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Abstract

Relativistic multireference many-body perturbation theory calculations have been performed on Xe^{43+} - Xe^{39+} ions, resulting in energy levels, electric dipole transition probabilities, and level lifetimes. The second-order many-body perturbation theory calculation of energy levels included mass shifts, frequency-dependent Breit correction and Lamb shifts. The calculated transition energies and E1 transition rates are used to present synthetic spectra in the extreme ultraviolet range for some of the Xe ions.

Contents

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1 Introduction

In the last few years the need for accurate spectroscopic data on highly charged ions has been increasing, because more energetic light sources (laser produced plasmas, foil-excited ion beams, tokamak fusion devices, and electron beam ion traps) have made progress into this range. Discussions of the status of highly charged multi-electron ions of Xe and Au, for example, as well as references to experimental and theoretical work on these ions, can be found in [1–7]. While reliable experimental and theoretical data are available for most of the low-Z ions, this is decidedly not the case for the high-Z (Z≥42) ions. Isoelectronic trend analysis is a very effective tool for obtaining accurate estimates by interpolation. However, extrapolated estimates are accurate only for a few neighboring ions, and the process fails completely for any longer range extrapolation. It is obvious that extremely accurate theoretical data for an element in the middle of the periodic sequence, for example Xe (Z=54), could provide a cornerstone and reference for the future isoelectronic analysis of spectra of highly ionized ions.

Most of the previous theoretical studies for multi-valence electron systems were carried out using the multiconfiguration Dirac-Fock-Breit (MCDFB) method, with varying degrees of success. Moreover, only very few highly-correlated calculations have been performed for systems with more than two valence electrons. We have developed and implemented into an atomic structure code package a version of the relativistic multireference Møller-Plesset (MR-MP) many-body theory that provides very accurate transition energies and transition probabilities in highly-charged ions [8–10]. We have applied such calculations of transition energies and transition probabilities to a range of xenon ions with an open n=3 shell (Na- to P-like ions).

2 Theory

Our calculational approach has been explained in sufficient detail elsewhere [8–10], so that we can keep the present description brief. The effective N-electron Hamiltonian (in atomic units) for the development of our relativistic MR-MP algorithm is taken to be the relativistic "no-pair" Dirac-Coulomb-Breit (DCB) Hamiltonian

$$H_{DCB}^{+} = \sum_i h_D(i) + \mathcal{L}_+ \left(\sum_{i>j} \frac{1}{r_{ij}} + B_{ij}(0) \right) \mathcal{L}_+ \tag{1}$$

with

$$B_{ij}(0) = -\frac{1}{2}[\boldsymbol{\alpha}_i \cdot \boldsymbol{\alpha}_j + (\boldsymbol{\alpha}_i \cdot \mathbf{r}_{ij})(\boldsymbol{\alpha}_j \cdot \mathbf{r}_{ij})/r_{ij}^2]/r_{ij}, \tag{2}$$

Here $h_D(i)$ is the Dirac one-electron Hamiltonian. $\mathcal{L}_+$ is the projection operator onto the positive-energy space and it takes into account the field-theoretic condition that the negative-energy states are filled. To account for strong configuration mixing among the highly excited levels, the multireference configuration interaction method (MR-CI) [10] is introduced. N-electron eigenfunctions of the no-pair DCB Hamiltonian are approximated by a linear combination of M configuration-state functions, $\{\Phi_I(\gamma_I \mathcal{J}\pi); I = 1, 2, \ldots, M\}$, constructed from the one-particle positive-energy spinors. The MR-CI wave function $\psi_K^{MC}(\gamma_K \mathcal{J}\pi)$ is an eigenfunction of the angular momentum and parity operators with total angular momentum $\mathcal{J}$ and parity π. γ denotes a set of quantum numbers other than $\mathcal{J}$ and π necessary to specify the state uniquely.

$$\psi_K^{CI}(\gamma_K \mathcal{J}\pi) = \sum_I^M C_{IK} \Phi_I(\gamma_I \mathcal{J}\pi) \tag{3}$$

The total DCB energy of the general CI state $|\psi_K^{CI}(\gamma_K \mathcal{J}\pi) >$ can be expressed as

$$E_K^{CI} =< \psi_K^{CI} | H_{DCB}^{+} | \psi_K^{CI} >= \sum_{I,J=1}^{M} C_{IK} C_{JK} < \Phi_I | H_{DCB}^{+} | \Phi_J > . \tag{4}$$

Here it is assumed that $\psi_K^{CI}(\gamma_K \mathcal{J}\pi)$ and $\Phi_I(\gamma_I \mathcal{J}\pi)$ are normalized. The frequency-dependent Breit interaction, normal mass shift and specific mass shift are evaluated as the first-order corrections using the eigenvectors $\{\psi_K^{CI}(\gamma_K \mathcal{J}\pi)\}$ from the MR-CI [10]. The frequency dependence of the Breit interaction is evaluated in the Coulomb gauge. The no-pair DCB Hamiltonian $H_{DCB}^{+} = H_0 + V$ is decomposed into two parts, unperturbed Hamiltonian H_0 and perturbation V, following Møller and Plesset [11],

$$H_0 = \sum_I |\Phi_I(\gamma_I \mathcal{J}\pi) > E_I^{CSF} < \Phi_I(\gamma_I \mathcal{J}\pi)|, \tag{5}$$

so that

$$H_0 |\Phi_I(\gamma_I \mathcal{J}\pi) >= E_I^{CSF} |\Phi_I(\gamma_I \mathcal{J}\pi) > . \tag{6}$$

E_I^{CSF} is a sum of the products of one-electron energies ε_q^{+} and an occupation number $n_{n_q\kappa_q}[I]$ of the κ_q-symmetry shell in the CSF $\Phi_I^{(+)}(\gamma_I \mathcal{J}\pi)$;

$$E_I^{CSF} = \sum_q \varepsilon_q^{+} n_{n_q\kappa_q}[I]. \tag{7}$$

Application of Rayleigh-Schrödinger perturbation theory provides order-by-order expressions of the perturbation series for the state approximated by $|\psi_K^{CI}(\gamma_K \mathcal{J}\pi) >$,

$$E_K(\gamma_K \mathcal{J}\pi) = E_K^{CI}(\gamma_K \mathcal{J}\pi) + E_K^{(2)} + \ldots, \tag{8}$$

and

$$E_K^{(2)} = \sum_{L=M+1} \sum_{I,J=1}^{M} C_{IK} C_{JK} \frac{< \Phi_I|V|\Phi_L >< \Phi_L|V|\Phi_J >}{E_J^{CSF} - E_L^{CSF}}. \tag{9}$$

Many-electron multipole transition operators T_{JM}^{ϑ} for the magnetic(ϑ=E) and electric(ϑ=M) multipoles may be given in second quantized form,

$$T_{JM}^{\vartheta} = \sum_{ij} < t_{JM}^{\vartheta} >_{ij} a_i^{+} a_j. \tag{10}$$

Here $t_{JM}^{\vartheta}(\mathbf{r}, w)$ are one-particle multipole transition operators [12]. The absorption probability $< B >_{K\to K'}$ per unit time of transition between states $|\psi_K(\gamma_K \mathcal{J}\pi) >$ and $|\psi_{K'}(\gamma_{K'} \mathcal{J}'\pi') >$ with transition energy $\Delta E = hw = E_{K'} - E_K$ is equal to the spontaneous emission probability $< A >_{K'\to K}$ and is expressed as

$$< B^{\vartheta J} >_{K\to K'}= 2\alpha w \frac{(2J+1)(J+1)}{(2\mathcal{J}+1)J} [< T_J^{\vartheta} >_{K'K}]^2 =< A^{\vartheta J} >_{K'\to K} . \tag{11}$$

In the lowest-order of Rayleigh-Schrödinger perturbation theory, the multipole transition amplitude between states K and K' is

$$< T_J^{\vartheta} >_{KK'}^{(0)} =< \psi_K(\gamma_K \mathcal{J}\pi)|T_{JM}^{\vartheta}|\psi_{K'}(\gamma_{K'} \mathcal{J}'\pi') >$$

$$= \sum_{IL} C_{IK} C_{LK'} < \Phi_I(\gamma_I \mathcal{J}\pi)|T^{\vartheta}_{JM}|\Phi'_L(\gamma_L \mathcal{J}'\pi') > . \tag{12}$$

and using the order-by-order expressions of the perturbation series for the state approximated by MCDF SCF wavefunction, the next-order transition amplitude is

$$< T^{\vartheta}_J >^{(1)}_{KK'} = < \psi^{(1)}_K(\gamma_K \mathcal{J}\pi)|T^{\vartheta}_{JM}|\psi_{K'}(\gamma_{K'}\mathcal{J}'\pi') > +$$

$$+ < \psi_K(\gamma_K \mathcal{J}\pi)|T^{\vartheta}_{JM}|\psi^{(1)}_{K'}(\gamma_{K'}\mathcal{J}'\pi') > \tag{13}$$

As with the second-order energy, the first-order transition amplitude can be expressed in terms of CSFs in the following way

$$< T^{\vartheta}_J >^{(1)}_{KK'} = \sum_{L=M+1} \sum_{I,I'=1}^{M} C_{IK} C_{I'K'} [\frac{< \Phi_I|V|\Phi_L >< \Phi_L|T^{\vartheta}_{JM}|\Phi_{I'} >}{E^{CSF}_I - E^{CSF}_L} +$$

$$+ \frac{< \Phi_I|T^{\vartheta}_{JM}|\Phi'_L >< \Phi'_L|V|\Phi_{I'} >}{E^{CSF}_{I'} - E^{CSF}_L}]. \tag{14}$$

Summation L over intermediate states includes both the positive and negative energy subspaces. With the summation extended to negative energy subspace, E1 and E2 transition probabilities computed in the velocity gauge approach the values computed in length gauge. One-electron reduced matrix elements are frequency-dependent through spherical Bessel functions. The corrections arising from the only approximate photon frequency may be eliminated semiempirically by using experimental transition energies. In the present study, transition energies (and photon frequencies $\omega^{(0+1+2)}$) calculated by MR-MP second-order perturbation theory are close to the experimental values, and the terms arising from corrections to the photon frequency $\delta\omega = \omega^{\exp t} - \omega^{(0+1+2)}$ in both zero- and first-order transition amplitudes are significantly smaller than in most earlier computations and may be neglected.

3 Computational details

The large and small radial components of the Dirac spinors are expanded in sets of even-tempered Gaussian-type functions that satisfy the boundary conditions associated with the finite nucleus [13]. The speed of light is taken to be 137.0359895 a.u. throughout this study. Even-tempered basis sets of 26s24p20d18f Gaussian spinors for up to angular momentum L=3 and 15 Gaussian spinors for L=4-11 are employed. The order of the partial-wave expansion L_{max}, the highest angular momentum of the spinors included in the virtual space, is L_{max}=11 throughout this study. The nuclei were simulated as spheres of uniform proton charge with the radii $R = 2.776 \cdot 10^{-5} \cdot A^{1/3}$, where A is the atomic mass in amu and R is in Bohr. All electrons have been included in the MR-MP perturbation theory calculations to determine accurately the effects of relativity on electron correlation. Radiative corrections, the Lamb shifts, were estimated for each state by evaluating the electron self-energy and vacuum polarization following an approximation scheme discussed by Indelicato, Gorceix, and Desclaux [14].

In order to generate radial spinors, the mean-average of the energies of several states has been optimized using a multiconfiguration Dirac-Fock self-consistent-field procedure. The following set of the nonrelativistic configurations was used: $3s$, $3p$ and $3d$ for Na-like,$3s^2$, $3s3p$, $3p^2$ and $3s3d$ for Mg-like, $3s^23p$, $3s3p^2$, $3p^3$ and $3s3p3d$ for Al-like, $3s^23p^2$, $3s3p^3$, $3p^4$ and $3s^23p3d$ for Si-like, $3s^23p^3$, $3s3p^4$, $3p^5$ and $3s^23p^23d$ for P-like ions. To construct our MR-CI wave function, the complete active space of the n=3 complex was employed - all valence electrons were distributed in all possible ways in the n=3 shells $3s^{n1}3p_{1/2}^{n2}3p_{3/2}^{n3}3d_{3/2}^{n4}3d_{5/2}^{n5}$.

4 Results and discussion

The total numbers of energy levels were 5, 35, 147, 503 and 1205, for Na-like, Mg-like, Al-like, Si-like and P-like xenon ions, respectively. Electric-dipole (E1) transitions were calculated between all levels. The total numbers of E1 lines were 5, 178, 3234, 33583 and 196540, for Na-like, Mg-like, Al-like, Si-like and P-like xenon ions, respectively. In the Tables we present only the strongest E1 lines. Metastable levels are those for which E1 decays are forbidden; M1 and E2 transition rates and the corresponding much longer level lifetimes have been calculated for these cases and presented elsewhere [5].

We estimate the theoretical uncertainties by comparing (in Table 1) our MR-MP calculated wavelengths with other theoretical results and with experimental data. For one-valence electron systems (Na-like ions), Johnson *et al.* [15] performed very accurate third-order many-body perturbation theory (MBPT) calculations of the transition energies for a number of members of the Na I isoelectronic sequence. Later, Kim *et al.* [16] interpolated the theoretical results including Lamb shift estimates for all members of the Na I isoelectronic sequence. The equally accurate *ab initio* calculations by Blundell [17] would have to be interpolated for Na-like Xe, and therefore are of little use here. The MR-MP calculated value of 806862 cm^{-1} agrees very well with the higher-order PT estimate of 806817 cm^{-1}. Both theoretical results are within the error bars of the experimental value of the 3p ^{2}P$^{\circ}_{1/2}$ - 3s ^{2}S$_{1/2}$ transition energy, 806970$\pm$200 cm^{-1}. It is well known that perturbative procedures converge very well for few-valence electron systems. A very close agreement between different perturbation series was therefore expected. Mg-like systems have two valence electrons and exhibit some quasidegeneracies. The MR-MP calculated Mg-like Xe 3s3p $^1P_1^o \rightarrow 3s^2\ ^1S_0$ transition energy 1589396 cm^{-1} lies within about 1000 cm^{-1} of the experimental data [4]. The major sources of MR-MP error are the inaccuracies in the phenomenological Lamb shift calculation procedure and higher-order correlation corrections. The results presented for three- and four-valence electrons allows us to estimate that our MR-MP calculations are accurate to 0.04% (about 600 cm^{-1}).

The extensive results for Na-like, Mg-like, Al-like, Si-like, and P-like xenon ions are presented in two tables and one figure for each ion species (except for Na-like ions, because of the simplicity of the level scheme). One of the two tables contains all the MR-MP calculated level energies and lifetimes. The other table lists the strongest electric-dipole (E1) transitions together with the lifetime of the upper level and both unbranched and branched (A_{br}) transition probabilities. For most xenon ions there are a great many transitions; we have therefore limited this list to the strongest lines, which is still a great number in the ions with several electrons in the valence shell. The full set of the calculated lines has been convoluted with a Gaussian line profile, and a synthetic survey spectrum is shown for each xenon ion. Detail spectra with numerous prominent lines have been enlarged and plotted along with the surveys.

We have tested the validity of the present type of calculation by comparison to other calculational results and to experimental data, which are available, for example, for a medium-Z (Xe) [5] and a high-Z (Au, Z=79) [7,6] element. In both cases, time-resolved beam-foil spectra [1–3] and time-integrated spectra from an electron beam ion trap (SuperEBIT at Livermore) [4] were at hand. The MR-MP calculations matched the experimental line positions from SuperEBIT typically to within 50 mÅ, which is a notable improvement over practically all earlier calculations of such ions with two or more n=3 valence electrons. In the spectrally less well resolved, but time resolved beam-foil spectra, the relative line intensitites in synthetic spectra were also close to the experimental pattern and suggested the re-identification of several lines so that now a consistent set of line identifications is available. We refer the reader to those comparison papers [5,7,6] also for references to most of the other calculations.

In conclusion, these systematic calculations provide a consistent and accurate set of reference data that has been corroborated by comparison with reliable experimental data. The computational approach has been tested for much heavier ions as well, promising results of similar quality for similar ions of all naturally occurring elements.

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Explanation of Tables

Table 1. Contribution (cm^{-1}) from each order of perturbation theory to the transition energies of lines in the 60-150 Å wavelength range.

Table 2, 4, 6, 8, and 10. Energy levels (cm^{-1} and lifetimes (seconds) in Xe ions.

Occ	Occupation of the dominant relativistic CSF $3s^{n1}3p_{1/2}^{n2}3p_{3/2}^{n3}3d_{3/2}^{n4}3d_{5/2}^{n5}$
J(No)P	key consisting of the quantum number J, parity P and appearence number No
E	Excitation energy in cm^{-1}
τ	Lifetime in seconds

Table 3, 5, 7, 9, and 11. Transitions in Xe ions.

λ	Transition wavelength in Ångström
Upper	Key of the upper level
τ	Upper level lifetime in seconds
Lower	Key of the lower level
A	Unbranched (total) transition probability
A_{br}	Branched transition probability

Table 1
Contribution (cm^{-1}) from each order of perturbation theory to the transition energies in 60-150 Å wavelength range.

	E^{CI}	$E^{(2)}$	$E^{(0+1+2)a}$	$E_{LS}{}^{b}$	E^{c}_{other}	E_{total}
Na-like 3p $^2P^o_{1/2} \to$ 3s $^2S_{1/2}$						
MR-MP	820982	-2056	818926	-11946	-62	806862
MBPT^{d}	830667	-1633		-12217		806817
Experiment [18]						806970±200
Mg-like 3s3p $^1P^o_1 \to 3s^2$ $^1S_0$						
MR-MP	1606498	-5578	1600920	-10644	-833	1589396
Experiment [4]						1590460±300
Experiment [5]						1590330±1250
Al-like 3s3p^2 $^2P_{1/2} \to 3s^23p$ $^2P^o_{1/2}$						
MR-MP	1640900	-6506	1634394	-10589	-816	1622936
Experiment [5]						1623900±1300
Si-like 3s3p^3 $^3D^o_1 \to 3s^23p^2$ $^3P_0$						
MR-MP	1589544	-2225	1587319	-8974	-748	1577544
Experiment [5]						1578500±1250

^{a} - $E_K^{(0+1+2)} = E_K^{CI} + E_K^{(2)}$. ^{b} - Lamb shift correction. ^{c} - First-order frequency-dependent Breit correction, $\Delta B(w)^{(1)}$, plus normal and specific mass shifts. ^{d} - Third-order MBPT calculations [15] including Lamb shift corrections [16].

Table 2: Energy levels (cm^{-1}) and lifetimes (s) in Xe^{43+} (Na-like) ions.

Occ	J(No)P	E	τ
10000	1/2(1)	0	
01000	1/2(1)*	806861	4.270D-11
00100	3/2(1)*	1500802	6.363D-12
00010	3/2(1)	2522571	5.785D-12
00001	5/2(1)	2678242	1.534D-11

Table 3: Transitions in Xe^{43+} (Na-like) ions.

λ	Upper	τ	lower	A	A_{br}
58.285	3/2(1)	5.785D-12	1/2(1)*	1.6589D+11	1.5921D+11
66.631	3/2(1)*	6.363D-12	1/2(1)	1.5717D+11	1.5717D+11
84.930	5/2(1)	1.534D-11	3/2(1)*	6.5204D+10	6.5204D+10
97.869	3/2(1)	5.785D-12	3/2(1)*	6.9636D+09	2.8053D+08

Table 4: Energy levels (cm^{-1}) and lifetimes (s) in Xe^{42+} (Mg-like) ions.

Occ	J(No)P	E	τ
20000	0(1)	0	
11000	0(1)*	699010	
11000	1(1)*	769510	1.623D-10
10100	2(1)*	1380000	0.000D+00
10100	1(2)*	1589390	3.645D-12
02000	0(2)	1677773	1.467D-11
01100	2(1)	2282330	1.308D-11
01100	1(1)	2288427	4.706D-12
10010	1(2)	2545077	4.768D-12
10010	2(2)	2581755	3.960D-12
10001	3(1)	2696523	1.163D-11
10001	2(3)	2768250	6.978D-12
00200	2(4)	3057724	2.569D-12
00200	0(3)	3121076	2.880D-12
01010	2(2)*	3301153	3.473D-11
01010	1(3)*	3477609	3.278D-12
01001	2(3)*	3547796	9.068D-12
01001	3(1)*	3548338	1.653D-11
00110	2(4)*	4043424	2.841D-12
00110	3(2)*	4101892	2.975D-12
00110	0(2)*	4102684	2.592D-12
00110	1(4)*	4106003	2.602D-12
00101	4(1)*	4134127	7.275D-12
00101	2(5)*	4208796	3.898D-12
00101	3(3)*	4328199	3.461D-12
00101	1(5)*	4388405	3.317D-12

Table 4: (continued)

Occ	J(No)P	E	τ
00020	2(5)	5155152	2.613D-12
00020	0(4)	5286121	2.281D-12
00011	3(2)	5286539	3.767D-12
00011	4(1)	5353595	4.735D-12
00011	2(6)	5358181	3.214D-12
00011	1(3)	5381073	3.135D-12
00002	4(2)	5477271	7.077D-12
00002	2(7)	5522440	5.448D-12
00002	0(5)	5699117	3.809D-12

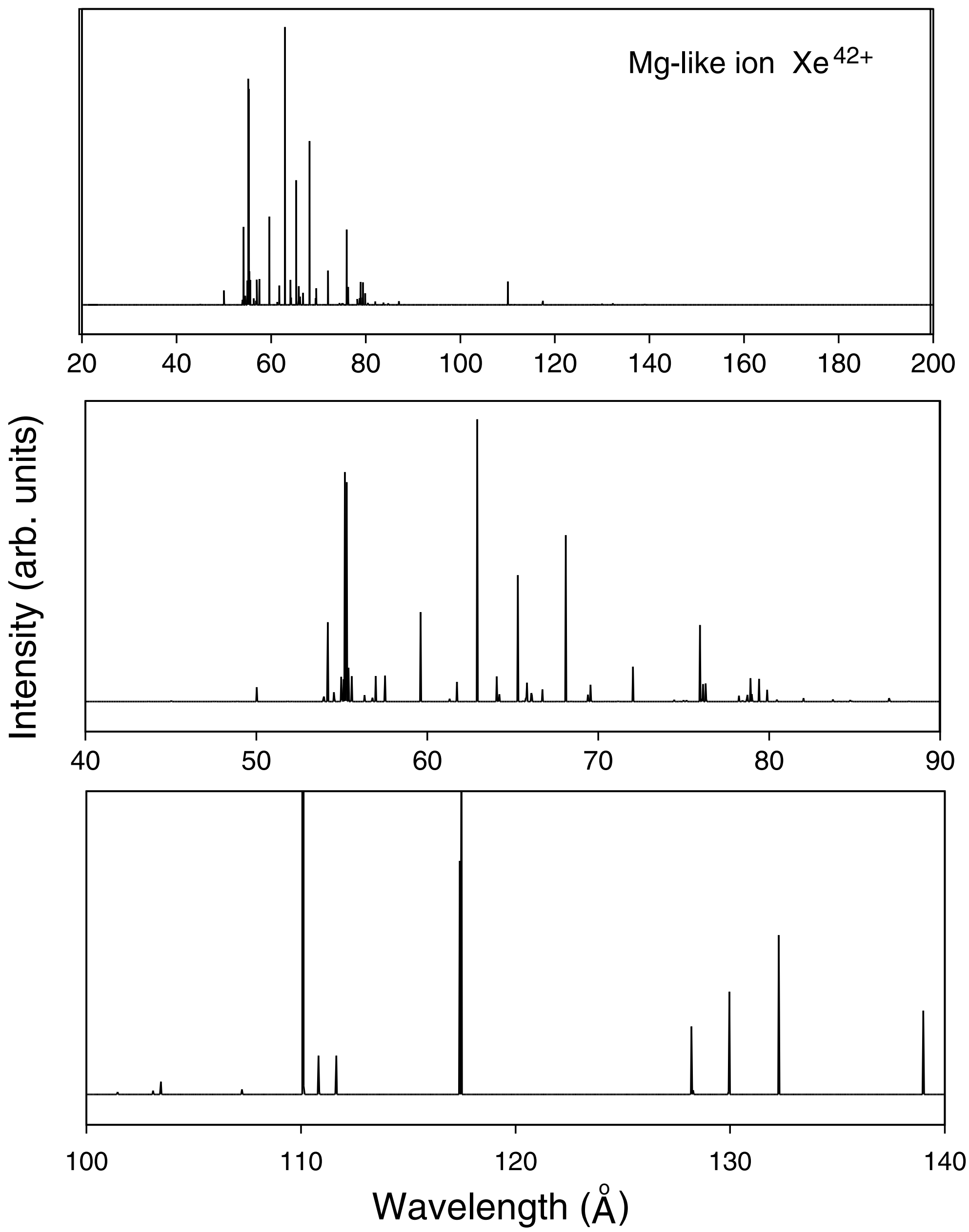

Fig. 1. Synthetic spectra of Xe^{42+} (Mg-like) ions

Table 5: Transitions with probabilities higher than 10^{+8} s^{-1} in Xe^{42+} (Mg-like) ions.

λ	Upper	τ	lower	A	A_{br}
24.333	0(5)	3.809D-12	1(2)*	1.1430D+10	4.9757D+08
42.525	0(3)	2.880D-12	1(1)*	6.1748D+09	1.0982D+08
45.014	0(5)	3.809D-12	1(3)*	2.7490D+10	2.8781D+09

Table 5: (continued)

λ	Upper	τ	lower	A	A_{br}
47.482	1(5)*	3.317D-12	2(1)	8.8880D+09	2.6204D+08
48.614	2(6)	3.214D-12	2(2)*	8.3176D+09	2.2238D+08
48.879	3(3)*	3.461D-12	2(1)	9.4405D+09	3.0845D+08
50.032	2(3)	6.978D-12	1(1)*	4.7485D+10	1.5734D+10
51.842	4(2)	7.077D-12	3(1)*	1.4028D+10	1.3927D+09
53.937	2(5)	2.613D-12	2(2)*	2.0078D+11	1.0532D+11
54.169	1(2)	4.768D-12	0(1)*	1.3453D+11	8.6304D+10
54.547	1(3)	3.135D-12	2(3)*	2.0752D+11	1.3500D+11
54.834	1(4)*	2.602D-12	2(1)	1.4739D+10	5.6529D+08
54.958	3(2)*	2.975D-12	2(1)	1.0474D+11	3.2637D+10
55.018	1(4)*	2.602D-12	1(1)	1.5739D+11	6.4458D+10
55.119	0(2)*	2.592D-12	1(1)	1.9545D+11	9.8994D+10
55.180	2(2)	3.960D-12	1(1)*	2.4973D+11	2.4699D+11
55.237	2(6)	3.214D-12	2(3)*	1.6231D+11	8.4684D+10
55.253	2(6)	3.214D-12	3(1)*	4.2430D+10	5.7870D+09
55.294	0(4)	2.281D-12	1(3)*	4.0939D+11	3.8230D+11
55.351	1(5)*	3.317D-12	2(2)	1.3162D+10	5.7462D+08
55.394	4(1)	4.735D-12	3(1)*	8.7794D+10	3.6494D+10
55.561	1(3)*	3.278D-12	0(2)	2.5983D+11	2.2131D+11
56.320	1(2)	4.768D-12	1(1)*	7.1294D+10	2.4237D+10
56.783	2(4)*	2.841D-12	2(1)	1.4733D+11	6.1667D+10
56.980	2(4)*	2.841D-12	1(1)	9.7785D+10	2.7167D+10
57.513	3(2)	3.767D-12	2(3)*	6.7009D+10	1.6915D+10
57.531	3(2)	3.767D-12	3(1)*	1.2513D+11	5.8983D+10
59.605	2(4)	2.569D-12	2(1)*	1.2018D+11	3.7100D+10
59.611	2(5)	2.613D-12	1(3)*	1.6124D+11	6.7923D+10
60.106	2(5)*	3.898D-12	1(2)	6.6517D+09	1.7247D+08

Table 5: (continued)

λ	Upper	τ	lower	A	A_{br}
61.287	3(3)*	3.461D-12	3(1)	7.2468D+10	1.8175D+10
61.461	2(5)*	3.898D-12	2(2)	2.8656D+10	3.2010D+09
61.722	1(5)*	3.317D-12	2(3)	1.2824D+11	5.4554D+10
62.916	1(1)	4.706D-12	0(1)*	1.1944D+11	6.7140D+10
62.917	1(2)*	3.645D-12	0(1)	2.7433D+11	2.7433D+11
64.065	1(4)*	2.602D-12	1(2)	1.4323D+11	5.3381D+10
64.105	3(3)*	3.461D-12	2(3)	1.2404D+10	5.3249D+08
64.201	0(2)*	2.592D-12	1(2)	1.9043D+11	9.3974D+10
65.288	0(3)	2.880D-12	1(2)*	3.4102D+11	3.3495D+11
65.606	1(4)*	2.602D-12	2(2)	5.6223D+10	8.2251D+09
65.784	3(2)*	2.975D-12	2(2)	1.8513D+11	1.0196D+11
65.836	1(1)	4.706D-12	1(1)*	6.5320D+10	2.0079D+10
66.102	2(1)	1.308D-11	1(1)*	5.6963D+10	4.2453D+10
66.126	2(5)*	3.898D-12	3(1)	4.2604D+10	7.0755D+09
66.740	2(4)*	2.841D-12	1(2)	6.9999D+10	1.3921D+10
67.613	2(7)	5.448D-12	2(4)*	8.1028D+09	3.5769D+08
68.104	2(4)	2.569D-12	1(2)*	2.6415D+11	1.7921D+11
68.415	2(4)*	2.841D-12	2(2)	2.7973D+10	2.2231D+09
69.418	2(5)*	3.898D-12	2(3)	1.6050D+11	1.0041D+11
69.560	4(1)*	7.275D-12	3(1)	1.3746D+11	1.3746D+11
70.395	2(7)	5.448D-12	3(2)*	4.7520D+09	1.2302D+08
70.600	2(7)	5.448D-12	1(4)*	4.4852D+09	1.0960D+08
71.156	3(2)*	2.975D-12	3(1)	2.3695D+10	1.6703D+09
72.033	2(3)	6.978D-12	2(1)*	7.5409D+10	3.9680D+10
74.452	4(2)	7.077D-12	4(1)*	2.4748D+10	4.3345D+09
74.752	1(4)*	2.602D-12	2(3)	6.9629D+09	1.2615D+08
74.758	1(3)	3.135D-12	2(4)*	1.5340D+10	7.3765D+08

Table 5: (continued)

λ	Upper	τ	lower	A	A_{br}
74.983	3(2)*	2.975D-12	2(3)	2.2479D+10	1.5032D+09
75.149	1(5)*	3.317D-12	2(4)	5.3910D+10	9.6404D+09
75.958	3(1)	1.163D-11	2(1)*	8.5973D+10	8.5973D+10
76.060	2(6)	3.214D-12	2(4)*	3.1826D+10	3.2560D+09
76.124	2(7)	5.448D-12	2(5)*	1.0851D+11	6.4145D+10
76.294	0(5)	3.809D-12	1(5)*	2.2301D+11	1.8941D+11
78.223	1(3)	3.135D-12	0(2)*	4.4625D+10	6.2424D+09
78.427	1(3)	3.135D-12	1(4)*	4.4165D+10	6.1144D+09
78.711	3(3)*	3.461D-12	2(4)	1.9365D+11	1.2979D+11
78.906	1(5)*	3.317D-12	0(3)	8.7492D+10	2.5392D+10
78.988	3(1)*	1.653D-11	2(1)	3.1531D+10	1.6439D+10
79.022	2(3)*	9.068D-12	2(1)	1.7837D+10	2.8850D+09
79.405	2(3)*	9.068D-12	1(1)	6.6290D+10	3.9847D+10
79.600	2(6)	3.214D-12	3(2)*	1.4061D+10	6.3551D+08
79.861	2(6)	3.214D-12	1(4)*	3.6554D+10	4.2952D+09
79.891	4(1)	4.735D-12	3(2)*	9.4718D+10	4.2478D+10
80.443	3(2)	3.767D-12	2(4)*	5.3844D+10	1.0921D+10
82.003	4(1)	4.735D-12	4(1)*	2.7518D+10	3.5852D+09
83.735	2(7)	5.448D-12	3(3)*	2.1464D+10	2.5098D+09
84.091	1(3)*	3.278D-12	1(1)	1.0884D+10	3.8830D+08
84.737	0(4)	2.281D-12	1(4)*	2.8088D+10	1.7996D+09
84.828	2(3)	6.978D-12	1(2)*	2.0416D+10	2.9086D+09
85.304	1(3)	3.135D-12	2(5)*	5.7704D+09	1.0438D+08
86.876	2(5)*	3.898D-12	2(4)	1.3032D+10	6.6200D+08
87.027	4(2)	7.077D-12	3(3)*	1.0222D+11	7.3947D+10
88.181	2(7)	5.448D-12	1(5)*	3.1699D+10	5.4741D+09
92.786	3(2)	3.767D-12	2(5)*	1.0657D+10	4.2780D+08

Table 5: (continued)

λ	Upper	τ	lower	A	A_{br}
95.315	2(5)	2.613D-12	1(4)*	7.9186D+09	1.6383D+08
98.152	2(2)*	3.473D-11	2(1)	1.3000D+10	5.8692D+09
103.117	2(6)	3.214D-12	1(5)*	7.3785D+09	1.7501D+08
103.457	3(1)*	1.653D-11	2(2)	3.7828D+09	2.3660D+08
107.235	1(3)*	3.278D-12	1(2)	7.1062D+09	1.6554D+08
110.080	1(1)	4.706D-12	2(1)*	2.6422D+10	3.2854D+09
110.100	0(2)	1.467D-11	1(1)*	6.8153D+10	6.8152D+10
110.824	2(1)	1.308D-11	2(1)*	1.4961D+10	2.9285D+09
111.625	1(3)*	3.278D-12	2(2)	2.6081D+10	2.2298D+09
117.396	3(1)*	1.653D-11	3(1)	1.2786D+10	2.7030D+09
117.471	2(3)*	9.068D-12	3(1)	2.1545D+10	4.2090D+09
128.191	3(1)*	1.653D-11	2(3)	1.2107D+10	2.4237D+09
129.953	1(1)*	1.623D-10	0(1)	6.1610D+09	6.1610D+09
132.262	2(2)*	3.473D-11	1(2)	1.0107D+10	3.5478D+09
139.005	2(2)*	3.473D-11	2(2)	5.0817D+09	8.9686D+08
144.313	2(1)	1.308D-11	1(2)*	4.5078D+09	2.6586D+08

Table 6: Energy levels (cm^{-1}) and lifetimes (s) in Xe^{41+} (Al-like) ions.

Occ	J(No)P	E	τ
21000	1/2(1)*	0	
20100	3/2(1)*	665774	3.790D-07
12000	1/2(1)	817897	8.700D-11
11100	3/2(1)	1343238	7.958D-10
11100	5/2(1)	1433127	2.021D-10
11100	3/2(2)	1557533	1.096D-11
11100	1/2(2)	1622936	2.915D-12
20010	3/2(3)	1916301	2.215D-12
20001	5/2(2)	1963221	8.222D-11
10200	5/2(3)	2161052	5.107D-12
10200	1/2(3)	2292721	4.161D-12
10200	3/2(4)	2332373	2.110D-12
02100	3/2(2)*	2391645	9.923D-12
11010	3/2(3)*	2503658	2.836D-11
11010	5/2(1)*	2564648	1.101D-10
11010	1/2(2)*	2705035	2.934D-12
11010	3/2(4)*	2714275	3.030D-12
11001	5/2(2)*	2727239	1.221D-11
11001	7/2(1)*	2776926	2.099D-11
11001	5/2(3)*	2834659	1.214D-11
11001	3/2(5)*	2840974	4.675D-12
01200	5/2(4)*	3057098	5.256D-12
01200	3/2(6)*	3105346	2.307D-12
01200	1/2(3)*	3134007	3.791D-12
10110	3/2(7)*	3254258	3.639D-12
10110	5/2(5)*	3256826	2.930D-12

Table 6: (continued)

Occ	J(No)P	E	τ
10110	1/2(4)*	3260609	4.156D-12
10110	7/2(2)*	3273673	4.447D-12
10101	9/2(1)*	3290408	4.640D-07
10101	3/2(8)*	3389679	3.923D-12
10101	5/2(6)*	3421967	5.689D-12
10110	3/2(9)*	3483350	2.369D-12
10101	7/2(3)*	3498082	5.665D-12
10110	5/2(7)*	3525761	1.741D-12
02010	3/2(5)	3528947	1.169D-11
10110	1/2(5)*	3540680	1.752D-12
10101	7/2(4)*	3588466	3.300D-12
10101	1/2(6)*	3650470	3.043D-12
10101	3/2(10)*	3696903	2.312D-12
10101	5/2(8)*	3711355	2.058D-12
02001	5/2(4)	3734715	8.798D-12
00300	3/2(11)*	3905650	1.466D-12
01110	5/2(5)	4060131	8.098D-12
01110	3/2(6)	4103755	4.188D-12
01110	1/2(4)	4119363	3.941D-12
01110	7/2(1)	4125697	6.648D-12
01101	7/2(2)	4242272	5.372D-12
01110	3/2(7)	4258726	2.321D-12
01110	5/2(6)	4261135	2.469D-12
01101	9/2(1)	4290977	8.613D-12
01110	1/2(5)	4291867	2.399D-12
01101	3/2(8)	4311236	3.674D-12
01101	5/2(7)	4330335	4.481D-12

Table 6: (continued)

Occ	J(No)P	E	τ
01101	7/2(3)	4393739	5.352D-12
01101	5/2(8)	4443110	2.856D-12
10020	3/2(9)	4457748	2.295D-12
01101	1/2(6)	4476240	4.264D-12
01101	3/2(10)	4493749	2.840D-12
10020	5/2(9)	4509194	1.941D-12
10011	7/2(4)	4601137	2.767D-12
10020	1/2(7)	4610848	1.693D-12
10011	5/2(10)	4648943	2.320D-12
10011	9/2(2)	4664203	3.508D-12
10011	3/2(11)	4672285	2.536D-12
10011	7/2(5)	4716139	3.465D-12
10011	3/2(12)	4718456	2.300D-12
10011	5/2(11)	4729438	2.304D-12
10011	1/2(8)	4736888	2.038D-12
10002	9/2(3)	4783712	4.470D-12
10002	7/2(6)	4821343	4.818D-12
10002	5/2(12)	4858965	3.084D-12
10002	3/2(13)	4896968	3.618D-12
00210	3/2(14)	4916727	1.534D-12
00201	1/2(9)	4952809	2.934D-12
00210	5/2(13)	4954293	1.528D-12
00210	7/2(7)	4994962	1.868D-12
00201	9/2(4)	4996309	2.762D-12
00210	1/2(10)	5044688	1.273D-12
00201	7/2(8)	5078235	1.868D-12
00210	3/2(15)	5088209	1.533D-12

Table 6: (continued)

Occ	J(No)P	E	τ
00201	5/2(14)	5140766	2.560D-12
10002	1/2(11)	5163002	1.833D-12
01020	5/2(9)*	5204955	9.918D-12
00201	5/2(15)	5250566	1.658D-12
00201	3/2(16)	5265558	1.543D-12
01011	7/2(5)*	5388665	1.066D-11
01020	3/2(12)*	5409570	2.380D-12
01020	1/2(7)*	5415411	3.225D-12
01011	5/2(10)*	5420513	7.357D-12
01011	3/2(13)*	5470534	3.976D-12
01011	1/2(8)*	5473599	6.194D-12
01011	9/2(2)*	5480541	9.079D-12
01011	5/2(11)*	5585782	2.387D-12
01011	7/2(6)*	5596321	3.324D-12
01011	3/2(14)*	5638054	2.260D-12
01002	9/2(3)*	5662388	8.975D-12
01002	7/2(7)*	5670894	4.366D-12
01002	5/2(12)*	5702601	6.235D-12
01002	3/2(15)*	5707475	4.477D-12
01002	1/2(9)*	5872696	3.897D-12
00120	3/2(16)*	5999733	1.532D-12
00120	5/2(13)*	6033360	1.622D-12
00120	1/2(10)*	6046792	1.494D-12
00120	7/2(8)*	6051376	1.741D-12
00111	9/2(4)*	6066353	2.571D-12
00111	11/2(1)*	6085536	4.208D-12
00111	7/2(9)*	6087736	2.343D-12

Table 6: (continued)

Occ	J(No)P	E	τ
00111	3/2(17)*	6131075	1.666D-12
00111	5/2(14)*	6141868	2.428D-12
00111	1/2(11)*	6152930	2.014D-12
00111	5/2(15)*	6180723	2.003D-12
00111	7/2(10)*	6184298	2.552D-12
00111	3/2(18)*	6192775	1.585D-12
00102	5/2(16)*	6240577	2.734D-12
00111	7/2(11)*	6254012	2.195D-12
00102	11/2(2)*	6263869	4.486D-12
00102	9/2(5)*	6266700	2.980D-12
00111	3/2(19)*	6294819	1.804D-12
00102	7/2(12)*	6321147	2.606D-12
00111	5/2(17)*	6334454	1.765D-12
00102	1/2(12)*	6351267	2.090D-12
00111	9/2(6)*	6356719	2.125D-12
00111	3/2(20)*	6394481	1.546D-12
00111	5/2(18)*	6402134	1.958D-12
00111	1/2(13)*	6489276	1.686D-12
00102	7/2(13)*	6497550	2.229D-12
00102	3/2(21)*	6497790	2.921D-12
00102	5/2(19)*	6512597	2.254D-12
00102	3/2(22)*	6615986	1.769D-12
00030	3/2(17)	7216168	1.458D-12
00021	5/2(16)	7313947	1.795D-12
00021	7/2(9)	7361186	1.988D-12
00021	9/2(5)	7371065	2.154D-12
00021	3/2(18)	7372380	1.614D-12

Table 6: (continued)

Occ	J(No)P	E	τ
00021	1/2(12)	7399165	1.629D-12
00012	7/2(10)	7476554	2.391D-12
00012	9/2(6)	7487189	2.739D-12
00021	5/2(17)	7488848	1.807D-12
00012	3/2(19)	7537441	2.122D-12
00012	1/2(13)	7556860	2.041D-12
00012	5/2(18)	7586948	2.131D-12
00012	5/2(19)	7604800	2.206D-12
00012	7/2(11)	7619339	2.510D-12
00003	9/2(7)	7644913	3.778D-12
00003	3/2(20)	7689542	2.572D-12
00012	3/2(21)	7793657	2.416D-12
00003	5/2(20)	7827958	2.630D-12

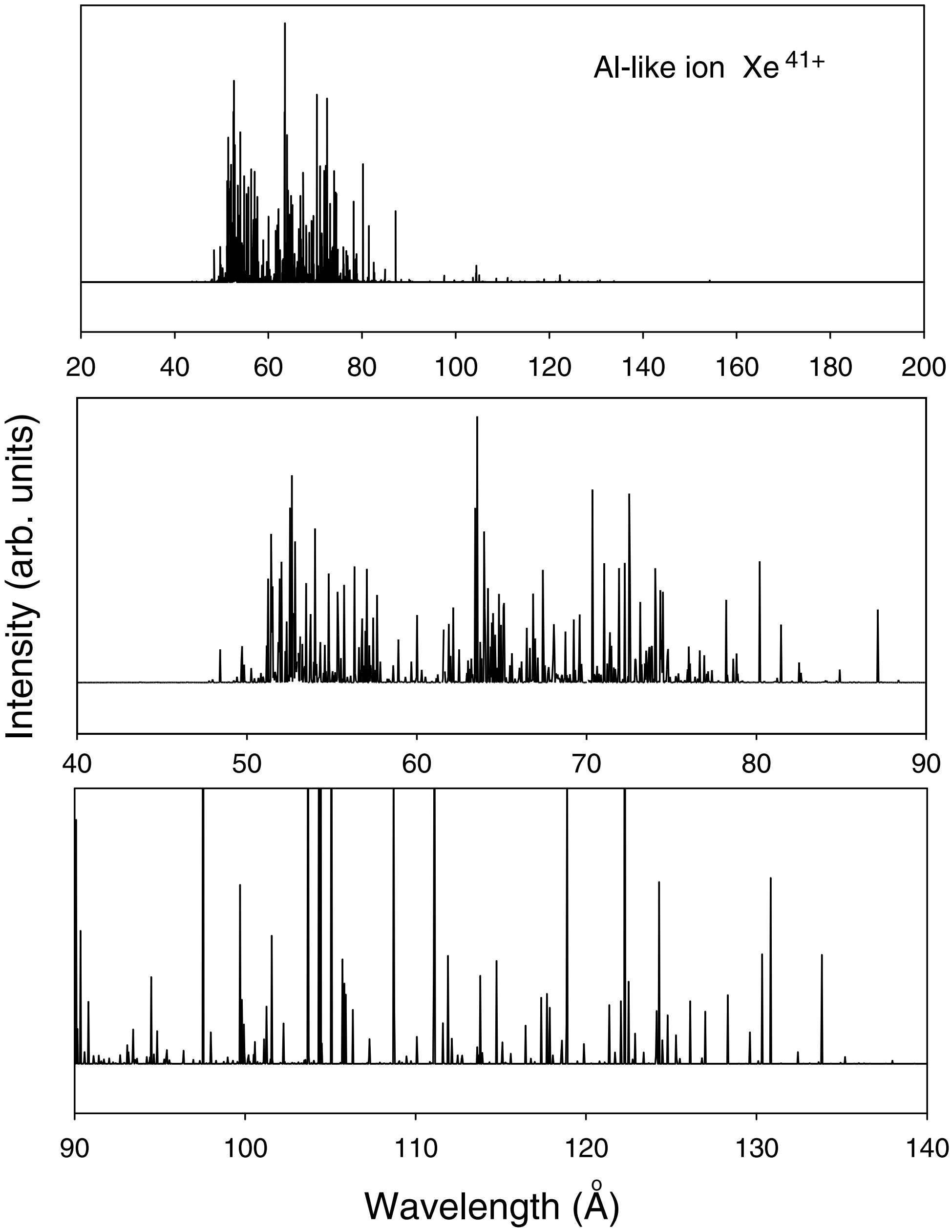

Fig. 2. Synthetic spectra of Xe^{41+} (Al-like) ions

Table 7: Transitions with probabilities higher than 10^{+9} s^{-1} in Xe^{41+} (Al-like) ions.

λ	Upper	τ	lower	A	A_{br}
47.780	1/2(6)*	3.043D-12	3/2(2)	1.9642D+10	1.1740D+09

Table 7: (continued)

λ	Upper	τ	lower	A	A_{br}
47.978	5/2(10)	2.320D-12	5/2(1)*	3.7860D+10	3.3257D+09
48.427	7/2(3)*	5.665D-12	5/2(1)	6.0992D+10	2.1073D+10
48.638	3/2(13)	3.618D-12	3/2(5)*	1.9858D+10	1.4268D+09
48.746	5/2(8)	2.856D-12	3/2(2)*	2.6090D+10	1.9442D+09
49.216	1/2(8)	2.038D-12	1/2(2)*	3.3500D+10	2.2871D+09
49.321	1/2(6)*	3.043D-12	1/2(2)	6.6278D+10	1.3367D+10
49.400	5/2(12)	3.084D-12	5/2(3)*	3.1444D+10	3.0491D+09
49.430	3/2(5)*	4.675D-12	1/2(1)	9.0751D+10	3.8500D+10
49.554	5/2(12)	3.084D-12	3/2(5)*	2.0667D+10	1.3172D+09
49.676	1/2(13)*	1.686D-12	1/2(6)	9.9845D+10	1.6808D+10
49.721	3/2(17)	1.458D-12	5/2(9)*	1.3127D+11	2.5116D+10
49.831	9/2(3)	4.470D-12	7/2(1)*	5.0123D+10	1.1231D+10
49.896	3/2(12)	2.300D-12	3/2(4)*	3.8425D+10	3.3957D+09
50.249	3/2(10)	2.840D-12	3/2(3)*	4.5613D+10	5.9087D+09
50.261	1/2(12)	1.629D-12	3/2(12)*	8.4369D+10	1.1597D+10
50.281	5/2(6)*	5.689D-12	5/2(1)	1.6812D+10	1.6079D+09
50.432	3/2(15)	1.533D-12	3/2(6)*	3.4510D+10	1.8252D+09
50.444	9/2(5)	2.154D-12	7/2(5)*	2.9015D+10	1.8132D+09
50.678	5/2(13)*	1.622D-12	5/2(5)	7.0449D+10	8.0483D+09
50.687	11/2(2)*	4.486D-12	9/2(1)	3.0957D+10	4.2988D+09
50.697	7/2(9)	1.988D-12	7/2(5)*	4.9569D+10	4.8842D+09
50.807	5/2(7)*	1.741D-12	3/2(2)	1.3695D+11	3.2654D+10
50.943	9/2(6)*	2.125D-12	7/2(3)	6.0985D+10	7.9047D+09
50.967	7/2(9)*	2.343D-12	7/2(1)	4.1681D+10	4.0700D+09
51.172	3/2(15)	1.533D-12	1/2(3)*	9.0777D+10	1.2629D+10
51.175	3/2(9)	2.295D-12	3/2(3)*	1.9231D+11	8.4869D+10
51.233	3/2(18)	1.614D-12	5/2(10)*	1.9245D+11	5.9769D+10

Table 7: (continued)

λ	Upper	τ	lower	A	A_{br}
51.246	3/2(20)*	1.546D-12	5/2(8)	1.5110D+11	3.5293D+10
51.323	7/2(11)	2.510D-12	7/2(7)*	3.7897D+10	3.6046D+09
51.413	3/2(11)	2.536D-12	5/2(2)*	2.0813D+11	1.0984D+11
51.426	5/2(9)	1.941D-12	5/2(1)*	2.1248D+11	8.7618D+10
51.466	1/2(10)*	1.494D-12	3/2(6)	1.4422D+11	3.1079D+10
51.493	7/2(10)*	2.552D-12	7/2(2)	3.3694D+10	2.8969D+09
51.504	3/2(13)*	3.976D-12	3/2(5)	1.2195D+11	5.9122D+10
51.527	5/2(17)*	1.765D-12	7/2(3)	3.5530D+10	2.2282D+09
51.557	3/2(16)*	1.532D-12	5/2(5)	1.0408D+11	1.6598D+10
51.564	1/2(10)	1.273D-12	3/2(6)*	2.1963D+11	6.1399D+10
51.581	5/2(7)	4.481D-12	3/2(2)*	2.0186D+10	1.8259D+09
51.603	7/2(7)	1.868D-12	5/2(4)*	8.2648D+10	1.2759D+10
51.648	7/2(7)*	4.366D-12	5/2(4)	5.4853D+10	1.3136D+10
51.688	5/2(10)	2.320D-12	3/2(4)*	3.8889D+10	3.5090D+09
51.709	5/2(19)	2.206D-12	7/2(7)*	1.0727D+11	2.5387D+10
51.769	3/2(18)*	1.585D-12	5/2(6)	5.1763D+10	4.2460D+09
51.850	1/2(12)	1.629D-12	3/2(13)*	1.3357D+11	2.9066D+10
51.883	1/2(10)*	1.494D-12	1/2(4)	1.1344D+11	1.9227D+10
51.926	3/2(9)*	2.369D-12	3/2(2)	1.3747D+11	4.4767D+10
51.930	7/2(8)*	1.741D-12	7/2(1)	1.4954D+11	3.8924D+10
51.933	1/2(12)	1.629D-12	1/2(8)*	5.7294D+10	5.3481D+09
51.940	5/2(16)	1.795D-12	7/2(5)*	1.0765D+11	2.0805D+10
52.037	5/2(10)	2.320D-12	5/2(2)*	1.8017D+11	7.5316D+10
52.057	3/2(21)	2.416D-12	1/2(9)*	6.7780D+10	1.1098D+10
52.094	3/2(8)	3.674D-12	3/2(2)*	3.3818D+10	4.2017D+09
52.145	1/2(5)*	1.752D-12	1/2(2)	2.1935D+11	8.4298D+10
52.155	1/2(4)*	4.156D-12	3/2(1)	2.2729D+11	2.1470D+11

Table 7: (continued)

λ	Upper	τ	lower	A	A_{br}
52.172	7/2(11)	2.510D-12	5/2(12)*	7.0872D+10	1.2607D+10
52.184	3/2(3)	2.215D-12	1/2(1)*	4.5127D+11	4.5101D+11
52.191	5/2(18)	2.131D-12	7/2(7)*	1.4701D+11	4.6054D+10
52.258	5/2(5)*	2.930D-12	3/2(1)	1.0141D+11	3.0130D+10
52.328	3/2(7)*	3.639D-12	3/2(1)	2.1873D+11	1.7411D+11
52.400	5/2(18)*	1.958D-12	3/2(10)	9.3220D+10	1.7017D+10
52.420	5/2(13)*	1.622D-12	7/2(1)	4.7414D+10	3.6455D+09
52.471	1/2(7)	1.693D-12	1/2(2)*	2.0086D+11	6.8305D+10
52.539	3/2(14)*	2.260D-12	5/2(4)	3.1995D+11	2.3138D+11
52.547	5/2(17)	1.807D-12	5/2(11)*	5.2251D+10	4.9340D+09
52.571	5/2(19)	2.206D-12	5/2(12)*	3.8178D+10	3.2156D+09
52.611	3/2(20)*	1.546D-12	3/2(10)	3.5184D+10	1.9138D+09
52.625	1/2(5)	2.399D-12	3/2(2)*	2.3422D+11	1.3161D+11
52.643	5/2(14)*	2.428D-12	7/2(2)	2.3079D+11	1.2933D+11
52.665	3/2(18)	1.614D-12	1/2(8)*	7.6249D+10	9.3821D+09
52.706	5/2(19)	2.206D-12	3/2(15)*	2.7084D+10	1.6184D+09
52.709	5/2(13)	1.528D-12	5/2(4)*	7.7905D+10	9.2748D+09
52.727	1/2(7)	1.693D-12	3/2(4)*	3.6642D+11	2.2731D+11
52.732	3/2(4)*	3.030D-12	1/2(1)	3.1137D+11	2.9377D+11
52.743	3/2(16)*	1.532D-12	3/2(6)	1.3263D+11	2.6952D+10
52.745	1/2(8)	2.038D-12	3/2(5)*	3.4434D+11	2.4164D+11
52.777	5/2(11)	2.304D-12	5/2(3)*	1.5083D+11	5.2418D+10
52.793	1/2(11)*	2.014D-12	3/2(7)	2.7883D+10	1.5659D+09
52.814	5/2(16)	1.795D-12	5/2(10)*	5.9652D+10	6.3883D+09
52.839	5/2(17)	1.807D-12	7/2(6)*	2.4742D+11	1.1063D+11
52.872	5/2(17)*	1.765D-12	5/2(8)	7.7079D+10	1.0487D+10
52.895	9/2(5)	2.154D-12	9/2(2)*	1.7430D+11	6.5432D+10

Table 7: (continued)

λ	Upper	τ	lower	A	A_{br}
52.953	5/2(11)	2.304D-12	3/2(5)*	8.3438D+10	1.6041D+10
52.986	9/2(2)	3.508D-12	7/2(1)*	1.2326D+11	5.3286D+10
52.990	1/2(2)*	2.934D-12	1/2(1)	3.2785D+11	3.1536D+11
53.009	1/2(7)*	3.225D-12	3/2(5)	2.4759D+11	1.9767D+11
53.069	5/2(18)	2.131D-12	5/2(12)*	2.5392D+10	1.3740D+09
53.084	3/2(12)	2.300D-12	5/2(3)*	7.1008D+10	1.1596D+10
53.148	3/2(18)*	1.585D-12	3/2(8)	1.2943D+11	2.6544D+10
53.150	7/2(5)	3.465D-12	5/2(3)*	1.3044D+11	5.8955D+10
53.173	7/2(9)	1.988D-12	9/2(2)*	6.8637D+10	9.3647D+09
53.174	3/2(12)*	2.380D-12	3/2(5)	3.3406D+11	2.6564D+11
53.181	3/2(16)*	1.532D-12	1/2(4)	6.1508D+10	5.7970D+09
53.206	5/2(18)	2.131D-12	3/2(15)*	3.5251D+10	2.6482D+09
53.263	3/2(12)	2.300D-12	3/2(5)*	1.6975D+11	6.6269D+10
53.333	1/2(12)*	2.090D-12	1/2(6)	4.3842D+10	4.0178D+09
53.365	7/2(4)	2.767D-12	5/2(2)*	5.7302D+10	9.0849D+09
53.391	9/2(5)*	2.980D-12	7/2(3)	4.0839D+10	4.9708D+09
53.409	3/2(17)*	1.666D-12	3/2(7)	7.8213D+10	1.0189D+10
53.418	5/2(10)	2.320D-12	7/2(1)*	4.6253D+10	4.9638D+09
53.478	3/2(17)*	1.666D-12	5/2(6)	1.7302D+11	4.9859D+10
53.491	5/2(6)	2.469D-12	3/2(2)*	1.2753D+11	4.0158D+10
53.491	5/2(15)*	2.003D-12	3/2(8)	3.6202D+10	2.6257D+09
53.560	3/2(7)	2.321D-12	3/2(2)*	3.0914D+11	2.2182D+11
53.693	3/2(18)*	1.585D-12	5/2(7)	7.4232D+10	8.7320D+09
53.717	7/2(6)*	3.324D-12	5/2(4)	1.1284D+11	4.2332D+10
53.751	3/2(9)*	2.369D-12	1/2(2)	1.3698D+11	4.4449D+10
53.756	7/2(11)*	2.195D-12	7/2(3)	8.4745D+10	1.5760D+10
53.774	3/2(14)	1.534D-12	5/2(4)*	6.9293D+10	7.3634D+09

Table 7: (continued)

λ	Upper	τ	lower	A	A_{br}
53.939	7/2(10)*	2.552D-12	5/2(7)	7.2035D+10	1.3241D+10
54.004	3/2(19)*	1.804D-12	5/2(8)	9.5335D+10	1.6401D+10
54.023	5/2(11)*	2.387D-12	5/2(4)	3.1977D+11	2.4410D+11
54.031	5/2(17)	1.807D-12	3/2(14)*	4.0101D+10	2.9062D+09
54.043	5/2(15)*	2.003D-12	5/2(7)	5.0834D+10	5.1771D+09
54.072	1/2(13)	2.041D-12	3/2(15)*	2.4492D+11	1.2242D+11
54.085	5/2(13)	1.528D-12	3/2(6)*	5.7788D+10	5.1033D+09
54.187	7/2(9)*	2.343D-12	7/2(2)	1.2236D+11	3.5075D+10
54.247	5/2(16)	1.795D-12	3/2(13)*	4.3151D+10	3.3429D+09
54.298	1/2(11)*	2.014D-12	3/2(8)	2.5285D+11	1.2877D+11
54.332	7/2(2)*	4.447D-12	5/2(1)	2.1008D+11	1.9626D+11
54.371	3/2(17)*	1.666D-12	1/2(5)	3.9785D+10	2.6363D+09
54.418	3/2(11)	2.536D-12	5/2(3)*	3.4472D+10	3.0132D+09
54.501	3/2(19)	2.122D-12	5/2(12)*	6.4547D+10	8.8402D+09
54.581	3/2(8)*	3.923D-12	3/2(2)	7.8996D+10	2.4478D+10
54.646	3/2(19)	2.122D-12	3/2(15)*	1.3613D+11	3.9321D+10
54.746	7/2(9)*	2.343D-12	5/2(6)	2.5623D+10	1.5380D+09
54.800	9/2(6)	2.739D-12	9/2(3)*	1.0773D+11	3.1792D+10
54.818	7/2(4)	2.767D-12	7/2(1)*	1.8136D+11	9.1010D+10
54.822	9/2(4)*	2.571D-12	7/2(2)	5.7553D+10	8.5150D+09
54.834	5/2(5)*	2.930D-12	5/2(1)	2.2421D+11	1.4728D+11
54.911	3/2(7)*	3.639D-12	5/2(1)	4.6627D+10	7.9122D+09
54.950	3/2(17)*	1.666D-12	3/2(8)	2.6158D+10	1.1396D+09
54.988	3/2(19)*	1.804D-12	1/2(6)	8.0176D+10	1.1600D+10
55.040	3/2(20)	2.572D-12	1/2(9)*	5.2253D+10	7.0233D+09
55.057	9/2(6)	2.739D-12	7/2(7)*	4.3956D+10	5.2926D+09
55.122	7/2(10)	2.391D-12	9/2(3)*	5.4651D+10	7.1408D+09

Table 7: (continued)

λ	Upper	τ	lower	A	A_{br}
55.206	3/2(14)	1.534D-12	3/2(6)*	2.1403D+11	7.0246D+10
55.221	7/2(11)*	2.195D-12	5/2(8)	3.9582D+10	3.4382D+09
55.276	7/2(8)*	1.741D-12	7/2(2)	2.8277D+10	1.3918D+09
55.311	5/2(10)	2.320D-12	3/2(5)*	2.7803D+10	1.7935D+09
55.353	3/2(17)	1.458D-12	3/2(12)*	3.1316D+11	1.4294D+11
55.381	7/2(10)	2.391D-12	7/2(7)*	1.1155D+11	2.9751D+10
55.415	7/2(8)	1.868D-12	7/2(2)*	3.8016D+10	2.7001D+09
55.523	3/2(19)*	1.804D-12	3/2(10)	7.7643D+10	1.0878D+10
55.532	3/2(17)	1.458D-12	1/2(7)*	8.9332D+10	1.1632D+10
55.656	7/2(9)*	2.343D-12	9/2(1)	4.8065D+10	5.4122D+09
55.713	5/2(9)	1.941D-12	3/2(4)*	2.4971D+11	1.2102D+11
55.724	11/2(1)*	4.208D-12	9/2(1)	6.7908D+10	1.9406D+10
55.853	1/2(10)	1.273D-12	3/2(7)*	5.7923D+10	4.2707D+09
55.858	7/2(8)*	1.741D-12	5/2(6)	7.7390D+10	1.0425D+10
55.906	3/2(10)	2.840D-12	1/2(2)*	3.1812D+10	2.8741D+09
55.922	1/2(5)	2.399D-12	3/2(3)*	3.8667D+10	3.5869D+09
55.960	5/2(15)*	2.003D-12	7/2(3)	2.6296D+10	1.3853D+09
55.972	3/2(18)	1.614D-12	5/2(11)*	2.5437D+10	1.0442D+09
56.051	1/2(10)	1.273D-12	1/2(4)*	4.4584D+10	2.5302D+09
56.094	3/2(14)	1.534D-12	1/2(3)*	7.7846D+10	9.2933D+09
56.325	7/2(9)	1.988D-12	5/2(11)*	7.5455D+10	1.1317D+10
56.326	9/2(4)*	2.571D-12	9/2(1)	1.7812D+11	8.1560D+10
56.346	9/2(5)	2.154D-12	7/2(6)*	7.5770D+10	1.2365D+10
56.350	5/2(13)*	1.622D-12	3/2(7)	1.1181D+11	2.0272D+10
56.371	7/2(10)	2.391D-12	5/2(12)*	4.8709D+10	5.6724D+09
56.391	1/2(11)	1.833D-12	3/2(8)*	4.9776D+10	4.5410D+09
56.426	5/2(13)*	1.622D-12	5/2(6)	1.2040D+11	2.3509D+10

Table 7: (continued)

λ	Upper	τ	lower	A	A_{br}
56.601	3/2(8)*	3.923D-12	1/2(2)	7.6349D+10	2.2865D+10
56.609	3/2(10)	2.840D-12	5/2(2)*	4.5678D+10	5.9255D+09
56.610	7/2(4)	2.767D-12	5/2(3)*	3.9546D+10	4.3270D+09
56.662	7/2(9)	1.988D-12	7/2(6)*	1.2444D+11	3.0780D+10
56.750	3/2(6)*	2.307D-12	3/2(1)	1.0251D+11	2.4245D+10
56.782	1/2(12)	1.629D-12	3/2(14)*	1.7772D+11	5.1459D+10
56.900	5/2(6)	2.469D-12	3/2(3)*	5.4737D+10	7.3980D+09
56.902	7/2(9)*	2.343D-12	5/2(7)	3.7020D+10	3.2105D+09
56.915	3/2(22)*	1.769D-12	5/2(12)	2.6472D+10	1.2395D+09
56.982	1/2(10)*	1.494D-12	1/2(5)	1.6546D+11	4.0903D+10
57.054	3/2(9)	2.295D-12	1/2(2)*	1.7345D+11	6.9046D+10
57.062	5/2(15)	1.658D-12	7/2(3)*	4.7710D+10	3.7729D+09
57.065	1/2(13)*	1.686D-12	1/2(8)	3.6024D+10	2.1880D+09
57.204	5/2(8)*	2.058D-12	5/2(2)	1.0727D+11	2.3678D+10
57.286	3/2(17)	1.458D-12	3/2(13)*	9.4258D+10	1.2950D+10
57.320	3/2(11)*	1.466D-12	5/2(3)	5.8285D+10	4.9806D+09
57.438	3/2(16)*	1.532D-12	3/2(7)	1.7976D+11	4.9517D+10
57.533	7/2(7)	1.868D-12	5/2(5)*	2.7073D+10	1.3690D+09
57.550	5/2(15)*	2.003D-12	5/2(8)	6.3994D+10	8.2046D+09
57.659	3/2(18)	1.614D-12	3/2(14)*	1.4910D+11	3.5876D+10
57.665	1/2(6)*	3.043D-12	3/2(3)	8.2118D+10	2.0520D+10
57.681	3/2(10)*	2.312D-12	5/2(2)	1.6859D+11	6.5708D+10
57.865	5/2(16)	1.795D-12	5/2(11)*	2.0363D+11	7.4445D+10
57.880	1/2(4)	3.941D-12	3/2(2)*	2.8475D+10	3.1952D+09
58.065	3/2(20)*	1.546D-12	3/2(11)	3.1784D+10	1.5617D+09
58.096	7/2(7)	1.868D-12	7/2(2)*	3.2123D+10	1.9274D+09
58.279	5/2(8)	2.856D-12	5/2(2)*	4.6691D+10	6.2269D+09

Table 7: (continued)

λ	Upper	τ	lower	A	A_{br}
58.349	7/2(13)*	2.229D-12	9/2(3)	3.1558D+10	2.2195D+09
58.407	3/2(6)	4.188D-12	3/2(2)*	4.7891D+10	9.6044D+09
58.553	3/2(16)*	1.532D-12	1/2(5)	4.7371D+10	3.4384D+09
58.620	9/2(4)	2.762D-12	9/2(1)*	8.7657D+10	2.1226D+10
58.911	5/2(13)	1.528D-12	5/2(5)*	1.4656D+11	3.2826D+10
58.945	5/2(6)	2.469D-12	5/2(1)*	3.8197D+10	3.6026D+09
59.084	9/2(6)*	2.125D-12	9/2(2)	5.5967D+10	6.6572D+09
59.128	5/2(19)*	2.254D-12	7/2(6)	5.6562D+10	7.2099D+09
59.312	5/2(18)*	1.958D-12	7/2(5)	7.8275D+10	1.1998D+10
59.320	3/2(3)*	2.836D-11	1/2(1)	1.9091D+10	1.0336D+10
59.329	5/2(17)*	1.765D-12	5/2(10)	3.4276D+10	2.0737D+09
59.502	5/2(13)	1.528D-12	7/2(2)*	3.4514D+10	1.8204D+09
59.536	1/2(11)	1.833D-12	3/2(9)*	2.9497D+10	1.5946D+09
59.666	5/2(9)*	9.918D-12	3/2(5)	6.0197D+10	3.5941D+10
59.761	3/2(17)*	1.666D-12	3/2(9)	3.8505D+10	2.4693D+09
59.825	5/2(15)*	2.003D-12	5/2(9)	2.5312D+10	1.2836D+09
59.935	5/2(5)	8.098D-12	3/2(2)*	1.9342D+10	3.0293D+09
60.002	3/2(4)	2.110D-12	3/2(1)*	4.7393D+11	4.7388D+11
60.069	3/2(19)	2.122D-12	1/2(9)*	2.7794D+10	1.6391D+09
60.151	3/2(14)	1.534D-12	3/2(7)*	6.9972D+10	7.5083D+09
60.274	3/2(10)	2.840D-12	5/2(3)*	8.7658D+10	2.1822D+10
60.377	7/2(8)	1.868D-12	5/2(6)*	2.7417D+10	1.4044D+09
60.423	1/2(10)	1.273D-12	3/2(8)*	2.8684D+10	1.0473D+09
60.501	7/2(11)*	2.195D-12	7/2(4)	7.9611D+10	1.3909D+10
60.876	5/2(14)	2.560D-12	7/2(3)*	7.2407D+10	1.3423D+10
61.152	1/2(6)	4.264D-12	3/2(5)*	3.0989D+10	4.0947D+09
61.244	1/2(12)*	2.090D-12	3/2(12)	7.9969D+10	1.3368D+10

Table 7: (continued)

λ	Upper	τ	lower	A	A_{br}
61.465	1/2(3)	4.161D-12	3/2(1)*	2.3550D+11	2.3076D+11
61.529	7/2(4)*	3.300D-12	5/2(2)	3.1970D+10	3.3728D+09
61.562	1/2(5)*	1.752D-12	3/2(3)	3.3807D+11	2.0025D+11
61.577	5/2(4)*	5.256D-12	5/2(1)	3.7125D+10	7.2441D+09
61.617	1/2(2)	2.915D-12	1/2(1)*	3.3023D+11	3.1792D+11
61.640	1/2(11)	1.833D-12	1/2(5)*	2.4023D+10	1.0577D+09
61.657	3/2(17)*	1.666D-12	5/2(9)	6.9902D+10	8.1383D+09
61.850	7/2(3)	5.352D-12	7/2(1)*	3.4571D+10	6.3965D+09
61.881	5/2(17)*	1.765D-12	3/2(12)	2.4777D+10	1.0836D+09
61.892	1/2(4)	3.941D-12	3/2(3)*	1.9593D+11	1.5128D+11
61.943	1/2(12)*	2.090D-12	1/2(8)	5.4474D+10	6.2028D+09
61.999	3/2(11)*	1.466D-12	1/2(3)	1.1816D+11	2.0469D+10
62.133	5/2(7)*	1.741D-12	3/2(3)	4.2648D+11	3.1667D+11
62.468	3/2(21)*	2.921D-12	3/2(13)	4.2175D+10	5.1953D+09
62.496	3/2(6)	4.188D-12	3/2(3)*	9.4041D+10	3.7033D+10
62.619	3/2(8)	3.674D-12	3/2(4)*	3.1152D+10	3.5651D+09
62.802	1/2(13)*	1.686D-12	3/2(13)	2.6775D+10	1.2088D+09
62.931	1/2(10)*	1.494D-12	3/2(9)	1.6107D+11	3.8763D+10
63.019	1/2(5)	2.399D-12	1/2(2)*	7.7384D+10	1.4366D+10
63.131	3/2(8)	3.674D-12	5/2(2)*	5.1114D+10	9.5984D+09
63.214	3/2(18)*	1.585D-12	1/2(7)	1.0232D+11	1.6589D+10
63.259	5/2(18)*	1.958D-12	7/2(6)	6.6379D+10	8.6281D+09
63.285	7/2(8)	1.868D-12	7/2(3)*	5.2955D+10	5.2392D+09
63.308	5/2(15)*	2.003D-12	7/2(4)	3.5059D+10	2.4625D+09
63.433	1/2(3)*	3.791D-12	3/2(2)	2.0133D+11	1.5367D+11
63.437	3/2(19)*	1.804D-12	3/2(12)	2.8944D+10	1.5117D+09
63.467	5/2(13)*	1.622D-12	3/2(9)	8.5220D+10	1.1777D+10

Table 7: (continued)

λ	Upper	τ	lower	A	A_{br}
63.535	5/2(20)	2.630D-12	7/2(11)*	2.2856D+10	1.3741D+09
63.543	3/2(2)*	9.923D-12	1/2(1)	4.9381D+10	2.4197D+10
63.562	3/2(11)*	1.466D-12	3/2(4)	4.8585D+11	3.4607D+11
63.573	7/2(7)	1.868D-12	5/2(6)*	3.3370D+10	2.0801D+09
63.749	3/2(16)	1.543D-12	3/2(10)*	1.5451D+11	3.6840D+10
63.814	3/2(9)*	2.369D-12	3/2(3)	8.8433D+10	1.8527D+10
63.914	5/2(13)	1.528D-12	3/2(8)*	1.0364D+11	1.6416D+10
63.974	1/2(9)	2.934D-12	3/2(8)*	1.8985D+11	1.0574D+11
64.002	3/2(15)	1.533D-12	5/2(7)*	2.1804D+11	7.2861D+10
64.048	1/2(10)	1.273D-12	3/2(9)*	9.2523D+10	1.0897D+10
64.059	7/2(1)	6.648D-12	5/2(1)*	1.1468D+11	8.7438D+10
64.204	3/2(2)	1.096D-11	1/2(1)*	8.3881D+10	7.7094D+10
64.248	5/2(5)	8.098D-12	3/2(3)*	4.1240D+10	1.3772D+10
64.342	3/2(16)	1.543D-12	5/2(8)*	1.7955D+11	4.9744D+10
64.363	3/2(7)	2.321D-12	1/2(2)*	2.8891D+10	1.9374D+09
64.364	5/2(15)	1.658D-12	3/2(10)*	3.8120D+10	2.4086D+09
64.375	5/2(7)	4.481D-12	7/2(1)*	2.6697D+10	3.1936D+09
64.390	1/2(10)*	1.494D-12	3/2(10)	4.3452D+10	2.8210D+09
64.413	7/2(8)	1.868D-12	5/2(7)*	6.6283D+10	8.2082D+09
64.421	5/2(14)	2.560D-12	7/2(4)*	1.4535D+11	5.4095D+10
64.504	5/2(8)*	2.058D-12	5/2(3)	1.4527D+11	4.3425D+10
64.607	3/2(6)*	2.307D-12	3/2(2)	8.8338D+10	1.8005D+10
64.619	3/2(15)	1.533D-12	1/2(5)*	1.2130D+11	2.2550D+10
64.647	5/2(6)	2.469D-12	3/2(4)*	8.0369D+10	1.5949D+10
64.726	3/2(21)*	2.921D-12	1/2(9)	6.4072D+10	1.1991D+10
64.774	3/2(18)*	1.585D-12	5/2(10)	5.1125D+10	4.1420D+09
64.843	7/2(8)*	1.741D-12	5/2(9)	1.7298D+11	5.2082D+10

Table 7: (continued)

λ	Upper	τ	lower	A	A_{br}
64.851	3/2(16)*	1.532D-12	3/2(9)	6.8977D+10	7.2903D+09
64.968	5/2(15)	1.658D-12	5/2(8)*	2.2246D+11	8.2031D+10
64.973	3/2(6)	4.188D-12	5/2(1)*	5.2843D+10	1.1693D+10
65.084	1/2(13)*	1.686D-12	1/2(9)	3.5677D+10	2.1461D+09
65.110	3/2(10)*	2.312D-12	5/2(3)	1.4288D+11	4.7190D+10
65.125	3/2(20)*	1.546D-12	5/2(12)	3.3551D+10	1.7402D+09
65.132	7/2(10)*	2.552D-12	5/2(10)	3.4511D+10	3.0391D+09
65.152	7/2(3)*	5.665D-12	5/2(2)	9.9136D+10	5.5673D+10
65.193	5/2(6)	2.469D-12	5/2(2)*	2.8027D+10	1.9396D+09
65.260	5/2(13)	1.528D-12	5/2(6)*	4.7844D+10	3.4981D+09
65.284	5/2(15)*	2.003D-12	5/2(10)	3.4098D+10	2.3293D+09
65.320	7/2(6)	4.818D-12	9/2(1)*	2.8904D+10	4.0252D+09
65.486	3/2(14)	1.534D-12	3/2(8)*	9.6008D+10	1.4136D+10
65.598	5/2(16)*	2.734D-12	7/2(5)	8.0386D+10	1.7667D+10
65.610	5/2(13)*	1.622D-12	5/2(9)	7.6544D+10	9.5011D+09
65.780	3/2(17)*	1.666D-12	1/2(7)	7.7097D+10	9.8999D+09
65.784	3/2(9)*	2.369D-12	5/2(2)	4.0104D+10	3.8102D+09
65.785	7/2(10)*	2.552D-12	9/2(2)	2.4091D+10	1.4810D+09
66.005	7/2(2)	5.372D-12	5/2(2)*	1.1868D+11	7.5670D+10
66.048	9/2(1)	8.612D-12	7/2(1)*	7.8312D+10	5.2818D+10
66.114	1/2(11)	1.833D-12	1/2(6)*	9.9532D+10	1.8156D+10
66.175	5/2(16)*	2.734D-12	5/2(11)	6.0324D+10	9.9494D+09
66.178	1/2(3)*	3.791D-12	1/2(2)	3.0151D+10	3.4464D+09
66.344	3/2(13)	3.618D-12	3/2(8)*	2.4775D+10	2.2208D+09
66.489	1/2(10)	1.273D-12	1/2(5)*	2.6205D+11	8.7408D+10
66.552	7/2(13)*	2.229D-12	7/2(7)	4.0205D+10	3.6024D+09
66.675	7/2(12)*	2.606D-12	7/2(6)	9.4352D+10	2.3197D+10

Table 7: (continued)

λ	Upper	τ	lower	A	A_{br}
66.686	5/2(4)*	5.256D-12	3/2(2)	1.2991D+11	8.8705D+10
66.767	3/2(5)*	4.675D-12	3/2(1)	6.4727D+10	1.9586D+10
66.806	7/2(7)	1.868D-12	7/2(3)*	8.3728D+10	1.3095D+10
66.859	5/2(7)	4.481D-12	5/2(3)*	9.7214D+10	4.2348D+10
66.868	5/2(5)	8.098D-12	5/2(1)*	3.5474D+10	1.0190D+10
66.877	5/2(3)	5.107D-12	3/2(1)*	1.9581D+11	1.9581D+11
66.966	9/2(3)	4.470D-12	9/2(1)*	1.0600D+11	5.0223D+10
67.050	5/2(3)*	1.214D-11	3/2(1)	1.4093D+10	2.4113D+09
67.125	7/2(8)	1.868D-12	7/2(4)*	9.1516D+10	1.5647D+10
67.431	9/2(5)*	2.980D-12	9/2(3)	1.5615D+11	7.2667D+10
67.448	1/2(8)	2.038D-12	3/2(7)*	3.7928D+10	2.9318D+09
67.458	3/2(6)*	2.307D-12	1/2(2)	1.9143D+11	8.4549D+10
67.538	1/2(11)*	2.014D-12	3/2(11)	8.0272D+10	1.2978D+10
67.560	11/2(2)*	4.486D-12	9/2(3)	6.2941D+10	1.7770D+10
67.738	1/2(8)	2.038D-12	1/2(4)*	6.0234D+10	7.3942D+09
67.774	5/2(17)*	1.765D-12	5/2(12)	7.5839D+10	1.0152D+10
67.797	3/2(13)	3.618D-12	5/2(6)*	3.2628D+10	3.8520D+09
67.828	3/2(18)*	1.585D-12	3/2(12)	9.7321D+10	1.5009D+10
67.871	3/2(8)*	3.923D-12	3/2(3)	5.4202D+10	1.1524D+10
67.907	5/2(11)	2.304D-12	5/2(5)*	9.1424D+10	1.9259D+10
67.984	5/2(13)	1.528D-12	3/2(9)*	1.3282D+11	2.6960D+10
68.015	3/2(8)	3.674D-12	3/2(5)*	9.4922D+10	3.3101D+10
68.047	5/2(14)*	2.428D-12	3/2(11)	1.1400D+11	3.1556D+10
68.052	1/2(9)	2.934D-12	3/2(9)*	9.4777D+10	2.6351D+10
68.064	7/2(7)	1.868D-12	5/2(7)*	2.6687D+11	1.3303D+11
68.113	7/2(10)*	2.552D-12	7/2(5)	9.5298D+10	2.3174D+10
68.208	1/2(11)	1.833D-12	3/2(10)*	3.1475D+11	1.8157D+11

Table 7: (continued)

λ	Upper	τ	lower	A	A_{br}
68.243	7/2(2)	5.372D-12	7/2(1)*	1.6163D+10	1.4035D+09
68.249	9/2(4)*	2.571D-12	7/2(4)	1.1833D+11	3.5993D+10
68.297	3/2(12)	2.300D-12	3/2(7)*	5.9104D+10	8.0339D+09
68.337	3/2(18)*	1.585D-12	5/2(11)	3.9420D+10	2.4625D+09
68.387	5/2(15)*	2.003D-12	3/2(12)	3.0498D+10	1.8635D+09
68.391	7/2(12)*	2.606D-12	5/2(12)	4.9832D+10	6.4706D+09
68.417	3/2(12)	2.300D-12	5/2(5)*	3.0767D+10	2.1770D+09
68.525	7/2(5)	3.465D-12	5/2(5)*	3.2355D+10	3.6273D+09
68.552	5/2(6)*	5.689D-12	5/2(2)	1.3976D+11	1.1111D+11
68.692	5/2(11)	2.304D-12	7/2(2)*	4.2660D+10	4.1933D+09
68.735	7/2(10)*	2.552D-12	5/2(11)	8.1460D+10	1.6933D+10
68.762	1/2(12)*	2.090D-12	3/2(13)	1.2555D+11	3.2947D+10
68.824	3/2(22)*	1.769D-12	1/2(11)	1.0377D+11	1.9049D+10
68.904	5/2(15)*	2.003D-12	5/2(11)	4.0894D+10	3.3504D+09
68.954	7/2(8)*	1.741D-12	7/2(4)	4.3099D+10	3.2331D+09
69.015	3/2(20)	2.572D-12	5/2(16)*	7.6879D+10	1.5203D+10
69.140	3/2(15)*	4.477D-12	5/2(6)	1.5164D+10	1.0296D+09
69.224	1/2(13)*	1.686D-12	1/2(10)	4.2591D+10	3.0584D+09
69.259	5/2(14)	2.560D-12	3/2(10)*	1.3848D+11	4.9101D+10
69.326	7/2(5)	3.465D-12	7/2(2)*	5.1823D+10	9.3056D+09
69.435	3/2(20)*	1.546D-12	5/2(13)	4.0373D+10	2.5199D+09
69.503	7/2(9)*	2.343D-12	5/2(10)	9.8625D+10	2.2787D+10
69.554	3/2(15)	1.533D-12	1/2(6)*	1.0231D+11	1.6041D+10
69.567	5/2(17)	1.807D-12	7/2(8)*	2.4336D+10	1.0703D+09
69.590	5/2(12)	3.084D-12	5/2(6)*	1.4087D+11	6.1198D+10
69.606	3/2(10)	2.840D-12	5/2(4)*	4.5055D+10	5.7650D+09
69.684	7/2(11)	2.510D-12	7/2(10)*	4.1720D+10	4.3686D+09

Table 7: (continued)

λ	Upper	τ	lower	A	A_{br}
69.717	5/2(19)*	2.254D-12	7/2(8)	9.0941D+10	1.8638D+10
69.765	3/2(14)	1.534D-12	3/2(9)*	7.1813D+10	7.9086D+09
70.057	7/2(4)*	3.300D-12	5/2(3)	2.7034D+11	2.4118D+11
70.104	3/2(8)*	3.923D-12	5/2(2)	4.2570D+10	7.1086D+09
70.137	1/2(13)	2.041D-12	3/2(17)*	3.7896D+10	2.9307D+09
70.221	5/2(19)	2.206D-12	5/2(15)*	6.5333D+10	9.4171D+09
70.356	11/2(1)*	4.208D-12	9/2(2)	1.6913D+11	1.2037D+11
70.381	9/2(6)	2.739D-12	9/2(4)*	6.2336D+10	1.0644D+10
70.415	5/2(6)	2.469D-12	3/2(5)*	2.5135D+10	1.5600D+09
70.457	7/2(13)*	2.229D-12	7/2(8)	9.8015D+10	2.1410D+10
70.461	5/2(16)*	2.734D-12	7/2(6)	4.2070D+10	4.8390D+09
70.535	5/2(17)*	1.765D-12	3/2(14)	8.9627D+10	1.4179D+10
70.619	1/2(11)*	2.014D-12	1/2(8)	7.4597D+10	1.1208D+10
70.674	1/2(9)*	3.897D-12	3/2(9)	3.1286D+10	3.8143D+09
70.740	3/2(13)	3.618D-12	3/2(9)*	4.3046D+10	6.7043D+09
70.838	3/2(11)	2.536D-12	1/2(4)*	9.4756D+10	2.2767D+10
70.902	3/2(13)*	3.976D-12	5/2(5)	2.1276D+10	1.7996D+09
71.030	3/2(5)*	4.675D-12	5/2(1)	3.0802D+10	4.4354D+09
71.031	9/2(4)	2.762D-12	7/2(4)*	2.5470D+11	1.7920D+11
71.042	7/2(2)	5.372D-12	5/2(3)*	1.6794D+10	1.5153D+09
71.065	5/2(18)*	1.958D-12	7/2(7)	4.3996D+10	3.7904D+09
71.105	3/2(19)	2.122D-12	3/2(17)*	3.6266D+10	2.7907D+09
71.216	3/2(10)*	2.312D-12	1/2(3)	1.0122D+11	2.3684D+10
71.229	1/2(13)	2.041D-12	1/2(11)*	6.6953D+10	9.1482D+09
71.350	5/2(3)*	1.214D-11	5/2(1)	4.2674D+10	2.2109D+10
71.374	1/2(13)*	1.686D-12	3/2(15)	1.8867D+11	6.0015D+10
71.460	7/2(6)	4.818D-12	5/2(6)*	6.9348D+10	2.3171D+10

Table 7: (continued)

λ	Upper	τ	lower	A	A_{br}
71.507	1/2(12)*	2.090D-12	1/2(9)	6.0851D+10	7.7401D+09
71.610	1/2(9)*	3.897D-12	1/2(6)	2.9057D+10	3.2903D+09
71.621	3/2(15)*	4.477D-12	3/2(8)	6.5224D+10	1.9047D+10
71.682	7/2(11)*	2.195D-12	5/2(12)	5.5085D+10	6.6591D+09
71.699	3/2(20)	2.572D-12	3/2(19)*	3.0430D+10	2.3818D+09
71.701	5/2(10)	2.320D-12	3/2(7)*	9.1226D+10	1.9309D+10
71.725	1/2(10)	1.273D-12	1/2(6)*	3.8104D+10	1.8482D+09
71.726	3/2(17)*	1.666D-12	1/2(8)	3.2133D+10	1.7197D+09
71.864	3/2(21)	2.416D-12	5/2(18)*	1.3488D+11	4.3948D+10
71.915	9/2(2)	3.508D-12	7/2(2)*	1.4286D+11	7.1584D+10
72.004	7/2(10)	2.391D-12	7/2(9)*	3.9522D+10	3.7344D+09
72.149	5/2(8)	2.856D-12	5/2(4)*	3.5469D+10	3.5934D+09
72.254	5/2(2)*	1.221D-11	3/2(1)	7.9967D+10	7.8053D+10
72.455	5/2(17)*	1.765D-12	5/2(13)	7.0896D+10	8.8717D+09
72.517	5/2(8)*	2.058D-12	3/2(4)	2.0068D+11	8.2872D+10
72.519	1/2(9)*	3.897D-12	3/2(10)	1.2524D+11	6.1119D+10
72.558	9/2(7)	3.778D-12	9/2(5)*	9.1695D+10	3.1768D+10
72.564	3/2(19)*	1.804D-12	3/2(14)	1.4368D+11	3.7250D+10
72.614	3/2(15)*	4.477D-12	5/2(7)	2.2951D+10	2.3585D+09
72.695	5/2(12)	3.084D-12	3/2(9)*	2.6746D+10	2.2060D+09
72.791	9/2(2)	3.508D-12	9/2(1)*	1.8566D+10	1.2091D+09
72.852	3/2(18)	1.614D-12	3/2(16)*	6.6747D+10	7.1894D+09
72.872	5/2(12)*	6.235D-12	5/2(7)	6.1688D+10	2.3728D+10
72.895	5/2(19)*	2.254D-12	5/2(14)	1.0242D+11	2.3638D+10
72.945	1/2(6)	4.264D-12	3/2(6)*	3.6944D+10	5.8199D+09
73.001	1/2(8)*	6.194D-12	3/2(6)	3.8135D+10	9.0082D+09
73.159	7/2(8)	1.868D-12	5/2(8)*	2.0686D+11	7.9948D+10

Table 7: (continued)

λ	Upper	τ	lower	A	A_{br}
73.161	7/2(12)*	2.606D-12	5/2(13)	8.1080D+10	1.7130D+10
73.165	3/2(13)*	3.976D-12	3/2(6)	4.7235D+10	8.8701D+09
73.238	3/2(22)*	1.769D-12	5/2(15)	1.0340D+11	1.8913D+10
73.435	9/2(6)*	2.125D-12	7/2(7)	7.4529D+10	1.1806D+10
73.482	5/2(12)	3.084D-12	7/2(3)*	3.5323D+10	3.8479D+09
73.507	9/2(6)*	2.125D-12	9/2(4)	6.9577D+10	1.0289D+10
73.509	5/2(10)*	7.357D-12	5/2(5)	3.8390D+10	1.0842D+10
73.534	3/2(16)	1.543D-12	3/2(11)*	2.0760D+11	6.6503D+10
73.543	3/2(10)	2.840D-12	1/2(3)*	4.5945D+10	5.9950D+09
73.650	5/2(17)	1.807D-12	3/2(17)*	5.4506D+10	5.3691D+09
73.651	1/2(6)*	3.043D-12	1/2(3)	1.4446D+11	6.3499D+10
73.691	3/2(21)*	2.921D-12	5/2(14)	1.3512D+11	5.3327D+10
73.707	3/2(19)	2.122D-12	5/2(15)*	4.3404D+10	3.9973D+09
73.731	3/2(13)	3.618D-12	1/2(5)*	3.1529D+10	3.5967D+09
73.809	9/2(2)*	9.079D-12	7/2(1)	5.7368D+10	2.9879D+10
73.842	1/2(8)*	6.194D-12	1/2(4)	9.0369D+10	5.0586D+10
73.853	7/2(6)*	3.324D-12	7/2(2)	4.0803D+10	5.5347D+09
73.930	7/2(11)	2.510D-12	9/2(5)*	2.3369D+10	1.3706D+09
73.944	1/2(12)	1.629D-12	1/2(10)*	7.7438D+10	9.7699D+09
74.031	5/2(19)	2.206D-12	7/2(11)*	3.0080D+10	1.9962D+09
74.051	3/2(22)*	1.769D-12	3/2(16)	2.7078D+11	1.2970D+11
74.085	3/2(20)*	1.546D-12	1/2(10)	1.8966D+11	5.5609D+10
74.240	5/2(17)	1.807D-12	5/2(14)*	2.9136D+10	1.5341D+09
74.284	3/2(14)*	2.260D-12	1/2(5)	3.2350D+10	2.3655D+09
74.354	5/2(15)	1.658D-12	3/2(11)*	2.4167D+11	9.6804D+10
74.368	3/2(19)	2.122D-12	3/2(18)*	5.8578D+10	7.2808D+09
74.388	7/2(4)	2.767D-12	5/2(5)*	7.3298D+10	1.4865D+10

Table 7: (continued)

λ	Upper	τ	lower	A	A_{br}
74.416	7/2(1)*	2.099D-11	5/2(1)	4.0126D+10	3.3800D+10
74.426	5/2(16)*	2.734D-12	3/2(13)	4.7785D+10	6.2429D+09
74.456	5/2(4)	8.798D-12	3/2(2)*	2.9071D+10	7.4355D+09
74.503	1/2(6)	4.264D-12	1/2(3)*	1.2379D+11	6.5339D+10
74.655	5/2(17)*	1.765D-12	7/2(7)	2.7127D+10	1.2989D+09
74.723	3/2(20)	2.572D-12	1/2(12)*	5.9413D+10	9.0800D+09
74.752	5/2(8)	2.856D-12	3/2(6)*	1.9035D+11	1.0349D+11
74.793	7/2(3)*	5.665D-12	5/2(3)	1.6404D+10	1.5243D+09
74.814	7/2(3)	5.352D-12	5/2(4)*	1.1854D+11	7.5205D+10
74.896	7/2(6)*	3.324D-12	5/2(6)	7.7981D+10	2.0216D+10
74.918	3/2(21)*	2.921D-12	1/2(11)	3.3673D+10	3.3118D+09
75.165	5/2(20)	2.630D-12	7/2(13)*	6.5131D+10	1.1158D+10
75.271	7/2(5)*	1.066D-11	5/2(5)	3.8751D+10	1.6004D+10
75.311	7/2(9)	1.988D-12	5/2(13)*	8.7001D+10	1.5046D+10
75.355	5/2(11)*	2.387D-12	3/2(7)	2.0918D+10	1.0446D+09
75.399	1/2(13)*	1.686D-12	1/2(11)	1.1471D+11	2.2185D+10
75.571	7/2(6)	4.818D-12	7/2(3)*	2.3175D+10	2.5877D+09
75.657	5/2(15)*	2.003D-12	5/2(12)	4.0220D+10	3.2409D+09
75.775	9/2(5)	2.154D-12	7/2(8)*	9.1531D+10	1.8044D+10
75.944	5/2(10)*	7.357D-12	3/2(6)	3.3556D+10	8.2834D+09
76.025	5/2(20)	2.630D-12	5/2(19)*	1.0794D+11	3.0645D+10
76.091	5/2(16)	1.795D-12	3/2(16)*	5.0003D+10	4.4889D+09
76.108	5/2(18)*	1.958D-12	3/2(15)	1.4123D+11	3.9056D+10
76.347	7/2(9)	1.988D-12	7/2(8)*	3.3828D+10	2.2747D+09
76.402	5/2(12)*	6.235D-12	7/2(3)	2.5014D+10	3.9014D+09
76.554	3/2(20)*	1.546D-12	3/2(15)	4.0402D+10	2.5235D+09
76.645	9/2(5)	2.154D-12	9/2(4)*	3.1695D+10	2.1636D+09

Table 7: (continued)

λ	Upper	τ	lower	A	A_{br}
76.665	3/2(21)	2.416D-12	1/2(13)*	9.1151D+10	2.0071D+10
76.940	7/2(11)*	2.195D-12	5/2(13)	1.2395D+11	3.3714D+10
77.030	7/2(11)	2.510D-12	7/2(12)*	5.2774D+10	6.9902D+09
77.074	5/2(2)	8.222D-11	3/2(1)*	1.2163D+10	1.2163D+10
77.156	5/2(17)	1.807D-12	3/2(18)*	5.4118D+10	5.2929D+09
77.171	7/2(10)	2.391D-12	5/2(15)*	5.5308D+10	7.3133D+09
77.185	7/2(6)	4.818D-12	5/2(7)*	2.0123D+10	1.9510D+09
77.231	5/2(10)*	7.357D-12	7/2(1)	1.3065D+10	1.2557D+09
77.392	5/2(18)	2.131D-12	3/2(19)*	6.5340D+10	9.0985D+09
77.628	9/2(7)	3.778D-12	9/2(6)*	2.5234D+10	2.4059D+09
77.783	9/2(3)	4.470D-12	7/2(3)*	5.6612D+10	1.4327D+10
77.828	7/2(11)	2.510D-12	5/2(17)*	4.0815D+10	4.1811D+09
78.218	9/2(6)*	2.125D-12	7/2(8)	1.8691D+11	7.4252D+10
78.299	7/2(7)*	4.366D-12	7/2(3)	1.7042D+10	1.2679D+09
78.301	5/2(3)*	1.214D-11	3/2(2)	1.7187D+10	3.5861D+09
78.633	9/2(5)*	2.980D-12	7/2(7)	1.0778D+11	3.4624D+10
78.824	9/2(3)*	8.975D-12	7/2(3)	6.0647D+10	3.3012D+10
78.859	1/2(12)	1.629D-12	3/2(17)*	3.2545D+10	1.7257D+09
78.892	11/2(2)*	4.486D-12	9/2(4)	1.2774D+11	7.3192D+10
79.114	5/2(15)*	2.003D-12	3/2(14)	4.8861D+10	4.7830D+09
79.173	1/2(12)*	2.090D-12	3/2(15)	2.3545D+10	1.1588D+09
79.841	5/2(18)	2.131D-12	5/2(17)*	6.4349D+10	8.8245D+09
80.190	5/2(19)*	2.254D-12	3/2(16)	8.5079D+10	1.6313D+10
80.193	7/2(13)*	2.229D-12	5/2(15)	2.1883D+11	1.0672D+11
80.225	3/2(13)	3.618D-12	1/2(6)*	4.1131D+10	6.1211D+09
80.475	3/2(19)	2.122D-12	3/2(19)*	3.0340D+10	1.9532D+09
81.091	9/2(6)	2.739D-12	7/2(11)*	7.1665D+10	1.4068D+10

Table 7: (continued)

λ	Upper	τ	lower	A	A_{br}
81.219	3/2(15)*	4.477D-12	1/2(6)	3.2556D+10	4.7457D+09
81.448	7/2(7)*	4.366D-12	5/2(8)	1.1365D+11	5.6393D+10
82.155	7/2(11)	2.510D-12	5/2(18)*	3.8420D+10	3.7049D+09
82.510	5/2(20)	2.630D-12	3/2(22)*	9.7360D+10	2.4933D+10
82.623	5/2(19)	2.206D-12	3/2(20)*	8.4171D+10	1.5631D+10
82.947	1/2(13)	2.041D-12	1/2(12)*	3.6752D+10	2.7565D+09
83.910	3/2(20)	2.572D-12	3/2(21)*	4.2923D+10	4.7392D+09
84.064	9/2(2)*	9.079D-12	9/2(1)	2.5335D+10	5.8271D+09
84.156	1/2(12)*	2.090D-12	1/2(11)	2.4303D+10	1.2347D+09
84.718	7/2(12)*	2.606D-12	5/2(14)	2.4254D+10	1.5329D+09
84.913	3/2(21)	2.416D-12	3/2(22)*	5.7671D+10	8.0347D+09
84.966	3/2(20)	2.572D-12	5/2(19)*	2.6001D+10	1.7390D+09
85.760	9/2(6)	2.739D-12	7/2(12)*	2.8921D+10	2.2911D+09
86.030	1/2(13)	2.041D-12	3/2(20)*	3.3868D+10	2.3409D+09
87.156	9/2(7)	3.778D-12	7/2(13)*	1.1028D+11	4.5952D+10
87.558	7/2(10)	2.391D-12	5/2(17)*	3.0371D+10	2.2053D+09
88.377	5/2(1)*	1.101D-10	5/2(1)	4.2500D+09	1.9879D+09
90.091	7/2(6)	4.818D-12	5/2(8)*	2.7261D+10	3.5808D+09
90.355	7/2(11)	2.510D-12	5/2(19)*	2.3952D+10	1.4399D+09
93.412	3/2(3)*	2.836D-11	5/2(1)	8.6912D+09	2.1421D+09
95.383	3/2(2)*	9.923D-12	3/2(1)	1.0592D+10	1.1133D+09
96.375	1/2(5)	2.399D-12	3/2(7)*	2.0767D+10	1.0346D+09
97.533	3/2(5)	1.169D-11	3/2(3)*	1.9448D+10	4.4222D+09
99.698	5/2(5)	8.098D-12	5/2(4)*	1.1925D+10	1.1515D+09
99.943	9/2(1)	8.612D-12	9/2(1)*	2.3448D+10	4.7352D+09
101.270	5/2(6)	2.469D-12	7/2(2)*	3.0148D+10	2.2443D+09
103.702	3/2(5)	1.169D-11	5/2(1)*	4.0219D+10	1.8913D+10

Table 7: (continued)

λ	Upper	τ	lower	A	A_{br}
104.328	3/2(2)*	9.923D-12	5/2(1)	3.1206D+10	9.6633D+09
104.407	5/2(4)	8.798D-12	7/2(1)*	3.7232D+10	1.2197D+10
105.057	7/2(2)	5.372D-12	9/2(1)*	2.8462D+10	4.3521D+09
105.694	3/2(3)*	2.836D-11	3/2(2)	7.1808D+09	1.4623D+09
107.283	7/2(6)*	3.324D-12	9/2(2)	2.8211D+10	2.6457D+09
108.709	1/2(9)*	3.897D-12	1/2(9)	2.5959D+10	2.6260D+09
110.088	5/2(7)	4.481D-12	5/2(6)*	1.5281D+10	1.0464D+09
111.104	5/2(4)	8.798D-12	5/2(3)*	1.9448D+10	3.3276D+09
111.889	5/2(4)	8.798D-12	3/2(5)*	1.3530D+10	1.6107D+09
112.716	7/2(7)*	4.366D-12	9/2(3)	1.7924D+10	1.4026D+09
113.808	9/2(3)*	8.975D-12	9/2(3)	1.1732D+10	1.2353D+09
117.854	3/2(15)*	4.477D-12	5/2(12)	1.8345D+10	1.5068D+09
118.866	1/2(3)*	3.791D-12	1/2(3)	1.6277D+10	1.0044D+09
118.900	9/2(3)*	8.975D-12	7/2(6)	1.9982D+10	3.5837D+09
121.372	3/2(5)	1.169D-11	1/2(2)*	9.2823D+09	1.0074D+09
122.265	1/2(1)	8.700D-11	1/2(1)*	1.1491D+10	1.1489D+10
124.126	5/2(12)*	6.235D-12	3/2(13)	1.3252D+10	1.0950D+09
124.291	1/2(7)*	3.225D-12	1/2(7)	1.9520D+10	1.2287D+09
124.795	1/2(8)*	6.194D-12	3/2(11)	1.4628D+10	1.3255D+09
130.318	5/2(1)	2.021D-10	3/2(1)*	4.9485D+09	4.9485D+09
130.821	9/2(2)*	9.079D-12	7/2(5)	1.2975D+10	1.5285D+09
154.238	5/2(1)*	1.101D-10	3/2(3)	3.2130D+09	1.1361D+09

Table 8: Energy levels (cm^{-1}) and lifetimes (s) in Xe^{40+} (Si-like) ions.

Occ	J(No)P	E	τ
22000	0(1)	0	
21100	1(1)	595487	5.955D-07
21100	2(1)	646721	8.290D-05
20200	2(2)	1279395	1.990D-07
20200	0(2)	1391729	1.370D-07
12100	2(1)*	1417831	1.169D-10
12100	1(1)*	1577544	1.038D-11
21010	2(2)*	1779932	7.162D-10
11200	2(3)*	1917844	5.341D-10
21001	3(1)*	1979153	9.441D-11
21010	1(2)*	1994272	1.648D-12
21001	2(4)*	2106886	6.011D-12
11200	3(2)*	2128563	1.239D-11
11200	0(1)*	2162316	1.298D-11
11200	1(3)*	2226461	7.412D-12
11200	2(5)*	2257252	4.170D-12
11200	1(4)*	2309977	2.222D-12
20110	2(7)*	2584398	1.610D-12
20101	2(6)*	2585651	7.182D-11
20110	3(3)*	2587049	2.596D-12
20110	1(5)*	2587761	1.947D-12
20101	4(1)*	2593372	4.290D-07
20110	0(2)*	2599675	2.252D-12
12010	1(2)	2619663	5.574D-11
12010	2(3)	2650610	5.867D-11
20101	3(4)*	2796197	3.839D-12

Table 8: (continued)

Occ	J(No)P	E	τ
20101	1(6)*	2821938	5.558D-12
12001	3(1)	2825716	1.829D-11
12001	2(4)	2884305	1.757D-11
10300	2(8)*	2905186	2.655D-12
10300	1(7)*	3047160	1.606D-12
11110	2(5)	3085628	1.198D-11
11110	0(3)	3120579	4.490D-11
11110	1(3)	3139253	8.322D-11
11110	3(2)	3162322	5.688D-11
02200	2(6)	3167256	6.464D-12
02200	0(4)	3187421	5.995D-12
11110	4(1)	3232268	1.786D-10
11101	4(2)	3271090	6.670D-10
11110	2(7)	3316976	6.272D-12
11110	3(3)	3326987	3.789D-12
11110	2(8)	3365895	3.350D-12
11110	1(4)	3374676	2.640D-12
11101	5(1)	3376651	1.327D-10
11101	2(9)	3384409	4.445D-12
11101	1(5)	3396680	6.514D-12
11110	3(4)	3415005	4.125D-12
11101	3(5)	3443613	8.609D-12
11110	1(6)	3458254	2.924D-12
11101	2(10)	3505362	4.635D-12
11101	4(3)	3516521	1.489D-11
11101	3(6)	3525632	3.745D-12
11110	1(7)	3545746	1.582D-12

Table 8: (continued)

Occ	J(No)P	E	τ
11110	0(5)	3557355	2.888D-12
11101	3(7)	3585626	4.278D-12
11101	4(4)	3586432	5.707D-12
11110	2(11)	3588267	1.632D-12
11101	1(8)	3603678	6.940D-12
11101	1(9)	3671712	4.404D-12
11101	3(8)	3681780	2.880D-12
11101	2(12)	3684586	3.836D-12
11101	0(6)	3702300	2.522D-12
11101	2(13)	3732338	1.972D-12
01300	2(14)	3823527	2.440D-12
20020	2(15)	3870665	1.168D-12
01300	1(10)	3874736	1.526D-12
10201	4(5)	3878278	9.074D-12
10210	3(9)	3883643	2.422D-12
10210	1(11)	3898934	2.448D-12
10210	2(16)	3902792	2.287D-12
20020	0(7)	3960661	1.482D-12
20011	4(6)	3972651	4.578D-12
10201	5(2)	4003489	1.496D-11
10201	0(8)	4023864	2.172D-12
20011	3(10)	4044310	1.810D-12
20002	2(17)	4082457	2.983D-12
20011	2(18)	4089934	1.680D-12
20011	1(12)	4104400	1.557D-12
10210	4(7)	4123077	1.901D-12
10201	1(13)	4162259	2.105D-12

Table 8: (continued)

Occ	J(No)P	E	τ
10201	3(11)	4178382	4.066D-12
02110	2(9)*	4202450	1.030D-11
20002	4(8)	4204096	2.511D-12
10210	1(14)	4205591	1.875D-12
10210	0(9)	4210132	1.294D-12
10210	2(19)	4235422	1.682D-12
10210	3(12)	4242374	1.840D-12
02110	0(3)*	4259377	7.182D-12
10210	1(15)	4260966	1.289D-12
02110	3(5)*	4269434	5.707D-12
02110	1(8)*	4285615	4.893D-12
10201	3(13)	4288697	1.880D-12
10210	2(20)	4293727	1.157D-12
10201	4(9)	4313093	2.254D-12
10201	2(21)	4356973	3.332D-12
11020	2(10)*	4374924	8.056D-12
20002	0(10)	4396063	1.900D-12
10201	3(14)	4396484	1.677D-12
10201	2(22)	4401356	1.614D-12
02101	4(2)*	4408552	6.046D-12
02101	2(11)*	4433143	5.344D-12
11020	3(6)*	4440641	9.160D-12
10201	1(16)	4447337	1.488D-12
02101	3(7)*	4497762	5.814D-12
10201	2(23)	4529721	1.317D-12
02101	1(9)*	4569218	6.086D-12
11020	0(4)*	4571141	2.702D-12

Table 8: (continued)

Occ	J(No)P	E	τ
11011	3(8)*	4579116	7.166D-12
11011	4(3)*	4582372	1.155D-11
11011	2(12)*	4588634	5.193D-12
11020	1(10)*	4592852	2.322D-12
11020	1(11)*	4622596	2.804D-12
11011	1(12)*	4646376	4.085D-12
11020	2(13)*	4648450	1.852D-12
11011	5(1)*	4681844	9.673D-12
11011	0(5)*	4691805	5.463D-12
11011	4(4)*	4692550	7.958D-12
11011	3(9)*	4692970	5.301D-12
11011	2(14)*	4694524	5.332D-12
01210	1(13)*	4701072	3.728D-12
00400	0(11)	4709839	9.676D-13
11002	4(5)*	4768530	4.079D-12
11011	3(10)*	4771431	2.410D-12
11011	2(15)*	4811538	2.002D-12
11002	4(6)*	4819933	4.413D-12
01201	3(11)*	4833004	2.834D-12
11011	2(16)*	4842924	2.447D-12
01210	2(17)*	4853179	3.554D-12
11002	5(2)*	4854062	1.023D-11
11011	1(14)*	4862986	1.984D-12
11002	2(18)*	4871832	3.436D-12
01210	3(12)*	4888406	3.664D-12
11002	4(7)*	4893435	4.800D-12
11002	3(13)*	4896129	3.514D-12

Table 8: (continued)

Occ	J(No)P	E	τ
01210	1(15)*	4934907	1.866D-12
11002	2(19)*	4938464	3.158D-12
11002	3(14)*	4942174	3.391D-12
01210	4(8)*	4943188	3.215D-12
11002	0(6)*	4955388	4.994D-12
11002	1(16)*	4963800	4.045D-12
01210	0(7)*	5009765	1.745D-12
01210	2(20)*	5021920	2.042D-12
11002	1(17)*	5029703	3.476D-12
01201	4(9)*	5040863	3.048D-12
01201	5(3)*	5052303	4.775D-12
01210	2(21)*	5062189	1.808D-12
01210	3(15)*	5073428	2.045D-12
01210	1(18)*	5084225	1.646D-12
01201	4(10)*	5105640	2.590D-12
11002	3(16)*	5137690	2.001D-12
01201	2(22)*	5155038	3.370D-12
11002	0(8)*	5158950	2.439D-12
10120	0(9)*	5166301	1.755D-12
01210	1(20)*	5167786	1.585D-12
10120	1(19)*	5174371	1.517D-12
10120	2(23)*	5174393	1.636D-12
10120	3(17)*	5181296	1.647D-12
10111	4(11)*	5191815	2.255D-12
01201	3(18)*	5196184	2.910D-12
11002	1(21)*	5199154	2.549D-12
10111	5(4)*	5208741	2.887D-12

Table 8: (continued)

Occ	J(No)P	E	τ
01201	3(19)*	5228857	2.337D-12
10111	4(12)*	5260790	2.183D-12
01201	2(24)*	5268863	2.106D-12
10111	3(20)*	5273950	2.875D-12
01201	2(26)*	5282581	1.618D-12
10120	2(25)*	5285937	1.534D-12
01201	1(22)*	5289671	1.626D-12
10111	1(23)*	5320975	1.616D-12
10111	2(27)*	5351980	1.975D-12
10102	4(13)*	5363789	2.932D-12
10111	3(21)*	5364499	2.533D-12
10111	1(24)*	5372613	1.756D-12
10111	0(10)*	5376777	2.095D-12
10111	2(28)*	5390538	1.718D-12
10111	3(22)*	5390703	2.000D-12
02020	2(24)	5423761	9.684D-12
10102	3(23)*	5429956	3.408D-12
10120	1(25)*	5430759	1.454D-12
10111	4(14)*	5435020	3.188D-12
10102	4(15)*	5437274	2.374D-12
10111	5(5)*	5441032	3.320D-12
10120	2(29)*	5443377	2.074D-12
10120	3(24)*	5477985	1.474D-12
10120	3(25)*	5488502	1.432D-12
10120	2(30)*	5491895	1.631D-12
10102	5(6)*	5502064	2.859D-12
10111	4(16)*	5505310	1.846D-12

Table 8: (continued)

Occ	J(No)P	E	τ
10111	2(31)*	5512379	1.613D-12
10102	1(26)*	5533526	1.751D-12
02020	0(12)	5543551	8.772D-12
10111	3(26)*	5546924	1.505D-12
10111	2(32)*	5579307	1.503D-12
10102	4(17)*	5587071	2.514D-12
10111	5(7)*	5591836	1.786D-12
10111	2(33)*	5592437	2.312D-12
02011	3(15)	5600761	7.486D-12
10120	1(27)*	5607761	1.019D-12
10102	3(27)*	5614739	2.839D-12
10102	0(11)*	5637293	1.853D-12
10111	2(34)*	5641197	1.581D-12
10102	5(8)*	5651351	3.173D-12
10111	1(28)*	5655408	1.346D-12
10111	3(28)*	5663504	1.342D-12
02011	2(25)	5669991	6.993D-12
10111	4(18)*	5677386	1.614D-12
10111	1(29)*	5682997	1.278D-12
10102	2(35)*	5687990	2.265D-12
02011	1(17)	5691232	6.391D-12
02011	4(10)	5699500	6.032D-12
10111	3(29)*	5706191	1.326D-12
10111	2(36)*	5725237	1.321D-12
00310	0(12)*	5731917	1.015D-12
10111	0(13)*	5735216	1.275D-12
10111	1(30)*	5745526	1.284D-12

Table 8: (continued)

Occ	J(No)P	E	τ
10102	3(30)*	5753770	1.990D-12
10102	4(19)*	5761020	1.583D-12
10102	2(37)*	5772014	1.616D-12
10102	3(31)*	5821065	1.371D-12
10102	2(38)*	5839402	1.550D-12
10102	1(31)*	5841290	1.440D-12
02002	4(11)	5846455	6.167D-12
00310	1(32)*	5858479	1.056D-12
00301	4(20)*	5876072	1.411D-12
02002	2(26)	5883317	5.560D-12
00310	3(32)*	5893539	1.131D-12
00310	2(39)*	5917313	9.662D-13
10102	1(33)*	5942224	1.281D-12
00301	2(40)*	5950716	1.265D-12
00301	3(33)*	5964277	1.295D-12
01120	2(27)	5973318	3.567D-12
01120	1(18)	6007805	2.863D-12
01120	3(16)	6009887	3.618D-12
01120	4(12)	6030210	4.113D-12
02002	0(13)	6044916	4.163D-12
01111	4(13)	6104583	5.376D-12
01111	5(3)	6118543	6.344D-12
01111	3(17)	6127459	4.446D-12
00301	1(34)*	6148971	9.721D-13
01111	1(19)	6151639	2.841D-12
01111	2(28)	6154787	3.142D-12
01111	2(29)	6160069	3.184D-12

Table 8: (continued)

Occ	J(No)P	E	τ
01111	0(14)	6161988	4.551D-12
01120	1(20)	6187139	1.793D-12
01111	3(18)	6193106	2.889D-12
01120	2(30)	6200012	2.072D-12
01111	4(14)	6209129	3.972D-12
01120	1(21)	6209302	1.940D-12
01120	2(31)	6237984	1.935D-12
01120	3(19)	6242541	1.587D-12
01120	0(15)	6246602	1.305D-12
01102	5(4)	6249194	3.847D-12
01111	2(32)	6276142	3.117D-12
01111	4(15)	6276781	3.037D-12
01111	3(20)	6276787	2.803D-12
01111	5(5)	6321496	4.234D-12
01111	4(16)	6329364	2.066D-12
01102	3(21)	6338376	2.947D-12
01111	3(22)	6351698	2.461D-12
01111	1(22)	6354674	1.683D-12
01102	2(33)	6363430	2.805D-12
01111	1(23)	6367928	2.253D-12
01102	4(17)	6376818	3.144D-12
01111	2(34)	6378966	2.296D-12
01111	3(23)	6389986	1.967D-12
01102	5(6)	6394134	3.453D-12
01111	1(24)	6405424	2.358D-12
01111	2(35)	6409692	1.925D-12
01102	5(7)	6436838	3.732D-12

Table 8: (continued)

Occ	J(No)P	E	τ
01111	3(24)	6437132	2.131D-12
01111	3(25)	6452280	2.250D-12
01102	4(18)	6467989	3.480D-12
01102	3(26)	6469035	2.352D-12
10030	1(25)	6474930	1.404D-12
01102	1(26)	6493781	1.775D-12
01111	2(36)	6494778	1.553D-12
01111	4(19)	6496375	2.024D-12
01102	0(16)	6513361	2.156D-12
10030	2(37)	6524578	1.263D-12
01111	2(38)	6557437	1.869D-12
01111	1(27)	6562324	1.793D-12
01102	4(20)	6562656	2.455D-12
10021	3(27)	6587685	1.539D-12
01102	3(28)	6591481	2.569D-12
01102	1(28)	6592041	2.846D-12
01102	2(39)	6598689	2.349D-12
01102	3(29)	6622350	2.054D-12
01102	2(40)	6623713	2.014D-12
01111	0(17)	6634982	1.485D-12
10021	4(21)	6636006	1.615D-12
10021	2(41)	6639808	1.692D-12
10021	1(29)	6652774	1.314D-12
10021	5(8)	6653430	1.754D-12
01102	2(42)	6679948	2.110D-12
10021	3(30)	6694044	1.535D-12
10021	4(22)	6696653	1.813D-12

Table 8: (continued)

Occ	J(No)P	E	τ
10021	0(18)	6702915	1.224D-12
10021	1(30)	6703445	1.488D-12
10021	2(43)	6715695	1.365D-12
01102	1(31)	6719009	1.565D-12
10021	3(31)	6749411	1.484D-12
10003	5(9)	6767790	2.205D-12
10021	4(23)	6783333	1.658D-12
10012	4(24)	6789925	2.321D-12
10012	3(32)	6793998	1.813D-12
10021	2(44)	6795520	1.555D-12
00211	2(45)	6823069	1.574D-12
00211	3(33)	6838134	1.634D-12
10012	5(10)	6838246	2.956D-12
10012	1(32)	6858450	1.485D-12
00220	0(19)	6860416	1.007D-12
10012	1(33)	6869128	1.563D-12
00211	2(46)	6870303	2.105D-12
10012	4(25)	6888380	1.882D-12
10021	2(47)	6896197	1.465D-12
10012	3(34)	6910859	1.832D-12
00211	5(11)	6917169	2.236D-12
10003	4(26)	6922768	2.824D-12
10012	3(35)	6935471	1.411D-12
00220	2(48)	6940801	1.026D-12
00220	1(34)	6942248	1.234D-12
00220	3(36)	6947883	1.383D-12
00211	4(27)	6951115	1.477D-12

Table 8: (continued)

Occ	J(No)P	E	τ
10012	0(20)	6952043	1.457D-12
10012	2(49)	6959220	1.450D-12
00211	4(28)	6965336	1.358D-12
00211	1(35)	6969998	1.261D-12
10003	5(12)	6973153	1.773D-12
00211	3(37)	6987687	1.442D-12
00220	2(50)	7007668	1.323D-12
10003	2(51)	7015569	1.638D-12
00211	5(13)	7032198	1.925D-12
00211	2(52)	7039562	1.487D-12
10003	3(38)	7052978	1.879D-12
00211	2(53)	7066123	1.690D-12
00211	4(29)	7068482	1.317D-12
10003	1(36)	7077689	2.070D-12
00211	3(39)	7077881	1.204D-12
00211	3(40)	7108176	1.348D-12
00211	1(37)	7109949	1.112D-12
00211	2(54)	7120862	1.158D-12
00220	2(55)	7121945	1.152D-12
00202	4(30)	7124011	1.731D-12
00211	4(31)	7140228	1.829D-12
00211	0(21)	7180595	9.862D-13
00211	1(38)	7181903	1.295D-12
00211	3(41)	7190819	1.227D-12
10012	2(56)	7203279	1.460D-12
00202	5(14)	7207767	1.840D-12
00220	0(22)	7210459	1.012D-12

Table 8: (continued)

Occ	J(No)P	E	τ
00211	1(39)	7217962	1.230D-12
00202	3(42)	7237867	1.419D-12
00202	4(32)	7238729	1.595D-12
00202	2(57)	7242755	1.829D-12
01030	2(41)*	7256037	3.343D-12
10003	2(58)	7266184	1.079D-12
00202	4(33)	7267363	1.462D-12
00202	2(59)	7278460	1.400D-12
00211	1(40)	7290814	1.055D-12
00202	3(43)	7295689	1.292D-12
00211	4(34)	7310816	1.242D-12
00211	2(60)	7354200	9.862D-13
00202	3(44)	7362094	1.230D-12
01021	3(34)*	7373827	4.294D-12
00202	0(23)	7374346	2.087D-12
00202	1(41)	7381700	1.123D-12
01021	1(35)*	7394932	2.400D-12
01021	2(42)*	7396817	3.793D-12
00202	2(61)	7401619	1.326D-12
01021	4(21)*	7424999	4.746D-12
01021	0(14)*	7442631	3.837D-12
01021	5(9)*	7447215	5.550D-12
01030	1(36)*	7460852	1.825D-12
00202	2(62)	7486350	1.122D-12
01012	3(35)*	7557852	2.650D-12
01021	2(43)*	7567104	1.635D-12
01012	4(22)*	7568549	5.133D-12

Table 8: (continued)

Occ	J(No)P	E	τ
01012	2(44)*	7600305	3.021D-12
01012	5(10)*	7606720	5.546D-12
00202	0(24)	7613399	9.746D-13
01021	3(36)*	7622412	2.931D-12
01012	1(37)*	7625681	2.039D-12
01012	0(15)*	7638245	3.989D-12
01012	2(45)*	7638830	3.831D-12
01021	4(23)*	7640155	1.634D-12
01021	1(38)*	7653490	1.996D-12
01021	3(37)*	7663966	1.776D-12
01012	4(24)*	7694437	2.987D-12
01021	2(46)*	7705718	2.705D-12
01012	3(38)*	7720740	3.529D-12
01012	4(25)*	7778024	2.429D-12
01012	5(11)*	7782503	2.853D-12
01012	3(39)*	7800185	1.959D-12
01012	2(47)*	7806366	2.732D-12
01012	1(39)*	7807668	1.626D-12
01003	4(26)*	7828282	3.171D-12
01003	5(12)*	7831568	4.735D-12
01012	2(48)*	7843395	2.330D-12
01012	3(40)*	7863493	1.936D-12
01003	1(40)*	7888916	2.795D-12
01003	2(49)*	7943252	3.306D-12
01003	3(41)*	7997550	3.101D-12
01003	2(50)*	7998418	2.671D-12
01012	1(41)*	8007551	1.936D-12

Table 8: (continued)

Occ	J(No)P	E	τ
00130	0(16)*	8033235	9.663D-13
00130	1(42)*	8072868	1.028D-12
00130	2(51)*	8087049	1.091D-12
00130	3(42)*	8088545	1.189D-12
00121	4(27)*	8091504	1.426D-12
00121	5(13)*	8094558	2.188D-12
00121	3(43)*	8122722	1.239D-12
00121	2(52)*	8138290	1.246D-12
00121	1(43)*	8169931	1.169D-12
00121	4(28)*	8173568	1.629D-12
00121	0(17)*	8179524	1.173D-12
00121	3(44)*	8200234	1.305D-12
00121	2(53)*	8205750	1.382D-12
00121	4(29)*	8212843	1.634D-12
00112	3(45)*	8243017	1.710D-12
00121	5(14)*	8253910	2.236D-12
00112	1(44)*	8266403	1.464D-12
00112	4(30)*	8271616	1.848D-12
00112	2(54)*	8276280	1.577D-12
00121	2(55)*	8281897	1.332D-12
00121	5(15)*	8290162	1.850D-12
00112	4(31)*	8297279	1.533D-12
00121	3(46)*	8309969	1.329D-12
00112	3(47)*	8325702	1.731D-12
00121	4(32)*	8331686	1.556D-12
00112	2(56)*	8339743	1.335D-12
00112	3(48)*	8356508	1.354D-12

Table 8: (continued)

Occ	J(No)P	E	τ
00103	5(16)*	8359615	2.566D-12
00112	2(57)*	8360198	1.276D-12
00112	1(45)*	8360850	1.132D-12
00103	0(18)*	8361503	2.686D-12
00121	1(46)*	8366416	1.158D-12
00112	4(33)*	8388778	1.733D-12
00112	4(34)*	8394500	1.392D-12
00121	2(58)*	8401392	1.182D-12
00103	3(49)*	8404591	1.488D-12
00112	5(17)*	8411569	2.168D-12
00112	5(18)*	8425843	1.557D-12
00112	3(50)*	8438469	1.613D-12
00103	2(59)*	8441093	1.599D-12
00112	1(47)*	8457736	1.272D-12
00121	2(60)*	8460672	1.283D-12
00121	3(51)*	8468593	1.292D-12
00112	4(35)*	8501260	1.520D-12
00112	2(61)*	8508912	1.755D-12
00112	3(52)*	8514564	1.381D-12
00103	4(36)*	8531012	1.858D-12
00112	1(48)*	8531663	1.301D-12
00112	3(53)*	8561130	1.827D-12
00112	0(19)*	8566503	1.150D-12
00121	3(54)*	8580000	1.221D-12
00121	1(49)*	8581905	1.355D-12
00112	5(19)*	8584256	1.657D-12
00103	2(62)*	8587998	1.821D-12

Table 8: (continued)

Occ	J(No)P	E	τ
00112	1(50)*	8593741	1.299D-12
00103	2(63)*	8599926	1.293D-12
00112	0(20)*	8613855	1.723D-12
00112	4(37)*	8635899	1.845D-12
00103	4(38)*	8654791	1.538D-12
00121	1(51)*	8666743	1.183D-12
00112	3(55)*	8676760	1.669D-12
00112	2(64)*	8680592	1.341D-12
00103	3(56)*	8715585	1.435D-12
00112	2(65)*	8721473	1.186D-12
00103	1(52)*	8728088	1.610D-12
00103	3(57)*	8736349	1.363D-12
00103	1(53)*	8911286	1.197D-12
00040	0(25)	9339087	9.314D-13
00031	1(42)	9425582	1.075D-12
00031	2(63)	9477389	1.167D-12
00031	4(35)	9491931	1.218D-12
00031	3(45)	9503340	1.205D-12
00022	4(36)	9579029	1.439D-12
00022	0(26)	9583613	1.225D-12
00022	3(46)	9604696	1.364D-12
00022	5(15)	9614311	1.941D-12
00031	2(64)	9614519	1.216D-12
00022	1(43)	9651871	1.288D-12
00022	4(37)	9665718	1.556D-12
00022	3(47)	9685888	1.364D-12
00022	2(65)	9687794	1.335D-12

Table 8: (continued)

Occ	J(No)P	E	τ
00013	4(38)	9722583	1.616D-12
00013	3(48)	9758336	1.577D-12
00022	2(66)	9760158	1.351D-12
00013	5(16)	9771252	2.111D-12
00013	1(44)	9796282	1.526D-12
00022	4(39)	9800419	1.510D-12
00022	2(67)	9833050	1.476D-12
00013	0(27)	9848458	1.443D-12
00013	3(49)	9854968	1.655D-12
00013	2(68)	9862409	1.440D-12
00013	3(50)	9935517	1.718D-12
00004	4(40)	9935925	1.894D-12
00013	1(45)	9949586	1.526D-12
00004	2(69)	9958771	1.760D-12
00013	4(41)	9964115	1.904D-12
00022	0(28)	9966969	1.466D-12
00004	2(70)	10074724	1.660D-12
00004	0(29)	10243592	1.513D-12

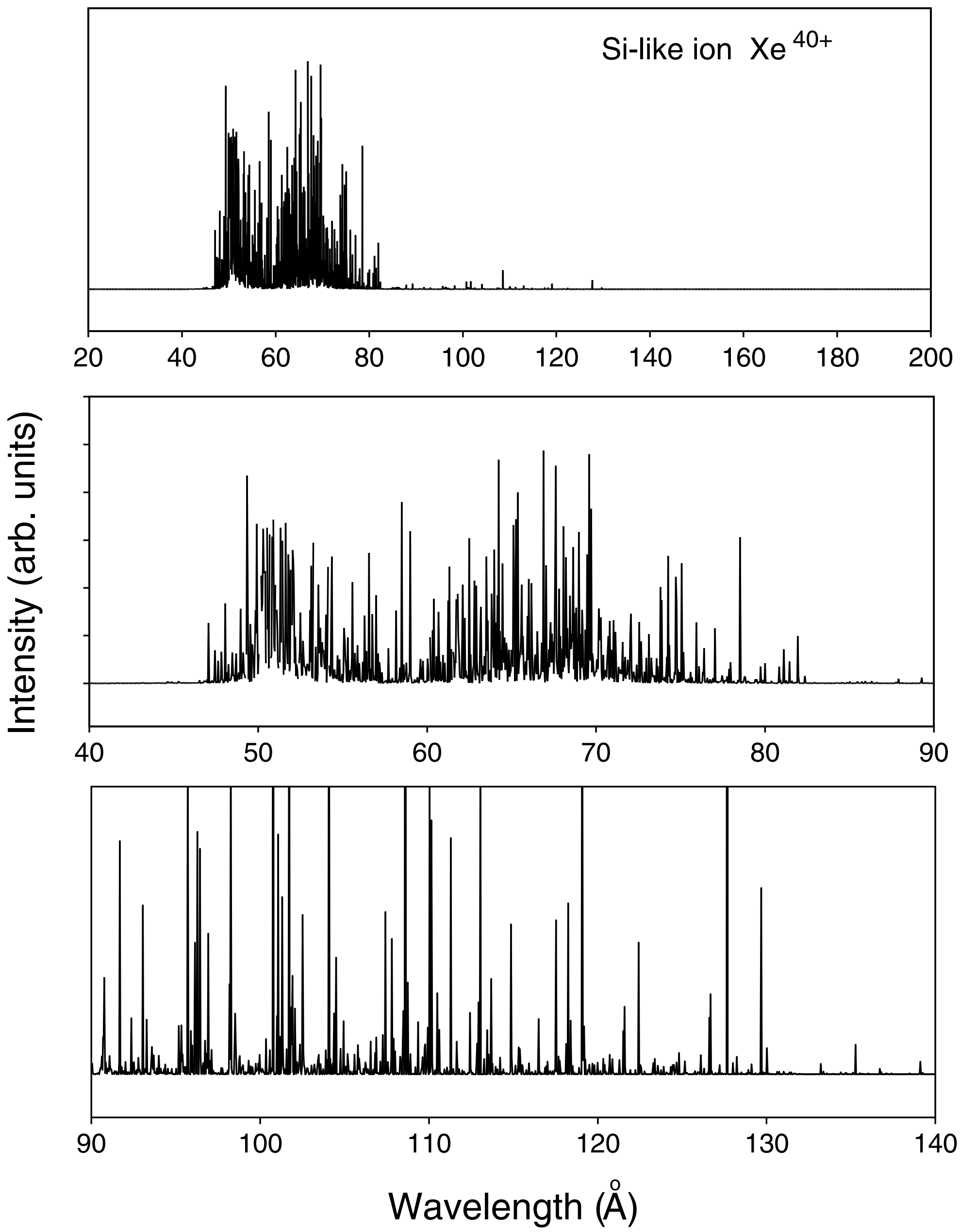

Fig. 3. Synthetic spectra of Xe^{40+} (Si-like) ions

Table 9: Transitions with probabilities higher than $5{\cdot}10^{+10}$ s^{-1} in Xe^{40+} (Si-like) ions.

λ	Upper	τ	lower	A	A_{br}
47.064	0(6)	2.522D-12	1(1)*	1.5995D+11	6.4508D+10
47.830	2(15)	1.168D-12	2(2)*	3.0286D+11	1.0712D+11
48.044	1(13)*	3.728D-12	1(2)	1.2617D+11	5.9350D+10

Table 9: (continued)

λ	Upper	τ	lower	A	A_{br}
48.955	0(22)	1.012D-12	1(20)*	2.2860D+11	5.2869D+10
49.090	1(36)*	1.825D-12	2(24)	2.9757D+11	1.6157D+11
49.271	0(8)	2.172D-12	1(2)*	4.4714D+11	4.3431D+11
49.333	0(9)*	1.755D-12	1(3)	3.0576D+11	1.6404D+11
49.372	0(16)*	9.663D-13	1(18)	2.3821D+11	5.4830D+10
49.578	3(40)*	1.936D-12	4(11)	1.6453D+11	5.2419D+10
49.733	2(11)	1.632D-12	1(1)*	2.4890D+11	1.0107D+11
49.823	1(19)*	1.517D-12	2(6)	2.3540D+11	8.4078D+10
49.896	0(2)*	2.252D-12	1(1)	4.4413D+11	4.4413D+11
49.929	3(20)*	2.875D-12	4(2)	2.0579D+11	1.2174D+11
49.954	0(18)	1.224D-12	1(13)*	2.2732D+11	6.3257D+10
50.035	1(18)*	1.646D-12	2(5)	2.2037D+11	7.9920D+10
50.054	2(13)*	1.852D-12	2(3)	4.3496D+11	3.5044D+11
50.062	1(12)	1.557D-12	2(4)*	2.5735D+11	1.0312D+11
50.138	4(7)	1.901D-12	3(2)*	1.9395D+11	7.1525D+10
50.144	1(2)*	1.648D-12	0(1)	6.0305D+11	5.9923D+11
50.145	4(6)*	4.413D-12	3(1)	1.1120D+11	5.4574D+10
50.158	2(32)*	1.503D-12	3(7)	1.9154D+11	5.5125D+10
50.163	4(6)	4.578D-12	3(1)*	1.9532D+11	1.7466D+11
50.194	1(5)*	1.947D-12	1(1)	4.5472D+11	4.0263D+11
50.198	2(64)	1.216D-12	3(36)*	2.0617D+11	5.1688D+10
50.259	4(12)*	2.183D-12	4(2)	2.2789D+11	1.1335D+11
50.279	2(7)*	1.610D-12	1(1)	2.0154D+11	6.5388D+10
50.296	0(20)	1.457D-12	1(16)*	2.4102D+11	8.4661D+10
50.334	2(31)*	1.613D-12	3(6)	2.6502D+11	1.1329D+11
50.357	2(15)*	2.002D-12	3(1)	3.4786D+11	2.4226D+11
50.379	2(16)	2.287D-12	2(3)*	2.2693D+11	1.1780D+11

Table 9: (continued)

λ	Upper	τ	lower	A	A_{br}
50.386	1(20)	1.793D-12	2(9)*	3.0891D+11	1.7111D+11
50.412	0(9)	1.294D-12	1(3)*	2.8216D+11	1.0304D+11
50.416	1(38)*	1.996D-12	2(25)	2.0395D+11	8.3042D+10
50.427	2(18)	1.680D-12	2(4)*	1.7291D+11	5.0242D+10
50.468	3(23)	1.967D-12	4(2)*	2.1118D+11	8.7708D+10
50.477	1(11)	2.448D-12	2(3)*	3.2089D+11	2.5209D+11
50.483	3(31)	1.484D-12	4(5)*	2.2779D+11	7.7023D+10
50.496	1(20)*	1.585D-12	0(4)	1.7764D+11	5.0026D+10
50.503	0(10)*	2.095D-12	1(5)	2.5464D+11	1.3585D+11
50.510	0(5)	2.888D-12	1(1)*	2.1212D+11	1.2994D+11
50.539	1(14)*	1.984D-12	2(4)	4.0569D+11	3.2661D+11
50.679	1(10)*	2.322D-12	1(2)	3.4386D+11	2.7457D+11
50.681	3(19)	1.587D-12	3(5)*	2.9109D+11	1.3449D+11
50.697	1(25)*	1.454D-12	1(6)	2.3588D+11	8.0882D+10
50.710	1(11)*	2.804D-12	2(3)	3.2125D+11	2.8932D+11
50.721	5(8)	1.754D-12	5(1)*	2.1072D+11	7.7871D+10
50.731	1(35)*	2.400D-12	2(24)	1.6435D+11	6.4829D+10
50.799	2(31)	1.935D-12	3(5)*	2.4738D+11	1.1840D+11
50.808	1(7)	1.582D-12	1(1)*	5.2336D+11	4.3334D+11
50.850	2(9)	4.445D-12	2(1)*	1.6268D+11	1.1764D+11
50.855	0(7)	1.482D-12	1(2)*	6.3454D+11	5.9673D+11
50.856	2(43)*	1.635D-12	3(15)	4.0709D+11	2.7099D+11
50.904	3(37)*	1.776D-12	4(10)	3.5389D+11	2.2248D+11
50.955	2(44)	1.555D-12	3(11)*	2.3132D+11	8.3184D+10
50.995	0(15)	1.305D-12	1(8)*	5.6546D+11	4.1715D+11
51.032	4(11)*	2.255D-12	4(1)	1.8830D+11	7.9967D+10
51.032	0(27)	1.443D-12	1(40)*	1.9498D+11	5.4853D+10

Table 9: (continued)

λ	Upper	τ	lower	A	A_{br}
51.036	0(28)	1.466D-12	1(41)*	1.8931D+11	5.2530D+10
51.048	2(25)*	1.534D-12	3(3)	2.3896D+11	8.7603D+10
51.056	2(16)*	2.447D-12	2(4)	2.2820D+11	1.2741D+11
51.103	1(4)	2.640D-12	2(1)*	3.5772D+11	3.3786D+11
51.133	1(37)*	2.039D-12	2(25)	1.9279D+11	7.5780D+10
51.184	3(39)*	1.959D-12	4(11)	2.1177D+11	8.7832D+10
51.243	0(4)*	2.702D-12	1(2)	3.5072D+11	3.3230D+11
51.316	3(11)*	2.834D-12	2(4)	1.6312D+11	7.5406D+10
51.333	2(8)	3.350D-12	2(1)*	2.4736D+11	2.0497D+11
51.395	3(10)*	2.410D-12	3(1)	3.2112D+11	2.4850D+11
51.436	0(25)	9.314D-13	1(35)*	3.9730D+11	1.4701D+11
51.529	4(23)*	1.634D-12	4(10)	3.2971D+11	1.7760D+11
51.538	3(3)*	2.596D-12	2(1)	3.8020D+11	3.7523D+11
51.608	2(7)*	1.610D-12	2(1)	4.1932D+11	2.8305D+11
51.771	4(25)*	2.429D-12	4(11)	1.8569D+11	8.3736D+10
51.812	3(48)	1.577D-12	4(26)*	2.1214D+11	7.0977D+10
51.934	0(19)	1.007D-12	1(15)*	5.7403D+11	3.3187D+11
51.966	1(39)*	1.626D-12	2(26)	3.6436D+11	2.1587D+11
52.042	1(22)	1.683D-12	2(11)*	2.7538D+11	1.2765D+11
52.061	4(16)	2.066D-12	4(2)*	2.4907D+11	1.2818D+11
52.063	4(15)*	2.374D-12	4(3)	1.5686D+11	5.8417D+10
52.114	4(16)*	1.846D-12	4(4)	1.6828D+11	5.2266D+10
52.199	3(10)	1.810D-12	3(2)*	2.2113D+11	8.8527D+10
52.379	3(3)	3.789D-12	2(1)*	2.3303D+11	2.0575D+11
52.507	3(9)	2.422D-12	3(1)*	2.6106D+11	1.6507D+11
52.549	1(44)*	1.464D-12	2(33)	1.9212D+11	5.4035D+10
52.627	0(9)	1.294D-12	1(4)*	2.0863D+11	5.6335D+10

Table 9: (continued)

λ	Upper	τ	lower	A	A_{br}
52.656	4(5)	9.074D-12	3(1)*	1.0228D+11	9.4930D+10
53.133	1(25)	1.404D-12	1(10)*	2.7473D+11	1.0599D+11
53.241	0(25)	9.314D-13	1(36)*	5.6932D+11	3.0188D+11
53.294	2(15)	1.168D-12	1(2)*	4.7152D+11	2.5963D+11
53.301	2(37)	1.263D-12	2(13)*	2.5540D+11	8.2408D+10
53.555	1(24)*	1.756D-12	2(10)	1.7139D+11	5.1581D+10
53.807	1(42)	1.075D-12	2(43)*	4.1599D+11	1.8601D+11
53.845	0(12)*	1.015D-12	1(10)	5.3798D+11	2.9370D+11
54.002	4(35)	1.218D-12	4(23)*	3.2551D+11	1.2906D+11
54.127	0(19)*	1.150D-12	1(31)	2.4684D+11	7.0071D+10
54.168	0(16)*	9.663D-13	1(20)	4.8897D+11	2.3103D+11
54.311	1(29)	1.314D-12	2(15)*	2.0285D+11	5.4082D+10
54.350	0(18)	1.224D-12	1(14)*	2.9583D+11	1.0714D+11
54.577	2(41)*	3.343D-12	2(24)	2.2899D+11	1.7529D+11
54.582	5(4)*	2.887D-12	5(1)	2.6290D+11	1.9954D+11
55.058	3(27)	1.539D-12	3(10)*	2.1287D+11	6.9716D+10
55.565	1(19)*	1.517D-12	1(4)	2.4016D+11	8.7513D+10
55.865	3(6)*	9.160D-12	2(3)	8.8706D+10	7.2080D+10
56.308	0(26)	1.225D-12	1(39)*	3.3629D+11	1.3858D+11
56.569	1(7)*	1.606D-12	2(2)	3.5629D+11	2.0390D+11
56.972	2(10)*	8.056D-12	1(2)	1.0558D+11	8.9803D+10
57.686	2(23)	1.317D-12	3(4)*	3.3159D+11	1.4482D+11
58.149	4(9)	2.254D-12	4(1)*	1.8522D+11	7.7317D+10
58.502	2(20)	1.157D-12	2(7)*	3.7807D+11	1.6542D+11
58.986	3(13)	1.880D-12	4(1)*	2.9021D+11	1.5836D+11
59.583	1(6)	2.924D-12	2(2)*	3.0891D+11	2.7906D+11
59.766	1(15)	1.289D-12	1(5)*	2.7468D+11	9.7246D+10

Table 9: (continued)

λ	Upper	τ	lower	A	A_{br}
60.123	1(4)*	2.222D-12	2(1)	3.0379D+11	2.0505D+11
60.144	0(11)	9.676D-13	1(7)*	1.0052D+12	9.7780D+11
60.315	3(12)	1.840D-12	2(7)*	1.9080D+11	6.6994D+10
60.407	1(7)*	1.606D-12	0(2)	2.6547D+11	1.1320D+11
60.411	3(12)	1.840D-12	3(3)*	1.9177D+11	6.7682D+10
60.563	3(33)*	1.295D-12	4(9)	2.3743D+11	7.2999D+10
60.666	2(19)	1.682D-12	3(3)*	1.7779D+11	5.3178D+10
61.159	3(4)	4.125D-12	2(2)*	2.2707D+11	2.1267D+11
61.241	1(18)	2.863D-12	2(10)*	1.8542D+11	9.8446D+10
61.313	1(3)*	7.412D-12	1(1)	1.0812D+11	8.6649D+10
61.443	0(12)*	1.015D-12	1(12)	2.9118D+11	8.6039D+10
61.509	2(8)*	2.655D-12	2(2)	3.7338D+11	3.7011D+11
61.523	1(16)	1.488D-12	1(6)*	3.0249D+11	1.3613D+11
61.638	0(9)	1.294D-12	1(5)*	2.6246D+11	8.9158D+10
61.731	1(14)	1.875D-12	2(6)*	1.8616D+11	6.4980D+10
61.757	1(34)*	9.721D-13	2(23)	5.9341D+11	3.4233D+11
61.811	3(25)*	1.432D-12	2(15)	2.0495D+11	6.0173D+10
62.084	4(8)	2.511D-12	4(1)*	2.6591D+11	1.7753D+11
62.091	2(5)*	4.170D-12	2(1)	2.0073D+11	1.6802D+11
62.117	0(4)	5.995D-12	1(1)*	1.2475D+11	9.3299D+10
62.121	3(18)*	2.910D-12	4(4)	1.4323D+11	5.9688D+10
62.395	0(22)	1.012D-12	1(27)*	2.9943D+11	9.0705D+10
62.489	3(14)	1.677D-12	3(4)*	2.5203D+11	1.0652D+11
62.735	2(11)	1.632D-12	1(2)*	1.8557D+11	5.6185D+10
62.785	3(11)	4.066D-12	2(6)*	1.6966D+11	1.1705D+11
63.390	1(1)*	1.038D-11	0(1)	7.8696D+10	6.4275D+10
63.527	0(10)	1.900D-12	1(6)*	4.7973D+11	4.3728D+11

Table 9: (continued)

λ	Upper	τ	lower	A	A_{br}
63.823	0(1)*	1.298D-11	1(1)	7.7039D+10	7.7039D+10
63.846	2(14)	2.440D-12	2(5)*	2.1514D+11	1.1296D+11
63.908	1(10)	1.526D-12	1(4)*	2.2259D+11	7.5611D+10
63.980	4(20)*	1.411D-12	4(9)	2.9829D+11	1.2558D+11
64.142	5(9)	2.205D-12	5(4)*	1.6546D+11	6.0372D+10
64.156	0(6)*	4.994D-12	1(5)	1.2751D+11	8.1194D+10
64.229	4(19)*	1.583D-12	4(8)	4.0339D+11	2.5759D+11
64.297	0(8)*	2.439D-12	1(8)	2.4516D+11	1.4657D+11
64.410	0(5)*	5.463D-12	1(3)	1.0334D+11	5.8341D+10
64.453	0(7)*	1.745D-12	1(6)	3.8092D+11	2.5326D+11
64.828	1(6)*	5.558D-12	2(2)	9.9445D+10	5.4970D+10
65.097	5(3)	6.344D-12	4(3)*	9.5780D+10	5.8202D+10
65.103	4(7)	1.901D-12	3(3)*	3.1221D+11	1.8534D+11
65.145	2(21)	3.332D-12	1(6)*	1.5246D+11	7.7449D+10
65.229	0(23)	2.087D-12	1(31)*	1.6497D+11	5.6793D+10
65.258	3(31)*	1.371D-12	3(13)	2.3523D+11	7.5843D+10
65.376	0(13)*	1.275D-12	1(14)	3.2059D+11	1.3101D+11
65.437	4(8)*	3.215D-12	3(4)	1.5025D+11	7.2584D+10
65.602	1(17)*	3.476D-12	2(10)	1.3785D+11	6.6040D+10
65.700	2(62)	1.122D-12	3(33)*	2.6764D+11	8.0343D+10
65.924	4(9)	2.254D-12	3(4)*	2.2761D+11	1.1675D+11
65.928	3(4)*	3.839D-12	2(2)	2.4671D+11	2.3367D+11
65.965	2(39)*	9.662D-13	2(22)	2.8286D+11	7.7306D+10
65.969	0(23)	2.087D-12	1(32)*	1.8486D+11	7.1313D+10
66.025	1(21)*	2.549D-12	2(12)	1.7465D+11	7.7744D+10
66.164	2(4)*	6.011D-12	1(1)	1.6361D+11	1.6090D+11
66.386	4(33)	1.462D-12	4(19)*	2.0765D+11	6.3060D+10

Table 9: (continued)

λ	Upper	τ	lower	A	A_{br}
66.837	2(22)	1.614D-12	2(8)*	3.5212D+11	2.0009D+11
66.895	1(33)*	1.281D-12	1(16)	3.5543D+11	1.6181D+11
67.056	3(14)	1.677D-12	2(8)*	2.7501D+11	1.2683D+11
67.401	0(16)	2.156D-12	1(17)*	1.6757D+11	6.0530D+10
67.451	2(23)	1.317D-12	1(7)*	3.5749D+11	1.6832D+11
67.484	3(2)*	1.239D-11	2(1)	7.6472D+10	7.2461D+10
67.586	4(20)*	1.411D-12	3(14)	2.5909D+11	9.4748D+10
67.625	3(7)	4.278D-12	2(4)*	2.0567D+11	1.8098D+11
67.672	4(32)	1.595D-12	4(19)*	1.8404D+11	5.4021D+10
67.795	0(11)*	1.853D-12	1(13)	2.3680D+11	1.0388D+11
67.814	3(43)	1.292D-12	3(31)*	2.1312D+11	5.8699D+10
68.085	5(7)*	1.786D-12	4(7)	3.6889D+11	2.4298D+11
68.219	5(3)*	4.775D-12	4(4)	1.4075D+11	9.4603D+10
68.286	0(24)	9.746D-13	1(34)*	8.5709D+11	7.1598D+11
68.446	4(16)*	1.846D-12	3(10)	2.0195D+11	7.5267D+10
68.522	2(61)	1.326D-12	1(33)*	1.9925D+11	5.2636D+10
68.593	4(4)	5.707D-12	3(2)*	1.2898D+11	9.4932D+10
68.655	0(19)*	1.150D-12	1(37)	4.4351D+11	2.2621D+11
68.717	4(9)*	3.048D-12	3(7)	1.4344D+11	6.2708D+10
68.838	5(18)*	1.557D-12	5(12)	1.8737D+11	5.4673D+10
68.923	2(61)	1.326D-12	2(40)*	2.3401D+11	7.2605D+10
68.986	5(1)*	9.673D-12	4(1)	7.6880D+10	5.7175D+10
69.188	2(24)*	2.106D-12	2(14)	1.8079D+11	6.8845D+10
69.192	1(9)	4.404D-12	1(3)*	1.1165D+11	5.4905D+10
69.486	1(34)*	9.721D-13	0(11)	3.0488D+11	9.0364D+10
69.595	2(60)	9.862D-13	2(39)*	3.6037D+11	1.2808D+11
69.686	4(18)*	1.614D-12	3(12)	2.2030D+11	7.8329D+10

Table 9: (continued)

λ	Upper	τ	lower	A	A_{br}
69.695	0(14)*	3.837D-12	1(18)	1.2012D+11	5.5360D+10
69.708	3(33)*	1.295D-12	2(23)	2.9912D+11	1.1586D+11
70.179	1(53)*	1.197D-12	2(62)	4.2005D+11	2.1127D+11
70.199	3(8)	2.880D-12	2(5)*	1.3557D+11	5.2932D+10
70.276	2(32)	3.117D-12	2(17)*	1.3251D+11	5.4724D+10
70.420	4(3)*	1.155D-11	3(2)	6.5809D+10	5.0034D+10
70.916	5(2)	1.496D-11	4(1)*	6.6854D+10	6.6854D+10
70.988	4(17)*	2.514D-12	3(11)	1.4350D+11	5.1765D+10
71.031	2(26)*	1.618D-12	1(10)	1.8976D+11	5.8273D+10
72.076	4(38)*	1.538D-12	4(33)	2.6913D+11	1.1141D+11
72.199	0(28)	1.466D-12	1(49)*	2.5482D+11	9.5181D+10
72.553	5(5)	4.234D-12	4(8)*	1.3049D+11	7.2091D+10
73.138	2(65)*	1.186D-12	2(60)	2.3446D+11	6.5170D+10
73.601	4(19)	2.024D-12	3(16)*	1.8425D+11	6.8701D+10
73.811	5(13)	1.925D-12	4(18)*	2.0595D+11	8.1663D+10
74.273	1(52)*	1.610D-12	1(41)	1.9553D+11	6.1563D+10
74.724	5(8)*	3.173D-12	4(9)	1.5505D+11	7.6279D+10
74.773	2(62)	1.122D-12	1(34)*	2.7941D+11	8.7561D+10
75.058	0(29)	1.513D-12	1(53)*	4.4832D+11	3.0415D+11
75.092	5(14)	1.840D-12	4(20)*	2.0862D+11	8.0088D+10
78.527	5(19)*	1.657D-12	4(34)	2.5539D+11	1.0807D+11

Table 10: Energy levels and lifetimes in Xe^{39+} (P-like) ions.

Occ	J(No)P	E	τ
22100	3/2(1)*	0	
21200	3/2(2)*	573389	0.000D+00
21200	5/2(1)*	638966	0.000D+00
21200	1/2(1)*	720017	0.000D+00
22010	3/2(1)	1223096	5.475D-10
20300	3/2(3)*	1302295	7.513D-05
12200	5/2(1)	1361632	1.868D-10
22001	5/2(2)	1501901	1.150D-11
12200	1/2(1)	1597366	1.272D-11
12200	3/2(2)	1606135	8.130D-12
21110	5/2(3)	1794105	4.778D-10
21110	3/2(3)	1800776	4.163D-11
21110	1/2(2)	1806089	2.579D-10
21110	7/2(1)	1856401	2.031D-08
21101	3/2(4)	1925245	1.034D-09
21101	7/2(2)	1942547	4.509D-09
21101	5/2(4)	1973092	5.326D-11
21101	9/2(1)	2010667	0.000D+00
21110	5/2(5)	2014298	2.069D-12
21110	1/2(3)	2048567	1.777D-12
21110	3/2(5)	2050091	1.250D-12
11300	3/2(6)	2133261	7.830D-12
21101	7/2(3)	2136338	8.987D-12
21101	5/2(6)	2152472	3.688D-12
21101	1/2(4)	2161973	5.348D-12
21101	3/2(7)	2210527	5.195D-12

Table 10: (continued)

Occ	J(No)P	E	τ
11300	5/2(7)	2241091	3.735D-12
11300	3/2(8)	2339413	2.333D-12
11300	1/2(5)	2356899	2.497D-12
20201	7/2(4)	2594532	2.162D-11
20201	1/2(6)	2609756	4.958D-12
20210	5/2(8)	2611201	1.825D-12
20210	3/2(9)	2618421	1.474D-12
20201	9/2(2)	2620056	0.000D+00
12110	5/2(2)*	2625162	7.367D-11
20210	1/2(7)	2628051	2.036D-12
12110	3/2(4)*	2635854	5.189D-11
20210	7/2(5)	2638820	2.511D-12
12110	1/2(2)*	2640367	8.922D-11
12110	7/2(1)*	2659328	1.023D-10
20210	3/2(10)	2729513	1.997D-12
12110	3/2(5)*	2755626	1.418D-11
12101	9/2(1)*	2774073	8.827D-11
20201	5/2(9)	2781879	6.154D-10
12101	5/2(3)*	2855370	1.545D-11
12110	5/2(4)*	2859378	6.551D-12
20201	3/2(11)	2869828	3.459D-12
12110	1/2(3)*	2881102	5.812D-12
12101	3/2(6)*	2891902	1.736D-11
20201	5/2(10)	2900902	2.782D-12
12101	7/2(2)*	2931102	1.237D-11
12101	7/2(3)*	3011503	6.580D-12
12101	1/2(4)*	3039234	1.167D-11

Table 10: (continued)

Occ	J(No)P	E	τ
10400	1/2(8)	3045352	1.467D-12
12101	5/2(5)*	3070773	5.666D-12
21020	5/2(6)*	3083254	4.223D-12
12101	3/2(7)*	3087077	5.573D-12
11210	3/2(8)*	3121433	3.587D-11
11210	1/2(5)*	3140232	9.232D-11
11210	5/2(7)*	3149971	2.317D-11
21011	7/2(4)*	3171782	4.330D-11
02300	3/2(9)*	3225303	4.671D-12
11210	9/2(2)*	3242038	1.308D-10
11201	7/2(5)*	3261716	1.809D-11
21020	1/2(6)*	3263706	1.897D-12
21020	3/2(10)*	3307271	1.336D-12
21011	5/2(8)*	3316068	5.630D-12
21011	7/2(6)*	3327456	6.921D-12
11201	9/2(3)*	3335971	1.876D-11
21011	3/2(11)*	3358284	2.276D-12
11210	5/2(9)*	3370134	1.967D-12
11210	3/2(12)*	3379301	2.390D-12
21011	1/2(7)*	3386373	3.803D-12
11201	9/2(4)*	3386571	3.898D-11
11201	1/2(8)*	3393722	1.111D-11
11210	7/2(7)*	3397734	2.626D-12
11210	9/2(5)*	3416290	5.452D-12
11210	3/2(13)*	3434363	2.729D-12
11201	11/2(1)*	3445577	2.163D-11
21002	5/2(10)*	3449688	5.733D-12

Table 10: (continued)

Occ	J(No)P	E	τ
11210	7/2(8)*	3462984	3.058D-12
11210	1/2(9)*	3466288	2.837D-12
21002	3/2(14)*	3473375	3.971D-12
11210	5/2(11)*	3493816	3.410D-12
11201	1/2(10)*	3502840	5.779D-12
11210	3/2(15)*	3503960	2.401D-12
21011	5/2(12)*	3511739	1.852D-12
21002	7/2(9)*	3543215	4.323D-12
21011	3/2(16)*	3557157	1.446D-12
11201	5/2(13)*	3557525	5.462D-12
11210	7/2(10)*	3571443	2.335D-12
11210	5/2(14)*	3573546	1.845D-12
21002	9/2(6)*	3575079	5.151D-12
11201	3/2(17)*	3589031	2.869D-12
11201	5/2(15)*	3595481	2.768D-12
11201	7/2(11)*	3597314	3.460D-12
11210	1/2(11)*	3620870	1.238D-12
21002	3/2(18)*	3632844	1.929D-12
11201	5/2(16)*	3664024	1.934D-12
11201	9/2(7)*	3669470	4.853D-12
11210	1/2(12)*	3672026	1.535D-12
11201	7/2(12)*	3676264	3.107D-12
11201	3/2(19)*	3677276	2.340D-12
11210	5/2(17)*	3691612	2.172D-12
11210	3/2(20)*	3691678	1.533D-12
11201	7/2(13)*	3719096	1.998D-12
11201	5/2(18)*	3723167	5.544D-12

Table 10: (continued)

Occ	J(No)P	E	τ
21002	1/2(13)*	3736923	2.831D-12
11201	7/2(14)*	3742300	2.424D-12
11201	3/2(21)*	3751001	2.854D-12
11201	5/2(19)*	3778189	2.265D-12
11201	3/2(22)*	3810419	1.799D-12
11201	1/2(14)*	3816593	2.103D-12
11201	5/2(20)*	3853471	1.638D-12
12020	3/2(12)	3882144	4.186D-11
11201	3/2(23)*	3882373	1.671D-12
12020	5/2(11)	3927060	3.992D-11
10310	1/2(15)*	3934529	1.484D-12
20120	7/2(15)*	3943644	1.404D-12
20111	11/2(2)*	3948803	4.955D-12
20120	1/2(16)*	3951416	1.094D-12
20120	5/2(22)*	3952844	1.010D-12
10310	5/2(21)*	3955303	3.719D-12
10310	3/2(24)*	3955504	1.711D-12
20111	9/2(8)*	3959222	1.692D-12
20120	3/2(25)*	3963290	9.544D-13
20111	7/2(16)*	3964812	1.932D-12
01400	1/2(17)*	3997886	1.308D-12
20111	7/2(17)*	4003349	1.578D-12
20102	5/2(23)*	4006907	4.233D-12
20111	5/2(24)*	4019116	1.627D-12
12020	1/2(9)	4021757	3.067D-11
20120	3/2(26)*	4052730	8.525D-13
12011	7/2(6)	4067396	1.736D-11

Table 10: (continued)

Occ	J(No)P	E	τ
10301	9/2(9)*	4072762	6.671D-12
20102	7/2(18)*	4072943	8.375D-12
20102	11/2(3)*	4107298	6.121D-12
12011	5/2(12)	4109670	1.586D-11
20111	7/2(19)*	4135497	1.507D-12
12011	3/2(13)	4138209	1.236D-11
20111	5/2(25)*	4155252	1.314D-12
20102	1/2(18)*	4156769	2.438D-12
12011	9/2(3)	4169252	9.199D-12
12011	3/2(14)	4177140	1.540D-11
12011	5/2(13)	4190845	9.596D-12
20111	3/2(27)*	4192330	1.307D-12
20111	9/2(10)*	4193110	1.742D-12
10310	1/2(19)*	4198873	1.104D-12
12011	1/2(10)	4204949	1.376D-11
20111	3/2(28)*	4207276	1.390D-12
12011	7/2(7)	4211222	1.066D-11
20102	7/2(20)*	4227534	1.837D-12
10301	3/2(29)*	4229095	2.207D-12
20111	5/2(26)*	4232757	1.588D-12
20102	9/2(11)*	4258656	1.927D-12
20102	5/2(27)*	4262939	2.595D-12
20111	3/2(30)*	4269399	1.090D-12
20111	1/2(20)*	4271077	1.505D-12
10310	5/2(28)*	4301627	1.168D-12
11120	3/2(15)	4310398	8.608D-12
10310	7/2(21)*	4312102	1.639D-12

Table 10: (continued)

Occ	J(No)P	E	τ
12002	9/2(4)	4312342	1.191D-11
20102	3/2(31)*	4323170	1.873D-12
12002	7/2(8)	4351867	8.365D-12
12002	5/2(14)	4353437	6.475D-12
20102	7/2(22)*	4363234	1.677D-12
12002	5/2(15)	4389268	6.599D-12
12002	3/2(16)	4396038	9.046D-12
20102	5/2(29)*	4396379	1.667D-12
11120	1/2(11)	4405258	8.581D-12
10310	5/2(30)*	4416715	1.072D-12
10310	3/2(32)*	4419782	1.280D-12
02210	7/2(9)	4423668	4.130D-12
11120	3/2(17)	4427598	4.770D-12
02210	5/2(16)	4440098	3.531D-12
10310	1/2(21)*	4450026	7.940D-13
10301	7/2(23)*	4450391	1.669D-12
11120	7/2(10)	4458671	7.070D-12
02201	1/2(12)	4462230	6.496D-12
02210	1/2(13)	4467412	2.823D-12
20102	3/2(33)*	4480882	1.493D-12
10301	5/2(31)*	4486734	1.505D-12
11111	9/2(5)	4489554	1.049D-11
02210	3/2(18)	4499240	3.732D-12
11111	7/2(11)	4531549	1.261D-11
02201	9/2(6)	4532641	6.352D-12
11111	5/2(17)	4552283	4.919D-11
11120	9/2(7)	4558019	8.285D-12

Table 10: (continued)

Occ	J(No)P	E	τ
02201	7/2(12)	4577251	4.355D-12
10301	1/2(22)*	4589649	1.168D-12
11120	3/2(19)	4590518	2.914D-12
11111	3/2(20)	4604752	4.562D-12
11111	1/2(14)	4610628	5.909D-12
11111	5/2(18)	4614988	4.488D-12
10301	3/2(34)*	4622419	1.033D-12
11120	5/2(19)	4634888	3.115D-12
11120	3/2(21)	4654133	2.446D-12
02201	5/2(20)	4656666	3.563D-12
11111	1/2(15)	4658445	3.777D-12
12002	1/2(16)	4666675	3.084D-12
11111	7/2(13)	4667042	2.737D-12
11120	3/2(22)	4671771	2.357D-12
11120	7/2(14)	4680495	2.853D-12
11120	5/2(21)	4684612	2.311D-12
02201	5/2(22)	4686004	2.896D-12
02201	3/2(23)	4701392	2.907D-12
11111	7/2(15)	4702858	4.574D-12
11120	5/2(23)	4705783	3.298D-12
11120	1/2(17)	4714387	1.776D-12
11111	9/2(8)	4726920	4.661D-12
11120	5/2(24)	4733807	4.599D-12
02201	3/2(24)	4738688	3.762D-12
11120	7/2(16)	4741501	3.287D-12
11111	9/2(9)	4763533	3.851D-12
11111	9/2(10)	4765468	6.056D-12

Table 10: (continued)

Occ	J(No)P	E	τ
11102	7/2(17)	4796126	5.114D-12
11102	5/2(25)	4800923	3.569D-12
11120	1/2(18)	4806237	1.314D-12
11111	7/2(18)	4812307	2.040D-12
11111	9/2(11)	4819224	4.369D-12
11120	3/2(25)	4819916	2.045D-12
11102	5/2(26)	4822713	3.217D-12
11111	7/2(19)	4827332	3.842D-12
11111	3/2(26)	4830163	2.077D-12
11111	7/2(20)	4836292	3.005D-12
11111	5/2(27)	4845862	4.034D-12
11111	3/2(27)	4851252	2.798D-12
11102	9/2(12)	4855318	4.785D-12
11102	7/2(21)	4863603	4.350D-12
11111	5/2(28)	4863952	3.072D-12
11111	3/2(28)	4869947	2.369D-12
11111	5/2(29)	4886662	2.211D-12
11111	3/2(29)	4896370	2.550D-12
11111	5/2(30)	4905561	2.718D-12
11111	1/2(19)	4917193	1.593D-12
11102	7/2(22)	4917222	2.626D-12
11120	3/2(30)	4919289	1.792D-12
11102	1/2(20)	4924538	2.426D-12
11120	3/2(31)	4933565	1.740D-12
11111	7/2(23)	4934059	2.111D-12
11111	5/2(31)	4935855	3.122D-12
11111	9/2(13)	4941603	3.153D-12

Table 10: (continued)

Occ	J(No)P	E	τ
11111	9/2(14)	4947947	2.876D-12
11120	5/2(32)	4949079	1.913D-12
11111	7/2(24)	4953352	2.312D-12
11120	5/2(33)	4958130	1.504D-12
11120	3/2(32)	4958358	2.268D-12
11111	1/2(21)	4968815	2.447D-12
11102	9/2(15)	4972959	3.750D-12
11111	3/2(33)	4988268	2.177D-12
11111	5/2(34)	4990961	1.908D-12
11120	1/2(22)	5003945	1.135D-12
11111	7/2(25)	5006281	1.760D-12
11111	3/2(34)	5007787	1.972D-12
11111	5/2(35)	5008619	1.695D-12
11111	7/2(26)	5016081	1.896D-12
11102	9/2(16)	5020992	4.734D-12
01310	1/2(23)	5021054	1.761D-12
11102	7/2(27)	5036393	4.821D-12
11111	1/2(24)	5047597	1.920D-12
01310	7/2(28)	5058037	2.356D-12
11102	3/2(35)	5058219	2.412D-12
11102	5/2(36)	5059979	2.573D-12
11102	9/2(17)	5061552	2.064D-12
11111	5/2(37)	5067834	1.652D-12
11102	3/2(36)	5071691	3.097D-12
11102	1/2(25)	5077328	1.658D-12
11111	3/2(37)	5085779	1.704D-12
01310	7/2(29)	5098676	2.003D-12

Table 10: (continued)

Occ	J(No)P	E	τ
11102	3/2(38)	5098749	1.756D-12
11111	9/2(18)	5107421	2.233D-12
11111	5/2(38)	5115109	2.140D-12
11102	7/2(30)	5128906	1.794D-12
11111	5/2(40)	5131365	1.342D-12
11102	5/2(39)	5136023	2.474D-12
11102	1/2(26)	5136827	1.610D-12
11111	7/2(31)	5144993	1.831D-12
11102	5/2(41)	5148353	2.666D-12
11102	9/2(19)	5150454	2.299D-12
11102	3/2(39)	5156727	1.694D-12
01310	3/2(40)	5167937	1.496D-12
01310	5/2(42)	5173124	1.724D-12
11111	3/2(41)	5174876	1.297D-12
11102	7/2(32)	5180732	2.417D-12
10220	1/2(27)	5186894	1.597D-12
11102	3/2(42)	5215237	2.158D-12
11102	5/2(43)	5215744	1.980D-12
11102	5/2(44)	5221029	1.863D-12
10220	1/2(28)	5231241	1.152D-12
10220	7/2(33)	5239738	1.723D-12
10211	9/2(20)	5245219	2.470D-12
01310	5/2(45)	5246176	1.463D-12
01301	9/2(21)	5247205	2.443D-12
11102	7/2(34)	5249836	1.563D-12
10220	5/2(46)	5251385	1.628D-12
10220	3/2(43)	5256421	1.157D-12

Table 10: (continued)

Occ	J(No)P	E	τ
11102	3/2(44)	5260678	1.833D-12
11102	1/2(29)	5262002	2.091D-12
01310	1/2(30)	5285459	9.808D-13
11102	3/2(45)	5288407	1.813D-12
01301	7/2(35)	5290322	1.701D-12
20030	3/2(46)	5301888	9.444D-13
10211	5/2(47)	5304405	1.495D-12
01310	5/2(48)	5310903	1.437D-12
11102	3/2(47)	5324261	1.237D-12
10211	7/2(36)	5338084	1.621D-12
02201	3/2(48)	5340255	1.187D-12
01301	5/2(49)	5344200	1.485D-12
10220	9/2(22)	5346784	2.102D-12
10220	7/2(37)	5358755	1.468D-12
01301	5/2(50)	5363475	1.341D-12
11102	1/2(31)	5366144	1.509D-12
10211	9/2(23)	5366737	2.299D-12
10211	3/2(49)	5399865	1.869D-12
10220	5/2(51)	5404963	1.263D-12
10211	7/2(38)	5406566	1.873D-12
10211	9/2(24)	5418184	4.685D-12
10202	5/2(52)	5440537	1.823D-12
20021	3/2(50)	5457309	1.232D-12
20021	5/2(53)	5459117	1.095D-12
10211	1/2(32)	5472289	1.281D-12
20021	3/2(51)	5478800	1.252D-12
20012	3/2(52)	5494241	1.254D-12

Table 10: (continued)

Occ	J(No)P	E	τ
20021	9/2(25)	5499100	1.141D-12
20021	7/2(39)	5499155	1.168D-12
20021	1/2(34)	5504191	9.237D-13
20012	1/2(33)	5505740	1.178D-12
02120	3/2(35)*	5513006	7.917D-12
10202	3/2(53)	5514248	1.407D-12
20012	7/2(40)	5519077	1.488D-12
10202	5/2(54)	5520819	1.548D-12
01301	1/2(35)	5524691	1.107D-12
10211	5/2(55)	5537352	1.585D-12
10211	7/2(41)	5542256	1.611D-12
10220	3/2(54)	5547714	1.064D-12
10211	5/2(56)	5554079	1.182D-12
02120	5/2(32)*	5559271	4.949D-12
10202	7/2(42)	5573659	1.662D-12
02120	7/2(24)*	5579421	4.437D-12
02120	1/2(23)*	5582831	3.930D-12
10211	9/2(26)	5584781	2.273D-12
10220	3/2(55)	5592612	1.167D-12
10211	5/2(57)	5592928	1.257D-12
10220	7/2(43)	5600358	1.176D-12
10202	9/2(27)	5604237	2.347D-12
10220	5/2(58)	5610060	1.200D-12
10220	1/2(36)	5614651	8.362D-13
10220	3/2(56)	5624643	1.195D-12
20012	9/2(28)	5625597	1.689D-12
20012	5/2(59)	5629267	1.216D-12

Table 10: (continued)

Occ	J(No)P	E	τ
20003	3/2(57)	5637616	1.746D-12
20012	7/2(44)	5639170	1.248D-12
10211	9/2(29)	5643678	2.281D-12
10202	7/2(45)	5660463	2.279D-12
10220	5/2(60)	5666994	9.192D-13
02120	3/2(36)*	5667681	4.096D-12
10211	5/2(61)	5678742	1.308D-12
10202	7/2(46)	5685027	1.486D-12
02111	9/2(12)*	5686996	6.870D-12
10211	9/2(30)	5693909	1.418D-12
02111	7/2(25)*	5702648	5.900D-12
10211	5/2(62)	5703621	1.329D-12
10202	3/2(58)	5708135	1.708D-12
10211	3/2(59)	5709800	1.094D-12
20012	1/2(37)	5711341	9.480D-13
10211	7/2(47)	5715004	1.060D-12
10211	3/2(60)	5715224	1.224D-12
10202	5/2(63)	5724933	2.481D-12
10211	1/2(38)	5728710	1.048D-12
02111	1/2(24)*	5729700	6.115D-12
02111	5/2(33)*	5737358	5.260D-12
10202	7/2(48)	5742228	1.217D-12
10211	5/2(64)	5747772	1.543D-12
02111	3/2(37)*	5752861	3.750D-12
10211	5/2(65)	5754592	1.056D-12
10211	3/2(61)	5756413	1.208D-12
02111	11/2(4)*	5758349	7.984D-12

Table 10: (continued)

Occ	J(No)P	E	τ
10202	1/2(39)	5763734	1.371D-12
02111	5/2(34)*	5766105	4.699D-12
10211	7/2(49)	5778183	1.436D-12
10220	3/2(62)	5778558	7.743D-13
02111	7/2(26)*	5782871	4.237D-12
11030	3/2(38)*	5790886	3.082D-12
10211	9/2(31)	5792373	2.444D-12
10211	7/2(50)	5803689	1.333D-12
10202	5/2(66)	5804255	1.259D-12
20012	3/2(63)	5808185	1.163D-12
20003	9/2(32)	5813888	1.322D-12
10211	5/2(67)	5815066	9.793D-13
02111	7/2(27)*	5832824	3.759D-12
10211	9/2(33)	5840236	1.351D-12
10202	5/2(68)	5840254	1.176D-12
02111	3/2(39)*	5842165	4.152D-12
10202	3/2(64)	5844234	1.074D-12
11030	5/2(35)*	5844722	3.073D-12
10211	1/2(40)	5850462	9.443D-13
10202	7/2(51)	5852994	1.987D-12
02111	5/2(36)*	5861905	3.503D-12
10202	3/2(65)	5864496	1.334D-12
02111	9/2(13)*	5871065	4.843D-12
10211	5/2(69)	5877965	1.042D-12
10202	9/2(34)	5885880	2.297D-12
10202	1/2(41)	5888742	2.172D-12
10202	7/2(52)	5891800	1.355D-12

Table 10: (continued)

Occ	J(No)P	E	τ
10211	3/2(66)	5894680	1.055D-12
10211	5/2(70)	5904355	9.262D-13
10202	3/2(67)	5907753	1.054D-12
02111	3/2(41)*	5929569	3.134D-12
11021	7/2(28)*	5932916	3.719D-12
02102	5/2(38)*	5933718	3.728D-12
10211	7/2(53)	5933774	9.644D-13
11021	1/2(25)*	5934038	3.109D-12
11021	5/2(37)*	5935970	3.262D-12
11021	3/2(40)*	5936611	3.402D-12
02102	9/2(14)*	5946492	4.430D-12
02102	1/2(26)*	5955248	2.793D-12
02102	11/2(5)*	5956682	6.832D-12
10211	3/2(68)	5959064	8.805D-13
20003	5/2(71)	5962148	1.236D-12
11021	9/2(15)*	5976876	4.636D-12
10202	1/2(42)	5977544	1.340D-12
10202	7/2(54)	5978702	1.012D-12
02102	7/2(29)*	5988249	3.793D-12
10202	5/2(72)	5989138	1.110D-12
02111	5/2(39)*	5994935	3.246D-12
11030	1/2(27)*	5994978	1.849D-12
11030	3/2(42)*	6017241	1.323D-12
10211	1/2(43)	6026341	7.142D-13
01220	1/2(28)*	6027628	2.331D-12
11021	11/2(6)*	6029353	5.884D-12
11021	7/2(30)*	6029947	3.829D-12

Table 10: (continued)

Occ	J(No)P	E	τ
11021	3/2(43)*	6038510	3.101D-12
11021	5/2(40)*	6039669	3.114D-12
10202	3/2(69)	6052446	1.154D-12
02102	7/2(31)*	6052448	3.615D-12
02102	1/2(29)*	6054255	3.055D-12
11021	9/2(16)*	6059204	5.226D-12
10202	3/2(70)	6064970	1.054D-12
10202	5/2(73)	6065399	1.031D-12
11012	5/2(41)*	6103830	2.970D-12
11012	7/2(32)*	6104888	2.788D-12
11021	5/2(42)*	6115532	1.749D-12
00410	3/2(71)	6119731	6.860D-13
02102	5/2(43)*	6122521	3.037D-12
02102	3/2(44)*	6130379	3.248D-12
11012	9/2(17)*	6149156	4.372D-12
11021	3/2(45)*	6152766	2.069D-12
00401	5/2(74)	6154173	8.983D-13
11021	7/2(33)*	6158007	2.826D-12
11012	11/2(7)*	6163508	1.007D-11
02102	3/2(46)*	6165321	2.993D-12
01211	5/2(44)*	6176091	2.800D-12
11012	9/2(18)*	6176310	3.902D-12
11012	1/2(30)*	6180744	2.688D-12
11012	5/2(45)*	6181341	2.622D-12
02102	3/2(47)*	6186050	2.195D-12
01211	7/2(34)*	6187615	2.693D-12
11021	9/2(19)*	6189325	1.876D-12

Table 10: (continued)

Occ	J(No)P	E	τ
10202	1/2(44)	6201905	8.493D-13
02102	3/2(48)*	6204982	2.639D-12
11021	7/2(35)*	6210763	1.674D-12
11021	1/2(31)*	6212811	1.775D-12
11012	3/2(49)*	6222890	2.199D-12
11012	5/2(46)*	6223710	2.966D-12
01220	5/2(47)*	6230713	2.928D-12
11021	3/2(50)*	6238897	1.404D-12
01220	7/2(36)*	6240320	2.332D-12
11012	11/2(8)*	6250288	6.486D-12
01220	1/2(32)*	6251394	1.422D-12
01220	5/2(48)*	6251535	1.611D-12
01220	7/2(37)*	6256148	2.246D-12
11012	5/2(49)*	6262553	2.357D-12
11012	9/2(20)*	6265090	2.953D-12
11021	7/2(38)*	6268056	2.200D-12
01220	9/2(21)*	6269671	2.594D-12
01220	3/2(51)*	6277021	1.815D-12
01220	5/2(50)*	6287511	1.943D-12
11021	3/2(52)*	6294392	2.102D-12
11012	11/2(9)*	6301099	5.152D-12
11012	1/2(33)*	6321297	2.618D-12
01211	9/2(22)*	6323523	2.590D-12
11021	7/2(39)*	6326520	2.373D-12
01211	5/2(51)*	6329963	2.207D-12
01211	11/2(10)*	6330162	5.150D-12
01220	5/2(52)*	6334356	2.119D-12

Table 10: (continued)

Occ	J(No)P	E	τ
11012	7/2(40)*	6341501	2.497D-12
11003	9/2(23)*	6342080	3.391D-12
01211	3/2(53)*	6342260	2.788D-12
01211	9/2(24)*	6355373	2.794D-12
11012	7/2(41)*	6358671	1.893D-12
11012	5/2(53)*	6363752	2.184D-12
11012	7/2(42)*	6376702	1.728D-12
11012	3/2(54)*	6379939	1.518D-12
11012	9/2(25)*	6386090	2.771D-12
11012	5/2(54)*	6397385	1.697D-12
01202	3/2(55)*	6398783	2.010D-12
01220	1/2(34)*	6401220	1.243D-12
11012	7/2(43)*	6405436	2.271D-12
11012	7/2(44)*	6408458	2.578D-12
11012	3/2(56)*	6410831	1.968D-12
01202	9/2(26)*	6413820	2.711D-12
11003	1/2(35)*	6416358	1.648D-12
01220	5/2(56)*	6416426	1.808D-12
11012	5/2(55)*	6419040	1.779D-12
11012	7/2(45)*	6422823	1.751D-12
11003	11/2(11)*	6423828	6.283D-12
11012	3/2(57)*	6426107	1.347D-12
01211	11/2(12)*	6427802	5.681D-12
11012	9/2(27)*	6432943	2.633D-12
11003	3/2(58)*	6439212	2.096D-12
11003	5/2(57)*	6447608	1.928D-12
11012	1/2(36)*	6450897	1.731D-12

Table 10: (continued)

Occ	J(No)P	E	τ
01211	7/2(46)*	6452161	1.902D-12
11012	5/2(58)*	6456796	1.761D-12
01211	5/2(59)*	6460779	2.087D-12
11012	3/2(59)*	6463717	1.536D-12
11012	3/2(60)*	6475084	1.582D-12
01211	5/2(60)*	6475500	1.994D-12
01202	11/2(13)*	6478178	3.312D-12
11003	5/2(61)*	6485170	2.211D-12
01220	7/2(47)*	6486317	1.345D-12
01202	3/2(61)*	6489521	1.823D-12
01211	1/2(37)*	6497392	1.769D-12
01202	9/2(28)*	6503416	2.147D-12
01220	5/2(62)*	6506612	1.480D-12
11012	3/2(62)*	6509270	1.670D-12
01211	7/2(48)*	6512439	1.934D-12
01211	9/2(29)*	6521449	2.522D-12
01211	11/2(14)*	6525863	2.363D-12
11003	5/2(63)*	6530115	1.900D-12
01211	1/2(38)*	6532384	1.796D-12
01211	3/2(63)*	6539092	1.665D-12
11003	7/2(49)*	6539418	2.254D-12
01211	3/2(64)*	6541030	2.112D-12
01211	7/2(50)*	6549473	1.735D-12
01211	9/2(30)*	6554224	2.199D-12
11012	5/2(64)*	6567636	1.431D-12
01211	9/2(31)*	6573125	3.275D-12
01211	1/2(40)*	6573415	1.333D-12

Table 10: (continued)

Occ	J(No)P	E	τ
10130	3/2(65)*	6574910	1.174D-12
01211	3/2(66)*	6580606	1.222D-12
10130	1/2(39)*	6580948	9.978D-13
10130	5/2(65)*	6584576	1.416D-12
11012	5/2(66)*	6587140	1.370D-12
01220	3/2(67)*	6595228	1.564D-12
11003	1/2(41)*	6595452	1.762D-12
10112	11/2(15)*	6595567	6.756D-12
01202	7/2(52)*	6598468	1.340D-12
10121	7/2(51)*	6599519	1.304D-12
10112	9/2(32)*	6601221	1.998D-12
01220	1/2(42)*	6609968	1.413D-12
01202	7/2(53)*	6611391	1.806D-12
01202	7/2(54)*	6615333	1.692D-12
01211	5/2(67)*	6619233	1.525D-12
01202	9/2(33)*	6630880	2.433D-12
10130	7/2(55)*	6639899	1.506D-12
01211	5/2(69)*	6652136	1.290D-12
10121	5/2(68)*	6653534	1.332D-12
01211	3/2(68)*	6655076	1.605D-12
01202	11/2(16)*	6662212	4.309D-12
10130	7/2(56)*	6662366	1.274D-12
11003	5/2(70)*	6669157	1.507D-12
11003	3/2(69)*	6674306	1.347D-12
11012	1/2(43)*	6677831	1.207D-12
01202	7/2(57)*	6681733	1.654D-12
01211	5/2(71)*	6689749	1.542D-12

Table 10: (continued)

Occ	J(No)P	E	τ
01202	3/2(70)*	6690378	1.825D-12
10121	9/2(34)*	6692168	3.370D-12
01202	9/2(35)*	6693770	1.874D-12
10121	3/2(71)*	6705884	1.284D-12
01202	5/2(72)*	6709893	1.830D-12
01202	9/2(36)*	6710749	2.095D-12
01202	3/2(72)*	6713078	1.753D-12
01202	5/2(73)*	6715121	1.603D-12
01211	7/2(58)*	6715777	1.973D-12
01211	1/2(44)*	6719491	1.309D-12
10121	5/2(74)*	6733969	1.518D-12
01211	3/2(73)*	6737026	1.334D-12
10121	1/2(45)*	6738584	1.006D-12
01202	9/2(37)*	6741502	3.620D-12
01202	7/2(59)*	6748473	1.478D-12
11003	7/2(60)*	6759825	1.405D-12
01202	5/2(75)*	6764876	1.591D-12
10121	1/2(46)*	6769871	9.996D-13
10121	3/2(74)*	6770801	1.100D-12
01202	5/2(76)*	6772288	1.573D-12
10112	9/2(38)*	6785086	1.642D-12
01202	7/2(61)*	6785107	1.658D-12
10121	5/2(77)*	6789703	1.335D-12
10130	3/2(75)*	6794954	1.340D-12
10121	11/2(17)*	6798329	4.317D-12
01202	1/2(47)*	6799435	1.361D-12
10112	7/2(62)*	6800879	1.516D-12

Table 10: (continued)

Occ	J(No)P	E	τ
01202	3/2(76)*	6805113	1.359D-12
10121	7/2(63)*	6809809	1.286D-12
10112	5/2(78)*	6815254	1.395D-12
01211	3/2(77)*	6816782	1.140D-12
10121	7/2(64)*	6826849	1.260D-12
02030	3/2(72)	6832589	7.563D-12
10130	5/2(79)*	6833047	1.244D-12
01202	5/2(80)*	6834134	1.378D-12
01202	1/2(48)*	6835875	1.768D-12
10121	9/2(39)*	6836218	1.765D-12
10130	1/2(49)*	6844599	9.472D-13
10121	9/2(40)*	6848248	2.319D-12
10121	11/2(18)*	6851609	3.766D-12
10121	3/2(78)*	6854204	1.151D-12
10121	7/2(65)*	6858703	1.126D-12
01202	3/2(79)*	6858826	1.334D-12
10112	5/2(81)*	6867681	1.381D-12
01202	3/2(80)*	6870568	1.197D-12
10112	5/2(82)*	6872210	1.253D-12
10112	9/2(41)*	6887507	2.194D-12
10103	7/2(67)*	6899263	1.576D-12
10112	11/2(19)*	6900598	5.615D-12
10112	7/2(66)*	6901864	1.797D-12
01202	5/2(84)*	6905599	1.296D-12
10112	3/2(81)*	6905686	1.331D-12
10112	5/2(83)*	6908644	1.318D-12
10130	3/2(82)*	6922394	1.104D-12

Table 10: (continued)

Occ	J(No)P	E	τ
10112	9/2(42)*	6924676	2.703D-12
10121	5/2(85)*	6926366	1.229D-12
10112	11/2(20)*	6927311	3.972D-12
10112	7/2(68)*	6929752	1.420D-12
10130	5/2(86)*	6934974	1.020D-12
01202	3/2(83)*	6935509	1.207D-12
10112	7/2(69)*	6946073	1.218D-12
10121	3/2(84)*	6952671	1.141D-12
10121	5/2(87)*	6957670	1.239D-12
10112	1/2(50)*	6958226	1.312D-12
10121	9/2(43)*	6958998	2.008D-12
10121	3/2(85)*	6971548	9.514D-13
02021	5/2(75)	6972556	6.118D-12
10112	7/2(70)*	6974339	1.372D-12
10103	1/2(51)*	6980596	2.543D-12
10112	11/2(21)*	6981255	4.223D-12
10121	5/2(88)*	6981300	1.013D-12
10121	9/2(44)*	6993226	1.378D-12
10130	3/2(86)*	6995134	9.147D-13
10121	11/2(22)*	6997649	1.835D-12
10121	7/2(71)*	7001959	1.436D-12
10121	1/2(52)*	7009425	1.239D-12
10112	9/2(45)*	7010117	1.575D-12
10112	5/2(89)*	7014692	1.627D-12
10121	7/2(72)*	7020643	1.320D-12
10112	1/2(53)*	7022222	1.140D-12
10112	11/2(23)*	7027275	2.387D-12

Table 10: (continued)

Occ	J(No)P	E	τ
10121	7/2(73)*	7028115	1.387D-12
02021	3/2(73)	7029638	5.290D-12
10103	5/2(90)*	7034290	1.672D-12
10121	3/2(87)*	7035816	9.273D-13
00311	7/2(74)*	7039374	1.335D-12
10121	9/2(46)*	7039416	1.564D-12
10112	11/2(24)*	7047330	3.115D-12
10103	5/2(91)*	7047602	1.549D-12
02021	7/2(55)	7049481	5.222D-12
02021	1/2(45)	7057085	5.363D-12
10121	3/2(88)*	7058843	1.058D-12
10103	9/2(47)*	7060845	1.755D-12
10121	5/2(92)*	7067617	1.134D-12
10121	1/2(54)*	7067809	9.973D-13
02021	9/2(35)	7080030	6.134D-12
10112	3/2(89)*	7081185	1.255D-12
10121	5/2(94)*	7081576	1.015D-12
00311	5/2(93)*	7081698	1.142D-12
10103	9/2(48)*	7093074	1.976D-12
10112	3/2(90)*	7098630	1.147D-12
10121	7/2(76)*	7100120	1.041D-12
10121	5/2(95)*	7103568	1.136D-12
10112	7/2(75)*	7107323	1.860D-12
00311	9/2(49)*	7107708	1.883D-12
10121	3/2(91)*	7118781	9.950D-13
10112	1/2(55)*	7127492	1.703D-12
10112	5/2(96)*	7133316	1.127D-12

Table 10: (continued)

Occ	J(No)P	E	τ
10112	7/2(77)*	7137909	1.290D-12
10121	1/2(56)*	7138630	9.471D-13
10112	3/2(92)*	7141748	1.345D-12
10112	11/2(25)*	7151061	3.472D-12
10112	7/2(78)*	7154454	1.144D-12
10121	1/2(57)*	7155000	9.933D-13
10112	5/2(97)*	7156431	8.554D-13
10112	3/2(93)*	7166502	9.387D-13
10121	7/2(79)*	7171196	1.296D-12
10103	5/2(98)*	7172823	1.481D-12
02021	5/2(76)	7175928	4.207D-12
10103	9/2(50)*	7177604	1.886D-12
00302	7/2(80)*	7187826	1.449D-12
10103	11/2(26)*	7188067	2.873D-12
02012	7/2(56)	7189105	5.263D-12
10103	7/2(81)*	7193901	1.078D-12
10112	3/2(94)*	7195979	1.146D-12
00320	1/2(58)*	7204785	7.864D-13
10112	9/2(51)*	7208152	1.115D-12
10103	5/2(99)*	7211040	1.260D-12
10103	3/2(95)*	7212952	1.138D-12
10112	7/2(82)*	7219398	1.130D-12
02012	9/2(36)	7223454	5.897D-12
10103	5/2(100)*	7225371	1.211D-12
10112	9/2(52)*	7226819	1.697D-12
10103	3/2(96)*	7238608	1.316D-12
10112	3/2(97)*	7238788	8.601D-13

Table 10: (continued)

Occ	J(No)P	E	τ
00311	5/2(101)*	7240529	9.263D-13
10112	7/2(83)*	7242119	9.437D-13
02012	3/2(74)	7242959	4.288D-12
00311	1/2(59)*	7247842	8.249D-13
10112	5/2(102)*	7251956	1.078D-12
10121	1/2(60)*	7255238	1.013D-12
02012	1/2(46)	7258919	4.849D-12
10121	3/2(98)*	7261645	9.902D-13
10103	9/2(53)*	7266245	1.412D-12
10112	5/2(103)*	7279707	9.451D-13
10112	1/2(61)*	7282906	9.670D-13
10103	3/2(99)*	7285124	1.175D-12
10112	9/2(54)*	7285526	1.381D-12
10112	3/2(100)*	7288106	9.600D-13
10112	7/2(84)*	7288563	1.179D-12
00311	7/2(85)*	7291009	1.009D-12
00311	11/2(27)*	7295532	1.496D-12
02012	5/2(77)	7298251	4.444D-12
00320	7/2(86)*	7307429	9.766D-13
10112	5/2(104)*	7310628	1.129D-12
10112	5/2(105)*	7312866	9.633D-13
10112	3/2(101)*	7314173	1.045D-12
00311	7/2(87)*	7317052	9.671D-13
00302	11/2(28)*	7327504	4.484D-12
02012	5/2(78)	7332307	3.960D-12
00302	5/2(106)*	7349819	9.122D-13
10103	9/2(55)*	7350492	1.028D-12

Table 10: (continued)

Occ	J(No)P	E	τ
10112	1/2(62)*	7355686	9.988D-13
02012	7/2(57)	7356589	3.971D-12
00302	3/2(102)*	7358857	1.114D-12
10112	5/2(107)*	7359212	1.029D-12
10103	7/2(88)*	7364884	1.282D-12
00311	7/2(89)*	7370232	1.003D-12
10112	5/2(108)*	7386132	9.758D-13
10112	3/2(104)*	7390150	8.292D-13
10103	3/2(103)*	7391892	9.872D-13
00311	9/2(56)*	7396385	1.557D-12
10103	5/2(109)*	7405143	1.084D-12
01130	1/2(47)	7417606	1.749D-12
10103	7/2(90)*	7418887	9.947D-13
02003	9/2(37)	7418939	5.303D-12
00302	9/2(57)*	7420855	1.651D-12
10121	1/2(63)*	7423160	1.212D-12
10121	5/2(110)*	7424443	8.869D-13
02003	3/2(75)	7429629	3.040D-12
10112	7/2(91)*	7436104	1.010D-12
01130	3/2(76)	7446233	2.084D-12
00320	3/2(105)*	7450658	6.906D-13
01130	5/2(79)	7465517	1.954D-12
10112	1/2(65)*	7467022	8.611D-13
10103	5/2(111)*	7469491	1.046D-12
00311	3/2(106)*	7469581	8.228D-13
00302	1/2(64)*	7469686	1.068D-12
01130	7/2(58)	7475672	2.207D-12

Table 10: (continued)

Occ	J(No)P	E	τ
10103	7/2(92)*	7496711	9.839D-13
01130	7/2(59)	7497862	2.875D-12
01121	9/2(38)	7498779	3.467D-12
01121	5/2(80)	7503460	2.963D-12
00302	3/2(107)*	7510131	9.730D-13
01121	3/2(77)	7513032	2.761D-12
10103	5/2(112)*	7522855	9.059D-13
02012	3/2(78)	7534309	3.403D-12
01121	1/2(48)	7549512	2.085D-12
01121	3/2(79)	7559954	2.114D-12
00311	3/2(108)*	7561517	7.636D-13
00302	7/2(93)*	7564152	9.841D-13
01130	1/2(49)	7570458	1.428D-12
02003	5/2(82)	7583227	2.746D-12
02003	5/2(81)	7584153	2.539D-12
00302	5/2(113)*	7584722	7.666D-13
01121	7/2(60)	7588157	2.470D-12
00302	3/2(109)*	7592480	9.509D-13
10103	1/2(66)*	7601682	9.595D-13
01121	9/2(39)	7602481	3.471D-12
01130	3/2(80)	7622561	1.353D-12
00302	5/2(114)*	7635656	7.649D-13
01112	7/2(61)	7642189	2.681D-12
01130	5/2(83)	7645721	1.207D-12
01121	9/2(40)	7653673	3.008D-12
01121	7/2(62)	7670237	2.240D-12
01112	1/2(50)	7674997	2.113D-12

Table 10: (continued)

Occ	J(No)P	E	τ
00311	1/2(67)*	7675529	6.247D-13
01130	5/2(84)	7684087	1.865D-12
01112	3/2(81)	7688392	2.049D-12
01121	7/2(63)	7694082	1.973D-12
01121	9/2(41)	7694191	2.945D-12
01112	5/2(85)	7695085	2.816D-12
00302	3/2(110)*	7701197	8.410D-13
01112	3/2(82)	7714716	2.503D-12
01121	7/2(64)	7715389	1.951D-12
01112	9/2(42)	7718344	3.085D-12
01121	5/2(86)	7722492	1.608D-12
01121	3/2(83)	7740002	2.168D-12
01130	3/2(84)	7741449	1.761D-12
01121	1/2(51)	7743978	1.653D-12
01112	7/2(65)	7749713	2.279D-12
01112	5/2(87)	7755690	2.583D-12
01112	5/2(88)	7760275	2.055D-12
01112	7/2(66)	7767874	2.266D-12
01121	9/2(43)	7768494	5.051D-12
01112	9/2(44)	7772108	2.811D-12
01121	5/2(89)	7774077	1.832D-12
01112	9/2(45)	7800635	3.164D-12
01121	1/2(52)	7804580	1.373D-12
01121	5/2(90)	7804760	1.304D-12
01121	7/2(67)	7806361	2.186D-12
01121	3/2(85)	7807235	1.357D-12
01121	7/2(68)	7811999	1.513D-12

Table 10: (continued)

Occ	J(No)P	E	τ
01121	3/2(86)	7837388	1.675D-12
01112	5/2(91)	7845154	1.912D-12
01121	7/2(69)	7846313	1.925D-12
01121	7/2(70)	7862029	1.946D-12
01112	9/2(46)	7863205	3.403D-12
01121	5/2(92)	7864143	1.568D-12
01112	3/2(87)	7874473	1.510D-12
01112	5/2(93)	7874513	1.362D-12
01103	1/2(53)	7878094	2.752D-12
01112	9/2(47)	7878992	2.102D-12
01112	3/2(88)	7882710	1.595D-12
01112	7/2(71)	7892921	2.174D-12
01112	3/2(89)	7894886	2.037D-12
01121	5/2(94)	7895330	1.668D-12
01121	1/2(54)	7902634	1.211D-12
01112	9/2(48)	7903592	2.342D-12
01112	5/2(95)	7910509	1.832D-12
01112	7/2(72)	7912155	1.784D-12
01112	5/2(96)	7918982	1.773D-12
01121	3/2(90)	7923180	1.453D-12
01112	7/2(73)	7928205	1.397D-12
01112	9/2(49)	7929868	2.042D-12
01103	5/2(97)	7943311	1.764D-12
01112	9/2(50)	7949254	3.065D-12
01112	1/2(55)	7956984	1.894D-12
01121	3/2(91)	7957746	1.545D-12
01121	7/2(74)	7966402	1.574D-12

Table 10: (continued)

Occ	J(No)P	E	τ
01121	7/2(75)	7970198	1.363D-12
01112	3/2(92)	7971817	1.293D-12
01112	5/2(98)	7980876	2.193D-12
01103	7/2(76)	7990315	1.960D-12
01112	5/2(99)	7990730	1.296D-12
10040	1/2(57)	7996426	1.201D-12
10040	1/2(56)	7997022	9.145D-13
01112	9/2(51)	8000592	3.320D-12
01112	9/2(52)	8002907	1.440D-12
01103	3/2(93)	8007344	1.734D-12
01121	5/2(100)	8010121	1.351D-12
01112	7/2(77)	8022635	1.801D-12
01112	3/2(94)	8024412	1.713D-12
01112	1/2(58)	8030549	1.532D-12
01112	5/2(101)	8039535	1.561D-12
01112	7/2(78)	8046661	1.855D-12
01112	3/2(96)	8047183	1.325D-12
01112	9/2(53)	8049000	3.678D-12
01112	7/2(79)	8052525	1.861D-12
10031	3/2(95)	8055138	1.033D-12
01112	1/2(59)	8066620	2.021D-12
01103	7/2(80)	8079474	2.007D-12
01103	3/2(97)	8082098	1.244D-12
10022	5/2(102)	8086566	1.444D-12
10022	5/2(103)	8096634	1.419D-12
01103	5/2(104)	8108347	1.676D-12
01121	1/2(60)	8109055	1.300D-12

Table 10: (continued)

Occ	J(No)P	E	τ
01103	3/2(98)	8110044	1.916D-12
01112	5/2(105)	8121951	1.267D-12
01112	5/2(106)	8125600	1.285D-12
10031	7/2(81)	8127452	1.050D-12
01112	3/2(99)	8132486	1.541D-12
01103	7/2(82)	8134366	1.940D-12
01103	9/2(55)	8136357	2.234D-12
10031	9/2(54)	8137518	1.288D-12
01112	7/2(83)	8141233	1.544D-12
10022	1/2(61)	8149041	1.055D-12
01112	9/2(56)	8154596	1.587D-12
01112	3/2(101)	8164509	1.292D-12
10031	3/2(100)	8164866	1.169D-12
01103	5/2(108)	8171435	1.695D-12
10031	5/2(107)	8172305	1.164D-12
01103	9/2(57)	8178157	3.144D-12
01112	1/2(62)	8182008	1.130D-12
10031	7/2(84)	8185630	1.165D-12
01112	7/2(85)	8190639	1.679D-12
01112	5/2(109)	8197015	1.523D-12
01112	1/2(63)	8201782	1.422D-12
01103	7/2(86)	8204891	1.752D-12
01103	3/2(102)	8214204	1.394D-12
01112	5/2(110)	8221548	1.568D-12
01103	3/2(103)	8228407	1.559D-12
01103	5/2(111)	8235563	1.596D-12
10022	9/2(58)	8235601	1.525D-12

Table 10: (continued)

Occ	J(No)P	E	τ
01103	7/2(88)	8241130	1.681D-12
10031	7/2(87)	8248981	1.235D-12
01103	1/2(64)	8252114	1.738D-12
01112	3/2(104)	8257324	1.245D-12
10031	7/2(89)	8266601	1.122D-12
10031	5/2(112)	8266872	1.042D-12
10031	5/2(113)	8270636	1.112D-12
01112	5/2(114)	8273342	1.296D-12
10022	9/2(59)	8285307	1.923D-12
10031	3/2(105)	8298775	9.565D-13
10031	1/2(65)	8313159	8.898D-13
00212	9/2(60)	8315081	1.894D-12
10022	7/2(90)	8321979	1.161D-12
10022	5/2(115)	8329190	1.180D-12
00212	9/2(61)	8333748	1.592D-12
10022	3/2(106)	8338553	1.085D-12
10022	1/2(66)	8351065	1.094D-12
00221	3/2(107)	8354095	1.163D-12
10022	5/2(116)	8362186	1.045D-12
10022	1/2(67)	8367363	9.307D-13
00212	7/2(91)	8368013	1.486D-12
10022	3/2(108)	8374214	9.467D-13
10022	7/2(92)	8377111	1.375D-12
01103	1/2(68)	8382361	9.932D-13
01103	3/2(109)	8393124	1.408D-12
10022	5/2(117)	8393315	1.088D-12
10022	9/2(62)	8396141	1.580D-12

Table 10: (continued)

Occ	J(No)P	E	τ
10013	9/2(63)	8401313	1.598D-12
00212	5/2(118)	8401970	1.172D-12
00230	7/2(94)	8404900	8.899D-13
10022	7/2(93)	8405221	1.104D-12
00230	3/2(110)	8408969	9.131D-13
00212	1/2(69)	8427979	1.190D-12
10022	5/2(119)	8433440	1.011D-12
00221	7/2(95)	8434220	1.157D-12
00230	5/2(120)	8436593	1.076D-12
00221	9/2(64)	8446084	1.792D-12
10031	7/2(96)	8452725	1.034D-12
10013	3/2(111)	8453645	1.299D-12
00212	9/2(65)	8458364	1.601D-12
00203	7/2(97)	8467753	1.362D-12
00221	5/2(121)	8478151	1.114D-12
10013	3/2(112)	8478895	1.078D-12
00212	3/2(113)	8481635	1.217D-12
10022	5/2(122)	8485755	1.086D-12
10022	9/2(66)	8494736	1.624D-12
00221	1/2(70)	8498736	1.037D-12
00230	5/2(123)	8500391	1.087D-12
00212	7/2(98)	8502324	1.126D-12
10022	3/2(114)	8505565	8.246D-13
00212	7/2(99)	8516556	1.229D-12
10022	5/2(124)	8517092	9.433D-13
00212	9/2(67)	8519518	1.523D-12
00221	9/2(68)	8534007	2.007D-12

Table 10: (continued)

Occ	J(No)P	E	τ
10022	7/2(100)	8535087	1.361D-12
00221	5/2(125)	8538738	1.045D-12
00230	3/2(116)	8540091	8.368D-13
00221	7/2(101)	8542291	1.142D-12
00203	1/2(71)	8543135	1.217D-12
10022	3/2(115)	8548565	1.112D-12
10022	5/2(126)	8560919	9.443D-13
10013	1/2(72)	8566131	1.259D-12
10004	7/2(102)	8566928	1.293D-12
00221	3/2(117)	8567657	9.564D-13
10013	9/2(69)	8568794	1.999D-12
00212	7/2(103)	8579557	9.752D-13
00203	3/2(118)	8587667	1.050D-12
00212	9/2(70)	8596421	1.554D-12
00212	5/2(127)	8598611	1.188D-12
10022	5/2(128)	8607320	1.071D-12
00212	7/2(104)	8607749	1.262D-12
10013	1/2(73)	8612340	8.587D-13
10013	5/2(129)	8612644	1.179D-12
10004	9/2(71)	8616386	1.443D-12
00212	3/2(119)	8621697	1.129D-12
10013	5/2(130)	8630931	1.120D-12
00221	7/2(105)	8638995	1.109D-12
10013	3/2(120)	8644085	1.100D-12
00212	3/2(121)	8653668	9.690D-13
00221	9/2(72)	8655965	1.801D-12
00212	5/2(131)	8656079	9.706D-13

Table 10: (continued)

Occ	J(No)P	E	τ
00212	1/2(74)	8658585	1.106D-12
00221	1/2(75)	8663535	9.276D-13
00212	7/2(106)	8664296	1.096D-12
00221	5/2(132)	8664475	8.345D-13
00212	9/2(73)	8667864	1.347D-12
10013	3/2(122)	8671427	1.112D-12
00221	5/2(133)	8679291	9.417D-13
00212	3/2(123)	8689867	8.479D-13
00212	9/2(74)	8700436	1.466D-12
00221	7/2(108)	8709223	9.735D-13
00212	5/2(134)	8711222	1.060D-12
00203	7/2(107)	8711398	1.270D-12
10004	1/2(76)	8718237	1.131D-12
00203	9/2(75)	8720848	1.501D-12
00212	3/2(124)	8722423	8.972D-13
00212	5/2(135)	8724619	9.894D-13
00212	7/2(109)	8726830	1.264D-12
00212	7/2(110)	8744950	1.169D-12
00203	5/2(136)	8745656	1.171D-12
00221	1/2(77)	8747149	9.868D-13
00212	9/2(76)	8760995	2.113D-12
10013	3/2(125)	8761804	9.650D-13
00221	7/2(111)	8764604	1.004D-12
00221	1/2(79)	8773006	8.131D-13
00203	5/2(138)	8774720	9.457D-13
10022	1/2(78)	8776675	8.498D-13
00212	5/2(137)	8778444	9.680D-13

Table 10: (continued)

Occ	J(No)P	E	τ
00212	7/2(112)	8779535	9.568D-13
00212	3/2(127)	8783100	1.108D-12
00203	3/2(126)	8783166	1.153D-12
00203	5/2(139)	8786535	1.085D-12
00212	7/2(113)	8790168	9.752D-13
01040	1/2(68)*	8819630	1.462D-12
10013	9/2(77)	8819994	1.451D-12
00212	5/2(140)	8822899	1.002D-12
10022	1/2(80)	8823515	9.405D-13
00203	9/2(78)	8827018	1.236D-12
00212	9/2(79)	8828680	9.730D-13
00203	7/2(114)	8834538	9.146D-13
10004	3/2(128)	8835020	1.063D-12
00212	7/2(115)	8837831	9.179D-13
00212	3/2(129)	8852641	9.378D-13
00212	5/2(141)	8856442	1.051D-12
01031	1/2(69)*	8876531	1.982D-12
00212	3/2(130)	8884465	9.758D-13
00212	5/2(142)	8887717	1.011D-12
00212	9/2(80)	8895596	1.368D-12
01031	3/2(111)*	8898350	1.947D-12
00212	5/2(143)	8914911	8.562D-13
00212	3/2(131)	8921461	1.035D-12
00212	7/2(116)	8937063	1.021D-12
01031	5/2(115)*	8940740	2.141D-12
00212	1/2(81)	8947683	8.827D-13
10004	7/2(117)	8951480	9.347D-13

Table 10: (continued)

Occ	J(No)P	E	τ
00221	3/2(133)	8956444	7.702D-13
00203	5/2(144)	8959083	1.141D-12
10004	3/2(132)	8964349	1.057D-12
01031	7/2(94)*	8966086	2.223D-12
00221	5/2(145)	8967039	7.517D-13
01031	9/2(58)*	8968544	2.532D-12
00203	1/2(82)	8991665	9.680D-13
00212	7/2(118)	8999050	8.637D-13
01022	3/2(112)*	9006760	1.703D-12
00203	3/2(134)	9032534	8.032D-13
01022	7/2(95)*	9060788	2.584D-12
01022	1/2(70)*	9067443	2.059D-12
01022	9/2(59)*	9068466	3.053D-12
01022	5/2(116)*	9070811	2.299D-12
00203	5/2(146)	9075077	9.777D-13
00212	1/2(83)	9078125	8.738D-13
00203	5/2(147)	9086793	8.796D-13
01022	11/2(29)*	9100479	5.640D-12
01031	5/2(117)*	9104366	1.461D-12
01022	3/2(113)*	9106435	2.105D-12
00212	1/2(84)	9106490	7.827D-13
00212	3/2(135)	9118092	7.135D-13
01031	7/2(96)*	9125038	1.180D-12
01022	7/2(97)*	9144557	2.090D-12
01022	3/2(114)*	9147459	1.761D-12
01022	9/2(60)*	9147811	3.024D-12
01022	5/2(118)*	9170473	1.903D-12

Table 10: (continued)

Occ	J(No)P	E	τ
01022	5/2(119)*	9220236	1.689D-12
01013	9/2(61)*	9229105	2.798D-12
01013	7/2(98)*	9238821	2.423D-12
01022	1/2(71)*	9243807	1.455D-12
01022	7/2(99)*	9255067	1.346D-12
01013	5/2(120)*	9262292	1.984D-12
01013	3/2(115)*	9281513	1.797D-12
01022	7/2(100)*	9283032	1.667D-12
01022	5/2(121)*	9286592	1.665D-12
01022	9/2(62)*	9292568	2.321D-12
01013	11/2(30)*	9304765	6.007D-12
01022	11/2(31)*	9305982	4.175D-12
01013	3/2(116)*	9313242	1.943D-12
01013	1/2(72)*	9327024	2.181D-12
01013	7/2(101)*	9341513	1.993D-12
01022	5/2(122)*	9347082	1.232D-12
01022	9/2(63)*	9356051	3.301D-12
01022	3/2(117)*	9366907	1.336D-12
01013	5/2(123)*	9372466	2.251D-12
01022	7/2(102)*	9385196	1.581D-12
01022	5/2(124)*	9397202	1.658D-12
01013	9/2(64)*	9410433	2.142D-12
01013	1/2(73)*	9413748	1.839D-12
01013	11/2(32)*	9427755	3.034D-12
01013	3/2(118)*	9437878	1.450D-12
01013	5/2(125)*	9447889	1.742D-12
01013	3/2(119)*	9449258	1.814D-12

Table 10: (continued)

Occ	J(No)P	E	τ
01013	7/2(103)*	9453026	1.402D-12
01013	7/2(104)*	9466946	2.245D-12
01013	9/2(65)*	9486250	3.113D-12
01013	1/2(74)*	9486802	1.716D-12
01022	3/2(120)*	9527032	1.364D-12
01013	5/2(126)*	9531534	1.888D-12
01004	7/2(105)*	9533430	2.015D-12
01004	9/2(66)*	9544004	3.034D-12
01022	1/2(75)*	9544339	1.615D-12
01013	5/2(127)*	9561431	1.681D-12
01004	3/2(121)*	9584793	1.317D-12
00140	3/2(122)*	9594430	8.573D-13
01013	7/2(107)*	9601590	1.534D-12
00131	11/2(33)*	9604607	3.445D-12
00131	5/2(128)*	9605397	8.451D-13
00122	7/2(106)*	9606803	1.061D-12
00122	9/2(67)*	9607186	1.889D-12
01004	5/2(129)*	9650567	1.861D-12
01013	3/2(123)*	9670047	1.394D-12
00131	5/2(130)*	9689551	1.031D-12
00131	3/2(124)*	9699714	9.227D-13
00122	7/2(108)*	9723586	1.091D-12
00122	3/2(125)*	9752843	9.765D-13
00131	11/2(34)*	9756355	3.430D-12
00122	1/2(76)*	9757699	9.971D-13
00122	5/2(131)*	9758854	1.131D-12
00122	9/2(68)*	9772304	1.727D-12

Table 10: (continued)

Occ	J(No)P	E	τ
00131	7/2(109)*	9772459	1.075D-12
00122	11/2(35)*	9781818	3.685D-12
00122	9/2(69)*	9795892	1.379D-12
00131	1/2(77)*	9800639	7.955D-13
01004	1/2(78)*	9807948	1.608D-12
00122	5/2(132)*	9809988	9.478D-13
00122	11/2(36)*	9819381	2.928D-12
00122	9/2(70)*	9824610	1.829D-12
00131	7/2(110)*	9825790	1.031D-12
00122	5/2(133)*	9830774	9.654D-13
00122	7/2(111)*	9833565	1.035D-12
00140	3/2(126)*	9842443	7.752D-13
00131	9/2(71)*	9845067	1.907D-12
00122	9/2(72)*	9850265	1.547D-12
00122	3/2(127)*	9863716	1.032D-12
00122	7/2(112)*	9864189	1.073D-12
00131	1/2(79)*	9867599	8.532D-13
00113	3/2(128)*	9881023	1.293D-12
00122	5/2(134)*	9882219	9.760D-13
00113	7/2(113)*	9897455	1.375D-12
00131	5/2(135)*	9898936	9.776D-13
00122	3/2(129)*	9901819	8.831D-13
00122	11/2(37)*	9904083	3.647D-12
00113	9/2(73)*	9912493	1.853D-12
00122	5/2(136)*	9914113	8.877D-13
00122	11/2(38)*	9917641	3.414D-12
00113	7/2(114)*	9918047	1.048D-12

Table 10: (continued)

Occ	J(No)P	E	τ
00113	9/2(74)*	9934422	1.423D-12
00131	7/2(115)*	9944577	9.339D-13
00122	5/2(137)*	9948022	1.010D-12
00113	11/2(39)*	9948062	3.812D-12
00122	7/2(116)*	9954880	1.082D-12
00122	3/2(130)*	9955053	1.029D-12
00122	5/2(138)*	9961343	1.065D-12
00113	3/2(131)*	9968841	1.200D-12
00113	1/2(80)*	9976292	1.161D-12
00113	1/2(81)*	9986198	1.071D-12
00122	9/2(75)*	9989807	1.457D-12
00122	7/2(117)*	9992206	1.221D-12
00113	9/2(76)*	10001518	1.459D-12
00122	5/2(139)*	10003166	1.123D-12
00131	3/2(132)*	10009013	8.525D-13
00104	11/2(40)*	10020394	3.337D-12
00113	7/2(118)*	10020600	9.805D-13
00122	7/2(119)*	10026129	1.191D-12
00122	3/2(133)*	10033686	1.071D-12
00122	5/2(140)*	10037356	1.067D-12
00104	9/2(77)*	10044397	1.843D-12
00113	5/2(141)*	10049574	1.096D-12
00113	3/2(134)*	10051470	9.448D-13
00122	1/2(82)*	10056653	1.170D-12
00122	7/2(120)*	10056792	1.227D-12
00122	5/2(142)*	10069458	9.613D-13
00122	1/2(83)*	10071488	9.075D-13

Table 10: (continued)

Occ	J(No)P	E	τ
00122	3/2(135)*	10073273	9.333D-13
00113	9/2(78)*	10076923	1.376D-12
00113	5/2(143)*	10097015	1.143D-12
00104	7/2(121)*	10098822	1.224D-12
00113	5/2(144)*	10099582	9.180D-13
00104	9/2(79)*	10113342	1.575D-12
00113	11/2(41)*	10121269	2.703D-12
00113	11/2(42)*	10121692	2.595D-12
00113	5/2(145)*	10122359	1.052D-12
00122	7/2(122)*	10129478	9.559D-13
00122	9/2(80)*	10132061	1.386D-12
00122	3/2(136)*	10133110	1.231D-12
00113	1/2(84)*	10136620	9.027D-13
00113	3/2(137)*	10137122	1.017D-12
00113	7/2(123)*	10140112	1.070D-12
00113	5/2(146)*	10143957	1.173D-12
00104	7/2(124)*	10169982	1.073D-12
00113	5/2(147)*	10173450	1.039D-12
00122	1/2(85)*	10173633	8.257D-13
00122	3/2(138)*	10190832	7.674D-13
00113	11/2(43)*	10206310	2.947D-12
00113	5/2(148)*	10211493	9.170D-13
00113	7/2(125)*	10215759	9.179D-13
00113	3/2(139)*	10222553	1.060D-12
00113	9/2(81)*	10226283	2.108D-12
00113	7/2(126)*	10232215	1.164D-12
00113	9/2(82)*	10238408	1.062D-12

Table 10: (continued)

Occ	J(No)P	E	τ
00113	5/2(149)*	10239676	9.835D-13
00122	1/2(86)*	10262020	1.119D-12
00104	3/2(140)*	10263958	9.924D-13
00113	7/2(127)*	10277900	1.034D-12
00122	5/2(150)*	10284980	1.018D-12
00113	7/2(128)*	10288615	1.047D-12
00113	9/2(83)*	10289643	1.342D-12
00113	3/2(141)*	10305476	1.001D-12
00104	1/2(87)*	10312765	1.122D-12
00113	5/2(151)*	10332120	1.000D-12
00104	3/2(142)*	10348113	9.267D-13
00122	7/2(129)*	10367979	9.601D-13
00104	3/2(143)*	10374800	9.322D-13
00104	5/2(152)*	10427347	8.710D-13
00122	3/2(144)*	10433672	7.945D-13
00113	5/2(153)*	10480088	8.322D-13
00104	3/2(145)*	10485203	1.050D-12
00113	1/2(88)*	10517667	7.125D-13

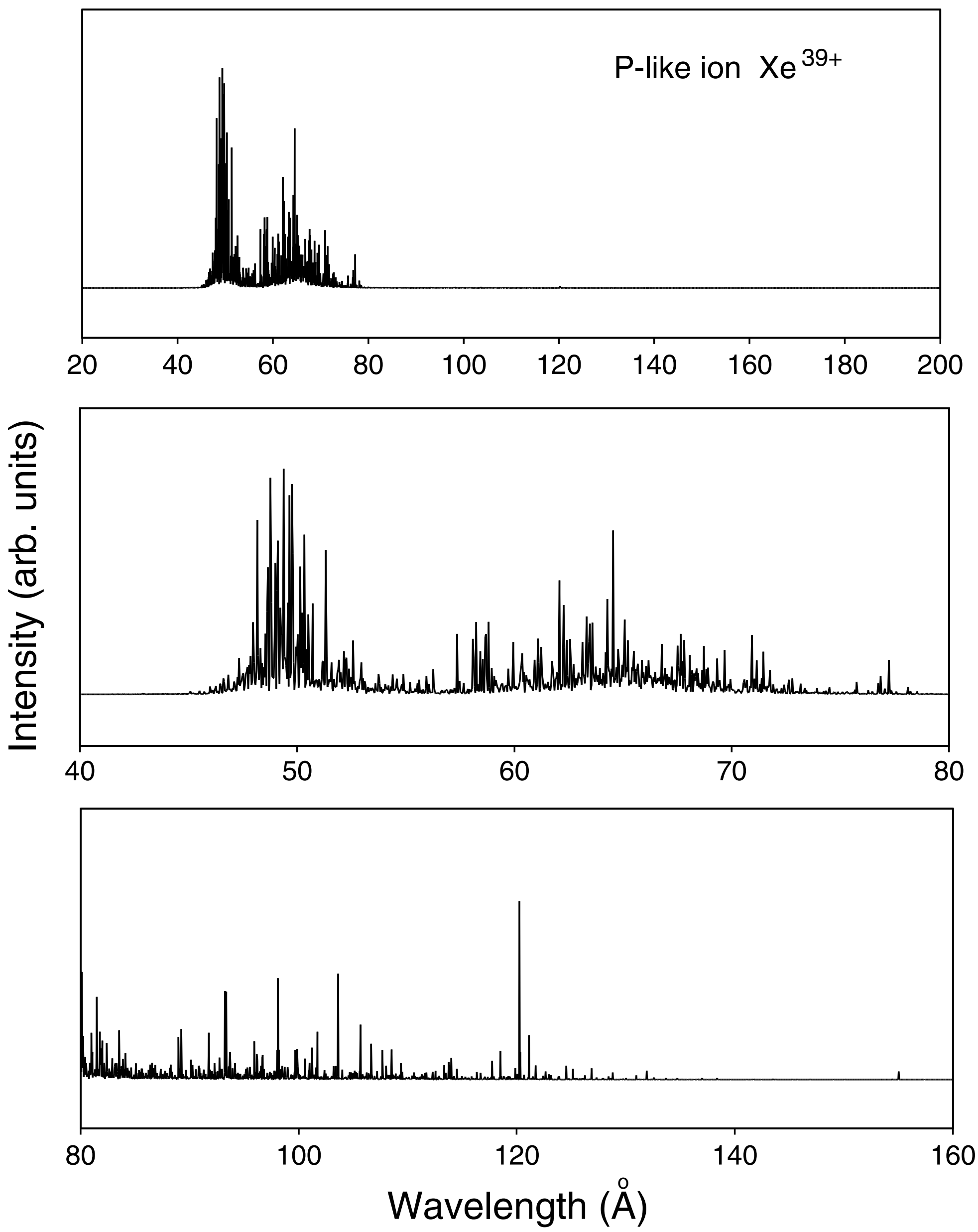

Fig. 4. Synthetic spectra of Xe^{39+} (P-like) ions

Table 11: Transitions with probabilities higher than $5{\cdot}10^{+10}$ s^{-1} in Xe^{39+} (P-like) ions.

λ	Upper	τ	lower	A	A_{br}
46.834	3/2(11)*	2.276D-12	3/2(1)	1.6211D+11	5.9804D+10
47.107	1/2(22)	1.135D-12	1/2(3)*	3.1750D+11	1.1446D+11
47.238	3/2(30)*	1.090D-12	5/2(6)	2.1542D+11	5.0599D+10

Table 11: (continued)

λ	Upper	τ	lower	A	A_{br}
47.330	1/2(27)*	1.849D-12	3/2(12)	2.6796D+11	1.3273D+11
47.413	1/2(20)*	1.505D-12	1/2(4)	2.2785D+11	7.8154D+10
47.526	3/2(41)	1.297D-12	5/2(5)*	2.1291D+11	5.8787D+10
47.775	1/2(21)*	7.940D-13	1/2(5)	2.5405D+11	5.1246D+10
47.843	3/2(42)*	1.323D-12	5/2(11)	4.6633D+11	2.8770D+11
47.854	5/2(32)	1.913D-12	5/2(4)*	1.6394D+11	5.1416D+10
47.910	7/2(15)*	1.404D-12	7/2(1)	2.2260D+11	6.9553D+10
47.981	3/2(10)*	1.336D-12	3/2(1)	7.0637D+11	6.6681D+11
48.012	9/2(25)	1.141D-12	9/2(5)*	2.3962D+11	6.5514D+10
48.111	1/2(17)	1.776D-12	3/2(4)*	2.6956D+11	1.2906D+11
48.156	5/2(24)*	1.627D-12	7/2(2)	5.6821D+11	5.2537D+11
48.210	1/2(32)*	1.422D-12	3/2(14)	3.8579D+11	2.1163D+11
48.212	3/2(31)	1.740D-12	5/2(4)*	1.7726D+11	5.4672D+10
48.246	3/2(13)*	2.729D-12	5/2(1)	1.4355D+11	5.6246D+10
48.295	7/2(38)	1.873D-12	9/2(3)*	1.8156D+11	6.1753D+10
48.396	5/2(83)	1.207D-12	7/2(24)*	3.3047D+11	1.3186D+11
48.441	7/2(42)*	1.728D-12	9/2(4)	2.3442D+11	9.4984D+10
48.525	7/2(17)*	1.578D-12	7/2(2)	3.2304D+11	1.6462D+11
48.540	1/2(30)	9.808D-13	3/2(9)*	2.4163D+11	5.7260D+10
48.547	5/2(34)	1.908D-12	7/2(2)*	2.0076D+11	7.6891D+10
48.611	7/2(73)	1.397D-12	9/2(13)*	2.4279D+11	8.2366D+10
48.618	7/2(38)*	2.200D-12	7/2(7)	1.7648D+11	6.8512D+10
48.620	9/2(10)*	1.742D-12	7/2(3)	2.0382D+11	7.2375D+10
48.630	5/2(37)	1.652D-12	7/2(3)*	3.0622D+11	1.5493D+11
48.656	3/2(16)*	1.446D-12	5/2(2)	4.5470D+11	2.9902D+11
48.665	1/2(36)*	1.731D-12	3/2(16)	2.5506D+11	1.1262D+11
48.666	3/2(28)*	1.390D-12	5/2(6)	2.2086D+11	6.7816D+10

Table 11: (continued)

λ	Upper	τ	lower	A	A_{br}
48.670	1/2(7)	2.036D-12	3/2(2)*	4.4775D+11	4.0818D+11
48.766	1/2(18)	1.314D-12	3/2(5)*	5.4072D+11	3.8408D+11
48.778	3/2(5)	1.250D-12	3/2(1)*	7.9743D+11	7.9466D+11
48.815	1/2(3)	1.777D-12	3/2(1)*	5.6057D+11	5.5838D+11
48.825	5/2(42)*	1.749D-12	7/2(6)	3.8527D+11	2.5960D+11
48.827	3/2(50)*	1.404D-12	5/2(13)	3.4755D+11	1.6959D+11
48.861	3/2(22)	2.357D-12	5/2(2)*	1.6957D+11	6.7759D+10
48.899	3/2(9)	1.474D-12	3/2(2)*	4.1170D+11	2.4977D+11
48.900	7/2(96)*	1.180D-12	9/2(35)	4.0182D+11	1.9052D+11
48.945	3/2(45)*	2.069D-12	5/2(12)	2.1470D+11	9.5393D+10
48.955	5/2(47)	1.495D-12	7/2(5)*	2.9974D+11	1.3433D+11
48.983	7/2(35)*	1.674D-12	9/2(3)	4.0515D+11	2.7479D+11
48.996	3/2(29)	2.550D-12	5/2(3)*	1.7536D+11	7.8408D+10
49.005	1/2(6)*	1.897D-12	3/2(1)	5.0181D+11	4.7772D+11
49.012	5/2(48)*	1.611D-12	7/2(7)	3.3962D+11	1.8584D+11
49.057	3/2(26)*	8.525D-13	5/2(5)	5.3897D+11	2.4765D+11
49.062	7/2(18)	2.040D-12	9/2(1)*	3.8135D+11	2.9670D+11
49.065	1/2(25)	1.658D-12	1/2(4)*	2.1595D+11	7.7303D+10
49.072	5/2(8)	1.825D-12	3/2(2)*	1.8121D+11	5.9934D+10
49.096	3/2(57)*	1.347D-12	5/2(15)	1.9567D+11	5.1587D+10
49.107	1/2(6)	4.958D-12	3/2(2)*	1.9717D+11	1.9273D+11
49.113	7/2(7)*	2.626D-12	5/2(1)	3.3676D+11	2.9786D+11
49.150	3/2(117)*	1.336D-12	5/2(78)	2.2752D+11	6.9149D+10
49.162	7/2(103)*	1.402D-12	9/2(37)	3.3902D+11	1.6116D+11
49.204	1/2(33)	1.178D-12	3/2(14)*	3.2555D+11	1.2487D+11
49.222	7/2(99)*	1.346D-12	9/2(36)	3.4169D+11	1.5712D+11
49.243	9/2(23)	2.299D-12	9/2(3)*	1.7888D+11	7.3571D+10

Table 11: (continued)

λ	Upper	τ	lower	A	A_{br}
49.252	3/2(27)*	1.307D-12	1/2(4)	2.0413D+11	5.4456D+10
49.255	3/2(24)*	1.711D-12	3/2(4)	2.9472D+11	1.4858D+11
49.286	3/2(21)	2.446D-12	5/2(2)*	2.3340D+11	1.3323D+11
49.300	7/2(64)	1.951D-12	9/2(12)*	1.8105D+11	6.3948D+10
49.302	3/2(30)*	1.090D-12	5/2(7)	2.3055D+11	5.7959D+10
49.325	3/2(30)	1.792D-12	3/2(6)*	1.8812D+11	6.3425D+10
49.346	3/2(54)*	1.518D-12	5/2(14)	2.3320D+11	8.2550D+10
49.376	1/2(19)	1.593D-12	3/2(6)*	4.5507D+11	3.2994D+11
49.376	5/2(21)	2.311D-12	7/2(1)*	3.8175D+11	3.3671D+11
49.442	1/2(15)	3.777D-12	3/2(4)*	1.6739D+11	1.0584D+11
49.459	5/2(90)	1.304D-12	7/2(26)*	2.0023D+11	5.2283D+10
49.476	7/2(14)	2.853D-12	7/2(1)*	1.9723D+11	1.1100D+11
49.503	9/2(19)*	1.876D-12	9/2(3)	2.8633D+11	1.5377D+11
49.509	5/2(86)	1.608D-12	7/2(25)*	2.1279D+11	7.2798D+10
49.562	3/2(12)*	2.390D-12	5/2(1)	3.5169D+11	2.9555D+11
49.634	1/2(11)*	1.238D-12	3/2(2)	4.5954D+11	2.6144D+11
49.645	5/2(5)	2.069D-12	3/2(1)*	4.6470D+11	4.4682D+11
49.755	5/2(12)*	1.852D-12	5/2(2)	3.6998D+11	2.5357D+11
49.764	3/2(10)	1.997D-12	1/2(1)*	4.7054D+11	4.4219D+11
49.769	1/2(15)*	1.484D-12	3/2(4)	4.4494D+11	2.9372D+11
49.788	5/2(9)*	1.967D-12	5/2(1)	4.6474D+11	4.2481D+11
49.808	7/2(13)	2.737D-12	7/2(1)*	2.3802D+11	1.5505D+11
49.820	5/2(51)	1.263D-12	7/2(7)*	2.6931D+11	9.1621D+10
49.823	7/2(63)	1.973D-12	9/2(12)*	1.6279D+11	5.2295D+10
49.921	9/2(20)	2.470D-12	9/2(2)*	1.4256D+11	5.0194D+10
49.926	7/2(23)	2.111D-12	7/2(2)*	2.6255D+11	1.4548D+11
49.931	5/2(25)*	1.314D-12	5/2(6)	2.2394D+11	6.5874D+10

Table 11: (continued)

λ	Upper	τ	lower	A	A_{br}
49.934	3/2(26)*	8.525D-13	3/2(5)	4.7483D+11	1.9222D+11
49.938	5/2(99)	1.296D-12	7/2(29)*	2.6292D+11	8.9572D+10
49.979	1/2(71)*	1.455D-12	3/2(74)	2.7135D+11	1.0711D+11
50.004	7/2(5)	2.511D-12	5/2(1)*	3.9833D+11	3.9832D+11
50.021	7/2(19)*	1.507D-12	7/2(3)	2.7618D+11	1.1498D+11
50.131	7/2(25)	1.760D-12	7/2(3)*	2.6130D+11	1.2017D+11
50.131	5/2(29)	2.211D-12	3/2(6)*	1.5311D+11	5.1834D+10
50.135	3/2(46)	9.444D-13	3/2(10)*	4.8832D+11	2.2518D+11
50.208	7/2(16)*	1.932D-12	5/2(4)	2.9400D+11	1.6704D+11
50.265	9/2(9)	3.851D-12	9/2(1)*	1.8637D+11	1.3375D+11
50.326	1/2(68)*	1.462D-12	3/2(72)	5.4332D+11	4.3158D+11
50.444	3/2(24)*	1.711D-12	5/2(4)	1.7614D+11	5.3071D+10
50.449	5/2(21)*	3.719D-12	5/2(4)	1.4403D+11	7.7149D+10
50.511	1/2(56)	9.145D-13	3/2(42)*	4.6938D+11	2.0148D+11
50.519	3/2(9)	1.474D-12	5/2(1)*	2.2165D+11	7.2393D+10
50.704	5/2(8)	1.825D-12	5/2(1)*	3.6271D+11	2.4012D+11
51.160	3/2(19)	2.914D-12	3/2(4)*	1.5460D+11	6.9645D+10
51.207	9/2(8)	4.661D-12	9/2(1)*	1.5184D+11	1.0746D+11
51.222	1/2(66)	1.094D-12	3/2(55)*	2.2790D+11	5.6825D+10
51.316	3/2(122)*	8.573D-13	5/2(83)	3.4392D+11	1.0140D+11
51.320	9/2(8)*	1.692D-12	9/2(1)	4.7205D+11	3.7695D+11
51.330	9/2(54)	1.288D-12	9/2(19)*	3.2534D+11	1.3630D+11
51.351	5/2(53)	1.095D-12	5/2(12)*	2.4645D+11	6.6510D+10
51.557	3/2(95)	1.033D-12	5/2(42)*	2.9920D+11	9.2466D+10
51.585	5/2(22)*	1.010D-12	5/2(5)	2.3491D+11	5.5725D+10
51.596	11/2(2)*	4.955D-12	9/2(1)	1.8982D+11	1.7855D+11
51.831	7/2(15)*	1.404D-12	5/2(5)	2.8106D+11	1.1088D+11

Table 11: (continued)

λ	Upper	τ	lower	A	A_{br}
51.899	1/2(39)*	9.978D-13	3/2(21)	2.6853D+11	7.1952D+10
51.927	3/2(111)*	1.947D-12	5/2(75)	2.4418D+11	1.1607D+11
52.147	5/2(35)*	3.073D-12	5/2(11)	2.0621D+11	1.3068D+11
52.227	3/2(25)*	9.544D-13	1/2(3)	2.9806D+11	8.4790D+10
52.268	3/2(25)*	9.544D-13	3/2(5)	3.2199D+11	9.8953D+10
52.391	3/2(38)*	3.082D-12	3/2(12)	2.5946D+11	2.0747D+11
52.504	1/2(47)	1.749D-12	3/2(35)*	2.8716D+11	1.4419D+11
52.553	1/2(16)*	1.094D-12	1/2(3)	3.4560D+11	1.3064D+11
52.555	5/2(22)*	1.010D-12	3/2(5)	4.1544D+11	1.7428D+11
52.565	1/2(31)*	1.775D-12	3/2(15)	2.5110D+11	1.1193D+11
52.736	7/2(58)	2.207D-12	7/2(24)*	1.7251D+11	6.5689D+10
52.952	9/2(58)*	2.532D-12	9/2(35)	2.0000D+11	1.0126D+11
53.273	3/2(43)	1.157D-12	3/2(12)*	2.1004D+11	5.1066D+10
53.759	5/2(6)*	4.223D-12	3/2(1)	2.1666D+11	1.9822D+11
54.145	1/2(69)*	1.982D-12	3/2(73)	2.3539D+11	1.0982D+11
54.885	1/2(21)*	7.940D-13	1/2(7)	2.6607D+11	5.6212D+10
56.246	5/2(30)*	1.072D-12	7/2(5)	3.7929D+11	1.5420D+11
56.661	1/2(11)	8.581D-12	1/2(2)*	7.9935D+10	5.4827D+10
56.917	1/2(43)	7.142D-13	3/2(30)*	3.4763D+11	8.6305D+10
57.366	7/2(22)*	1.677D-12	9/2(2)	2.6878D+11	1.2119D+11
57.370	1/2(8)	1.467D-12	3/2(3)*	6.7756D+11	6.7351D+11
57.449	7/2(53)	9.644D-13	9/2(10)*	3.5451D+11	1.2120D+11
57.463	1/2(22)	1.135D-12	1/2(6)*	2.5945D+11	7.6429D+10
57.647	9/2(30)	1.418D-12	9/2(8)*	4.0915D+11	2.3743D+11
57.943	3/2(62)	7.743D-13	3/2(26)*	3.4581D+11	9.2595D+10
58.088	3/2(34)*	1.033D-12	5/2(10)	5.7306D+11	3.3919D+11
58.122	1/2(21)*	7.940D-13	3/2(10)	4.1119D+11	1.3425D+11

Table 11: (continued)

λ	Upper	τ	lower	A	A_{br}
58.146	1/2(22)*	1.168D-12	3/2(11)	2.2245D+11	5.7818D+10
58.236	5/2(14)*	1.845D-12	7/2(1)	2.6053D+11	1.2521D+11
58.237	5/2(20)*	1.638D-12	7/2(3)	2.9821D+11	1.4567D+11
58.423	7/2(47)	1.060D-12	7/2(17)*	3.4231D+11	1.2421D+11
58.533	7/2(13)*	1.998D-12	9/2(1)	2.3705D+11	1.1230D+11
58.656	5/2(31)*	1.505D-12	5/2(9)	3.8470D+11	2.2271D+11
58.693	5/2(74)	8.983D-13	7/2(23)*	5.1245D+11	2.3590D+11
58.719	3/2(71)	6.860D-13	5/2(30)*	3.1567D+11	6.8358D+10
58.800	1/2(23)*	3.930D-12	3/2(12)	1.3553D+11	7.2193D+10
58.808	3/2(8)	2.333D-12	5/2(1)*	2.9282D+11	2.0003D+11
58.959	3/2(60)	1.224D-12	5/2(24)*	2.7824D+11	9.4794D+10
59.157	5/2(28)*	1.168D-12	5/2(8)	4.0132D+11	1.8818D+11
59.585	7/2(93)*	9.841D-13	9/2(34)	4.6000D+11	2.0823D+11
59.710	7/2(34)	1.563D-12	9/2(6)*	1.8466D+11	5.3296D+10
59.763	7/2(21)*	1.639D-12	7/2(5)	2.1577D+11	7.6304D+10
59.891	3/2(71)	6.860D-13	1/2(21)*	2.8948D+11	5.7487D+10
59.920	7/2(8)*	3.058D-12	5/2(3)	1.3922D+11	5.9261D+10
59.937	5/2(27)*	2.595D-12	7/2(4)	2.5869D+11	1.7367D+11
60.042	1/2(9)*	2.837D-12	3/2(3)	2.4634D+11	1.7215D+11
60.193	1/2(20)*	1.505D-12	1/2(6)	2.2633D+11	7.7115D+10
60.296	1/2(17)*	1.308D-12	3/2(8)	3.1656D+11	1.3108D+11
60.305	7/2(16)	3.287D-12	5/2(6)*	1.8001D+11	1.0652D+11
60.313	1/2(3)*	5.812D-12	3/2(1)	1.4939D+11	1.2972D+11
60.352	5/2(114)*	7.649D-13	7/2(54)	4.2247D+11	1.3652D+11
60.441	3/2(106)*	8.228D-13	5/2(67)	2.4965D+11	5.1281D+10
60.571	5/2(113)*	7.666D-13	7/2(53)	4.0630D+11	1.2656D+11
60.931	3/2(55)	1.167D-12	1/2(16)*	2.7086D+11	8.5631D+10

Table 11: (continued)

λ	Upper	τ	lower	A	A_{br}
61.028	9/2(11)*	1.927D-12	9/2(2)	3.5327D+11	2.4048D+11
61.092	1/2(5)	2.497D-12	1/2(1)*	3.4119D+11	2.9066D+11
61.114	5/2(4)*	6.551D-12	3/2(1)	1.2941D+11	1.0972D+11
61.237	7/2(20)*	1.837D-12	7/2(4)	2.5980D+11	1.2397D+11
61.323	3/2(57)	1.746D-12	5/2(23)*	1.9364D+11	6.5472D+10
61.730	9/2(26)	2.273D-12	7/2(16)*	1.8805D+11	8.0395D+10
61.760	3/2(9)*	4.671D-12	3/2(2)	1.3673D+11	8.7326D+10
61.945	5/2(26)*	1.588D-12	3/2(9)	1.8846D+11	5.6394D+10
61.948	5/2(60)	9.192D-13	3/2(26)*	2.4120D+11	5.3472D+10
62.071	3/2(33)*	1.493D-12	3/2(11)	4.6653D+11	3.2496D+11
62.238	7/2(48)	1.217D-12	7/2(19)*	2.5135D+11	7.6867D+10
62.261	3/2(2)	8.130D-12	3/2(1)*	1.0613D+11	9.1564D+10
62.264	1/2(14)*	2.103D-12	3/2(7)	2.3260D+11	1.1376D+11
62.268	7/2(14)*	2.424D-12	7/2(3)	1.9541D+11	9.2562D+10
62.298	1/2(64)*	1.068D-12	3/2(65)	3.4463D+11	1.2683D+11
62.394	5/2(70)	9.262D-13	5/2(28)*	3.2794D+11	9.9605D+10
62.417	5/2(7)	3.735D-12	5/2(1)*	2.0733D+11	1.6057D+11
62.474	7/2(9)*	4.323D-12	7/2(2)	1.2832D+11	7.1186D+10
62.554	5/2(10)	2.782D-12	3/2(3)*	3.5140D+11	3.4352D+11
62.603	1/2(1)	1.272D-11	3/2(1)*	6.7694D+10	5.8273D+10
62.720	3/2(40)	1.496D-12	5/2(14)*	1.8635D+11	5.1933D+10
62.929	11/2(4)*	7.984D-12	9/2(3)	1.0268D+11	8.4165D+10
63.039	1/2(13)	2.823D-12	1/2(3)*	1.6280D+11	7.4826D+10
63.128	3/2(70)	1.054D-12	3/2(33)*	4.6912D+11	2.3200D+11
63.280	1/2(7)*	3.803D-12	1/2(2)	1.6067D+11	9.8172D+10
63.303	7/2(52)	1.355D-12	7/2(21)*	2.8144D+11	1.0733D+11
63.312	1/2(44)	8.493D-13	3/2(34)*	7.8231D+11	5.1979D+11

Table 11: (continued)

λ	Upper	τ	lower	A	A_{br}
63.328	5/2(6)	3.688D-12	3/2(2)*	1.8048D+11	1.2012D+11
63.345	5/2(73)	1.031D-12	5/2(31)*	3.5038D+11	1.2651D+11
63.382	9/2(21)	2.443D-12	9/2(7)*	1.5655D+11	5.9875D+10
63.388	1/2(10)*	5.779D-12	3/2(4)	1.0366D+11	6.2091D+10
63.409	3/2(34)*	1.033D-12	1/2(8)	3.3811D+11	1.1808D+11
63.439	1/2(43)	7.142D-13	1/2(21)*	4.0791D+11	1.1883D+11
63.477	9/2(19)	2.299D-12	9/2(6)*	2.6791D+11	1.6498D+11
63.494	1/2(13)*	2.831D-12	1/2(4)	1.4338D+11	5.8194D+10
63.599	1/2(65)*	8.611D-13	3/2(66)	4.6803D+11	1.8863D+11
63.600	9/2(53)*	1.412D-12	9/2(30)	3.0874D+11	1.3456D+11
63.681	1/2(12)	6.496D-12	3/2(6)*	8.8851D+10	5.1285D+10
63.795	3/2(11)	3.459D-12	3/2(3)*	2.5871D+11	2.3148D+11
63.922	9/2(6)*	5.151D-12	9/2(1)	1.0865D+11	6.0801D+10
64.107	9/2(5)*	5.452D-12	7/2(1)	1.7606D+11	1.6898D+11
64.108	3/2(6)	7.830D-12	3/2(2)*	1.0243D+11	8.2148D+10
64.196	9/2(43)	5.051D-12	7/2(35)*	1.0550D+11	5.6208D+10
64.276	1/2(67)*	6.247D-13	3/2(71)	6.1744D+11	2.3814D+11
64.290	9/2(25)	1.141D-12	7/2(15)*	2.6259D+11	7.8677D+10
64.299	9/2(32)	1.322D-12	9/2(11)*	4.3070D+11	2.4522D+11
64.338	9/2(10)*	1.742D-12	7/2(5)	2.6043D+11	1.1817D+11
64.399	7/2(57)*	1.654D-12	7/2(30)	1.7698D+11	5.1800D+10
64.535	1/2(31)	1.509D-12	1/2(14)*	3.1131D+11	1.4625D+11
64.537	7/2(23)*	1.669D-12	5/2(10)	4.0261D+11	2.7047D+11
64.548	1/2(66)*	9.595D-13	3/2(69)	5.0973D+11	2.4930D+11
64.567	7/2(85)*	1.009D-12	7/2(48)	2.6150D+11	6.8995D+10
64.640	3/2(110)*	8.410D-13	5/2(74)	5.2809D+11	2.3454D+11
64.707	7/2(49)	1.436D-12	5/2(26)*	3.3903D+11	1.6502D+11

Table 11: (continued)

λ	Upper	τ	lower	A	A_{br}
64.754	1/2(22)*	1.168D-12	1/2(8)	5.0930D+11	3.0309D+11
64.766	3/2(19)*	2.340D-12	3/2(6)	1.5152D+11	5.3714D+10
64.796	9/2(35)*	1.874D-12	9/2(19)	2.2682D+11	9.6423D+10
64.965	3/2(68)	8.805D-13	3/2(32)*	2.5631D+11	5.7847D+10
65.038	7/2(77)*	1.290D-12	7/2(43)	1.9823D+11	5.0684D+10
65.058	5/2(19)*	2.265D-12	5/2(7)	2.7000D+11	1.6510D+11
65.079	9/2(55)*	1.028D-12	9/2(32)	5.0171D+11	2.5876D+11
65.120	3/2(101)*	1.045D-12	3/2(62)	2.6598D+11	7.3921D+10
65.139	3/2(108)*	7.636D-13	1/2(43)	3.1765D+11	7.7048D+10
65.216	3/2(135)	7.135D-13	5/2(113)*	3.4815D+11	8.6482D+10
65.217	7/2(6)*	6.921D-12	5/2(3)	9.2820D+10	5.9626D+10
65.226	9/2(7)*	4.853D-12	7/2(3)	1.2470D+11	7.5467D+10
65.244	5/2(48)	1.437D-12	5/2(19)*	2.5780D+11	9.5520D+10
65.285	5/2(74)	8.983D-13	3/2(34)*	3.6801D+11	1.2166D+11
65.366	3/2(48)	1.187D-12	3/2(22)*	2.3197D+11	6.3852D+10
65.438	9/2(21)*	2.594D-12	7/2(16)	1.4856D+11	5.7247D+10
65.466	3/2(109)*	9.509D-13	3/2(70)	3.6318D+11	1.2542D+11
65.496	1/2(35)	1.107D-12	1/2(17)*	3.1076D+11	1.0693D+11
65.507	5/2(29)*	1.667D-12	3/2(11)	1.8199D+11	5.5211D+10
65.553	3/2(23)*	1.671D-12	1/2(5)	3.0231D+11	1.5269D+11
65.626	7/2(12)*	3.107D-12	5/2(6)	1.3956D+11	6.0512D+10
65.675	5/2(147)	8.796D-13	7/2(93)*	2.5821D+11	5.8640D+10
65.704	1/2(82)	9.680D-13	1/2(64)*	3.7493D+11	1.3608D+11
65.819	5/2(113)*	7.666D-13	5/2(73)	2.5609D+11	5.0278D+10
65.917	7/2(53)	9.644D-13	5/2(30)*	2.3895D+11	5.5062D+10
65.937	1/2(83)	8.738D-13	3/2(108)*	2.8485D+11	7.0897D+10
65.966	5/2(114)*	7.649D-13	3/2(71)	2.5609D+11	5.0161D+10

Table 11: (continued)

λ	Upper	τ	lower	A	A_{br}
66.048	5/2(20)*	1.638D-12	3/2(8)	2.0096D+11	6.6150D+10
66.067	11/2(28)*	4.484D-12	9/2(32)	1.2103D+11	6.5688D+10
66.202	3/2(106)*	8.228D-13	3/2(68)	3.5273D+11	1.0237D+11
66.228	9/2(3)	9.199D-12	7/2(1)*	7.9807D+10	5.8587D+10
66.243	7/2(3)*	6.580D-12	5/2(2)	1.1190D+11	8.2399D+10
66.311	5/2(132)	8.345D-13	5/2(97)*	3.4077D+11	9.6904D+10
66.582	5/2(2)	1.150D-11	3/2(1)*	8.1226D+10	7.5871D+10
66.613	7/2(14)*	2.424D-12	5/2(7)	1.7174D+11	7.1498D+10
66.698	3/2(110)*	8.410D-13	1/2(44)	3.1987D+11	8.6049D+10
66.731	11/2(22)*	1.835D-12	9/2(25)	3.1919D+11	1.8699D+11
66.784	7/2(3)	8.987D-12	5/2(1)*	1.1127D+11	1.1127D+11
67.109	9/2(17)	2.064D-12	7/2(10)*	1.7561D+11	6.3659D+10
67.226	3/2(109)	1.408D-12	5/2(84)*	2.7072D+11	1.0318D+11
67.517	5/2(50)	1.341D-12	3/2(23)*	3.0462D+11	1.2444D+11
67.520	5/2(153)*	8.322D-13	7/2(118)	3.7007D+11	1.1397D+11
67.523	7/2(31)	1.831D-12	5/2(16)*	1.8274D+11	6.1142D+10
67.537	1/2(81)	8.827D-13	1/2(65)*	3.4198D+11	1.0323D+11
67.648	9/2(9)*	6.671D-12	7/2(4)	1.1607D+11	8.9874D+10
67.650	9/2(79)	9.730D-13	9/2(55)*	4.8057D+11	2.2470D+11
67.705	9/2(33)	1.351D-12	7/2(22)*	2.0469D+11	5.6615D+10
67.730	1/2(83)	8.738D-13	1/2(66)*	2.8197D+11	6.9471D+10
67.809	9/2(80)	1.368D-12	9/2(57)*	3.0166D+11	1.2446D+11
68.077	3/2(127)	1.108D-12	3/2(101)*	2.8324D+11	8.8911D+10
68.162	11/2(33)*	3.445D-12	9/2(54)	1.5353D+11	8.1209D+10
68.183	3/2(144)*	7.945D-13	5/2(145)	3.2909D+11	8.6043D+10
68.276	5/2(5)*	5.666D-12	3/2(2)	9.8192D+10	5.4633D+10
68.362	3/2(69)	1.154D-12	1/2(22)*	2.2167D+11	5.6720D+10

Table 11: (continued)

λ	Upper	τ	lower	A	A_{br}
68.371	9/2(56)*	1.557D-12	7/2(53)	2.0628D+11	6.6251D+10
68.715	11/2(27)*	1.496D-12	9/2(33)	4.0127D+11	2.4088D+11
68.839	3/2(145)*	1.050D-12	3/2(134)	2.2415D+11	5.2747D+10
68.911	5/2(147)	8.796D-13	5/2(114)*	2.7797D+11	6.7960D+10
69.321	3/2(135)	7.135D-13	1/2(67)*	3.5985D+11	9.2393D+10
69.324	11/2(23)*	2.387D-12	9/2(26)	1.4669D+11	5.1358D+10
69.354	1/2(4)*	1.167D-11	1/2(1)	6.5842D+10	5.0599D+10
69.663	9/2(34)	2.297D-12	7/2(23)*	3.3432D+11	2.5678D+11
70.671	11/2(16)*	4.309D-12	9/2(21)	1.1240D+11	5.4437D+10
70.680	1/2(78)*	1.608D-12	3/2(109)	2.2836D+11	8.3865D+10
70.711	7/2(116)	1.021D-12	5/2(112)*	3.2706D+11	1.0918D+11
70.863	1/2(88)*	7.125D-13	1/2(84)	3.4612D+11	8.5361D+10
70.923	7/2(93)*	9.841D-13	5/2(74)	2.9849D+11	8.7679D+10
70.936	9/2(82)*	1.062D-12	9/2(79)	4.5383D+11	2.1865D+11
71.160	1/2(84)	7.827D-13	3/2(110)*	3.4394D+11	9.2593D+10
71.372	9/2(77)	1.451D-12	7/2(90)*	2.4416D+11	8.6486D+10
71.450	1/2(88)*	7.125D-13	3/2(135)	5.7448D+11	2.3516D+11
71.772	5/2(153)*	8.322D-13	5/2(147)	3.2815D+11	8.9617D+10
71.856	3/2(142)*	9.267D-13	3/2(133)	2.6497D+11	6.5063D+10
72.588	11/2(43)*	2.947D-12	9/2(79)	1.4087D+11	5.8481D+10
75.760	11/2(40)*	3.337D-12	9/2(74)	1.3500D+11	6.0807D+10
76.794	11/2(26)*	2.873D-12	9/2(34)	1.6461D+11	7.7856D+10
76.848	11/2(41)*	2.703D-12	9/2(77)	1.8151D+11	8.9067D+10
77.240	11/2(42)*	2.595D-12	9/2(78)	2.1725D+11	1.2245D+11
78.545	11/2(32)*	3.034D-12	9/2(56)	1.4425D+11	6.3122D+10