0977781	.0949951	.0981187	.1068455	.1154205
G3(4F,5D)	.0740497	.0793620	.0842214	.0886797	.0931884	.0914857	.0955378	.1053130	.1149914
G5(4F,5D)	.0578414	.0625274	.0668430	.0709210	.0748336	.0737461	.0773365	.0856483	.0939149

TABLE V. TWO ELECTRON INTEGRALS G(K)

	TA	W	RE	OS	IR	PT	AU	HG	TL
G3(4F,6S)	.0112898	.0113966	.0114288	.0114085	.0113510	.0089247	.0087535	.0110433	.0140685
G2(4F,6P)									.0071775
G4(4F,6P)									.0067442
G1(5S,5P)	.9652252	.9984942	1.031040	1.062970	1.094369	1.117944	1.148439	1.185983	1.224373
G2(5S,5D)	.4091211	.4511747	.4897837	.5258900	.5600682	.5663719	.5990778	.6547418	.7080019
G0(5S,6S)	.0179730	.0185383	.0189600	.0192743	.0195060	.0160127	.0159478	.0198526	.0249807
G1(5S,6P)									.0208346
G1(5P,5D)	.5950872	.6468909	.6940344	.7378834	.7792566	.7865807	.8262037	.8934827	.9568602
G3(5P,5D)	.3643824	.3971935	.4270817	.4548926	.4811356	.4847148	.5098424	.5536373	.5952530
G1(5P,6S)	.0300669	.0306318	.0309947	.0312124	.0313229	.0254156	.0251480	.0312241	.0388122
G0(5P,6P)									.0147295
G2(5P,6P)									.0196396
G2(5D,6S)	.1187008	.1125967	.1073546	.1027455	.0986297	.0869669	.0827399	.0884023	.0967666
G1(5D,6P)									.0431006
G3(5D,6P)									.0364407
G1(6S,6P)									.3257957
	PB	BI	PO	AT	RN	FR	RA	AC	TH
G0(1S,2S)	3.241338	3.284412	3.327492	3.370576	3.413671	3.456777	3.499896	3.543018	3.586147
G1(1S,2P)	7.309167	7.409595	7.510044	7.610506	7.710996	7.811503	7.912030	8.012578	8.113145
G0(1S,3S)	.6648850	.6753782	.6858852	.6964060	.7069412	.7174951	.7280660	.7386417	.7492289
G1(1S,3P)	1.484211	1.508836	1.533500	1.558203	1.582949	1.607724	1.632535	1.657367	1.682228
G2(1S,3D)	.0934556	.0954556	.0974618	.0994742	.1014929	.1035181	.1055497	.1075875	.1096312
G0(1S,4S)	.1636873	.1674071	.1711568	.1749346	.1787387	.1825760	.1864416	.1903201	.1942175
G1(1S,4P)	.3509060	.3595652	.3683025	.3771130	.3859908	.3949277	.4039240	.4129693	.4220637
G2(1S,4D)	.0239440	.0247523	.0255703	.0263978	.0272342	.0280804	.0289356	.0298004	.0306735
G3(1S,4F)	.0001268	.0001351	.0001435	.0001522	.0001611	.0001702	.0001796	.0001891	.0001989
G0(1S,5S)	.0316360	.0332860	.0349718	.0366873	.0384282	.0402075	.0420166	.0438236	.0456444
G1(1S,5P)	.0602903	.0640828	.0679574	.0718973	.0759909	.0800548	.0841703	.0883286	.0925232
G2(1S,5D)	.0028931	.0032249	.0035608	.0039012	.0042462	.0046037	.0049690	.0053444	.0057250
G0(1S,6S)	.0030352	.0035849	.0041267	.0046653	.0052033	.0060704	.0069780	.0077268	.0084475
G1(1S,6P)	.0036719	.0047507	.0058349	.0069291	.0079351	.0090815	.0118141	.0133713	.0148672
G2(1S,6D)								.0004185	.0005232
G0(1S,7S)						.0003329	.0005619	.0006646	.0007517
G1(2S,2P)	13.86922	14.04408	14.21895	14.39382	14.56871	14.74360	14.91851	15.09342	15.26834
G0(2S,3S)	.9515093	.9655204	.9795446	.9935814	1.007632	1.021701	1.035788	1.049877	1.063977
G1(2S,3P)	1.003880	1.019618	1.035375	1.051152	1.066952	1.082765	1.098597	1.114439	1.130296
G2(2S,3D)	3.942088	4.010795	4.079555	4.148367	4.217241	4.286174	4.355170	4.424227	4.493341
G0(2S,4S)	.1976911	.2018575	.2060521	.2102725	.2145169	.2187927	.2230945	.2274054	.2317321
G1(2S,4P)	.2119465	.2168776	.2218480	.2268549	.2318952	.2369651	.2420614	.2471802	.2523215
G2(2S,4D)	.7017828	.7209084	.7401476	.7594904	.7789290	.7984785	.8181242	.8378837	.8577228
G3(2S,4F)	.0702080	.0741931	.0782487	.0823730	.0865640	.0908240	.0951513	.0995398	.1039880
G0(2S,5S)	.0368181	.0386567	.0405302	.0424314	.0443553	.0463164	.0483049	.0502853	.0522752
G1(2S,5P)	.0355984	.0377701	.0399835	.0422287	.0445574	.0468622	.0491908	.0515382	.0539006
G2(2S,5D)	.0796045	.0880178	.0964187	.1048166	.1132172	.1218320	.1305358	.1393867	.1482566
G0(2S,6S)	.0035089	.0041341	.0047474	.0053542	.0059577	.0069340	.0079519	.0087851	.0095829
G1(2S,6P)	.0021608	.0027899	.0034197	.0040529	.0046330	.0057582	.0068712	.0077623	.0086150
G2(2S,6D)								.0107988	.0133909
G0(2S,7S)						.0003799	.0006394	.0007545	.0008513
G1(2P,3S)	1.193307	1.210956	1.228622	1.246304	1.264006	1.281728	1.299473	1.317222	1.334985
G0(2P,3P)	1.231151	1.249824	1.268517	1.287228	1.305962	1.324708	1.343471	1.362241	1.381023
G2(2P,3P)	1.361639	1.382767	1.403920	1.425096	1.446302	1.467522	1.488767	1.510021	1.531292
G1(2P,3D)	4.039724	4.109639	4.179612	4.249641	4.319741	4.389898	4.460130	4.530429	4.600790
G3(2P,3D)	2.333210	2.373844	2.414514	2.455218	2.495964	2.536751	2.577580	2.618451	2.659359
G1(2P,4S)	.2611698	.2667371	.2723435	.2779857	.2836587	.2893809	.2951359	.3009043	.3066952
G0(2P,4P)	.2463286	.2518831	.2574783	.2631108	.2687766	.2744710	.2801935	.2859382	.2917048
G2(2P,4P)	.2923781	.2991548	.3059850	.3128647	.3197876	.3267524	.3337538	.3407856	.3478480
G1(2P,4D)	.7515428	.7723325	.7932581	.8143084	.8354655	.8567770	.8781944	.8997479	.9214006
G3(2P,4D)	.4472888	.4598062	.4724097	.4850926	.4978695	.5106914	.5236082	.5366109	.5496774
G2(2P,4F)	.0551183	.0582040	.0613421	.0645309	.0677713	.0710579	.0743970	.0777812	.0812091
G4(2P,4F)	.0356059	.0376035	.0396353	.0417003	.0437979	.0459279	.0480910	.0502835	.0525046
G1(2P,5S)	.0491828	.0516583	.0541820	.0567446	.0593387	.0619852	.0646698	.0673448	.0700342
G0(2P,5P)	.0408806	.0433369	.0458372	.0483699	.0509944	.0535879	.0562050	.0588403	.0614894
G2(2P,5P)	.0492403	.0522430	.0553033	.0584072	.0616263	.0648128	.0680318	.0712768	.0745426
G1(2P,5D)	.0859418	.0950886	.1042337	.1133869	.1225535	.1319654	.1414842	.1511742	.1608962
G3(2P,5D)	.0514265	.0569266	.0624304	.0679437	.0734699	.0791466	.0848925	.0907455	.0966221

TABLE V. TWO ELECTRON INTEGRALS G(K)

	PB	BI	PO	AT	RN	FR	RA	AC	TH
G1(2P,6S)	.0046967	.0055362	.0063605	.0071769	.0079894	.0093031	.0106739	.0117977	.0128749
G0(2P,6P)	.0024774	.0031954	.0039128	.0046328	.0052893	.0065674	.0078293	.0088365	.0097983
G2(2P,6P)	.0029902	.0038607	.0047322	.0056086	.0064105	.0079674	.0095076	.0107407	.0119207
G1(2P,6D)								.0117289	.0145554
G3(2P,6D)								.0070470	.0087497
G1(2P,7S)						.0005098	.0008587	.0010137	.0011443
G1(3S,3P)	6.050006	6.132603	6.215234	6.297897	6.380599	6.463347	6.546138	6.628947	6.711785
G2(3S,3D)	3.695893	3.741721	3.787542	3.833354	3.879166	3.924982	3.970799	4.016597	4.062387
G0(3S,4S)	.3602484	.3671905	.3741659	.3811712	.3882037	.3952759	.4023794	.4094887	.4166138
G1(3S,4P)	.3925338	.4004811	.4084714	.4165010	.4245648	.4326549	.4407717	.4489067	.4570608
G2(3S,4D)	.3794366	.3911435	.4029710	.4149132	.4269648	.4391297	.4513996	.4637888	.4762751
G3(3S,4F)	1.044156	1.089081	1.134053	1.179063	1.224098	1.269199	1.314348	1.359511	1.404674
G0(3S,5S)	.0572910	.0599536	.0626541	.0653817	.0681287	.0709161	.0737296	.0765185	.0793088
G1(3S,5P)	.0581850	.0614458	.0647493	.0680778	.0715139	.0748871	.0782737	.0816685	.0850633
G2(3S,5D)	.0435600	.0483273	.0531171	.0579330	.0627775	.0677668	.0728315	.0780053	.0832147
G0(3S,6S)	.0053214	.0062410	.0071349	.0080118	.0088768	.0102854	.0117429	.0129181	.0140330
G1(3S,6P)	.0034731	.0044574	.0054318	.0064012	.0072776	.0089940	.0106730	.0119929	.0132411
G2(3S,6D)								.0060443	.0075170
G0(3S,7S)						.0005612	.0009396	.0011034	.0012393
G1(3P,3D)	5.187921	5.256125	5.324335	5.392549	5.460778	5.529004	5.597233	5.665449	5.733664
G3(3P,3D)	3.465486	3.512846	3.560221	3.607611	3.655023	3.702443	3.749877	3.797312	3.844755
G1(3P,4S)	.4754998	.4846762	.4938989	.5031634	.5124667	.5218229	.5312215	.5406299	.5500606
G0(3P,4P)	.3918146	.3999483	.4081273	.4163468	.4246031	.4328864	.4411989	.4495312	.4578838
G2(3P,4P)	.4699146	.4797142	.4895703	.4994776	.5094301	.5194178	.5294427	.5394931	.5495693
G1(3P,4D)	.3461637	.3558589	.3656312	.3754762	.3853901	.3953811	.4054419	.4155830	.4257860
G3(3P,4D)	.3553146	.3648816	.3745105	.3841970	.3939365	.4037385	.4135952	.4235160	.4334835
G2(3P,4F)	1.205653	1.256958	1.308305	1.359685	1.411084	1.462562	1.514097	1.565646	1.617193
G4(3P,4F)	.8013669	.8357726	.8702250	.9047171	.9392391	.9738318	1.008479	1.043151	1.077838
G1(3P,5S)	.0786546	.0823437	.0860876	.0898717	.0936842	.0975571	.1014692	.1053498	.1092350
G0(3P,5P)	.0563682	.0595478	.0627675	.0660121	.0693617	.0726517	.0759557	.0792681	.0825829
G2(3P,5P)	.0715922	.0756792	.0798223	.0840022	.0883203	.0925673	.0968366	.1011201	.1054103
G1(3P,5D)	.0382654	.0423235	.0463797	.0504391	.0545026	.0586768	.0628994	.0671993	.0715147
G3(3P,5D)	.0394177	.0435464	.0476642	.0517762	.0558852	.0600967	.0643487	.0686702	.0729986
G1(3P,6S)	.0073543	.0086312	.0098742	.0110953	.0123011	.0142633	.0162964	.0179397	.0195011
G0(3P,6P)	.0033517	.0043019	.0052425	.0061783	.0070211	.0086767	.0102963	.0115698	.0127744
G2(3P,6P)	.0042885	.0055108	.0067235	.0079326	.0090284	.0111705	.0132708	.0149281	.0164993
G1(3P,6D)								.0051838	.0064296
G3(3P,6D)								.0052983	.0065640
G1(3P,7S)						.0007789	.0013056	.0015345	.0017248
G2(3D,4S)	.4213754	.4291521	.4369707	.4448265	.4527167	.4606552	.4686321	.4766170	.4846217
G1(3D,4P)	.4337547	.4424996	.4512929	.4601294	.4690038	.4779068	.4868405	.4957955	.5047714
G3(3D,4P)	.4316563	.4405135	.4494252	.4583856	.4673895	.4764268	.4854999	.4945972	.5037192
G0(3D,4D)	.4347170	.4450277	.4553705	.4657409	.4761356	.4865628	.4970160	.5075052	.5180128
G2(3D,4D)	.5449519	.5585188	.5721447	.5858229	.5995489	.6133329	.6271662	.6410599	.6549915
G4(3D,4D)	.4275716	.4384121	.4493053	.4602457	.4712294	.4822644	.4933440	.5044762	.5156634
G1(3D,4F)	1.226315	1.277597	1.328926	1.380294	1.431691	1.483176	1.534730	1.586300	1.637881
G3(3D,4F)	.7241469	.7547551	.7854090	.8161032	.8468321	.8776289	.9084830	.9393614	.9702602
G5(3D,4F)	.5017343	.5230342	.5443711	.5657411	.5871403	.6085914	.6300870	.6516041	.6731395
G2(3D,5S)	.0721735	.0755378	.0789528	.0824047	.0858841	.0894186	.0929896	.0965313	.1000774
G1(3D,5P)	.0648926	.0685501	.0722545	.0759885	.0798443	.0836317	.0874360	.0912503	.0950677
G3(3D,5P)	.0673190	.0711722	.0750805	.0790256	.0831036	.0871158	.0911511	.0952014	.0992601
G0(3D,5D)	.0434643	.0477697	.0520237	.0562338	.0604054	.0646512	.0689057	.0731999	.0774688
G2(3D,5D)	.0580471	.0639512	.0698107	.0756344	.0814283	.0873445	.0932940	.0993185	.1053285
G4(3D,5D)	.0465833	.0513701	.0561290	.0608665	.0655874	.0704140	.0752745	.0802027	.0851256
G2(3D,6S)	.0067874	.0079663	.0091142	.0102420	.0113561	.0131696	.0150496	.0165701	.0180153
G1(3D,6P)	.0038783	.0049795	.0060704	.0071565	.0081379	.0100610	.0119438	.0134258	.0148288
G3(3D,6P)	.0040453	.0052005	.0063476	.0074922	.0085306	.0105596	.0125508	.0141245	.0156180
G0(3D,6D)								.0055656	.0068563
G2(3D,6D)								.0076204	.0094143
G4(3D,6D)								.0061748	.0076369
G2(3D,7S)						.0007198	.0012071	.0014192	.0015956
G1(4S,4P)	2.864557	2.912176	2.959892	3.007689	3.055559	3.103522	3.151563	3.199627	3.247729
G2(4S,4D)	2.072254	2.107547	2.142730	2.177803	2.212766	2.247657	2.282464	2.317158	2.351745
G3(4S,4F)	1.435465	1.462607	1.488930	1.514505	1.539398	1.563701	1.587454	1.610670	1.633404
G0(4S,5S)	.1251678	.1301918	.1352510	.1403257	.1454031	.1505223	.1556894	.1607257	.1657706
G1(4S,5P)	.1414151	.1480776	.1547465	.1613912	.1682001	.1747988	.1813621	.1878870	.1943605
G2(4S,5D)	.0845202	.0914929	.0982276	.1047612	.1111228	.1175245	.1238594	.1301906	.1364173
G0(4S,6S)	.0103190	.0119731	.0135487	.0150663	.0165383	.0189724	.0214505	.0233856	.0251879

TABLE V. TWO ELECTRON INTEGRALS G(K)

	PB	BI	PO	AT	RN	FR	RA	AC	TH
G1(4S,6P)	.0077934	.0098660	.0118670	.0138120	.0155112	.0189329	.0221999	.0246691	.0269506
G2(4S,6D)								.0093170	.0113275
G0(4S,7S)						.0010181	.0016828	.0019548	.0021734
G1(4P,4D)	2.687712	2.734713	2.781668	2.828571	2.875417	2.922219	2.968973	3.015662	3.062282
G3(4P,4D)	1.707611	1.738733	1.769838	1.800919	1.831974	1.863011	1.894028	1.925014	1.955961
G2(4P,4F)	1.732159	1.764343	1.795646	1.826151	1.855930	1.885063	1.913603	1.941579	1.969046
G4(4P,4F)	1.234591	1.259936	1.284687	1.308897	1.332612	1.355889	1.378763	1.401249	1.423382
G1(4P,5S)	.1718188	.1786128	.1854532	.1923135	.1991765	.2060985	.2130436	.2198920	.2267093
G0(4P,5P)	.1172467	.1229301	.1286336	.1343318	.1401796	.1458669	.1515378	.1571914	.1628155
G2(4P,5P)	.1528874	.1604080	.1679545	.1754921	.1832275	.1907475	.1982427	.2057088	.2131305
G1(4P,5D)	.0897598	.0970320	.1040312	.1107968	.1173600	.1239430	.1304333	.1368965	.1432281
G3(4P,5D)	.0864675	.0941275	.1015860	.1088713	.1160056	.1232076	.1303593	.1375240	.1445885
G1(4P,6S)	.0144881	.0168161	.0190346	.0211720	.0232461	.0266812	.0301832	.0329227	.0354770
G0(4P,6P)	.0063262	.0080099	.0096369	.0112200	.0126040	.0153887	.0180509	.0200690	.0219382
G2(4P,6P)	.0085734	.0108860	.0131313	.0153251	.0172573	.0211206	.0248296	.0276582	.0302857
G1(4P,6D)								.0096135	.0116510
G3(4P,6D)								.0099911	.0121919
G1(4P,7S)						.0014360	.0023776	.0027644	.0030761
G1(4D,4F)	2.286818	2.332300	2.376952	2.420854	2.464077	2.506722	2.548830	2.590446	2.631603
G3(4D,4F)	1.500330	1.534096	1.567343	1.600120	1.632466	1.664456	1.696110	1.727453	1.758500
G5(4D,4F)	1.079510	1.104960	1.130049	1.154811	1.179273	1.203490	1.227474	1.251243	1.274804
G2(4D,5S)	.1912837	.1975666	.2038945	.2102396	.2165840	.2229872	.2294125	.2357223	.2419978
G1(4D,5P)	.1588635	.1658538	.1728620	.1798549	.1870414	.1940040	.2009389	.2078407	.2146991
G3(4D,5P)	.1593056	.1665176	.1737483	.1809630	.1883749	.1955552	.2027047	.2098132	.2168729
G0(4D,5D)	.0904962	.0983421	.1059661	.1134008	.1206715	.1280025	.1352742	.1425524	.1497232
G2(4D,5D)	.1110113	.1209137	.1305605	.1399867	.1492197	.1585372	.1677883	.1770514	.1861829
G4(4D,5D)	.0933809	.1019005	.1102238	.1183769	.1263806	.1344704	.1425163	.1505836	.1585482
G2(4D,6S)	.0159021	.0183663	.0206954	.0229239	.0250731	.0286761	.0323337	.0351613	.0377823
G1(4D,6P)	.0085962	.0108517	.0130217	.0151259	.0169572	.0206655	.0242001	.0268636	.0293233
G3(4D,6P)	.0088938	.0112584	.0135435	.0157678	.0177174	.0216404	.0253947	.0282407	.0308768
G0(4D,6D)								.0098657	.0119888
G2(4D,6D)								.0127298	.0155230
G4(4D,6D)								.0110237	.0134753
G2(4D,7S)						.0015427	.0025468	.0029327	.0032770
G3(4F,5S)	.2178888	.2203625	.2230770	.2259882	.2290633	.2323432	.2357778	.2392337	.2427743
G2(4F,5P)	.1952310	.1987835	.2025215	.2063967	.2106234	.2147284	.2189183	.2231875	.2275128
G4(4F,5P)	.1746456	.1790423	.1835575	.1881513	.1930301	.1977558	.2025254	.2073341	.2121642
G1(4F,5D)	.1234045	.1309634	.1382045	.1451992	.1519980	.1588818	.1657052	.1725544	.1792936
G3(4F,5D)	.1241052	.1327960	.1411581	.1492561	.1571372	.1650976	.1729844	.1808891	.1886661
G5(4F,5D)	.1017446	.1092445	.1164862	.1235190	.1303790	.1373131	.1441928	.1510937	.1578923
G3(4F,6S)	.0166406	.0189585	.0211031	.0231203	.0250393	.0283779	.0317355	.0342583	.0365686
G2(4F,6P)	.0097117	.0120320	.0142027	.0162604	.0179920	.0216702	.0251123	.0276189	.0298979
G4(4F,6P)	.0091925	.0114623	.0136079	.0156593	.0174127	.0210691	.0245185	.0270659	.0293979
G1(4F,6D)								.0117090	.0141142
G3(4F,6D)								.0127945	.0154992
G5(4F,6D)								.0108916	.0132298
G3(4F,7S)						.0015223	.0024929	.0028702	.0031659
G1(5S,5P)	1.262847	1.301110	1.339040	1.376582	1.414476	1.451479	1.488232	1.524770	1.561008
G2(5S,5D)	.7566468	.8018592	.8444141	.8848457	.9235353	.9618454	.9991553	1.035872	1.071507
G0(5S,6S)	.0292640	.0330794	.0365820	.0398592	.0429661	.0482521	.0534722	.0573335	.0608487
G1(5S,6P)	.0275374	.0334364	.0387761	.0437009	.0475603	.0562502	.0640957	.0695187	.0743276
G2(5S,6D)								.0393322	.0457361
G0(5S,7S)						.0023645	.0037761	.0042856	.0046711
G1(5P,5D)	1.014471	1.067987	1.118434	1.166488	1.212603	1.258465	1.303274	1.347387	1.390344
G3(5P,5D)	.6332061	.6685052	.7017842	.7334692	.7639739	.7942268	.8237824	.8529057	.8812440
G1(5P,6S)	.0450065	.0504388	.0553697	.0599474	.0639428	.0714302	.0787907	.0841054	.0889063
G0(5P,6P)	.0194623	.0236630	.0275050	.0310879	.0338798	.0401287	.0458050	.0498128	.0534146
G2(5P,6P)	.0262313	.0321403	.0375726	.0426480	.0468016	.0557244	.0638790	.0696602	.0748466
G1(5P,6D)								.0408153	.0471879
G3(5P,6D)								.0329711	.0386718
G1(5P,7S)						.0035105	.0055916	.0063277	.0068796
G2(5D,6S)	.1021980	.1064222	.1100214	.1132577	.1162682	.1240381	.1313312	.1354007	.1388710
G1(5D,6P)	.0505880	.0564013	.0613147	.0656729	.0696792	.0788090	.0865141	.0911588	.0951826
G3(5D,6P)	.0443073	.0507378	.0563344	.0613804	.0659230	.0757992	.0843648	.0898382	.0946198
G0(5D,6D)								.0270378	.0316286
G2(5D,6D)								.0356438	.0419338
G4(5D,6D)								.0304821	.0360613
G2(5D,7S)						.0054380	.0082935	.0091162	.0096752

TABLE V. TWO ELECTRON INTEGRALS G(K)

	PB	BI	PO	AT	RN	FR	RA	AC	TH
G1 (6S,6P)	.3741206	.4145270	.4504382	.4833882	.5145366	.5646337	.6077994	.6404493	.6705532
G2 (6S,6D)								.2362998	.2716937
G0 (6S,7S)						.0087710	.0126069	.0137771	.0146167
G1 (6P,6D)								.3693247	.4143082
G3 (6P,6D)								.2309622	.2597970
G1 (6P,7S)						.0162906	.0228350	.0243665	.0253752
G2 (6D,7S)								.1020935	.0972329
	PA	U	NP	PU	AM	CM	BK	CF	ES
G0 (1S,2S)	3.629422	3.672647	3.715888	3.759195	3.802460	3.845682	3.888970	3.932325	3.975635
G1 (1S,2P)	8.214066	8.314869	8.415713	8.516718	8.617622	8.718417	8.819376	8.920507	9.021521
G0 (1S,3S)	.7598169	.7704168	.7810251	.7916359	.8022585	.8128938	.8235309	.8341698	.8448207
G1 (1S,3P)	1.707120	1.732031	1.756964	1.781920	1.806892	1.831886	1.856897	1.881925	1.906973
G2 (1S,3D)	.1116933	.1137549	.1158220	.1178994	.1199769	.1220538	.1241409	.1262381	.1283342
G0 (1S,4S)	.1980416	.2019143	.2057944	.2096477	.2135405	.2174727	.2213765	.2252512	.2291638
G1 (1S,4P)	.4309961	.4400382	.4490979	.4580996	.4671893	.4763682	.4854844	.4945354	.5036727
G2 (1S,4D)	.0315382	.0324142	.0332948	.0341745	.0350634	.0359618	.0368585	.0377534	.0386573
G3 (1S,4F)	.0002088	.0002189	.0002291	.0002396	.0002501	.0002609	.0002718	.0002829	.0002941
G0 (1S,5S)	.0469955	.0485396	.0500612	.0513612	.0528406	.0545145	.0559680	.0571907	.0586155
G1 (1S,5P)	.0954455	.0989027	.1023070	.1051252	.1084338	.1122682	.1155204	.1181671	.1213577
G2 (1S,5D)	.0059538	.0062521	.0065478	.0067749	.0070659	.0074245	.0077147	.0079340	.0082224
G3 (1S,5F)	.0000217	.0000243	.0000270	.0000279	.0000306	.0000353	.0000382	.0000391	.0000420
G0 (1S,6S)	.0083402	.0086043	.0088475	.0086442	.0088430	.0094812	.0096669	.0093664	.0095208
G1 (1S,6P)	.0144927	.0149643	.0153924	.0147863	.0151169	.0164797	.0167900	.0159602	.0162007
G2 (1S,6D)	.0004605	.0004759	.0004888			.0005153	.0005210		
G0 (1S,7S)	.0006717	.0006738	.0006756	.0005833	.0005841	.0006798	.0006811	.0005856	.0005859
G1 (2S,2P)	15.44347	15.61852	15.79360	15.96877	16.14387	16.31889	16.49401	16.66924	16.84438
G0 (2S,3S)	1.078061	1.092162	1.106269	1.120370	1.134488	1.148623	1.162753	1.176876	1.191016
G1 (2S,3P)	1.146146	1.162013	1.177891	1.193768	1.209663	1.225580	1.241492	1.257402	1.273331
G2 (2S,3D)	4.562601	4.631847	4.701128	4.770487	4.839831	4.909162	4.978562	5.048034	5.117486
G0 (2S,4S)	.2359688	.2402559	.2445463	.2488010	.2530960	.2574308	.2617288	.2659892	.2702884
G1 (2S,4P)	.2573627	.2624624	.2675672	.2726330	.2777453	.2829052	.2880234	.2930993	.2982210
G2 (2S,4D)	.8771538	.8967785	.9163943	.9358404	.9554292	.9751667	.9947283	1.014109	1.033638
G3 (2S,4F)	.1084549	.1129768	.1175398	.1221361	.1267775	.1314646	.1361807	.1409251	.1457106
G0 (2S,5S)	.0537262	.0553926	.0570294	.0584123	.0599947	.0617926	.0633389	.0646236	.0661324
G1 (2S,5P)	.0555213	.0574480	.0593403	.0608914	.0627222	.0648519	.0666436	.0680857	.0698837
G2 (2S,5D)	.1531601	.1597724	.1662474	.1709482	.1771940	.1850417	.1911408	.1954624	.2014238
G3 (2S,5F)	.0106339	.0118491	.0130548	.0133658	.0145636	.0166610	.0178680	.0181674	.0193785
G0 (2S,6S)	.0094436	.0097234	.0099792	.0097331	.0099390	.0106358	.0108256	.0104730	.0106282
G1 (2S,6P)	.0083853	.0086444	.0088779	.0085165	.0086942	.0094633	.0096281	.0091410	.0092664
G2 (2S,6D)	.0117081	.0120164	.0122561			.0126717	.0127330		
G0 (2S,7S)	.0007593	.0007603	.0007608	.0006558	.0006555	.0007614	.0007615	.0006539	.0006532
G1 (2P,3S)	1.352720	1.370479	1.388246	1.406002	1.423782	1.441586	1.459379	1.477161	1.494967
G0 (2P,3P)	1.399788	1.418572	1.437364	1.456149	1.474952	1.493776	1.512592	1.531401	1.550229
G2 (2P,3P)	1.552551	1.573833	1.595125	1.616413	1.637722	1.659054	1.680381	1.701704	1.723049
G1 (2P,3D)	4.671291	4.741790	4.812324	4.882934	4.953535	5.024128	5.094790	5.165526	5.236245
G3 (2P,3D)	2.700354	2.741347	2.782363	2.823426	2.864484	2.905538	2.946635	2.987777	3.028910
G1 (2P,4S)	.3123645	.3181032	.3238473	.3295435	.3352952	.3411023	.3468596	.3525666	.3583271
G0 (2P,4P)	.2973492	.3030585	.3087701	.3144320	.3201449	.3259095	.3316224	.3372829	.3429936
G2 (2P,4P)	.3547675	.3617690	.3687764	.3757273	.3827430	.3898242	.3968463	.4038079	.4108331
G1 (2P,4D)	.9426202	.9640626	.9855066	1.006776	1.028212	1.049821	1.071249	1.092489	1.113899
G3 (2P,4D)	.5624878	.5754359	.5883888	.6012405	.6141958	.6272587	.6402155	.6530632	.6660162
G2 (2P,4F)	.0846481	.0881280	.0916373	.0951694	.0987346	.1023333	.1059520	.1095899	.1132581
G4 (2P,4F)	.0547330	.0569882	.0592626	.0615520	.0638632	.0661963	.0685425	.0709013	.0732801
G1 (2P,5S)	.0720009	.0742578	.0764760	.0783535	.0805001	.0829373	.0850369	.0867846	.0883848
G0 (2P,5P)	.0632898	.0654370	.0675428	.0692584	.0712904	.0736596	.0756432	.0772287	.0791634
G2 (2P,5P)	.0767804	.0794421	.0820560	.0841968	.0867249	.0896667	.0921403	.0941292	.0965464
G1 (2P,5D)	.1663134	.1735956	.1807351	.1859474	.1928488	.2015042	.2082580	.2130755	.2196886
G3 (2P,5D)	.0999132	.1043282	.1086598	.1118332	.1160255	.1212770	.1253848	.1283266	.1323528
G2 (2P,5F)	.0083288	.0092769	.0102168	.0104560	.0113888	.0130245	.0139633	.0141921	.0151331
G4 (2P,5F)	.0053948	.0060098	.0066197	.0067756	.0073811	.0084425	.0090522	.0092017	.0098131
G1 (2P,6S)	.0126919	.0130730	.0134216	.0130947	.0133762	.0143194	.0145794	.0141084	.0143218
G0 (2P,6P)	.0095296	.0098160	.0100732	.0096562	.0098501	.0107130	.0108918	.0103339	.0104685
G2 (2P,6P)	.0116024	.0119606	.0122835	.0117829	.0120284	.0130923	.0133200	.0126454	.0128185
G1 (2P,6D)	.0127336	.0130774	.0133467			.0138246	.0138996		
G3 (2P,6D)	.0076574	.0078675	.0080328			.0083301	.0083784		

TABLE V. TWO ELECTRON INTEGRALS G(K)

	PA	U	NP	PU	AM	CM	BK	CF	ES
G1(2P,7S)	.0010210	.0010227	.0010238	.0008827	.0008826	.0010256	.0010261	.0008812	.0008805
G1(3S,3P)	6.794650	6.877528	6.960432	7.043344	7.126278	7.209225	7.292183	7.375166	7.458159
G2(3S,3D)	4.108136	4.153893	4.199644	4.245372	4.291110	4.336855	4.382577	4.428287	4.474002
G0(3S,4S)	.4236242	.4306916	.4377582	.4447770	.4518393	.4589444	.4660000	.4730066	.4800544
G1(3S,4P)	.4650706	.4731465	.4812177	.4892272	.4972864	.5053984	.5134450	.5214267	.5294572
G2(3S,4D)	.4885742	.5010344	.5135369	.5259877	.5385658	.5512755	.5639254	.5765115	.5892219
G3(3S,4F)	1.449393	1.494110	1.538685	1.583049	1.627354	1.671617	1.715678	1.759547	1.803371
G0(3S,5S)	.0812992	.0835986	.0858480	.0877226	.0898823	.0923475	.0944442	.0961609	.0981963
G1(3S,5P)	.0873020	.0899987	.0926310	.0947348	.0972542	.1002077	.1026487	.1045594	.1069261
G2(3S,5D)	.0861890	.0901488	.0940447	.0969361	.1007247	.1054472	.1091776	.1118883	.1155580
G3(3S,5F)	.1111586	.1215419	.1314849	.1324274	.1418394	.1593953	.1682086	.1685580	.1770717
G0(3S,6S)	.0137913	.0141548	.0144828	.0149023	.0143501	.0153062	.0155389	.0150039	.0151896
G1(3S,6P)	.0128407	.0131823	.0134842	.0128931	.0131131	.0142127	.0144101	.0136433	.0137855
G2(3S,6D)	.0065898	.0067814	.0069347			.0072234	.0072755		
G0(3S,7S)	.0011028	.0011006	.0010981	.0009447	.0009417	.0010898	.0010871	.0009321	.0009289
G1(3P,3D)	5.801878	5.870088	5.938299	6.006504	6.074711	6.142914	6.211112	6.279318	6.347516
G3(3P,3D)	3.892175	3.939610	3.987051	4.034479	4.081926	4.129388	4.176838	4.224284	4.271742
G1(3P,4S)	.5593363	.5686903	.5780440	.5873337	.5966831	.6060909	.6154326	.6247097	.6340416
G0(3P,4P)	.4660953	.4743727	.4826469	.4908602	.4991240	.5074385	.5156903	.5238789	.5321172
G2(3P,4P)	.5594656	.5694476	.5794251	.5893261	.5992916	.6093219	.6192732	.6291461	.6390811
G1(3P,4D)	.4358135	.4459582	.4561201	.4662222	.4764139	.4866972	.4969166	.5070735	.5173163
G3(3P,4D)	.4432543	.4531308	.4630100	.4728129	.4826947	.4926574	.5025408	.5123445	.5222269
G2(3P,4F)	1.668232	1.719270	1.770146	1.820782	1.871355	1.921879	1.972178	2.022266	2.072305
G4(3P,4F)	1.112188	1.146554	1.180825	1.214942	1.249032	1.283105	1.317032	1.350823	1.384595
G1(3P,5S)	.1120157	.1152255	.1183666	.1209866	.1240080	.1274510	.1303838	.1327871	.1356359
G0(3P,5P)	.0847814	.0874238	.0900050	.0920762	.0945505	.0974512	.0998514	.1017391	.1040691
G2(3P,5P)	.1082652	.1116933	.1150434	.1177363	.1209498	.1247152	.1278347	.1302903	.1333196
G1(3P,5D)	.0739097	.0771402	.0803073	.0826154	.0856795	.0895289	.0925307	.0946633	.0976057
G3(3P,5D)	.0753653	.0785758	.0817173	.0839828	.0870105	.0908276	.0937821	.0958599	.0987467
G2(3P,5F)	.1288734	.1409540	.1525328	.1536688	.1646461	.1850991	.1954035	.1958702	.2058404
G4(3P,5F)	.0873262	.0956004	.1035464	.1043993	.1119520	.1259735	.1330932	.1335059	.1404089
G1(3P,6S)	.0191728	.0196878	.0201534	.0196165	.0199838	.0213263	.0216588	.0209182	.0211846
G0(3P,6P)	.0123911	.0127227	.0130163	.0124490	.0126638	.0137275	.0139207	.0131838	.0133239
G2(3P,6P)	.0160123	.0164521	.0168425	.0161148	.0164020	.0177931	.0180526	.0171013	.0172908
G1(3P,6D)	.0056250	.0057759	.0058940			.0061040	.0061371		
G3(3P,6D)	.0057364	.0058838	.0059977			.0061920	.0062193		
G1(3P,7S)	.0015353	.0015331	.0015302	.0013168	.0013131	.0015206	.0015174	.0013012	.0012972
G2(3D,4S)	.4924778	.5004076	.5083363	.5162034	.5241269	.5321061	.5400215	.5478732	.5557759
G1(3D,4P)	.5135826	.5224680	.5313472	.5401553	.5490191	.5579391	.5667857	.5755584	.5843859
G3(3D,4P)	.5126696	.5217018	.5307305	.5396863	.5487047	.5577860	.5667917	.5757212	.5847123
G0(3D,4D)	.5283005	.5386618	.5489990	.5592354	.5695227	.5798648	.5901052	.6002431	.6104365
G2(3D,4D)	.6686287	.6823822	.6961146	.7097181	.7234049	.7371798	.7508231	.7643332	.7779323
G4(3D,4D)	.5265726	.5376018	.5486177	.5595313	.5704514	.5815799	.5925375	.6033889	.6143170
G1(3D,4F)	1.688974	1.740073	1.791024	1.841753	1.892430	1.943072	1.993508	2.043748	2.093959
G3(3D,4F)	1.000868	1.031497	1.062049	1.092475	1.122883	1.153285	1.183569	1.213740	1.243905
G5(3D,4F)	.6944724	.7158254	.7371279	.7583439	.7795527	.8007618	.8218891	.8429939	.8639901
G2(3D,5S)	.1026053	.1055280	.1083878	.1107699	.1135163	.1166538	.1193210	.1215027	.1240921
G1(3D,5P)	.0975938	.1006331	.1036012	.1059788	.1088222	.1121589	.1149158	.1170795	.1197543
G3(3D,5P)	.1019626	.1052079	.1083806	.1109323	.1139773	.1175456	.1205032	.1228341	.1257074
G0(3D,5D)	.0796977	.0827803	.0857780	.0887838	.0907339	.0943769	.0971383	.0990152	.1016933
G2(3D,5D)	.1085315	.1129228	.1172051	.1202398	.1243431	.1295467	.1335267	.1362725	.1401445
G4(3D,5D)	.0877723	.0913875	.0949169	.0974329	.1008211	.1051094	.1084022	.1106885	.1138963
G1(3D,5F)	.1346386	.1474633	.1597975	.1611794	.1729312	.1947150	.2058356	.2065746	.2173842
G3(3D,5F)	.0814641	.0893154	.0968813	.0978015	.1050286	.1183758	.1252432	.1257841	.1324721
G5(3D,5F)	.0570006	.0625209	.0678450	.0685136	.0736048	.0829929	.0878392	.0882457	.0929692
G2(3D,6S)	.0177097	.0181854	.0186153	.0181167	.0184554	.0196973	.0200037	.0193164	.0195615
G1(3D,6P)	.0143838	.0147707	.0151133	.0144538	.0147043	.0159429	.0161682	.0153106	.0154738
G3(3D,6P)	.0151595	.0155803	.0159542	.0152669	.0155427	.0168668	.0171166	.0162161	.0163992
G0(3D,6D)	.0059709	.0060983	.0061909			.0063191	.0063247		
G2(3D,6D)	.0082112	.0084034	.0085476			.0087711	.0087932		
G4(3D,6D)	.0066652	.0068267	.0069492			.0071463	.0071690		
G2(3D,7S)	.0014200	.0014179	.0014153	.0012176	.0012141	.0014063	.0014033	.0012030	.0011992
G1(4S,4P)	3.295560	3.343480	3.391367	3.439121	3.486933	3.534807	3.582543	3.630141	3.677804
G2(4S,4D)	2.385994	2.420179	2.454218	2.488045	2.521806	2.555508	2.589017	2.622337	2.655617
G3(4S,4F)	1.655557	1.677320	1.698687	1.719657	1.740334	1.760751	1.780855	1.800670	1.820291
G0(4S,5S)	.1693014	.1734102	.1774229	.1807422	.1845900	.1889960	.1927263	.1957698	.1993944
G1(4S,5P)	.1983994	.2033797	.2082149	.2119640	.2165585	.2220313	.2264518	.2298136	.2340856
G2(4S,5D)	.1392236	.1434532	.1475432	.1501660	.1540495	.1592025	.1629377	.1652704	.1689007

TABLE V. TWO ELECTRON INTEGRALS G(K)

	PA	U	NP	PU	AM	CM	BK	CF	ES
G3(4S,5F)	.0467460	.0504321	.0540085	.0540473	.0575994	.0645211	.0680396	.0682496	.0718532
G0(4S,6S)	.0246741	.0251958	.0256598	.0249128	.0252687	.0267989	.0271147	.0261531	.0264000
G1(4S,6P)	.0260125	.0265248	.0269628	.0256898	.0259862	.0279590	.0282118	.0266514	.0268152
G2(4S,6D)	.0098079	.0099362	.0100132			.0100346	.0099924		
G0(4S,7S)	.0019310	.0019177	.0019046	.0016379	.0016265	.0018691	.0018587	.0015948	.0015851
G1(4P,4D)	3.108454	3.154633	3.200676	3.246466	3.292247	3.338028	3.383572	3.428882	3.474210
G3(4P,4D)	1.986610	2.017261	2.047819	2.078205	2.108581	2.138957	2.169169	2.199219	2.229281
G2(4P,4F)	1.995873	2.022300	2.048310	2.073892	2.099176	2.124201	2.148887	2.173257	2.197439
G4(4P,4F)	1.445020	1.466379	1.487431	1.508156	1.528668	1.548996	1.569058	1.588873	1.608553
G1(4P,5S)	.2314417	.2369687	.2423627	.2468016	.2519671	.2579005	.2629037	.2669603	.2718164
G0(4P,5P)	.1664409	.1708517	.1751505	.1785570	.1826697	.1875177	.1914980	.1946030	.1984690
G2(4P,5P)	.2178467	.2236149	.2292244	.2336203	.2389635	.2452949	.2504473	.2544090	.2593948
G1(4P,5D)	.1460304	.1502852	.1543865	.1569796	.1608530	.1660076	.1697089	.1719813	.1755621
G3(4P,5D)	.1479614	.1528601	.1575985	.1607337	.1652238	.1710843	.1753906	.1781545	.1823199
G2(4P,5F)	.0500942	.0539813	.0577453	.0577414	.0614712	.0687682	.0724440	.0726122	.0763680
G4(4P,5F)	.0484017	.0523548	.0561569	.0562341	.0599283	.0670745	.0706340	.0707309	.0742940
G1(4P,6S)	.0347468	.0354844	.0361395	.0350785	.0355794	.0377437	.0381870	.0368202	.0371651
G0(4P,6P)	.0212071	.0216493	.0220323	.0210246	.0212920	.0229268	.0231612	.0219136	.0220737
G2(4P,6P)	.0292679	.0298921	.0304313	.0290235	.0293975	.0316820	.0320067	.0302584	.0304773
G1(4P,6D)	.0100788	.0101912	.0102512			.0102194	.0101595		
G3(4P,6D)	.0105765	.0107397	.0108850			.0109201	.0108874		
G1(4P,7S)	.0027316	.0027129	.0026945	.0023159	.0022997	.0026441	.0026292	.0022543	.0022404
G1(4D,4F)	2.671968	2.712016	2.751650	2.790800	2.829710	2.868419	2.906729	2.944666	2.982469
G3(4D,4F)	1.898928	1.819155	1.849082	1.878639	1.908036	1.937303	1.966258	1.994914	2.023486
G5(4D,4F)	1.297893	1.320843	1.343572	1.366021	1.388356	1.410602	1.432609	1.454387	1.476108
G2(4D,5S)	.2461419	.2511137	.2559603	.2598432	.2644800	.2699075	.2743967	.2779369	.2822968
G1(4D,5P)	.2189643	.2242539	.2294027	.2334009	.2383178	.2441879	.2489401	.2525682	.2571806
G3(4D,5P)	.2212315	.2266471	.2319096	.2359685	.2409773	.2469736	.2518009	.2554519	.2601242
G0(4D,5D)	.1532582	.1583019	.1631921	.1665120	.1711677	.1771693	.1816495	.1846244	.1889735
G2(4D,5D)	.1906213	.1969985	.2031712	.2073057	.2131611	.2207561	.2263745	.2300340	.2354713
G4(4D,5D)	.1624461	.1680250	.1734262	.1770535	.1821760	.1888143	.1937299	.1969339	.2016879
G1(4D,5F)	.0573894	.0615370	.0654691	.0651495	.0689257	.0765188	.0800619	.0797787	.0833107
G3(4D,5F)	.0625773	.0675891	.0723437	.0722880	.0767953	.0855948	.0897824	.0895856	.0936804
G5(4D,5F)	.0530759	.0574903	.0616895	.0617555	.0657375	.0734246	.0771363	.0770503	.0806715
G2(4D,6S)	.0369140	.0376073	.0382151	.0370145	.0374662	.0396680	.0400596	.0385566	.0388514
G1(4D,6P)	.0283037	.0288547	.0293274	.0279482	.0282700	.0304104	.0306879	.0289995	.0291816
G3(4D,6P)	.0297989	.0303953	.0309066	.0294427	.0297902	.0320747	.0323727	.0305745	.0307690
G0(4D,6D)	.0104111	.0105592	.0106522			.0107025	.0106644		
G2(4D,6D)	.0134744	.0136822	.0138165			.0139129	.0138714		
G4(4D,6D)	.0117009	.0118951	.0120245			.0121399	.0121124		
G2(4D,7S)	.0029032	.0028768	.0028512	.0024454	.0024236	.0027816	.0027611	.0023630	.0023446
G3(4F,5S)	.2443580	.2468819	.2493974	.2510804	.2535919	.2569469	.2594732	.2611625	.2637042
G2(4F,5P)	.2293080	.2322756	.2352082	.2370783	.2399689	.2438883	.2467606	.2485867	.2514533
G4(4F,5P)	.2144838	.2179065	.2212588	.2235371	.2267844	.2310174	.2341978	.2363243	.2394553
G1(4F,5D)	.1817886	.1861280	.1903385	.1927694	.1968024	.2024217	.2063152	.2085178	.2123275
G3(4F,5D)	.1917640	.1968545	.2017782	.2047165	.2093981	.2158182	.2203141	.2229175	.2272890
G5(4F,5D)	.1606984	.1651976	.1695496	.1721981	.1763324	.1819543	.1859237	.1882635	.1921180
G0(4F,5F)	.0923397	.0992239	.1056526	.1052130	.1111738	.1230280	.1283540	.1275913	.1327031
G2(4F,5F)	.1142990	.1234988	.1321626	.1320211	.1401079	.1558869	.1632371	.1626256	.1696965
G4(4F,5F)	.0890283	.0964048	.1033748	.1034007	.1099258	.1225627	.1285337	.1281762	.1339276
G6(4F,5F)	.0695200	.0753590	.0808853	.0809585	.0861396	.0961382	.1008951	.1006634	.1052487
G3(4F,6S)	.0355265	.0359981	.0363966	.0350898	.0353622	.0372875	.0375112	.0359704	.0361209
G2(4F,6P)	.0286664	.0290331	.0293301	.0277987	.0279701	.0299363	.0300704	.0282930	.0283531
G4(4F,6P)	.0282179	.0286324	.0289740	.0274810	.0276895	.0296969	.0298648	.0281090	.0281973
G1(4F,6D)	.0121026	.0122815	.0123215			.0122065	.0121141		
G3(4F,6D)	.0133872	.0135265	.0135977			.0135358	.0134509		
G5(4F,6D)	.0114335	.0115684	.0116439			.0116273	.0115646		
G3(4F,7S)	.0027902	.0027511	.0027139	.0023176	.0022874	.0026154	.0025868	.0022060	.0021816
G1(5S,5P)	1.588719	1.619742	1.650268	1.677038	1.706752	1.739495	1.768601	1.794070	1.822666
G2(5S,5D)	1.092983	1.120077	1.146433	1.166786	1.192040	1.222082	1.246391	1.265165	1.288816
G3(5S,5F)	.4753053	.5110897	.5446004	.5484980	.5797014	.6352508	.6629562	.6653714	.6918328
G0(5S,6S)	.0598642	.0609111	.0618578	.0603943	.0611473	.0642650	.0649587	.0630889	.0636528
G1(5S,6P)	.0719677	.0728829	.0736613	.0705450	.0710583	.0754361	.0758921	.0722056	.0724888
G2(5S,6D)	.0398830	.0397985	.0395715			.0383615	.0378467		
G0(5S,7S)	.0042001	.0041623	.0041285	.0035994	.0035733	.0040487	.0040282	.0035078	.0034896
G1(5P,5D)	1.417230	1.450549	1.483060	1.508718	1.540023	1.576881	1.607173	1.631089	1.660665
G3(5P,5D)	.8980005	.9194414	.9403284	.9562620	.9763237	1.000457	1.019835	1.034579	1.053471

TABLE V. TWO ELECTRON INTEGRALS G(K)

	PA	U	NP	PU	AM	CM	BK	CF	ES
G2(5P,5F)	.6216856	.6644551	.7042887	.7081297	.7451523	.8112698	.8438083	.8462339	.8773371
G4(5P,5F)	.4236401	.4532409	.4808445	.4832240	.5088923	.5551377	.5777776	.5791139	.6007605
G1(5P,6S)	.0873537	.0886813	.0898746	.0876583	.0885927	.0928813	.0937413	.0909801	.0916679
G0(5P,6P)	.0519684	.0528203	.0535694	.0515314	.0520700	.0553825	.0558785	.0533720	.0537241
G2(5P,6P)	.0725269	.0736286	.0745814	.0714557	.0721151	.0768188	.0774122	.0736533	.0740530
G1(5P,6D)	.0412863	.0411734	.0409238			.0396704	.0391465		
G3(5P,6D)	.0337337	.0338003	.0337385			.0330583	.0327222		
G1(5P,7S)	.0061768	.0061105	.0060510	.0052682	.0052220	.0059080	.0058703	.0051055	.0050727
G1(5D,5F)	.9047603	.9554831	1.002452	1.006228	1.050032	1.128012	1.166187	1.169316	1.206045
G3(5D,5F)	.5597174	.5919424	.6218096	.6232180	.6510555	.7017603	.7260945	.7269632	.7503610
G5(5D,5F)	.3992802	.4226306	.4442833	.4449580	.4651274	.5022812	.5199410	.5201585	.5371285
G2(5D,6S)	.1361895	.1364217	.1365935	.1332008	.1332138	.1368950	.1369516	.1331229	.1330657
G1(5D,6P)	.0924942	.0929455	.0933070	.0897987	.0899462	.0940460	.0942121	.0901571	.0901711
G3(5D,6P)	.0917154	.0923683	.0928986	.0891277	.0893999	.0940030	.0942559	.0898845	.0899640
G0(5D,6D)	.0279580	.0281641	.0282620			.0281157	.0279631		
G2(5D,6D)	.0367710	.0369886	.0370606			.0366954	.0364392		
G4(5D,6D)	.0315058	.0317095	.0317830			.0314833	.0312632		
G2(5D,7S)	.0087176	.0085512	.0084035	.0073516	.0072382	.0080473	.0079513	.0069532	.0068729
G3(5F,6S)	.3075695	.3038259	.3000990	.2982986	.2947728	.2896071	.2864045	.2848097	.2817415
G2(5F,6P)	.2883234	.2816445	.2755198	.2739011	.2682310	.2598960	.2554368	.2534648	.2491722
G4(5F,6P)	.2148674	.2112183	.2077928	.2049935	.2017219	.1987765	.1961381	.1929664	.1903625
G1(5F,6D)	.1344261	.1274366	.1213896			.1069765	.1030342		
G3(5F,6D)	.1024376	.0983476	.0947108			.0856314	.0830374		
G5(5F,6D)	.0776545	.0748869	.0723920			.0660228	.0641665		
G3(5F,7S)	.0156361	.0148959	.0143122	.0130835	.0126114	.0131003	.0128076	.0115952	.0113418
G1(6S,6P)	.6702034	.6835856	.6962635	.6919900	.7032107	.7312146	.7420704	.7345204	.7443207
G2(6S,6D)	.2528618	.2593473	.2649986			.2782052	.2816194		
G0(6S,7S)	.0136649	.0136351	.0136205	.0124389	.0124426	.0136475	.0136753	.0124966	.0125259
G1(6P,6D)	.3910584	.3996430	.4071779			.4250718	.4297988		
G3(6P,6D)	.2441076	.2492246	.2536752			.2640496	.2667283		
G1(6P,7S)	.0240914	.0240201	.0239838	.0223464	.0223587	.0240276	.0240818	.0224906	.0225596
G2(6D,7S)	.1016705	.1019744	.1025154			.1051761	.1063303		

	FM	MD	NO	LW
G0(1S,2S)	4.018954	4.062283	4.105621	4.148912
G1(1S,2P)	9.122561	9.223625	9.324711	9.425683
G0(1S,3S)	.8554782	.8661420	.8768120	.8874951
G1(1S,3P)	1.932037	1.957119	1.982216	2.007336
G2(1S,3D)	.1304348	.1325395	.1346483	.1367557
G0(1S,4S)	.2330803	.2370001	.2409230	.2448820
G1(1S,4P)	.5128193	.5219743	.5311368	.5403829
G2(1S,4D)	.0395645	.0404749	.0413885	.0423107
G3(1S,4F)	.0003055	.0003170	.0003290	.0003409
G0(1S,5S)	.0600293	.0614329	.0628270	.0644446
G1(1S,5P)	.1245254	.1276720	.1307995	.1345193
G2(1S,5D)	.0085106	.0087988	.0090870	.0094495
G3(1S,5F)	.0000449	.0000479	.0000506	.0000558
G0(1S,6S)	.0096668	.0098051	.0099364	.0105938
G1(1S,6P)	.0164242	.0166323	.0168265	.0182720
G2(1S,6D)				.0005325
G0(1S,7S)	.0005862	.0005864	.0005866	.0006883
G1(2S,2P)	17.01954	17.19470	17.36988	17.54498
G0(2S,3S)	1.205162	1.219313	1.233469	1.247642
G1(2S,3P)	1.289267	1.305210	1.321161	1.337131
G2(2S,3D)	5.186964	5.256466	5.325993	5.395499
G0(2S,4S)	.2745875	.2788863	.2831846	.2875193
G1(2S,4P)	.3033438	.3084673	.3135913	.3187594
G2(2S,4D)	1.053148	1.072640	1.092114	1.111732
G3(2S,4F)	.1505298	.1553807	.1604326	.1653727
G0(2S,5S)	.0676262	.0691060	.0705730	.0722859
G1(2S,5P)	.0715728	.0732940	.0750020	.0770449
G2(2S,5D)	.2073319	.2131914	.2190065	.2265357
G3(2S,5F)	.0205951	.0218190	.0228802	.0250497
G0(2S,6S)	.0107739	.0109110	.0110402	.0117513
G1(2S,6P)	.0093822	.0094891	.0095881	.0103979
G2(2S,6D)				.0125718

TABLE V. TWO ELECTRON INTEGRALS G(K)

	FM	MD	NO	LW
G0(2S,7S)	.0006524	.0006516	.0006509	.0007624
G1(2P,3S)	1.512779	1.530597	1.548421	1.566271
G0(2P,3P)	1.569063	1.587902	1.606747	1.625612
G2(2P,3P)	1.744402	1.765763	1.787131	1.808524
G1(2P,3D)	5.306995	5.377770	5.448572	5.519361
G3(2P,3D)	3.070062	3.111231	3.152416	3.193594
G1(2P,4S)	.3640883	.3698498	.3756112	.3814232
G0(2P,4P)	.3487025	.3544094	.3601139	.3658671
G2(2P,4P)	.4178591	.4248854	.4319114	.4389990
G1(2P,4D)	1.135300	1.156690	1.178069	1.199615
G3(2P,4D)	.6789666	.6919135	.7048567	.7179031
G2(2P,4F)	.1169503	.1206652	.1245343	.1283149
G4(2P,4F)	.0756746	.0780839	.0805934	.0830458
G1(2P,5S)	.0908653	.0928776	.0948730	.0972008
G0(2P,5P)	.0810788	.0829764	.0848575	.0871156
G2(2P,5P)	.0989418	.1013169	.1036733	.1064935
G1(2P,5D)	.2262484	.2327599	.2392275	.2475776
G3(2P,5D)	.1363485	.1403167	.1442600	.1493421
G2(2P,5F)	.0160781	.0170282	.0178513	.0195386
G4(2P,5F)	.0104271	.0110447	.0115800	.0126762
G1(2P,6S)	.0145223	.0147113	.0148896	.0158536
G0(2P,6P)	.0105921	.0107057	.0108104	.0117154
G2(2P,6P)	.0129782	.0131257	.0132621	.0143820
G1(2P,6D)				.0137691
G3(2P,6D)				.0083167
G1(2P,7S)	.0008798	.0008790	.0008781	.0010290
G1(3S,3P)	7.541166	7.624185	7.707217	7.790264
G2(3S,3D)	4.519713	4.565420	4.611123	4.656834
G0(3S,4S)	.4870975	.4941356	.5011684	.5082399
G1(3S,4P)	.5374797	.5454939	.5534997	.5615531
G2(3S,4D)	.6019612	.6147279	.6275207	.6404319
G3(3S,4F)	1.847089	1.890693	1.935918	1.979569
G0(3S,5S)	.1002067	.1021938	.1041594	.1064715
G1(3S,5P)	.1092625	.1115710	.1138538	.1166235
G2(3S,5D)	.1192068	.1228369	.1264507	.1310783
G3(3S,5F)	.1854163	.1936184	.1999572	.2157107
G0(3S,6S)	.0153621	.0155228	.0156727	.0166377
G1(3S,6P)	.0139137	.0140292	.0141335	.0152738
G2(3S,6D)				.0072789
G0(3S,7S)	.0009257	.0009226	.0009195	.0010738
G1(3P,3D)	6.415714	6.483911	6.552107	6.620300
G3(3P,3D)	4.319203	4.366668	4.414135	4.461617
G1(3P,4S)	.6433676	.6526872	.6620000	.6713655
G0(3P,4P)	.5403482	.5485716	.5567872	.5650519
G2(3P,4P)	.6490072	.6589240	.6688312	.6788000
G1(3P,4D)	.5275695	.5378326	.5481049	.5584626
G3(3P,4D)	.5321082	.5419880	.5518660	.5618211
G2(3P,4F)	2.122227	2.172024	2.223706	2.273571
G4(3P,4F)	1.418298	1.451926	1.486835	1.520530
G1(3P,5S)	.1384504	.1412332	.1439864	.1472215
G0(3P,5P)	.1063707	.1086460	.1108972	.1136207
G2(3P,5P)	.1363125	.1392717	.1421999	.1457406
G1(3P,5D)	.1005262	.1034271	.1063105	.1100374
G3(3P,5D)	.1016073	.1044441	.1072596	.1109189
G2(3P,5F)	.2156229	.2252484	.2327241	.2511713
G4(3P,5F)	.1471916	.1538743	.1591119	.1718569
G1(3P,6S)	.0214325	.0216636	.0218796	.0232365
G0(3P,6P)	.0134505	.0135650	.0136686	.0147731
G2(3P,6P)	.0174626	.0176183	.0177597	.0192058
G1(3P,6D)				.0060827
G3(3P,6D)				.0061292
G1(3P,7S)	.0012932	.0012892	.0012853	.0015017
G2(3D,4S)	.5636780	.5715711	.5794580	.5873948
G1(3D,4P)	.5932036	.6020110	.6108086	.6196593
G3(3D,4P)	.5936953	.6026699	.6116360	.6206619
G0(3D,4D)	.6206079	.6307571	.6408848	.6510699
G2(3D,4D)	.7915088	.8050633	.8185969	.8322184
G4(3D,4D)	.6252296	.6361271	.6470100	.6579685

TABLE V. TWO ELECTRON INTEGRALS G(K)

	FM	MD	NO	LW
G1(3D,4F)	2.144068	2.194070	2.246052	2.296165
G3(3D,4F)	1.274019	1.304075	1.335328	1.365471
G5(3D,4F)	.8850065	.9059856	.9278022	.9488480
G2(3D,5S)	.1266497	.1291776	.1316776	.1346219
G1(3D,5P)	.1223957	.1250063	.1275871	.1307154
G3(3D,5P)	.1285467	.1313545	.1341331	.1374932
G0(3D,5D)	.1043371	.1069495	.1095331	.1129394
G2(3D,5D)	.1439728	.1477612	.1515126	.1564301
G4(3D,5D)	.1170701	.1202129	.1233275	.1273985
G1(3D,5F)	.2280223	.2385205	.2468064	.2667683
G3(3D,5F)	.1390629	.1455748	.1507643	.1630890
G5(3D,5F)	.0976266	.1022308	.1059136	.1146107
G2(3D,6S)	.0197894	.0200017	.0202000	.0214545
G1(3D,6P)	.0156212	.0157543	.0158747	.0171600
G3(3D,6P)	.0165653	.0167162	.0168534	.0182312
G0(3D,6D)				.0061157
G2(3D,6D)				.0085770
G4(3D,6D)				.0070175
G2(3D,7S)	.0011954	.0011917	.0011880	.0013883
G1(4S,4P)	3.725429	3.773017	3.820567	3.868192
G2(4S,4D)	2.688790	2.721861	2.754833	2.787789
G3(4S,4F)	1.839702	1.858917	1.878156	1.897062
G0(4S,5S)	.2029755	.2065169	.2100219	.2141460
G1(4S,5P)	.2382964	.2424514	.2465557	.2516089
G2(4S,5D)	.1724886	.1760396	.1795587	.1843843
G3(4S,5F)	.0754981	.0791919	.0827322	.0898899
G0(4S,6S)	.0266276	.0268382	.0270336	.0285771
G1(4S,6P)	.0269563	.0270775	.0271813	.0292089
G2(4S,6D)				.0094473
G0(4S,7S)	.0015758	.0015669	.0015584	.0018098
G1(4P,4D)	3.519436	3.564566	3.609602	3.654680
G3(4P,4D)	2.259272	2.289195	2.319053	2.348941
G2(4P,4F)	2.221402	2.245162	2.268914	2.292363
G4(4P,4F)	1.628066	1.647422	1.666910	1.686051
G1(4P,5S)	.2766124	.2813532	.2860436	.2915862
G0(4P,5P)	.2022883	.2060649	.2098029	.2143375
G2(4P,5P)	.2643122	.2691671	.2739652	.2798371
G1(4P,5D)	.1790920	.1825768	.1860220	.1907711
G3(4P,5D)	.1864263	.1904798	.1944858	.1999076
G2(4P,5F)	.0801601	.0839964	.0876997	.0951714
G4(4P,5F)	.0778532	.0814174	.0847119	.0916800
G1(4P,6S)	.0374825	.0377755	.0380468	.0402265
G0(4P,6P)	.0222152	.0223403	.0224509	.0241442
G2(4P,6P)	.0306693	.0308374	.0309847	.0333397
G1(4P,6D)				.0095157
G3(4P,6D)				.0103380
G1(4P,7S)	.0022269	.0022140	.0022017	.0025582
G1(4D,4F)	3.020050	3.057422	3.094900	3.132018
G3(4D,4F)	2.051892	2.080138	2.108683	2.136778
G5(4D,4F)	1.497704	1.519179	1.540943	1.562318
G2(4D,5S)	.2866040	.2908633	.2950791	.3001592
G1(4D,5P)	.2617358	.2662389	.2706949	.2761756
G3(4D,5P)	.2647327	.2692833	.2737814	.2793448
G0(4D,5D)	.1932672	.1975110	.2017103	.2072913
G2(4D,5D)	.2408320	.2461237	.2513536	.2583768
G4(4D,5D)	.2063739	.2109985	.2155677	.2217066
G1(4D,5F)	.0868204	.0903190	.0935139	.1006341
G3(4D,5F)	.0977127	.1016957	.1051895	.1131787
G5(4D,5F)	.0842356	.0877536	.0908324	.0978216
G2(4D,6S)	.0391191	.0393629	.0395855	.0417952
G1(4D,6P)	.0293397	.0294767	.0295952	.0318052
G3(4D,6P)	.0309372	.0310823	.0312070	.0335583
G0(4D,6D)				.0101040
G2(4D,6D)				.0131711
G4(4D,6D)				.0115389
G2(4D,7S)	.0023268	.0023098	.0022935	.0026616
G3(4F,5S)	.2662527	.2688114	.2708905	.2742753

TABLE V. TWO ELECTRON INTEGRALS G(K)

	FM	MD	NO	LW								
G2(4F,5P)	.2543170	.2571820	.2595347	.2633967								
G4(4F,5P)	.2425654	.2456597	.2483405	.2523996								
G1(4F,5D)	.2160979	.2198361	.2231261	.2283788								
G3(4F,5D)	.2316048	.2358735	.2397024	.2456413								
G5(4F,5D)	.1959219	.1996824	.2031086	.2083077								
G0(4F,5F)	.1376671	.1425117	.1456100	.1555630								
G2(4F,5F)	.1765891	.1833346	.1883198	.2019257								
G4(4F,5F)	.1395430	.1450454	.1492755	.1602919								
G6(4F,5F)	.1097290	.1141221	.1175546	.1263181								
G3(4F,6S)	.0362514	.0363648	.0364446	.0383771								
G2(4F,6P)	.0283953	.0284222	.0284301	.0304541								
G4(4F,6P)	.0282658	.0283173	.0283348	.0303952								
G1(4F,6D)				.0112570								
G3(4F,6D)				.0125597								
G5(4F,6D)				.0108423								
G3(4F,7S)	.0021584	.0021363	.0021143	.0024479								
G1(5S,5P)	1.851044	1.879224	1.907222	1.938455								
G2(5S,5D)	1.312163	1.335231	1.358047	1.385589								
G3(5S,5F)	.7174439	.7422884	.7669267	.8121350								
G0(5S,6S)	.0641833	.0646839	.0651579	.0683808								
G1(5S,6P)	.0727336	.0729450	.0731271	.0777674								
G2(5S,6D)				.0342258								
G0(5S,7S)	.0034727	.0034572	.0034430	.0039491								
G1(5P,5D)	1.689915	1.718868	1.747550	1.781776								
G3(5P,5D)	1.072144	1.090619	1.108912	1.131291								
G2(5P,5F)	.9074062	.9365510	.9653780	1.018376								
G4(5P,5F)	.6217043	.6420195	.6621681	.6996036								
G1(5P,6S)	.0923126	.0929192	.0934918	.0979490								
G0(5P,6P)	.0540436	.0543342	.0545990	.0581286								
G2(5P,6P)	.0744083	.0747245	.0750065	.0799801								
G1(5P,6D)				.0354916								
G3(5P,6D)				.0301133								
G1(5P,7S)	.0050424	.0050143	.0049882	.0057167								
G1(5D,5F)	1.241603	1.276131	1.310169	1.372144								
G3(5D,5F)	.7730225	.7950362	.8168738	.8576837								
G5(5D,5F)	.5535668	.5695372	.5853879	.6154750								
G2(5D,6S)	.1330002	.1329286	.1328527	.1370912								
G1(5D,6P)	.0901643	.0901397	.0901000	.0947307								
G3(5D,6P)	.0900126	.0900345	.0900338	.0950702								
G0(5D,6D)				.0264067								
G2(5D,6D)				.0341048								
G4(5D,6D)				.0292341								
G2(5D,7S)	.0067984	.0067292	.0066646	.0075319								
G3(5F,6S)	.2788051	.2759982	.2733376	.2702360								
G2(5F,6P)	.2451454	.2413598	.2378019	.2341865								
G4(5F,6P)	.1878970	.1855591	.1833601	.1832146								
G1(5F,6D)				.0845118								
G3(5F,6D)				.0701439								
G5(5F,6D)				.0547119								
G3(5F,7S)	.0111169	.0109154	.0107344	.0116297								
G1(6S,6P)	.7538560	.7631522	.7722299	.8015489								
G2(6S,6D)				.2945011								
G0(6S,7S)	.0125595	.0125969	.0126378	.0139725								
G1(6P,6D)				.4485975								
G3(6P,6D)				.2768156								
G1(6P,7S)	.0226382	.0227253	.0228200	.0246753								
G2(6D,7S)				.1152443								
	CE	TB	BK	CF	ES	FM	MD	NO				
G0(1S,2S)	2.208306	2.509093	3.889028	3.932270	3.975580	4.018899	4.062227	4.105565				
G1(1S,2P)	4.901204	5.602090	8.819517	8.920368	9.021383	9.122423	9.223487	9.324574				
G0(1S,3S)	.4139330	.4875387	.8235257	.8341757	.8448268	.8554845	.8661485	.8768188				
G1(1S,3P)	.8964717	1.068485	1.856896	1.881928	1.906976	1.932041	1.957123	1.982222				
G2(1S,3D)	.0471592	.0602872	.1241464	.1262326	.1283288	.1304293	.1325341	.1346429				
G0(1S,4S)	.0897753	.1093448	.2213428	.2252850	.2291976	.2331140	.2370338	.2409566				
G1(1S,4P)	.1819557	.2257271	.4854082	.4946120	.5037496	.5128961	.5220512	.5312137				

TABLE V. TWO ELECTRON INTEGRALS G(K)

	CE	TB	BK	CF	ES	FM	MD	NO
G2(1S,4D)	.0092097	.0127056	.0368530	.0377590	.0386629	.0395701	.0404806	.0413942
G3(1S,4F)	.0000142	.0000312	.0002718	.0002829	.0002941	.0003055	.0003170	.0003287
G0(1S,5S)	.0135170	.0154509	.0557540	.0574082	.0588363	.0602532	.0616597	.0630566
G1(1S,5P)	.0227733	.0258050	.1149516	.1187442	.1219421	.1251169	.1282702	.1314039
G2(1S,5D)			.0076452	.0080043	.0082936	.0085826	.0088715	.0091605
G3(1S,5F)			.0000362	.0000410	.0000440	.0000470	.0000500	.0000531
G0(1S,6S)	.0009689	.0009635	.0092027	.0098423	.0100082	.0101657	.0103153	.0104578
G1(1S,6P)			.0157009	.0170792	.0173493	.0176022	.0178394	.0180623
G2(1S,6D)				.0005255	.0005288	.0005311	.0005324	.0005328
G0(1S,7S)			.0005852	.0006823	.0006835	.0006847	.0006859	.0006871
G1(2S,2P)	9.669969	10.89483	16.49411	16.66915	16.84430	17.01945	17.19462	17.36980
G0(2S,3S)	.6147930	.7139900	1.162742	1.176888	1.191029	1.205174	1.219325	1.233481
G1(2S,3P)	.6271096	.7377645	1.241483	1.257413	1.273341	1.289278	1.305221	1.321172
G2(2S,3D)	2.288204	2.774716	4.978609	5.047993	5.117445	5.186924	5.256427	5.325952
G0(2S,4S)	.1143739	.1365320	.2616907	.2660275	.2703264	.2746254	.2789240	.2832221
G1(2S,4P)	.1152252	.1403984	.2879794	.2931436	.2982654	.3033881	.3085116	.3136355
G2(2S,4D)	.3340068	.4256631	.9945654	1.014274	1.033802	1.053313	1.072805	1.092278
G3(2S,4F)	.0103063	.0204714	.1361732	.1409322	.1457184	.1505379	.1553894	.1602715
G0(2S,5S)	.0167081	.0187000	.0630987	.0648675	.0663795	.0678764	.0693591	.0708287
G1(2S,5P)	.0141815	.0157688	.0663174	.0684163	.0701714	.0719107	.0736353	.0753464
G2(2S,5D)			.1894419	.1971727	.2031444	.2090620	.2149302	.2207535
G3(2S,5F)			.0169628	.0190802	.0202978	.0215219	.0227531	.0239921
G0(2S,6S)	.0011926	.0011616	.0103073	.0110034	.0111706	.0113282	.0114770	.0116178
G1(2S,6P)			.0090047	.0097806	.0099222	.0100538	.0101764	.0102909
G2(2S,6D)				.0127642	.0127685	.0127493	.0127088	.0126481
G0(2S,7S)			.0006545	.0007616	.0007617	.0007618	.0007620	.0007622
G1(2P,3S)	.7690991	.8941262	1.459361	1.477179	1.494986	1.512798	1.530617	1.548441
G0(2P,3P)	.7819066	.9144094	1.512579	1.531415	1.550244	1.569078	1.587917	1.606762
G2(2P,3P)	.8541965	1.003641	1.680368	1.701719	1.723064	1.744417	1.765779	1.787147
G1(2P,3D)	2.357119	2.852133	5.094832	5.165487	5.236208	5.306958	5.377734	5.448536
G3(2P,3D)	1.356117	1.643369	2.946660	2.987754	3.028888	3.070040	3.111209	3.152394
G1(2P,4S)	.1499701	.1795467	.3468075	.3526188	.3583791	.3641401	.3699014	.3756626
G0(2P,4P)	.1369545	.1655073	.3315709	.3373347	.3430454	.3487543	.3544611	.3601655
G2(2P,4P)	.1593222	.1940010	.3967840	.4038705	.4108958	.4179217	.4249479	.4319738
G1(2P,4D)	.3540908	.4526843	1.071070	1.092669	1.114080	1.135480	1.156870	1.178249
G3(2P,4D)	.2086311	.2677153	.6401083	.6531714	.6661247	.6790751	.6920219	.7049649
G2(2P,4F)	.0083316	.0163577	.1059456	.1095959	.1132647	.1169572	.1206724	.1244094
G4(2P,4F)	.0053616	.0105421	.0685383	.0709054	.0732844	.0756791	.0780887	.0805126
G1(2P,5S)	.0221103	.0248248	.0847134	.0871131	.0891677	.0912025	.0932188	.0952178
G0(2P,5P)	.0166894	.0184009	.0752731	.0776034	.0799542	.0814613	.0833625	.0852468
G2(2P,5P)	.0196425	.0218302	.0916883	.0945872	.0970095	.0994098	.1017895	.1041504
G1(2P,5D)			.2064030	.2149440	.2215694	.2281407	.2346628	.2411404
G3(2P,5D)			.1242664	.1294536	.1334876	.1374907	.1414657	.1454154
G2(2P,5F)			.0132555	.0149054	.0158514	.0168020	.0177576	.0187188
G4(2P,5F)			.0085933	.0096643	.0102790	.0108967	.0115179	.0121428
G1(2P,6S)	.0015803	.0015438	.0138808	.0148236	.0150533	.0152701	.0154751	.0156693
G0(2P,6P)			.0101871	.0110565	.0112087	.0113498	.0114806	.0116022
G2(2P,6P)			.0124572	.0135306	.0137259	.0139076	.0140767	.0142345
G1(2P,6D)				.0139417	.0139543	.0139410	.0139043	.0138454
G3(2P,6D)				.0084069	.0084174	.0084123	.0083930	.0083601
G1(2P,7S)			.0008818	.0010265	.0010269	.0010274	.0010279	.0010284
G1(3S,3P)	4.062862	4.646561	7.292188	7.375166	7.458159	7.541166	7.624185	7.707218
G2(3S,3D)	2.586272	2.914165	4.382566	4.428300	4.474016	4.519726	4.565433	4.611135
G0(3S,4S)	.2185734	.2563735	.4659545	.4730522	.4800998	.4871426	.4941804	.5012129
G1(3S,4P)	.2347174	.2756399	.5133885	.5214835	.5295140	.5375362	.5455503	.5535560
G2(3S,4D)	.1666037	.2165414	.5638316	.5766060	.5893166	.6020558	.6148222	.6276147
G3(3S,4F)	.2415883	.4022194	1.715599	1.759620	1.803451	1.847171	1.890779	1.934275
G0(3S,5S)	.0277019	.0304772	.0940984	.0965111	.0985503	.1005643	.1025546	.1045232
G1(3S,5P)	.0259472	.0278279	.1021598	.1050530	.1074238	.1097639	.1120759	.1143618
G2(3S,5D)			.1081949	.1128801	.1165582	.1202148	.1238523	.1274730
G3(3S,5F)			.1598718	.1768273	.1852682	.1935511	.2016937	.2097119
G0(3S,6S)	.0019421	.0018628	.0148033	.0157547	.0159557	.0161432	.0163186	.0164832
G1(3S,6P)			.0134852	.0145891	.0147521	.0149007	.0150363	.0151603
G2(3S,6D)				.0073100	.0073289	.0073339	.0073264	.0073080
G0(3S,7S)			.0009353	.0010846	.0010822	.0010799	.0010777	.0010757
G1(3P,3D)	3.540897	4.026121	6.211117	6.279317	6.347516	6.415713	6.483910	6.552105
G3(3P,3D)	2.322947	2.659934	4.176828	4.224296	4.271754	4.319215	4.366680	4.414147
G1(3P,4S)	.2893891	.3388381	.6153711	.6247700	.6341030	.6434285	.6527477	.6620602

TABLE V. TWO ELECTRON INTEGRALS G(K)

	CE	TB	BK	CF	ES	FM	MD	NO
G0(3P,4P)	.2285240	.2712797	.5156335	.5239359	.5321744	.5404053	.5486287	.5568443
G2(3P,4P)	.2749079	.3257249	.6192016	.6292171	.6391532	.6490790	.6589957	.6689028
G1(3P,4D)	.1665350	.2092955	.4968391	.5071485	.5173943	.5276475	.5379102	.5481822
G3(3P,4D)	.1750759	.2188298	.5024608	.5124244	.5223075	.5321886	.5420680	.5519457
G2(3P,4F)	.2864838	.4710238	1.972089	2.022348	2.072396	2.122320	2.172122	2.221802
G4(3P,4F)	.1885784	.3110615	1.316968	1.350883	1.384660	1.418365	1.451996	1.485553
G1(3P,5S)	.0379419	.0417063	.1299042	.1332758	.1361272	.1389468	.1417342	.1444918
G0(3P,5P)	.0245969	.0266425	.0993783	.1022170	.1045508	.1068561	.1091348	.1113891
G2(3P,5P)	.0311387	.0336793	.1272230	.1309100	.1339431	.1369411	.1399050	.1428374
G1(3P,5D)			.0917019	.0955040	.0984462	.1013720	.1042778	.1071658
G3(3P,5D)			.0929446	.0967033	.0995943	.1024594	.1053004	.1081197
G2(3P,5F)			.1857099	.2054909	.2153789	.2250938	.2346541	.2440783
G4(3P,5F)			.1264805	.1400735	.1469268	.1536685	.1603117	.1668686
G1(3P,6S)	.0026719	.0025595	.0206312	.0219678	.0222556	.0225248	.0227770	.0230138
G0(3P,6P)			.0130285	.0140965	.0142568	.0144033	.0145374	.0146603
G2(3P,6P)			.0168919	.0182893	.0185054	.0187036	.0188853	.0190523
G1(3P,6D)				.0061556	.0061612	.0061557	.0061400	.0061157
G3(3P,6D)				.0062320	.0062318	.0062203	.0061986	.0061680
G1(3P,7S)			.0013052	.0015144	.0015115	.0015088	.0015063	.0015039
G2(3D,4S)	.2664427	.3069392	.5399625	.5479323	.5558373	.5637364	.5716292	.5795156
G1(3D,4P)	.2600803	.3051068	.5667210	.5756234	.5844509	.5932684	.6020757	.6108731
G3(3D,4P)	.2570157	.3021707	.5667225	.5757908	.5847820	.5937648	.6027393	.6117052
G0(3D,4D)	.2321536	.2828371	.5900264	.6003228	.6105163	.6206877	.6308367	.6409641
G2(3D,4D)	.2823249	.3475622	.7507127	.7644446	.7780439	.7916203	.8051745	.8187076
G4(3D,4D)	.2189087	.2706007	.5924466	.6034806	.6144089	.6253214	.6362187	.6471011
G1(3D,4F)	.3068702	.4917789	1.993420	2.043830	2.094049	2.144161	2.194168	2.244072
G3(3D,4F)	.1792697	.2882580	1.183512	1.213793	1.243964	1.274078	1.304138	1.334142
G5(3D,4F)	.1236659	.1991241	.8218479	.8429782	.8640321	.8850498	.9060313	.9269760
G2(3D,5S)	.0357677	.0388067	.1188790	.1219505	.1245449	.1271071	.1296394	.1321433
G1(3D,5P)	.0288552	.0309482	.1143683	.1176325	.1203118	.1229575	.1255720	.1281565
G3(3D,5P)	.0295658	.0317842	.1199238	.1234196	.1262981	.1291423	.1319547	.1347375
G0(3D,5D)			.0962989	.0998569	.1025370	.1051824	.1077961	.1103809
G2(3D,5D)			.1323521	.1374524	.1413290	.1451614	.1489536	.1527082
G4(3D,5D)			.1074431	.1116525	.1148647	.1180424	.1211888	.1243067
G1(3D,5F)			.1955902	.2167567	.2274965	.2380782	.2485222	.2588430
G3(3D,5F)			.1189974	.1319968	.1386476	.1452091	.1516930	.1581099
G5(3D,5F)			.0834553	.0926080	.0973069	.1019453	.1065313	.1110722
G2(3D,6S)	.0025267	.0023891	.0190520	.0202882	.0205533	.0208009	.0210326	.0212501
G1(3D,6P)			.0151296	.0163730	.0165597	.0167303	.0168862	.0170290
G3(3D,6P)			.0160141	.0173447	.0175533	.0177448	.0179206	.0180823
G0(3D,6D)				.0063162	.0062953	.0062637	.0062227	.0061724
G2(3D,6D)				.0087951	.0087793	.0087480	.0087029	.0086450
G4(3D,6D)				.0071752	.0071667	.0071454	.0071126	.0070694
G2(3D,7S)			.0012068	.0014005	.0013977	.0013952	.0013927	.0013904
G1(4S,4P)	1.813394	2.105680	3.582441	3.630246	3.677910	3.725535	3.773124	3.820676
G2(4S,4D)	1.270552	1.493675	2.588945	2.622411	2.655692	2.688865	2.721936	2.754909
G3(4S,4F)	.6725534	.8782627	1.780815	1.800711	1.820335	1.839747	1.858964	1.877999
G0(4S,5S)	.0649326	.0716403	.1920976	.1964037	.2000328	.2036180	.2071631	.2106715
G1(4S,5P)	.0711424	.0755708	.2254738	.2307957	.2350712	.2392848	.2434424	.2475491
G2(4S,5D)			.1615909	.1666151	.1702433	.1738290	.1773779	.1808951
G3(4S,5F)			.0646824	.0715909	.0751837	.0788253	.0825207	.0862731
G0(4S,6S)	.0041423	.0040215	.0258845	.0274055	.0276745	.0279242	.0281567	.0283738
G1(4S,6P)			.0264613	.0284341	.0286300	.0288029	.0289555	.0290902
G2(4S,6D)				.0099324	.0098574	.0097698	.0096712	.0095633
G0(4S,7S)			.0016050	.0018490	.0018400	.0018316	.0018238	.0018165
G1(4P,4D)	1.639958	1.928559	3.383448	3.429009	3.474338	3.519565	3.564695	3.609732
G3(4P,4D)	1.028840	1.212235	2.169084	2.199308	2.229371	2.259362	2.289286	2.319145
G2(4P,4F)	.8340450	1.076749	2.148832	2.173313	2.197498	2.221463	2.245225	2.268799
G4(4P,4F)	.5718294	.7445127	1.569008	1.588925	1.608608	1.628123	1.647481	1.666692
G1(4P,5S)	.0912836	.0998120	.2620382	.2678329	.2726953	.2774969	.2822428	.2869379
G0(4P,5P)	.0561730	.0609805	.1906852	.1954201	.1992899	.2031124	.2068921	.2106327
G2(4P,5P)	.0733517	.0789501	.2493476	.2555146	.2605057	.2654276	.2702866	.2750883
G1(4P,5D)			.1683423	.1733432	.1769193	.1804445	.1839249	.1873657
G3(4P,5D)			.1739228	.1796213	.1837855	.1878904	.1919422	.1959465
G2(4P,5F)			.0688875	.0761475	.0798878	.0836724	.0875063	.0913930
G4(4P,5F)			.0671589	.0741792	.0777193	.0812622	.0848141	.0883794
G1(4P,6S)	.0058081	.0056712	.0364441	.0385945	.0389707	.0393191	.0396429	.0399446

TABLE V. TWO ELECTRON INTEGRALS G(K)

	CE	TB	BK	CF	ES	FM	MD	NO
G0(4P,6P)			.0217322	.0233711	.0235594	.0237289	.0238816	.0240196
G2(4P,6P)			.0300087	.0322957	.0325534	.0327838	.0329899	.0331744
G1(4P,6D)				.0100821	.0099900	.0098856	.0097707	.0096469
G3(4P,6D)				.0108334	.0107613	.0106738	.0105728	.0104605
G1(4P,7S)			.0022689	.0026153	.0026022	.0025900	.0025786	.0025680
G1(4D,4F)	1.120197	1.426245	2.906618	2.944780	2.982586	3.020168	3.057542	3.094724
G3(4D,4F)	.6960023	.8956536	1.966155	1.995017	2.023594	2.052001	2.080249	2.108349
G5(4D,4F)	.4901899	.6333137	1.432527	1.454470	1.476194	1.497792	1.519270	1.540635
G2(4D,5S)	.1255118	.1290359	.2735188	.2788206	.2831855	.2874973	.2917605	.2959799
G1(4D,5P)	.0888307	.0920905	.2478921	.2536207	.2582372	.2627957	.2673019	.2717605
G3(4D,5P)	.0867940	.0901569	.2507089	.2565488	.2612255	.2658378	.2703917	.2748926
G0(4D,5D)			.1802128	.1860589	.1904058	.1946970	.1989384	.2031351
G2(4D,5D)			.2245109	.2318959	.2373312	.2426897	.2479790	.2532063
G4(4D,5D)			.1921038	.1985597	.2033132	.2079983	.2126217	.2171895
G1(4D,5F)			.0762168	.0835691	.0870524	.0905225	.0939876	.0974537
G3(4D,5F)			.0854203	.0938907	.0979326	.1019201	.1058632	.1097697
G5(4D,5F)			.0733656	.0807767	.0843564	.0878855	.0913720	.0948227
G2(4D,6S)	.0075588	.0069805	.0382307	.0404155	.0407402	.0410377	.0413108	.0415626
G1(4D,6P)			.0287898	.0309334	.0311511	.0313446	.0315164	.0316693
G3(4D,6P)			.0303498	.0326355	.0328678	.0330733	.0332551	.0334160
G0(4D,6D)				.0106064	.0105313	.0104417	.0103395	.0102264
G2(4D,6D)				.0138027	.0137109	.0135994	.0134707	.0133274
G4(4D,6D)				.0120605	.0119876	.0118968	.0117904	.0116706
G2(4D,7S)			.0023824	.0027417	.0027236	.0027066	.0026906	.0026757
G3(4F,5S)	.2545227	.2394643	.2586326	.2620074	.2645485	.2670974	.2696551	.2722231
G2(4F,5P)	.2374341	.2147803	.2457206	.2496283	.2524921	.2553537	.2582156	.2610798
G4(4F,5P)	.1787620	.1657155	.2331731	.2373516	.2404816	.2435912	.2466840	.2497633
G1(4F,5D)			.2046673	.2101586	.2139576	.2177185	.2214469	.2251481
G3(4F,5D)			.2184866	.2247394	.2291019	.2334097	.2376699	.2418891
G5(4F,5D)			.1843547	.1898291	.1936774	.1974758	.2012303	.2049467
G0(4F,5F)			.1223254	.1335054	.1385019	.1433657	.1481160	.1527698
G2(4F,5F)			.1553664	.1703758	.1773266	.1841149	.1907625	.1972889
G4(4F,5F)			.1222804	.1343429	.1400084	.1455493	.1509818	.1563206
G6(4F,5F)			.0959667	.1055271	.1100482	.1144731	.1188141	.1230825
G3(4F,6S)	.0128859	.0105306	.0357967	.0377077	.0378808	.0380340	.0381698	.0382906
G2(4F,6P)			.0282119	.0301795	.0302675	.0303374	.0303916	.0304323
G4(4F,6P)			.0279979	.0300055	.0301229	.0302204	.0303004	.0303654
G1(4F,6D)				.0120026	.0118753	.0117349	.0115834	.0114230
G3(4F,6D)				.0133429	.0132157	.0130724	.0129153	.0127471
G5(4F,6D)				.0114813	.0113806	.0112653	.0111375	.0109994
G3(4F,7S)			.0022317	.0025599	.0025348	.0025113	.0024892	.0024685
G1(5S,5D)	.7047739	.7990378	1.765238	1.797442	1.826045	1.854431	1.882617	1.910621
G2(5S,5D)			1.241180	1.270329	1.293935	1.317239	1.340267	1.363044
G3(5S,5F)			.6379523	.6896672	.7154961	.7405356	.7648591	.7885295
G0(5S,6S)	.0136912	.0140633	.0624870	.0656100	.0662240	.0668048	.0673559	.0678805
G1(5S,6P)			.0718781	.0762972	.0766585	.0769821	.0772720	.0775327
G2(5S,6D)				.0372962	.0367175	.0361169	.0354989	.0348675
G0(5S,7S)			.0035277	.0040101	.0039943	.0039805	.0039684	.0039580
G1(5P,5D)			1.601154	1.637064	1.666598	1.695809	1.724726	1.753374
G3(5P,5D)			1.015444	1.038941	1.057808	1.076458	1.094910	1.113183
G2(5P,5F)			.8139551	.8751313	.9053867	.9346944	.9631503	.9908345
G4(5P,5F)			.5566681	.5995900	.6206758	.6411164	.6609765	.6803106
G1(5P,6S)	.0239718	.0247354	.0902432	.0945465	.0953034	.0960178	.0966943	.0973370
G0(5P,6P)			.0529828	.0563326	.0567500	.0571352	.0574913	.0578216
G2(5P,6P)			.0732026	.0779478	.0784329	.0788741	.0792761	.0796436
G1(5P,6D)				.0385884	.0380034	.0373973	.0367742	.0361381
G3(5P,6D)				.0323485	.0319441	.0315146	.0310639	.0305959
G1(5P,7S)			.0051411	.0058367	.0058068	.0057801	.0057564	.0057353
G1(5D,5F)			1.131233	1.202981	1.238583	1.273145	1.306786	1.339606
G3(5D,5F)			.7027138	.7495582	.7722711	.7943278	.8158031	.8367586
G5(5D,5F)			.5025740	.5369712	.5534580	.5694698	.5850604	.6002741
G2(5D,6S)			.1331690	.1369947	.1370271	.1370513	.1370690	.1370820
G1(5D,6P)			.0901183	.0943493	.0944620	.0945540	.0946278	.0946861
G3(5D,6P)			.0897687	.0944667	.0946414	.0947855	.0949027	.0949966
G0(5D,6D)				.0277723	.0275487	.0272971	.0270208	.0267232
G2(5D,6D)				.0361345	.0357889	.0354088	.0349986	.0345629
G4(5D,6D)				.0309999	.0307002	.0303698	.0300128	.0296333
G2(5D,7S)			.0070402	.0078643	.0077853	.0077132	.0076474	.0075870

TABLE V. TWO ELECTRON INTEGRALS G(K)

CE	T8	BK	CF	ES	FM	MD	NO
G3(5F,6S)		.2880088	.2833543	.2804531	.2776950	.2750734	.2725840
G2(5F,6P)		.2580505	.2512856	.2474107	.2437849	.2403841	.2371898
G4(5F,6P)		.1957197	.1936576	.1913213	.1891173	.1870339	.1850631
G1(5F,6D)			.0994020	.0960323	.0928869	.0899345	.0871514
G3(5F,6D)			.0806020	.0783022	.0761195	.0740383	.0720475
G5(5F,6D)			.0624090	.0607367	.0591384	.0576044	.0561283
G3(5F,7S)		.0118842	.0125513	.0123247	.0121226	.0119411	.0117771
G1(6S,6P)		.7244277	.7526086	.7628624	.7728634	.7826308	.7921869
G2(6S,6D)			.2846226	.2872505	.2895321	.2914876	.2931389
G0(6S,7S)		.0124725	.0137105	.0137524	.0138000	.0138529	.0139104
G1(6P,6D)			.4340107	.4377509	.4410563	.4439496	.4464570
G3(6P,6D)			.2690837	.2711435	.2729317	.2744625	.2757531
G1(6P,7S)		.0224330	.0241513	.0242343	.0243296	.0244354	.0245509
G2(6D,7S)			.1075924	.1089533	.1104051	.1119408	.1135557

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TABLE VI. ORTHOGONALITY PARAMETERS FOR OPEN SHELLS

LI	(2S,1S)	-.0028637					
NA	(3S,2S)	-.0015524	(3S,1S)	-.0000883			
AL	(3P,2P)	-.0013407					
SI	(3P,2P)	-.0021772					
P	(3P,2P)	-.0030419					
S	(3P,2P)	-.0039195					
CL	(3P,2P)	-.0048010					
K	(4S,3S)	-.0016105	(4S,2S)	-.0001004	(4S,1S)	-.0000464	
CR	(4S,3S)	-.0022504	(4S,2S)	-.0002006	(4S,1S)	.0000909	
CU	(4S,3S)	-.0021007	(4S,2S)	-.0001827	(4S,1S)	.0001476	
GA	(4P,3P)	-.0009194	(4P,2P)	-.0000746			
GE	(4P,3P)	-.0014774	(4P,2P)	-.0001237			
AS	(4P,3P)	-.0020536	(4P,2P)	-.0001511			
SE	(4P,3P)	-.0026354	(4P,2P)	-.0001445			
BR	(4P,3P)	-.0032218	(4P,2P)	-.0000976			
RB	(5S,4S)	-.0016236	(5S,3S)	-.0001011	(5S,2S)	-.0002799	(5S,1S) .0001542
Y	(4D,3D)	-.0012530					
ZR	(4D,3D)	-.0017269					
NB	(5S,4S)	-.0027565	(5S,3S)	-.0002375	(5S,2S)	-.0006368	(5S,1S) .0000957
	(4D,3D)	-.0017972					
MD	(5S,4S)	-.0027354	(5S,3S)	-.0002422	(5S,2S)	-.0007027	(5S,1S) .0000551
	(4D,3D)	-.0022093					
TC	(4D,3D)	-.0029984					
RU	(5S,4S)	-.0026346	(5S,3S)	-.0002380	(5S,2S)	-.0005183	(5S,1S) -.0000314
	(4D,3D)	-.0029978					
RH	(5S,4S)	-.0025677	(5S,3S)	-.0002369	(5S,2S)	-.0005552	(5S,1S) -.0001467
	(4D,3D)	-.0033782					
AG	(5S,4S)	-.0024215	(5S,3S)	-.0002254	(5S,2S)	-.0006674	(5S,1S) -.0002009
IN	(5P,4P)	-.0010198	(5P,3P)	-.0000706	(5P,2P)	-.0002740	
SN	(5P,4P)	-.0015112	(5P,3P)	-.0001056	(5P,2P)	-.0003482	
SB	(5P,4P)	-.0019915	(5P,3P)	-.0001108	(5P,2P)	-.0002251	
TE	(5P,4P)	-.0024617	(5P,3P)	-.0000980	(5P,2P)	-.0002714	
I	(5P,4P)	-.0029229	(5P,3P)	-.0000313	(5P,2P)	-.0003233	
CS	(6S,5S)	-.0015307	(6S,4S)	-.0001014	(6S,3S)	-.0002902	(6S,2S) -.0003831
	(6S,1S)	-.0001011					
LA	(5D,4D)	-.0013416	(5D,3D)	-.0000169			
CE	(5D,4D)	-.0013269	(5D,3D)	-.0000750			
GD	(5D,4D)	-.0011681	(5D,3D)	-.0001471			
TB	(5D,4D)	-.0011364	(5D,3D)	-.0001424			
LU	(5D,4D)	-.0009413	(5D,3D)	-.0001141			
HF	(5D,4D)	-.0012608	(5D,3D)	-.0001539			
TA	(5D,4D)	-.0015608	(5D,3D)	-.0001939			
W	(5D,4D)	-.0018544	(5D,3D)	-.0002267			
RE	(5D,4D)	-.0021360	(5D,3D)	-.0002430			
OS	(5D,4D)	-.0024085	(5D,3D)	-.0002538			
IR	(5D,4D)	-.0026639	(5D,3D)	-.0002421			
PT	(6S,5S)	-.0026681	(6S,4S)	-.0002345	(6S,3S)	-.0010178	(6S,2S) -.0009982
	(6S,1S)	-.0003127	(5D,4D)	-.0025689	(5D,3D)	-.0001104	
AU	(6S,5S)	-.0026181	(6S,4S)	-.0002281	(6S,3S)	-.0011014	(6S,2S) -.0010070
	(6S,1S)	-.0003128					
TL	(6P,5P)	-.0010420	(6P,4P)	-.0000538	(6P,3P)	-.0002577	(6P,2P) -.0002221
PB	(6P,5P)	-.0014937	(6P,4P)	-.0000728	(6P,3P)	-.0003280	(6P,2P) -.0002721
BI	(6P,5P)	-.0019190	(6P,4P)	-.0000679	(6P,3P)	-.0004123	(6P,2P) -.0003161
PD	(6P,5P)	-.0023239	(6P,4P)	-.0000336	(6P,3P)	-.0004694	(6P,2P) -.0003561
AT	(6P,5P)	-.0027389	(6P,4P)	.0000433	(6P,3P)	-.0005211	(6P,2P) -.0003918
FR	(7S,6S)	-.0014855	(7S,5S)	-.0000990	(7S,4S)	-.0003352	(7S,3S) -.0005751
	(7S,2S)	-.0004159	(7S,1S)	.0001015			
AC	(6D,5D)	-.0012225	(6D,4D)	.0000239	(6D,3D)	.0000007	
TH	(6D,5D)	-.0015117	(6D,4D)	-.0000119	(6D,3D)	-.0000004	
PA	(6D,5D)	-.0012639	(6D,4D)	-.0000347	(6D,3D)	-.0000601	(5F,4F) -.0026567
U	(6D,5D)	-.0012675	(6D,4D)	-.0000595	(6D,3D)	-.0000968	(5F,4F) -.0029294
NP	(6D,5D)	-.0012643	(6D,4D)	-.0000812	(6D,3D)	-.0001322	(5F,4F) -.0031384
PU	(5F,4F)	-.0031539					

TABLE VI. ORTHOGONALITY PARAMETERS FOR OPEN SHELLS

AM	(5F,4F) -.0033921				
CM	(6D,5D) -.0012288	(6D,4D) -.0001282	(6D,3D) -.0002277	(5F,4F) -.0039015	
BK	(6D,5D) -.0012110	(6D,4D) -.0001366	(6D,3D) -.0002657	(5F,4F) -.0041245	
CF	(5F,4F) -.0040674				
ES	(5F,4F) -.0043119				
FM	(5F,4F) -.0045443				
MD	(5F,4F) -.0047991				
LW	(6D,5D) -.0010766	(6D,4D) -.0001318	(6D,3D) -.0004108		
BK	(5F,4F) -.0038549				
CF	(6D,5D) -.0011920	(6D,4D) -.0001388	(6D,3D) -.0003219	(5F,4F) -.0043543	
ES	(6D,5D) -.0011709	(6D,4D) -.0001396	(6D,3D) -.0003620	(5F,4F) -.0045703	
FM	(6D,5D) -.0011486	(6D,4D) -.0001392	(6D,3D) -.0004020	(5F,4F) -.0047857	
MD	(6D,5D) -.0011254	(6D,4D) -.0001373	(6D,3D) -.0004414	(5F,4F) -.0050137	
NO	(6D,5D) -.0011013	(6D,4D) -.0001352	(6D,3D) -.0003780	(5F,4F) -.0052688	

Appendix. Numerical Techniques

In briefest form the solution of the Hartree-Fock equations consists of successive iterations with improving orbital wavefunctions and energies until certain criteria are met. In this work the iterations were continued until the largest absolute change in any wavefunction at any radius was less than 5.0×10^{-6} . The normalization of each wavefunction in the Schroedinger subroutine was better than 10^{-6} .

Radial mesh. In most past wavefunction calculations, one of two different systems has been used for determining the radial points at which the wavefunctions were to be found. The first, and most common, was based on equal logarithmic increments, i.e., one changes the variable to $\rho = \ln r$ and uses a fixed increment in ρ between points. The second system, employed by Herman and Skillman,³ and used here, sets up a radial mesh consisting of blocks of 41 points each, with 40 equal increments in r within each block. The Δr is doubled in each succeeding block. The last point of a block coincides with the first point of the next block. A total of 441 mesh points has generally been found to be sufficient for atoms in their ground-state configuration. For excited atoms a total of 521 points was used. For the radial variable, r could have been used directly for all the elements, but in order to remain consistent with Herman and Skillman a change of variable to $x = r/U$ was introduced. The function U comes from the Thomas-Fermi theory and is equal to $(9\pi^2/128Z)^{1/3}$, which is 0.88534138 for hydrogen. One advantage derived from the x -mesh is that for a group of neighboring elements a particular $n\ell$ shell is represented by a relatively constant number of points. The increment in x for the first block of points, starting with $x = 0$, was 0.0025. For hydrogen this represents an increment in Bohr units of 0.002213; for lawrencium ($Z = 103$) the increment in Bohr units is 0.000472. The outermost point required for a wavefunction to have diminished to values less than 5×10^{-7} was found to occur at 34.51 Bohr units for the Li 2s shell, and at 44.99 units for the Fr 7s shell.

Starting wavefunctions and binding energies. In most

previous calculations of atomic structure, the first approximations to P_i and ϵ_i have been obtained by assuming hydrogenic wavefunctions with suitable guessed shielding parameters. As the calculations may be shortened considerably by the use of almost correct wavefunctions, the author used the output wavefunctions and binding energies of a code developed by Robert D. Cowan⁸ of this laboratory. The code is based on Hartree's equations, but includes a statistical treatment of exchange, and is designated HX. The values of each P_i were obtained for every fourth point of the radial mesh used here. A local interpolation routine called SPLINE was used to obtain initial values for all points of the radial mesh. The points from the HX code are on punched cards. The Hartree-Fock code output has various options such as punched cards (every fourth point) or magnetic tape listing all points, in the form of 64-bit floating point numbers.

Other starting options include the use of the wavefunctions on tape from previous runs, or the calculation of the wavefunctions from analytical Hartree-Fock parameters when available.

Potential functions. Evaluation of V_{coul} , V_{add_i} , and V_{pex_i} before each iteration involves finding values for the various Y_0 and Y_k terms of Equation (3). The integrals which must be calculated at each point are $\int_0^r r^k P_i P_j dr$ and $\int_0^r r^{-(k+1)} P_i P_j dr$. Other authors have used the trapezoidal rule (2 points) for the direct integrations. Piper⁹ introduced a useful modification of Simpson's rule (3 points); considerable error can occur, however, for functions represented by polynomials of higher order than a quadratic. In an attempt to obtain somewhat greater accuracy, various 6-point formulas resulting from integration of the Bessel interpolation formulas have been employed here. The interpolation formula is available in numerous texts (Scarborough's¹⁰ coverage of various interpolation and integration methods was found to be useful). Integration over various intervals gives the four formulas needed for use with the radial mesh:

$$\int_{x_0}^{x_0+h} y dx = \frac{h}{1440} [27 y_5 - 173 y_4 + 482 y_3 - 798 y_2 + 1427 y_1 + 475 y_0] \quad (\text{A-1})$$

$$\int_{x_0}^{x_0+2h} y dx = \frac{h}{1440} [16 y_5 - 96 y_4 + 224 y_3 + 224 y_2 + 2064 y_1 + 448 y_0] \quad (\text{A-2})$$

$$\int_{x_0+2h}^{x_0+3h} y dx = \frac{h}{1440} [11(y_5 + y_0) - 93(y_4 + y_1) + 802(y_3 + y_2)] \quad (\text{A-3})$$

$$\int_{x_0+3h}^{x_0+4h} y dx = \frac{h}{1440} [-27 y_5 + 637 y_4 + 1022 y_3 - 258 y_2 + 77 y_1 - 11 y_0] \quad (\text{A-4})$$

Equation (A-3) was used for all intervals of the radial mesh, starting with the third, with the exception of the intervals between points 39 and 40, 79 and 80, 119 and 120, etc., which were calculated with (A-4). Unless the interval of integration is small, Equations (A-1) and (A-2) may be in appreciable error for polynomials of higher than the fifth power in r . The integrals for the first two intervals were therefore found by integration of the power series by which the wavefunctions may be represented at small r :

$$P = A r^{\ell+1} \left\{ 1 - \frac{Z}{\ell+1} r + \alpha r^2 - \dots \right\}, \quad (\text{A-5})$$

$$\int_0^r r^k P_i P_j dr = \frac{r^{k+1} P_i P_j}{(\ell_i + \ell_j + k + 3)} \left[1 + \frac{f Z r + f^2 Z^2 r^2}{(\ell_i + \ell_j + k + 4)} - \left\{ \alpha_i + \alpha_j + \frac{Z^2}{(\ell_i + 1)(\ell_j + 1)} \right\} \frac{2 r^2}{(\ell_i + \ell_j + k + 5)} \right], \quad (\text{A-6})$$

where $f = (\ell_i + \ell_j + 2)/(\ell_i + 1)(\ell_j + 1)$. The calculation of α , and of higher order terms of (A-5), is described below in the subsection on the solution of the Schroedinger equation.

An alternative method for evaluation of the Y_k integrals involves the solution of two differential equations, one outwards for the first integral of Equation (4), the other inwards for the sum of the two integrals. This method was not attempted here, and so no comparison was made of the relative accuracy of the two methods.

Schroedinger equation solution. Equation (8) for the wavefunction P_i is solved once for each shell $n\ell$ in most entries to the Schroedinger routine. The procedure for solution of this inhomogeneous equation was the alternate method outlined by Hartree (Reference 2, page 93). For any trial value of ϵ_i the equation has a particular solution and a complementary solution (with $Vpex_i$ set to 0)

satisfying the boundary condition on P_i at $r = 0$, that $P(0) = 0$, with $(P/r^{\ell+1})$ remaining finite. Similarly, particular and complementary solutions exist that satisfy the condition $P(r) \rightarrow 0$ as $r \rightarrow \infty$. The other conditions to be satisfied are that $\int P^2 dr = 1$, and that the number of crossing-points or nodes of P be equal to $n - \ell - 1$. The equations to be satisfied may be abbreviated, using \bar{P} for the complementary solution:

$$\begin{aligned} \frac{d^2 P_i}{dr^2} - F(r) P_i &= -Vpex_i \\ \frac{d^2 \bar{P}_i}{dr^2} - F(r) \bar{P}_i &= 0 \end{aligned} \quad (\text{A-7})$$

Then for any constant α , the function $P_{out} + \alpha \bar{P}_{out}$ is a solution satisfying the boundary condition at the origin, and, for any constant β , $P_{in} + \beta \bar{P}_{in}$ is a solution satisfying the condition at $r = \infty$. One solves for α and β by

requiring both the solutions and their first derivatives to be equal at some intermediate radius r . This may be done except for a trial value of ϵ which happens to be characteristic of the homogeneous equation alone (if

$$\frac{\bar{P}_{\text{out}}}{\bar{P}_{\text{in}}} \frac{d}{dr} \bar{P}_{\text{in}} - \bar{P}_{\text{in}} \frac{d}{dr} \bar{P}_{\text{out}} \text{ is very small, a different}$$

value is picked for ϵ). The solution thus obtained is unique for the trial value of ϵ , but generally will not satisfy the normalization condition $\int P^2 dr = 1$. A small change in the value of ϵ provides a second solution with a new value for $\int P^2 dr$; linear interpolation is then used to find the next trial value for ϵ . The process was repeated until the normalization was correct to within 10^{-6} . As pointed out by Hartree, P_{out} may be any particular integral of Equation (8) whatever. In practice it is advisable to select the best possible value of the constant $(P_1/r^{\ell+1})$ at $r = 0$, called START_1 henceforth, for the starting points for both the particular and complementary solutions, thus ensuring a small value for α .

Inspection of Equation (10) shows that at small values of r , the wavefunction may be represented as

$$P = A r^{\ell+1} \left\{ 1 - \frac{Z}{\ell+1} r + \alpha r^2 - \beta r^3 + \gamma r^4 + \dots \right\}. \quad (\text{A-8})$$

The constants A_1 (or START_1) were found before each iteration by a least-square fit to the first eight points, other than the origin, of the adjusted wavefunctions of the previous iteration.

In order to determine α , β , and γ for calculation of the first few points of P_1 , one notes that the potential terms V_{coul} , V_{add_1} , and V_{pex_1}/P_1 may all be represented as power series so that they may be lumped together as

$$V_{\text{coul}} - V_{\text{add}_1} - V_{\text{pex}_1}/P_1 = v_0 - v_2 r^2 + \dots \text{ for } r \rightarrow 0 \quad (\text{A-9})$$

with no term in r . The terms α , β , γ are then found to be

$$\begin{aligned} \alpha &= \{ 2Z^2 - (\ell+1)(\epsilon - v_0) \} / 2(\ell+1)(2\ell+3) \\ \beta &= Z \{ 2\alpha(\ell+1) - \epsilon + v_0 \} / 6(\ell+1)(\ell+2) \\ \gamma &= \{ 2\beta Z - \alpha(\epsilon - v_0) - v_2 \} / 4(2\ell+5). \end{aligned} \quad (\text{A-10})$$

The constants v_0 and v_2 were determined by fitting Equation (A-9), expressed as a fifth-power polynomial

over the first 5 points of the mesh after the point representing $r = 0$. An initial value of v_0 was needed for the first calculation of the $Y_k(i, j)$ terms of the various potentials. This value was obtained from sums of the type:

$$\frac{2}{r} Y_k(i, j)_{r=0} = 2 \left\langle \frac{1}{r^{k+1}} \right\rangle_{ij} = 2 \int_0^\infty \frac{P_i P_j}{r^{k+1}} dr. \quad (\text{A-11})$$

The Numerov integration method (Reference 2, page 71) was employed for solution of Equation (10). The formula for the wavefunction at point $n+1$ is

$$P_{n+1} = \frac{2 y_n - y_{n-1} + h^2 F_n P_n - (h^2/12) G_n}{1 - (h^2/12) F_{n+1}}, \quad (\text{A-12})$$

$$\text{where } y_n = P_n \left\{ 1 - (h^2/12) F_n \right\}$$

$$F_n = -\epsilon - \frac{2Z}{r_n} + \frac{\ell(\ell+1)}{r_n^2} + V_{\text{coul}}(n) - V_{\text{add}}(n)$$

$$G_n = V_{\text{pex}}(n+1) + 10 V_{\text{pex}}(n) + V_{\text{pex}}(n-1)$$

$h =$ interval between adjacent points .

Thus P is given at any point in terms of P at the 2 preceding points and of values of F and G , already known for all points since they are calculated with values of P from the previous iteration. Equation (A-12) is derived from a series expression, but the first neglected term is approximately $h/240$ times the sixth derivative of P . The outward integration is continued to the matching radius r_0 , a few points beyond the last inflection point of the wavefunction. The inward integration starting points are somewhat more difficult to obtain. At large radii the V_{pex_1} term of Equation (10) is very small, and the value of F as defined in (A-12) is almost constant, approaching the positive value $(-\epsilon)$. The wavefunction may then be assumed to be decreasing roughly exponentially with increasing r . As suggested by Hartree (Reference 2, page 82) the ratio of two succeeding points for decreasing r is then $1+x$ where $x^2/(1+x) = h^2 F$. The starting radius was chosen to be 10 times the matching radius, or the value of r for which $\sqrt{F} r > 25$ [so that $\exp(-\sqrt{F} r)$ was less than 1.4×10^{-11}], whichever was greater. If the guessed wavefunction or the wavefunction from the preceding iteration were different from zero at this radius, then the same values were used as starting

points. If the value of the input P were zero at this radius, an arbitrary value of 10^{-20} times the value of $P_{\text{out}}(r_0)$ was chosen for the outermost point. The second point was then taken as $(1+x)P_1$, and integration commenced with the Numerov formula. If the inward integration were found to be unstable such that P_{in} became too large (in either the positive or negative direction), the value of the starting points were either increased or decreased in an attempt to remedy the instability. If this was unsuccessful, the outermost radius was decreased by 10 mesh points, and a new start made for the inward integration. If no satisfactory starting point could be found, an exponential curve of the form $r^n e^{-ar}$, where n is the principal quantum number, was used to extend P beyond the match point. This exponential fit, whether needed for the above reason or for other instabilities caused by poor input wavefunctions, was always successful in permitting the calculation to continue and was rarely needed for more than two iterations even for the most unstable orbitals. For the inward integration of the complementary function, the value of \bar{P}_{in} at the starting radius was chosen as $10 \exp(-\sqrt{F} r)$, the next point being greater by the factor $1+x$ described above. This integration was almost always stable and proceeded without trouble.

The adjustment of ϵ by major amounts followed the method of Herman and Skillman,³ and generally occurred during the process of outward integration. If one finds too many nodes in the solution, ϵ is increased; too few nodes or an undamped wavefunction are reasons for decreasing the trial values.

One instability that often occurred as a result of a poor choice for ϵ showed up as an inversion of the wavefunction at the matching point, i. e., the values of α , β found at r_0 were such that $P_{\text{out}} + \alpha \bar{P}_{\text{out}}$ was different in sign from $P_{\text{out}}(r_0)$. This could often be cured by increasing ϵ (to a more negative value); if not, an exponential fit of $ar^n e^{-br}$ was made at r_0 to P_{out} , as described earlier.

Test and adjustment of wavefunctions. After each iteration it was necessary to adjust the output wavefunctions. Wavefunctions, particularly for outer orbitals, inserted

unchanged into the next iteration have often been found² to lead to divergence rather than self-consistency. The adjustment scheme was similar both to that of Herman and Skillman³ and to that suggested by Hartree (Reference 2, page 87). For two iterations the input and output P 's were simply averaged. Thereafter simple averaging was alternated with the Hartree adjustment as modified by Herman and Skillman. Consider the results of the two preceding iterations. Hartree stated that there should be a constant β such that

$$P_{\text{III}}^i = P_{\text{I}}^i + \beta (P_{\text{II}}^i - P_{\text{I}}^i) = P_{\text{I}}^o + \beta (P_{\text{II}}^o - P_{\text{I}}^o), \quad (\text{A-13})$$

where i and o stand for input and output. Solving for β and substituting we find

$$P_{\text{III}}^i - (P_{\text{I}}^o P_{\text{II}}^i - P_{\text{II}}^o P_{\text{I}}^i) / (P_{\text{II}}^i - P_{\text{I}}^i - P_{\text{II}}^o + P_{\text{I}}^o). \quad (\text{A-14})$$

This can be put in the form

$$P_{\text{III}}^i = P_{\text{II}}^o - \alpha (P_{\text{II}}^o - P_{\text{II}}^i), \quad (\text{A-15})$$

where $\alpha = (P_{\text{I}}^o - P_{\text{II}}^o) / (P_{\text{II}}^i - P_{\text{I}}^i - P_{\text{II}}^o + P_{\text{I}}^o)$. The modification of Herman and Skillman was to restrict α to the range between 0 and 0.5, so that the input guess for the next iteration would be between P_{II}^o and $(P_{\text{II}}^o + P_{\text{II}}^i)/2$. In addition, if the denominator of (A-14) was very small α was simply set to 0.5 so that averaging resulted. During the adjustment procedure the maximum absolute change in each wavefunction was obtained and saved. If the largest change for any wavefunction were less than 5×10^{-6} , no further iterations were performed. If not, the next iteration was begun for all wavefunctions, with the exception that for alternate iterations the Schroedinger routine and subsequent adjustment were by-passed for any orbitals for which the maximum change of wavefunctions was less than 1.25×10^{-6} . If the largest change for any wavefunction was found to be less than 1.5×10^{-5} , subsequent adjustment was done only by averaging.

After the attainment of self-consistency by the above criterion, a final calculation of the Y_k integrals was made in preparation for calculation of the F^k and G^k integrals.

Integration. The only quadrature method described so far is that used in obtaining the Y_k integrals, where the values were required at every radial point. For several

other purposes, such as normalization and orthogonality integrals and calculation of expectation values, one needs only the definite integral between fixed limits such as 0 and ∞ . For these integrals, integrated over an integral number of blocks of 40 points each, a formula derived by integration of Newton's interpolation formula is satisfactory. Simpson's rule is derived by integration over 2 intervals, Weddle's rule over 6 intervals, and the rule used here by integration over 5 intervals at a time. We obtain

$$\int_{x_0}^{x_0+5h} y dx = \frac{5h}{288} \{19 y_0 + 75 y_1 + 50 y_2 + 50 y_3 + 75 y_4 + 19 y_5\}. \quad (\text{A-16})$$

The formula is easily coded for machine calculation over blocks of points where the intervals in a block are divisible by 5.

Orthogonality. The Hartree-Fock Equation (3) contains terms of the form $\omega_j \epsilon_{ij} P_j$ with $j \neq i$ and $l_i = l_j$. These terms are included to assure orthogonality ($\int P_i P_j dr = 0$) of radial wavefunctions with equal quantum number l ; the ϵ_{ij} are determined such that orthogonality is obtained. In general it is found that good orthogonality is obtained between two completely filled shells without inclusion of the ϵ_{ij} , and machine calculation time is considerably reduced. The ϵ_{ij} terms were included whenever shell i or shell j was not full.

To find expressions for preliminary values of ϵ_{ij} , Equation (3) is multiplied by P_j and integrated. For different numbers of electrons in the two shells ($\omega_i \neq \omega_j$),

$$(\omega_j - \omega_i) \epsilon_{ij} = \left(1 - \frac{\omega_j}{4l+2}\right) \left\{ R^0(ijjj) - \Sigma(2,4,6) \frac{c^k}{(4l+1)} R^k(ijjj) \right\} - \left(1 - \frac{\omega_i}{4l+2}\right) \left\{ R^0(jiii) - \Sigma(2,4,6) \frac{c^k}{(4l+1)} R^k(jiii) \right\}, \quad (\text{A-17})$$

where

$$R^k(ijjj) = \int_0^\infty \frac{2}{r} P_j^2 Y_k(ij) dr. \quad (\text{A-18})$$

If either shell is full, half the terms are eliminated. For $\omega_i = \omega_j$, including the case of two full shells:

$$\omega_j \epsilon_{ij} = \int_0^\infty r^{2l+2} \frac{d}{dr} \left(\frac{P_i}{r^{l+1}} \right) \frac{d}{dr} \left(\frac{P_j}{r^{l+1}} \right) dr + \int_0^\infty P_j \left\{ P_i \left[V_{\text{coul}} - V_{\text{add}_i} - \frac{2Z}{r} \right] - V_{\text{pex}_i} \right\} dr. \quad (\text{A-19})$$

Neither of these equations is exact unless the wavefunctions are already truly self-consistent and orthonormal. The applicable equation was used whenever values of ϵ_{ij} were not known (they were included on the magnetic tape record of previous runs), and were incorporated in the section of the code in which the Y_k 's and potential functions were calculated. In practice the sum of the terms $\omega_j \epsilon_{ij} P_j$ were included in V_{pex_i} .

As mentioned above, the equations for ϵ_{ij} are not necessarily correct during the calculation, and do not generally bring about good orthogonality. Included at the end of the Schroedinger routine section of code was a short section which determined a new value of ϵ_{ij} such as to force orthogonality of P_i with the P_j 's of shells interior to shell i (shells of lesser principal quantum number). The procedure was to calculate the integral $\int P_i P_j dr$, vary the ϵ_{ij} by 5%, recalculate P_i and the integral, and to adjust ϵ_{ij} by linear interpolation. If the initial orthogonality was less than 10^{-7} , the adjustment of ϵ_{ij} was bypassed.

"Standard" wavefunctions. If one calculates the orthogonality parameters ϵ_{ij} for all closed shells, then in theory it is possible to transform the calculated wavefunctions for closed shells by a unitary transformation to a so-called standard set in which closed shells are orthogonal without use of the ϵ_{ij} parameters. As an example we consider the s shells of argon and designate the standard wavefunctions by S_i :

$$S_{1s} = C_{11} P_{1s} + C_{01} P_{0s} + C_{31} P_{3s}$$

$$S_{2S} = C_{12}P_{1S} + C_{22}P_{2S} + C_{32}P_{3S}$$

$$S_{3S} = C_{13}P_{1S} + C_{23}P_{2S} + C_{33}P_{3S}. \quad (A-20)$$

The coefficients C_{11} , C_{22} , and C_{33} are close to unity; the others are small. A code was written to calculate the C_{ij} values; however, as is obvious from the equations, the 1s wavefunction now had small contributions from the outer s shells, and in fact showed extra nodes at large radii. The usefulness of wavefunctions with an incorrect number of nodes seemed doubtful, and no further work was continued along these lines.

Energy relationships. The total energy of the atom can be calculated by three different equations:

$$E_I = \sum \omega_i I(n\ell) + fg \quad (A-21)$$

$$E_\epsilon = \sum \omega_i \epsilon_i - fg \quad (A-22)$$

$$E_K = -\text{Kinetic Energy} = -\sum \omega_i \int u_i^* (-\nabla^2) u_i dv,$$

or with the transformation of Equation (14),

$$E_K = -\sum \omega_i \int_0^\infty \left\{ r^{\ell+1} \frac{d}{dr} \left(\frac{P}{r^{\ell+1}} \right) \right\}^2 dr \quad (A-23)$$

where fg designates the sum of the interaction energies of all electron pairs. The last relationship is a statement of the virial theorem. Designating the integral of the last equation as K_i , we remember that $I(n\ell) = K_i - 2Z \langle \frac{1}{r} \rangle$, where $\langle \frac{1}{r} \rangle$ is the average value of $1/r$ for the orbital. The total energy E was calculated for each atom by the three methods, and three slightly different values were obtained. Except for hydrogen, it does not seem to be possible to determine which is most accurate. If the errors in fg , $\langle \frac{1}{r} \rangle$, ϵ , and K are designated by Δ , we find two relations between the four Δ 's:

$$\sum \omega_i \left\{ \Delta K_i + \Delta \epsilon_i \right\} - \Delta fg = E_\epsilon - E_K$$

$$\sum \omega_i \left\{ 2 \Delta K_i - 2Z \Delta \left\langle \frac{1}{r} \right\rangle \right\} + \Delta fg = E_I - E_K. \quad (A-24)$$

For hydrogen, where the correct values are known for all the above variables, ΔK was -6.07×10^{-8} , $\Delta \langle \frac{1}{r} \rangle$ was -1.34×10^{-8} , $\Delta \epsilon$ was less than 5×10^{-11} , and Δfg was approximately -3×10^{-8} .

Since E_I is derived from the formal definition of the total energy, it is the value listed for the total energy in Table I. It was found that E_I was an intermediate value between E_K and E_ϵ for all the elements. The results from the three methods of calculation are shown for typical elements in Table A-I.

Table A-I. Energies of Selected Elements by Three Different Methods (All are negative.)

	$\frac{E_I}{}$	$\frac{E_K}{}$	$\frac{E_\epsilon}{}$
H	1.000000034	0.999999939	1.000000000
He	5.732260	5.723369	5.723349
Ar	1053.635	1053.639	1053.632
Mo	7950.739	7950.760	7950.724
Dy	23282.47	23282.58	23282.39
Ta	29599.52	29599.64	29599.43
Rn	43733.56	43733.83	43733.33
Lw	67115.93	67116.51	67115.58

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References

1. John C. Slater, Quantum Theory of Atomic Structure, Vols. I and II, McGraw-Hill Book Co., Inc., N.Y., 1960.
2. Douglas R. Hartree, Calculation of Atomic Structures, John Wiley and Sons, Inc., New York, 1957.
3. Frank Herman and Sherwood Skillman, Atomic Structure Calculations, Prentice-Hall, Inc., Englewood Cliffs, New Jersey, 1963.
4. J. C. Slater, Phys. Rev. 81, 385 (1951).
5. T. A. Koopmans, Physica 1, 104 (1933).
6. A. J. Freeman and P. O. Lowdin, Phys. Rev. 111, 1212 (1958).
7. Joseph B. Mann, "Atomic Structure Calculations. II. Hartree-Fock Wavefunctions and Radial Expectation Values: Hydrogen to Lawrencium," LA-3691, Los Alamos Scientific Laboratory, to be issued.
8. R. D. Cowan, Phys. Rev., to be published.
9. W. W. Piper, Phys. Rev. 123, 1281 (1961).
10. James B. Scarborough, Numerical Mathematical Analysis, Johns Hopkins Press, Baltimore, 3rd edition, 1955.