The seventh spectrum of platinum (Pt VII): analysis of the $(5d^4 + 5d^36s) - 5d^36p$ transition array

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Abstract. The spectrum of platinum was observed in the (300 to 2100) Å wavelength region. The $(5d^4 + 5d^36s) - 5d^36p$ transition array of six times ionized platinum, Pt VII, has been investigated and 759 spectral lines have been classified in the region of (337 to 1273) Å. The analysis has led to the determination of the $5d^4$, $5d^36s$ and $5d^36p$ configurations. All 34 theoretically possible $5d^4$ levels, 35 of 38 possible $5d^36s$ levels and 108 of 110 possible $5d^36p$ levels have been established. The orthogonal operators technique was used to calculate the level structure and transition probabilities. The energy parameters have been determined by the least squares fit to the observed levels. Calculated transition probability and energy values, as well as *LS*-compositions obtained from the fitted parameters are presented.

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1. Introduction and experiment

Spectra of platinum having relatively simple ground-state configurations $5d^9 6s$, $5d^9$, $5d^8$, $5d^3$, $5d^2$, viz. Pt I, Pt II, Pt III, Pt VIII and Pt IX, were most intensively studied in 1992 to 2002 [1-8]. In 2015, results of analyses of the three and four times ionized platinum, Pt IV and Pt V, having significantly more complex $5d^7$ and $5d^6$ ground-state configurations, have been reported [9,10]. Platinum spectra with four and five electrons in the outer 5d-shell, Pt VII and Pt VI, have not been published yet. Research on these spectra is of interest to fundamental physics for better understanding of complex atomic spectra and for improvement of theoretical methods of treatment of multi-electron heavy atoms.

The purpose of the present work is to study the spectrum of six times ionized platinum, Pt VII, which was never studied before. The ion has the $5d^4$ ground-state configuration. The current analysis is essentially based on theoretical calculations utilizing the orthogonal operators approach [11-14] and the program suite IDEN [15-17].

The spectrograms for the current analysis were photographed in the wavelength region of (300 to 2100) Å at the Institute of Spectroscopy, Troitsk, Moscow, Russian Federation. The platinum spectra were excited using a low inductance triggered vacuum spark. A spectroscopically pure platinum wire was pressed into an aluminum anode. The cathode was made from a graphite disk and a triggering electrode was placed coaxially inside the cathode. The discharge circuit contained a 10 µF capacitor charged to (3.5 to 5.0) kV and an external inductance varied from about 0.2 µH to 1.5 µH. This additional inductance was used to selectively produce spectra of different ionization stages. The relative intensities of Pt VII lines increase as the source inductance decreases starting from 1.5 µH. Beginning from the value of about 0.6 µH, further source inductance decrease results in significant background growth leading to the reduction of the line contrast. Optimal discharge conditions for exciting the Pt VII spectrum were found to be at a voltage of 4 kV and an inductance of about 0.5 µH. The spectra were obtained on a 6.65 m normal incidence spectrograph with a plate factor of 1.25 Å/mm. Lines belonging to different ionization stages could be discriminated on our plates on tracks exposed with different voltages and currents. The plates were measured on an automatic comparator controlled by the system for automatic processing of photo-spectrograms [18] and initially reduced by using impurity lines of O, C, N, Al and Si [19] present in the spectrograms.

The initial uncertainty of wavelength measurements was about 0.005 Å and 0.010 Å for the wavelengths shorter and longer than about 1000 Å, respectively, although it increased to about 0.015 Å locally for some sub-regions due to the lack of standards, imperfection of the plate holder and deformation of photo-emulsion, most notably at the ends of the photographic plates. We have improved the accuracy of our wavelength measurements in the course of the analysis. Our spectrograms contain Pt lines appeared in the second order. Presence of these lines helped us improve wavelength measurements by using secondary standards derived from the second-order lines. The improvement is based on the fact that wavelengths of spectral lines measured in the first and second orders should match. For example, if one line of such correlated pair of lines is in the region with many reliable standards and the second line is in the region where there are no standards or they have large uncertainty, the second line (with wavelength derived from the first line) may be used as a reference line. Adding such pairs of lines in the wavelength interpolation procedure provides additional constraints for the calibration curve. Blended lines resolved in the second order have been measured more accurately. The use of internally derived Ritz standards also contributed to improvement of the measurements. Such standards have been obtained in the course of simultaneous analyses of Pt VII (current work), Pt VI (to be published), Pt V[10], and Pt IV[9] spectra. The final list of identified Pt VII lines shows standard deviations of isolated lines from the calculated positions of less than 0.003 Å and 0.004 Å for the regions of (337 to 1229) Å and (1254 to 1273) Å, respectively.

2. Level optimization and reliability check

The IDEN computer program [15,16] employs an iterative level optimization procedure (LOP) [17] to optimize the energy level system. The reliability and accuracy of each established level is verified by the calculation of two types of uncertainties of the level with respect to the levels directly connected to it by the identified transitions. The first type of uncertainty is entirely based on the specified estimated uncertainties of

the experimental wavelengths. It is a square root of the weighted mean variance (WMV) of the energy level given by Eq. (7) of Ref. [17] (referred to as rwmv_1). The second type of uncertainty is calculated by re-estimating uncertainties of the involved experimental wavelengths accounting for the deviations of these wavelengths from the calculated (Ritz) values. It is a square root of the WMV of the energy level given by Eq. (8) of Ref. [17] (referred to as rwmv_2). We exclude from the optimization all levels determined by a single transition. If a spectral line is considered to be masked, blended or its identification is doubtful, the line is not included in the LOP. If the uncertainties of wavelengths of the spectral lines used in the LOP are estimated correctly and all disturbed lines are removed from the optimization, we expect the values given by Eq. (8) of Ref. [17] to be close to or smaller than those given by Eq. (7) of Ref. [17]. We verify this relation for each level and use it as a quality check of the LOP results and the entire analysis. All uncertainties given in this paper are at the level of one standard deviation.

3. Analysis

The ion under investigation belongs to the Hf I isoelectronic sequence. The ground-state configuration of Pt VII is $5d^4$ and the lowest two excited configurations of different parities are $5d^36s$ and $5d^36p$. Five spectra in the sequence have been investigated so far: Hf I, Ta II, W III, Os V and Ir VI [19-23]. To obtain initial parameters for the Pt^{6+} ion studied here, a general procedure for inter- and extrapolation of energy parameters of ions in a larger (than a sequence) group of neighboring elements was used [24]. The published data on the Os VI [25], Os V [22], Os IV [26], Ir VII [27], Ir VI [23], Ir V [28], Ir IV [17], Pt V [10], Pt IV [9], Au V [29] and Pt VIII [8,30] spectra, and the study of trends of energy parameter values in the Yb I isoelectronic sequence [31] have been used in the estimation of Pt VII parameters.

It is worth noting that we were simultaneously making analyses of the Pt VIII [30], Pt VII, Pt VI (to be published), Pt V [10] and Pt IV [9] spectra utilizing the same sets of spectrograms containing spectra photographed under different source conditions. This allowed us to avoid line misidentifications in the very dense platinum spectra recorded, where arrays of spectral lines belonging to different ions are overlapping, and it is difficult to distinguish lines belonging to ions of close ionization stages.

The process of finding levels, identification of lines and optimization of level energies was carried out by utilizing the program suite IDEN [15-17]. To verify our optimized (by IDEN) energy values, and to calculate level uncertainties and uncertainties of the calculated (Ritz) wavelengths, the program LOPT [32] was used.

In the region of (337 to 1273) Å, we have identified 759 spectral lines belonging to the $(5d^4 + 5d^36s) - 5d^36p$ transition array of Pt VII. Twenty five spectral lines are doubly classified, one line has triple classification. To verify if the number of multiply classified lines is reasonable, we did the following estimations. The most rich of lines region of (340 to 440) Å contains about 450 identified spectral lines. This gives us an average distance between two lines of about 222 mÅ. For our typical line widths of (25 to 50) mÅ, we may expect that 11 % to 22 % of lines are overlapped. For 450 classified lines, it gives 50 to 100 possible blended lines. Thus, we have a quite reasonable number of multiply identified lines. It is interesting to note that in Ir VI [23], which is an isoelectronic neighbor of Pt VII, a total of 711 lines have been classified, of which 28 are doubly classified. The numbers for the two spectra are consistent.

The list of identified lines is presented in Table 1. Transition probabilities (gA) have been calculated from the final fitted parameter values. Intensities of the spectral lines (Int) have been obtained by measuring the plate darkening, converting optical density to spectral intensity and subtracting the spectral background approximated by a spline curve. For isolated, unperturbed and unsaturated lines originating from the same upper level or from close upper levels, agreement between gA and Int is quite good. Taking into account the Boltzmann factor, describing the decrease of population for levels with increasing energy, agreement between the presented gA and Int is good throughout the entire list. In each case when the intensity of an identified spectral line is notably higher than expected, the expected value is given in Table 1. The uncertainties of the Ritz wavelengths ($Unc \lambda_{calc}$) were calculated by the program LOPT [32]. The numbers of observed transitions used to determine the odd and even level involved in the particular transition given in the table, N_{odd} and N_{even} , are helpful for detecting local systematic deviations (LSD, see Ref. [33] and [17]), which is done by comparing throughout the linelist values of differences between the measured and Ritz wavelengths, $\Delta(\lambda)$. Due to strong mixing of levels, labels in the LS -coupling scheme are omitted in Table 1. For each transition, we include a

name of the linelist part (pa - pd) used to specify the wavelength uncertainty (see Table A), the symbol "*" for transitions that were not used in the LOP, expected line intensity (where appropriate, derived from the gA and Int comparison), and comments for masked and blended lines, and for lines that are also identified as belonging to another ion or impurity. Transitions attributed to lines that are masked, much stronger than expected, have suspiciously large deviations $\Delta(\lambda)$, or have small gA values, for which chances of wrong identification increase, were excluded from the LOP. If the line is blended by a known line of another ion or impurity, we specify the blending spectrum in parentheses following the "bl" symbol. If the line is also identified with a transition in another ion but does not appear as a blend in the spectrogram, we do not give the "bl" symbol, although blending is possible due to a near coincidence of wavelengths. In addition, if the line is also identified with another Pt ion (e.g., Pt VIII) and, when using the same linelist, the expected intensity of that identification (e.g., 100) is lower than the observed line intensity, we give "Pt VIII (100)".

In the present analysis we used two sets of plates. They may have been obtained under somewhat different experimental conditions. Parts pa-pc (see Table A) correspond to three plates from the same set (same exposure). The part pd corresponds to a plate from a different set (exposure). This information is needed for correct comparison of the tabulated gA and Int values accounting for the Boltzmann factor, $\exp(-E/kT)$. Different exposures may have different kT values.

In Tables 2 and 3 we present experimental and calculated energy values of the even parity levels in the $5d^4$ and $5d^36s$ configurations and the odd parity levels in the $5d^36p$ configuration of Pt VII, respectively. The uncertainties of the levels were calculated by the program LOPT [32]. They are given with respect to the "base" even level at $177735.70 \text{ cm}^{-1}$, $J = 3$ (see below). Uncertainty of excitation energy for any level can be estimated by combining in quadrature the given uncertainty with the uncertainty of the ground level, 1.20 cm^{-1} . As was mentioned, we excluded from the LOP all levels determined by a single transition ($N_{opt} = 1$). For each such level, we set its value equal to the sum (if the level is odd, or to difference, if the level is even) of the opposite parity level value and the connecting wavenumber. The values of $rwmv_2$ of such levels are set equal to the calculated (by Eq. (7) of Ref. [17]) $rwmv_1$ values, which are, in turn, equal to the estimated uncertainties of the corresponding wavenumbers (see, for instance, the level at $118065.33 \text{ cm}^{-1}$, $J = 0$). In the present analysis, all 34 theoretically possible $5d^4$ levels, 35 of 38 possible $5d^36s$ levels, and 108 of 110 possible $5d^36p$ levels have been established. Levels that have not been established either produce too weak transitions to be observed on our plates or are expected to give rise to only one or two relatively weak lines that cannot be chosen without ambiguity among several possibilities.

We have divided the list of experimental lines into four parts, pa - pd (see Table 1, last column), and assigned to them initial estimated uncertainties based on the available standards and their distribution around the wavelength interpolation curve, and also expected increased uncertainty near ends of the plates. After LSD corrections of the linelist in the course of the analysis and after the final LOP run, for each part, we have calculated the root-mean-square (rms) deviation of wavelengths of the undisturbed experimental lines from their calculated (Ritz) positions. They are presented in Table A below, where for each linelist part the number of lines used in the LOP is also given. It is worth mentioning that a big help in finding LSDs was the analysis of the Pt VIII [30] and Pt VI (to be published) spectra that we performed simultaneously with the given Pt VII analysis and in which we used the same linelist.

Table A
Description of linelist parts.

Linelist part	pa	pb	pc	pd
Final estimated uncertainty, mÅ	3	3	4	6
Resulting rms , mÅ	2.6	2.2	2.8	3.9
Number of lines used in LOP	508	123	53	3
Wavelength range, Å	337 to 512	708 to 931	936 to 1229	1254 to 1273

The rms deviations of all undisturbed identified lines from their Ritz positions, including lines not used in the LOP, are 0.0026 Å , 0.0022 Å , 0.0028 Å , and 0.0039 Å in the regions of (337 to 512) Å, (708 to 931) Å, (936 to 1229) Å, and (1254 to 1273) Å, respectively. The final estimated uncertainties of wavelength measurements,

that were used in the final LOP run, for the rwmv_1 and rwmv_2 calculations and in the program LOPT [32], are also included in Table A. These are square root values of combinations of squares of the statistical and systematic uncertainties, where the latter were estimated from standard deviations of wavelengths of reference lines from their positions derived from the calibration curves. We have found that the optimized level values given by the IDEN's LOP and those given by the program LOPT are in very good agreement: they differ by a small fraction of calculated level uncertainties.

Comparison of the values of rwmv_1 and rwmv_2 (see Tables 2 and 3, and Ref. [17]) shows consistency. For the even system having 69 established levels, $\text{rwmv}_1 \geq \text{rwmv}_2$ for all but one level. The remaining level has rwmv_2 value exceeding rwmv_1 value by about 13 %. In the odd system, 73 of 108 established levels (68 %) have $\text{rwmv}_1 \geq \text{rwmv}_2$. Other 31 odd levels (29 %) have rwmv_2 values exceeding rwmv_1 values by less than 58 %. We have four levels with the differences $\text{rwmv}_2 - \text{rwmv}_1$ larger than the corresponding rwmv_1 values. They are at $261981.43 \text{ cm}^{-1}$ ($J = 0$), $252816.47 \text{ cm}^{-1}$ ($J = 0$), $308173.35 \text{ cm}^{-1}$ ($J = 4$) and $306459.46 \text{ cm}^{-1}$ ($J = 7$). According to the criteria stated in Ref. [17], these levels must be given special consideration. For each level, the value rwmv_2 was calculated using Eq. (8) of Ref. [17], which accounts for deviations of the experimental wavenumbers from the corresponding Ritz values and includes a correction factor A given by Eq. (4) of Ref. [17]. All four mentioned levels are represented in the LOP by one spectral line in the region of (862 to 1161) Å and one or two additional lines in the region of (373 to 428) Å. In the LOP, for the four levels, the ratios of wavenumber weights for the corresponding pairs of lines (from long and short wavelength regions) are the following: 4.8, 8.1, 5.1 and 5.4. These ratios have resulted in somewhat large values of the factor A , viz. 12.6, 19.5, 6.1 and 7.2, which, in turn, have increased rwmv_2 values by factors of 3.5, 4.4, 2.5 and 2.7, respectively. For all four levels, deviations of the experimental wavelengths from the corresponding Ritz values are close to the specified uncertainties (3 mÅ to 4 mÅ) of the experimental wavelengths and do not exceed 4.5 mÅ. Therefore, the levels are considered to be correct. We note that if the values A for the given levels would be close to unity, we would mark the levels as doubtful.

As can be seen from the comparison of the values N , N_{opt} , rwmv_1 , and rwmv_2 (see Tables 2 and 3), one of the most accurately determined levels is at $177735.70 \text{ cm}^{-1}$ ($J = 3$). It is one of the levels with the smallest rwmv_1 (0.12 cm^{-1}), with $\text{rwmv}_1 > \text{rwmv}_2$ ($0.12 \text{ cm}^{-1} > 0.05 \text{ cm}^{-1}$), and with the largest number of higher accuracy $5d^36s - 5d^36p$ transitions used in the LOP ($N_{opt} = 10$). This level has been chosen to be the "base" in the current presentation of the analysis.

4. Calculations

The theoretical description and least squares fitting (LSF) of the configurations is given in the frame of the orthogonal operators approach. Tables 4 and 5 present the parameters obtained (or kept fixed) in the calculations for the even and odd systems. The parameter values were obtained in the final LSF. The *ab initio* values of the parameters were calculated using the Hartree-Fock method with relativistic correction (HFR) implemented in the code developed by Cowan [34]. For the orthogonal electrostatic parameters, the *ab initio* (HFR) values were calculated (see Ref. [25]) from the Slater parameters given by the Cowan code. The obtained (or predetermined for fixed parameters) scaling factors (LSF/HFR) are also given in Tables 4 and 5.

In both the even and odd parity systems, three configurations were included in the calculations: ($5d^4 + 5d^36s + 5d^26s^2$) and ($5d^36p + 5d^26s6p + 5d6s^26p$). The interaction between the configurations was added explicitly. The interaction integrals, parameters of unknown configurations and some parameters of the studied configurations were kept fixed at the predetermined values.

As can be seen from Tables 4 and 5, the scaling factors for the strong electrostatic core operators O_2 , O_2' and spin-orbit interaction parameter ζ_d for the $5d^4$, $5d^36s$ and $5d^36p$ configurations are close to each other, as it has to be. These factors, as well as the values of the scaling factor for the electrostatic operator C_{ds} , are in agreement with those obtained in Os V and Ir VI spectra [22,23]. The parameters E_α and E_β are also consistent for the three configurations. The parameters of the 2-particle magnetic interaction (spin-orbit effect) of the *ds*-type (A_{mso}) in the $5d^36s$ and of the *dp*-type (Z_{II}^k) in the $5d^36p$ configuration, as well as the parameter of the 3-particle electrostatic interaction (T_{dds}) in the $5d^36s$ configuration, are well defined with small uncertainty. The high order parameters A_{mso} and T_{dds} are very important for theoretical description of the $5d^{N-1}6s$ configurations as they improve the fit to the experimental levels considerably. The obtained values of the two parameters for Pt VII are in agreement with those obtained in the neighboring ions. In Tables B and C we present the

experimental values of the parameters for five neighboring ions in two isoelectronic sequences. Presented values are in cm^{-1} , uncertainties are given in parentheses. The shown trends of the parameters in the $5d^36s$ and $5d^26s$ configurations are in agreement with those obtained in the $5d^86s$ and $5d^76s$ configurations [11,35].

The mean deviations of the fit for the even and odd systems in Pt VII are 20 cm^{-1} and 28 cm^{-1} , close to the values in Ir VI [23] (17 cm^{-1} and 32 cm^{-1}) and in Os V [22] (15 cm^{-1} and 37 cm^{-1}).

Table B

Isoelectronic behavior of the parameters A_{mso} and T_{dds} in the configuration $5d^36s$.

	Os V	Ir VI	Pt VII
$A_{mso} (\text{cm}^{-1})$	50.1(2.5)	51.8(2.8)	55.2(3.1)
$T_{dds} (\text{cm}^{-1})$	-16.4(3.9)	-21.6(5.4)	-38.1(5.8)

Table C

Isoelectronic behavior of the parameters A_{mso} and T_{dds} in the configuration $5d^26s$.

	Os VI	Ir VII	Pt VIII
$A_{mso} (\text{cm}^{-1})$	43.5(2.3)	49.9(3.6)	50.1(3.9)
$T_{dds} (\text{cm}^{-1})$	-22.3(4.4)	-27.3(5.0)	-38.3(6.5)

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Explanation of Tables

Table 1. Classified lines in the ($5d^4 + 5d^3 6s$) - $5d^3 6p$ transition array of Pt VII

gA	Weighted transition probability (10^8 s^{-1} ; g is the statistical weight of the upper level)
Int	Intensity of the experimental spectral line (arbitrary units)
λ	Wavelength (in vacuum) of the experimental spectral line ($\text{\AA}$)
ν	Wavenumber of the experimental spectral line (cm^{-1})
λ_{calc}	Calculated (Ritz) wavelength ($\text{\AA}$) in vacuum
Unc λ_{calc}	Uncertainty of the calculated (Ritz) wavelength ($\text{\AA}$)
$\Delta(\nu)$	Difference between the experimental and Ritz wavenumbers (cm^{-1})
$\Delta(\lambda)$	Difference between the experimental and Ritz wavelengths ($\text{\AA}$)
N_{odd}	Number of observed transitions used to determine the odd level involved in the transition
N_{even}	Number of observed transitions used to determine the even level involved in the transition
Even level	Experimental energy value (cm^{-1}), J -value (in parentheses) and the configuration of the even level involved in the transition
Odd level	Experimental energy value (cm^{-1}) and J -value (in parentheses) of the odd level involved in the transition
Remark	Remarks for the identified transitions:
m	The Pt VII line is masked by some other line

200	Expected intensity value is 200
bl	The line is blended by a close line
*	The transition has been excluded from the LOP
pa - pd	Parts of the linelist with assigned wavelength uncertainties (see text, Table A)
Pt VI	(without "bl") The line is also identified as Pt VI line. The line does not appear as a blend in the spectrogram, but blending is possible due to a near coincidence of wavelengths
Pt VI (400)	The line is also identified as Pt VI line with expected intensity 400
2d ord	The line has a contribution from a line seen in the 2nd order

Table 2. Experimental and calculated energy levels (cm^{-1}) in the $5d^4$ and $5d^36s$ configurations of Pt VII

E_{obs}	Observed (experimental) energy value (cm^{-1})
E_{calc}	Calculated from the least squares fitting (LSF) energy value (cm^{-1})
Δ	Difference between the observed and calculated energy values, $E_{\text{obs}} - E_{\text{calc}}$ (cm^{-1})
N	Number of transitions used to identify the energy level
N_{opt}	Number of transitions to the level used in the LOP and WMV calculations for the level (see text)
rwmv_1	Square root of the weighted mean variance given by Eq. (7) of Ref. [17] (cm^{-1})
rwmv_2	Square root of the weighted mean variance given by Eq. (8) of Ref. [17] (cm^{-1}), except for the levels determined by a single line (see text)
Unc	Uncertainty of the level (cm^{-1}) with respect to the "base" even level with $J = 3$ at $177735.70 \text{ cm}^{-1}$ (see text)
Composition	LS-composition of the level. The number preceding the symbol " " and the term name has the following meaning: 1 stands for $5d^4$ and 2 stands for $5d^36s$.

Table 3. Experimental and calculated energy levels (cm^{-1}) in the $5d^36p$ configuration of Pt VII

E_{obs}	Observed (experimental) energy value (cm^{-1})
E_{calc}	Calculated from the least squares fitting (LSF) energy value (cm^{-1})
Δ	Difference between the observed and calculated energy values, $E_{\text{obs}} - E_{\text{calc}}$ (cm^{-1})
N	Number of transitions used to identify the energy level
N_{opt}	Number of transitions from the level used in the LOP and WMV calculations for the level (see text)
rwmv_1	Square root of the weighted mean variance given by Eq. (7) of Ref. [17] (cm^{-1})
rwmv_2	Square root of the weighted mean variance given by Eq. (8) of Ref. [17] (cm^{-1}), except for the levels determined by a single line (see text)
Unc	Uncertainty of the level (cm^{-1}) with respect to the "base" even level with $J = 3$ at $177735.70 \text{ cm}^{-1}$ (see text)
Composition	LS-composition of the level.

Table 4. Fitted and calculated parameter values (cm^{-1}) in the $5d^4$, $5d^36s$ and $5d^26s^2$ configurations of Pt VII

Parameter	Parameter name
Fitted value	Parameter value (cm^{-1}) obtained in the final least squares fitting (LSF). Uncertainty of the fit (cm^{-1}) is given in parentheses
HFR	<i>Ab initio</i> value (cm^{-1}) of the parameter. It was calculated using the Hartree-Fock method with relativistic correction (HFR) implemented in the code developed by Cowan [34]
Fitted/HFR	Obtained (or predetermined for fixed parameters) scaling factors

Table 5. Fitted and calculated parameter values (cm^{-1}) in the $5d^36p$, $5d^26s6p$ and $5d6s^26p$ configurations of Pt VII

Parameter	Parameter name
Fitted value	Parameter value (cm^{-1}) obtained in the final least squares fitting (LSF). Uncertainty of the fit (cm^{-1}) is given in parentheses
HFR	<i>Ab initio</i> value (cm^{-1}) of the parameter. It was calculated using the Hartree-Fock method with relativistic correction (HFR) implemented in the code developed by Cowan [34]
Fitted/HFR	Obtained (or predetermined for fixed parameters) scaling factors

Table 1Classified lines in the $(5d^4 + 5d^36s) - 5d^36p$ transition array of Pt VII.

gA (10 ⁸ s ⁻¹)	Int	λ (Å)	ν (cm ⁻¹)	λcalc (Å)	Unc λcalc (Å)	Δ(ν) (cm ⁻¹)	Δ(λ) (Å)	N _{odd}	N _{even}	Even level (cm ⁻¹)	Odd level (cm ⁻¹)	Remark	
6	24	337.2257	296537.30	337.2276	0.0012	1.71	-0.0019	6	27	5d ⁴	41860.96(2)	338396.55(3)	pa *
21	24	340.7639	293458.32	340.7614	0.0012	-2.14	0.0025	6	33	5d ⁴	44936.09(4)	338396.55(3)	pa *
31	33	344.3686	290386.52	344.3635	0.0007	-4.31	0.0051	14	20	5d ⁴	13534.10(2)	303924.93(3)	pa *
62	38	345.1446	289733.64	345.1484	0.0017	3.21	-0.0038	6	18	5d ⁴	52325.64(5)	342056.07(4)	pa *
42	31	349.1902	286376.88	349.1904	0.0007	0.15	-0.0002	14	30	5d ⁴	17548.20(3)	303924.93(3)	pa *
20	27	349.3962	286208.03	349.3987	0.0006	2.06	-0.0025	10	30	5d ⁴	32690.95(3)	318896.93(4)	pa *
49	33	351.0463	284862.71	351.0445	0.0007	-1.46	0.0018	6	22	5d ⁴	35217.21(5)	320081.37(4)	pa *
33	27	352.5047	283684.16	352.5102	0.0007	4.44	-0.0055	10	22	5d ⁴	35217.21(5)	318896.93(4)	pa *
21	31	352.8653	283394.26	352.8697	0.0013	3.52	-0.0044	6	27	5d ⁴	41860.96(2)	325251.69(1)	pa *
92	61	353.6314	282780.32	353.6339	0.0017	1.97	-0.0025	6	25	5d ⁴	59277.71(4)	342056.07(4)	pa
104	106	354.5653	282035.49	354.5634	0.0008	-1.54	0.0019	6	22	5d ⁴	35217.21(5)	317254.24(5)	pa
17	43	354.9556	281725.38	354.9494	0.0006	-4.93	0.0062	10	30	5d ⁴	17548.20(3)	299278.51(2)	pa *
47	54	355.9214	280960.91	355.9210	0.0007	-0.32	0.0004	9	30	5d ⁴	17548.20(3)	298509.43(3)	pa
100	368	356.8883	280199.72	356.8886	0.0013	0.27	-0.0003	5	21	5d ⁴	63259.08(3)	343458.53(2)	pa 100
34	38	357.4326	279773.03	357.4336	0.0007	0.80	-0.0010	11	22	5d ⁴	35217.21(5)	314989.43(4)	pa
139	158	358.3834	279030.78	358.3861	0.0009	2.10	-0.0027	6	13	5d ⁴	38225.56(6)	317254.24(5)	pa
22	44	359.0276	278530.12	359.0249	0.0014	-2.09	0.0027	5	27	5d ⁴	41860.96(2)	320393.17(2)	pa *
39	41	359.3534	278277.59	359.3475	0.0006	-4.60	0.0059	10	30	5d ⁴	17548.20(3)	295830.40(4)	pa *
24	48	359.5895	278094.88	359.5874	0.0008	-1.62	0.0021	12	15	5d ⁴	7686.54(1)	285783.04(2)	pa
27	35	361.5194	276610.33	361.5160	0.0006	-2.58	0.0034	11	30	5d ⁴	17548.20(3)	294161.11(4)	pa
13	69	361.8562	276352.87	361.8527	0.0007	-2.67	0.0035	11	20	5d ⁴	13534.10(2)	289889.64(2)	pa
139	74	362.0456	276208.30	362.0459	0.0020	0.25	-0.0003	2	18	5d ⁴	66159.02(2)	342367.07(1)	pa
93	67	363.0205	275466.54	363.0182	0.0007	-1.71	0.0023	9	22	5d ⁴	35217.21(5)	310685.46(4)	pa
56	155	363.1134	275396.06	363.1111	0.0008	-1.72	0.0023	14	21	5d ⁴	28527.15(4)	303924.93(3)	pa
86	155	363.1134	275396.06	363.1133	0.0008	-0.09	0.0001	9	13	5d ⁴	38225.56(6)	313621.71(5)	pa
105	56	363.6003	275027.28	363.6033	0.0008	2.25	-0.0030	5	21	5d ⁴	50713.26(2)	325738.29(2)	pa
141	1107	363.7648	274902.90	363.7619	0.0006	-2.21	0.0029	11	21	5d ⁴	19256.00(4)	294161.11(4)	pa 350
56	144	364.5284	274327.05	364.5286	0.0007	0.13	-0.0002	8	33	5d ⁴	44936.09(4)	319263.01(3)	pa
150	207	364.5446	274314.86	364.5469	0.0007	1.72	-0.0023	7	26	5d ⁴	41310.48(4)	315623.62(3)	pa Pt VIII(30)
18	25	365.3912	273679.28	365.3916	0.0007	0.33	-0.0004	11	26	5d ⁴	41310.48(4)	314989.43(4)	pa *
207	238	365.9709	273245.77	365.9696	0.0013	-0.95	0.0013	5	30	5d ⁴	32690.95(3)	305937.67(2)	pa
18	39	366.0783	273165.60	366.0773	0.0009	-0.76	0.0010	10	15	5d ⁴	7686.54(1)	280852.91(2)	pa
61	83	366.6938	272707.09	366.6945	0.0016	0.51	-0.0007	7	5	5d ⁴	26647.34(0)	299353.93(1)	pa
7	56	366.7244	272684.34	366.7216	0.0007	-2.08	0.0028	11	30	5d ⁴	17548.20(3)	290234.62(2)	pa *
142	364	367.3135	272247.00	367.3109	0.0007	-1.94	0.0026	12	20	5d ⁴	13534.10(2)	285783.04(2)	pa Pt VIII(200)

204	166	367.3813	272196.76	367.3813	0.0008	0.00	0.0000	9	21	5d ⁴	28527.15(4)	300723.91(3)	pa
525	274	367.5295	272087.00	367.5302	0.0014	0.49	-0.0007	4	13	5d ⁴	73208.20(4)	345294.72(3)	pa
11	28	367.6241	272016.99	367.6190	0.0014	-3.76	0.0051	8	5	5d ⁴	0.00(0)	272020.74(1)	pa *
30	44	367.7714	271908.04	367.7721	0.0007	0.54	-0.0007	15	20	5d ⁴	13534.10(2)	285441.60(3)	pa
88	84	368.6853	271234.03	368.6854	0.0007	0.05	-0.0001	14	30	5d ⁴	32690.95(3)	303924.93(3)	pa
362	168	369.5306	270613.58	369.5307	0.0013	0.09	-0.0001	4	21	5d ⁴	74681.23(3)	345294.72(3)	pa
61	26	369.5971	270564.89	369.5973	0.0011	0.13	-0.0002	8	21	5d ⁴	50713.26(2)	321278.02(3)	pa *
23	35	370.0443	270237.91	370.0427	0.0016	-1.15	0.0016	4	15	5d ⁴	7686.54(1)	277925.61(1)	pa
93	97	370.1518	270159.43	370.1515	0.0008	-0.24	0.0003	9	15	5d ⁴	7686.54(1)	277846.22(2)	pa
73	100	370.2890	270059.33	370.2892	0.0007	0.13	-0.0002	10	23	5d ⁴	48837.73(3)	318896.93(4)	pa
139	150	370.2977	270052.99	370.2972	0.0007	-0.35	0.0005	11	33	5d ⁴	44936.09(4)	314989.43(4)	pa
95	96	370.3799	269993.05	370.3729	0.0010	-5.09	0.0070	11	30	5d ⁴	17548.20(3)	287546.35(3)	pa *
26	26	370.4616	269933.51	370.4581	0.0008	-2.54	0.0035	7	27	5d ⁴	41860.96(2)	311797.01(3)	pa *
126	199	371.2937	269328.57	371.2910	0.0007	-1.99	0.0027	13	21	5d ⁴	19256.00(4)	288586.55(5)	pa
33	90	371.8492	268926.22	371.8484	0.0015	-0.61	0.0008	4	28	5d ⁴	33418.14(2)	302344.97(1)	pa
189	111	372.0540	268778.19	372.0552	0.0014	0.89	-0.0012	5	21	5d ⁴	74681.23(3)	343458.53(2)	pa
160	381	372.2199	268658.39	372.2300	0.0015	7.32	-0.0101	5	14	5d ⁴	74807.45(2)	343458.53(2)	pa * 100, m(Pt VIII)
84	67	372.3506	268564.09	372.3480	0.0007	-1.88	0.0026	10	21	5d ⁴	19256.00(4)	287821.96(5)	pa
168	190	372.5099	268449.24	372.5099	0.0015	-0.04	0.0000	5	9	5d ⁴	75009.25(1)	343458.53(2)	pa 100, Pt VIII(100)
92	85	372.6341	268359.77	372.6320	0.0008	-1.49	0.0021	6	23	5d ⁴	48837.73(3)	317198.98(2)	pa
100	387	372.8051	268236.67	372.8076	0.0007	1.83	-0.0025	12	30	5d ⁴	17548.20(3)	285783.04(2)	pa
323	387	372.8051	268236.67	372.8090	0.0010	2.78	-0.0039	3	13	5d ⁴	38225.56(6)	306459.46(7)	pa
102	97	373.0897	268032.06	373.0884	0.0007	-0.90	0.0013	9	30	5d ⁴	32690.95(3)	300723.91(3)	pa 300
51	90	373.2855	267891.47	373.2828	0.0006	-1.93	0.0027	15	30	5d ⁴	17548.20(3)	285441.60(3)	pa Pt VIII(50)
159	125	373.8513	267486.03	373.8516	0.0008	0.23	-0.0003	9	26	5d ⁴	41310.48(4)	308796.28(3)	pa
211	262	373.9717	267399.91	373.9720	0.0008	0.19	-0.0003	6	21	5d ⁴	28527.15(4)	295926.87(5)	pa
92	124	374.0072	267374.53	374.0068	0.0018	-0.31	0.0004	6	21	5d ⁴	74681.23(3)	342056.07(4)	pa O III
96	361	374.0881	267316.71	374.0852	0.0008	-2.10	0.0029	10	20	5d ⁴	13534.10(2)	280852.91(2)	pa
136	356	374.0985	267309.28	374.0951	0.0007	-2.45	0.0034	9	23	5d ⁴	43373.73(3)	310685.46(4)	pa 200
53	95	374.1408	267279.06	374.1382	0.0006	-1.85	0.0026	11	30	5d ⁴	17548.20(3)	284829.11(4)	pa
22	57	374.3844	267105.15	374.3826	0.0007	-1.30	0.0018	12	21	5d ⁴	19256.00(4)	286362.45(4)	pa
65	76	374.7031	266877.96	374.7011	0.0015	-1.42	0.0020	4	20	5d ⁴	35465.59(1)	302344.97(1)	pa
86	130	374.7279	266860.30	374.7270	0.0008	-0.62	0.0009	7	33	5d ⁴	44936.09(4)	311797.01(3)	pa
87	105	375.1375	266568.92	375.1342	0.0008	-2.36	0.0033	10	18	5d ⁴	52325.64(5)	318896.93(4)	pa
26	36	375.5994	266241.11	375.5948	0.0007	-3.24	0.0046	9	20	5d ⁴	13534.10(2)	279778.44(3)	pa
19	36	375.6784	266185.12	375.6777	0.0007	-0.48	0.0007	15	21	5d ⁴	19256.00(4)	285441.60(3)	pa
142	252	375.8157	266087.87	375.8164	0.0006	0.50	-0.0007	13	30	5d ⁴	17548.20(3)	283635.58(4)	pa
233	248	375.8341	266074.84	375.8344	0.0015	0.20	-0.0003	4	12	5d ⁴	79220.07(4)	345294.72(3)	pa
16	27	376.0327	265934.32	376.0306	0.0014	-1.46	0.0021	7	28	5d ⁴	33418.14(2)	299353.93(1)	pa *
16	33	376.1422	265856.90	376.1373	0.0007	-3.46	0.0049	10	28	5d ⁴	33418.14(2)	299278.51(2)	pa *
40	41	376.2990	265746.12	376.2944	0.0006	-3.24	0.0046	9	33	5d ⁴	44936.09(4)	310685.46(4)	pa *

55	104	376.5466	265571.38	376.5441	0.0007	-1.73	0.0025	11	21	5d ⁴	19256.00(4)	284829.11(4)	pa
253	307	376.9118	265314.06	376.9156	0.0009	2.71	-0.0038	5	13	5d ⁴	38225.56(6)	303536.92(6)	pa
760	428	377.0915	265187.63	377.0905	0.0015	-0.72	0.0010	6	13	5d ⁴	73208.20(4)	338396.55(3)	pa
34	226	377.2329	265088.22	377.2285	0.0007	-3.06	0.0044	9	28	5d ⁴	33418.14(2)	298509.43(3)	pa * 50, m(Pt VIII)
271	266	377.4400	264942.77	377.4418	0.0008	1.30	-0.0018	6	25	5d ⁴	59277.71(4)	324219.19(3)	pa
332	373	377.4607	264928.24	377.4602	0.0009	-0.36	0.0005	6	18	5d ⁴	52325.64(5)	317254.24(5)	pa
74	62	377.9012	264619.43	377.9002	0.0007	-0.70	0.0010	8	28	5d ⁴	33418.14(2)	298038.27(2)	pa
136	332	378.2423	264380.79	378.2440	0.0007	1.22	-0.0017	13	21	5d ⁴	19256.00(4)	283635.58(4)	pa
24	118	378.3094	264333.90	378.3090	0.0009	-0.30	0.0004	8	15	5d ⁴	7686.54(1)	272020.74(1)	pa
28	106	378.3358	264315.46	378.3406	0.0007	3.34	-0.0048	9	20	5d ⁴	13534.10(2)	277846.22(2)	pa
43	92	378.9114	263913.94	378.9084	0.0015	-2.10	0.0030	6	5	5d ⁴	0.00(0)	263916.04(1)	pa
78	228	378.9507	263886.57	378.9482	0.0014	-1.77	0.0025	7	20	5d ⁴	35465.59(1)	299353.93(1)	pa
262	386	378.9901	263859.14	378.9886	0.0008	-1.06	0.0015	9	33	5d ⁴	44936.09(4)	308796.28(3)	pa
120	350	379.0125	263843.54	379.0132	0.0015	0.49	-0.0007	5	23	5d ⁴	48837.73(3)	312680.78(2)	pa
110	352	379.1401	263754.74	379.1343	0.0006	-4.07	0.0058	11	30	5d ⁴	17548.20(3)	281307.02(3)	pa
64	96	379.3766	263590.32	379.3784	0.0016	1.22	-0.0018	6	14	5d ⁴	74807.45(2)	338396.55(3)	pa
153	447	379.7869	263305.55	379.7881	0.0008	0.85	-0.0012	10	30	5d ⁴	17548.20(3)	280852.91(2)	pa
51	50	379.8810	263240.33	379.8854	0.0008	3.07	-0.0044	4	33	5d ⁴	44936.09(4)	308173.35(4)	pa *
26	31	380.2900	262957.22	380.2870	0.0009	-2.06	0.0030	7	23	5d ⁴	48837.73(3)	311797.01(3)	pa *
609	443	380.4671	262834.82	380.4654	0.0019	-1.18	0.0017	6	12	5d ⁴	79220.07(4)	342056.07(4)	pa
126	234	380.6571	262703.62	380.6546	0.0009	-1.69	0.0025	4	18	5d ⁴	52325.64(5)	315030.96(6)	pa
84	175	380.6944	262677.89	380.7011	0.0007	4.62	-0.0067	9	33	5d ⁴	44936.09(4)	307609.36(5)	pa * bl
74	186	380.7141	262664.29	380.7148	0.0009	0.50	-0.0007	11	18	5d ⁴	52325.64(5)	314989.43(4)	pa
331	404	380.8280	262585.73	380.8276	0.0011	-0.25	0.0004	6	10	5d ⁴	54668.26(6)	317254.24(5)	pa
56	300	380.8595	262564.02	380.8596	0.0014	0.08	-0.0001	5	23	5d ⁴	43373.73(3)	305937.67(2)	pa
166	179	381.1625	262355.29	381.1608	0.0014	-1.16	0.0017	4	21	5d ⁴	74681.23(3)	337037.68(2)	pa
456	781	381.6059	262050.46	381.6051	0.0007	-0.56	0.0008	11	21	5d ⁴	19256.00(4)	281307.02(3)	pa
412	414	381.6822	261998.07	381.6789	0.0011	-2.24	0.0033	8	25	5d ⁴	59277.71(4)	321278.02(3)	pa
44	150	381.7263	261967.80	381.7267	0.0015	0.28	-0.0004	5	21	5d ⁴	50713.26(2)	312680.78(2)	pa
13	88	381.9257	261831.03	381.9248	0.0007	-0.65	0.0009	8	30	5d ⁴	17548.20(3)	279379.88(2)	pa
270	501	382.3412	261546.49	382.3415	0.0007	0.20	-0.0003	11	21	5d ⁴	19256.00(4)	280802.29(5)	pa
10	33	382.4524	261470.45	382.4528	0.0006	0.28	-0.0004	11	30	5d ⁴	32690.95(3)	294161.11(4)	pa *
181	200	382.6877	261309.68	382.6882	0.0012	0.37	-0.0005	8	17	5d ⁴	59968.71(2)	321278.02(3)	pa
546	650	382.7061	261297.11	382.7076	0.0008	1.04	-0.0015	9	18	5d ⁴	52325.64(5)	313621.71(5)	pa
28	98	382.7760	261249.40	382.7777	0.0009	1.15	-0.0017	4	22	5d ⁴	35217.21(5)	296465.45(6)	pa
182	835	383.4309	260803.18	383.4302	0.0007	-0.47	0.0007	6	25	5d ⁴	59277.71(4)	320081.37(4)	pa 300, Pt VIII(550)
693	994	383.5694	260709.01	383.5684	0.0009	-0.65	0.0010	6	22	5d ⁴	35217.21(5)	295926.87(5)	pa
15	34	383.7082	260614.71	383.7104	0.0007	1.51	-0.0022	10	22	5d ⁴	35217.21(5)	295830.40(4)	pa *
75	301	383.8078	260547.08	383.8017	0.0008	-4.13	0.0061	14	23	5d ⁴	43373.73(3)	303924.93(3)	pa * 150
282	740	383.8457	260521.35	383.8441	0.0007	-1.10	0.0016	9	21	5d ⁴	19256.00(4)	279778.44(3)	pa
97	224	383.9916	260422.36	383.9885	0.0016	-2.09	0.0031	5	17	5d ⁴	59968.71(2)	320393.17(2)	pa

1502	1159	384.0789	260363.17	384.0796	0.0010	0.48	-0.0007	4	10	5d ⁴	54668.26(6)	315030.96(6)	pa
103	775	384.1753	260297.84	384.1750	0.0007	-0.18	0.0003	9	30	5d ⁴	17548.20(3)	277846.22(2)	pa C IV
136	414	384.2161	260270.20	384.2140	0.0009	-1.39	0.0021	7	27	5d ⁴	41860.96(2)	302132.55(2)	pa
75	410	384.2535	260244.86	384.2536	0.0008	0.07	-0.0001	6	20	5d ⁴	13534.10(2)	273778.89(1)	pa 300
148	261	384.6714	259962.14	384.6767	0.0008	3.58	-0.0053	9	23	5d ⁴	48837.73(3)	308796.28(3)	pa
156	300	384.9981	259741.54	384.9993	0.0014	0.78	-0.0012	7	23	5d ⁴	48837.73(3)	308578.49(2)	pa
22	78	385.1791	259619.49	385.1795	0.0007	0.27	-0.0004	10	25	5d ⁴	59277.71(4)	318896.93(4)	pa *
51	272	385.3741	259488.12	385.3746	0.0009	0.36	-0.0005	9	15	5d ⁴	7686.54(1)	267174.30(2)	pa
14	56	385.5753	259352.71	385.5770	0.0011	1.11	-0.0017	7	28	5d ⁴	33418.14(2)	292769.74(1)	pa
506	415	385.8396	259175.06	385.8375	0.0016	-1.42	0.0021	6	12	5d ⁴	79220.07(4)	338396.55(3)	pa
94	97	385.9623	259092.66	385.9623	0.0015	-0.01	0.0000	6	18	5d ⁴	66159.02(2)	325251.69(1)	pa
93	299	386.0722	259018.91	386.0718	0.0010	-0.28	0.0004	11	21	5d ⁴	28527.15(4)	287546.35(3)	pa
84	148	386.1153	258990.00	386.1170	0.0008	1.15	-0.0017	14	33	5d ⁴	44936.09(4)	303924.93(3)	pa
458	582	386.1696	258953.58	386.1698	0.0009	0.13	-0.0002	9	10	5d ⁴	54668.26(6)	313621.71(5)	pa
34	324	386.4413	258771.51	386.4422	0.0015	0.59	-0.0009	9	5	5d ⁴	0.00(0)	258770.93(1)	pa
42	100	386.4600	258758.99	386.4590	0.0012	-0.66	0.0010	6	21	5d ⁴	50713.26(2)	309472.92(2)	pa
120	384	386.6805	258611.44	386.6816	0.0008	0.76	-0.0011	8	21	5d ⁴	19256.00(4)	277866.67(5)	pa
389	872	387.0507	258364.08	387.0449	0.0007	-3.85	0.0058	10	30	5d ⁴	17548.20(3)	275916.14(3)	pa *
166	872	387.0507	258364.08	387.0571	0.0008	4.27	-0.0064	9	18	5d ⁴	52325.64(5)	310685.46(4)	pa * 400
1199	1246	387.2344	258241.52	387.2368	0.0010	1.63	-0.0024	4	13	5d ⁴	38225.56(6)	296465.45(6)	pa
259	600	387.2540	258228.45	387.2518	0.0008	-1.47	0.0022	6	26	5d ⁴	41310.48(4)	299540.40(4)	pa
171	246	387.6332	257975.84	387.6322	0.0008	-0.69	0.0010	6	25	5d ⁴	59277.71(4)	317254.24(5)	pa
65	257	387.6844	257941.77	387.6869	0.0009	1.67	-0.0025	6	15	5d ⁴	7686.54(1)	265626.64(2)	pa
135	348	388.0492	257699.28	388.0461	0.0010	-2.03	0.0031	6	13	5d ⁴	38225.56(6)	295926.87(5)	pa
43	110	388.1193	257652.74	388.1210	0.0007	1.14	-0.0017	9	28	5d ⁴	33418.14(2)	291069.74(1)	pa
9	57	388.2789	257546.83	388.2837	0.0008	3.16	-0.0048	11	30	5d ⁴	32690.95(3)	290234.62(2)	pa *
46	114	388.3587	257493.91	388.3601	0.0014	0.94	-0.0014	7	27	5d ⁴	41860.96(2)	299353.93(1)	pa
46	69	388.4718	257418.94	388.4739	0.0007	1.39	-0.0021	10	27	5d ⁴	41860.96(2)	299278.51(2)	pa
151	307	388.5716	257352.83	388.5756	0.0008	2.65	-0.0040	9	23	5d ⁴	43373.73(3)	300723.91(3)	pa
22	53	388.6432	257305.42	388.6451	0.0012	1.26	-0.0019	7	20	5d ⁴	35465.59(1)	292769.74(1)	pa
104	158	388.9520	257101.13	388.9538	0.0014	1.19	-0.0018	5	23	5d ⁴	48837.73(3)	305937.67(2)	pa
66	300	389.2242	256921.33	389.2247	0.0007	0.30	-0.0004	9	30	5d ⁴	17548.20(3)	274469.24(4)	pa
64	300	389.2339	256914.93	389.2346	0.0007	0.49	-0.0007	15	21	5d ⁴	28527.15(4)	285441.60(3)	pa
125	333	389.3841	256815.83	389.3831	0.0008	-0.65	0.0010	11	28	5d ⁴	33418.14(2)	290234.62(2)	pa
183	291	389.4714	256758.26	389.4717	0.0007	0.17	-0.0003	11	26	5d ⁴	41310.48(4)	298068.58(3)	pa
40	190	389.6449	256643.93	389.6380	0.0008	-4.54	0.0069	9	27	5d ⁴	41860.96(2)	298509.43(3)	pa *
319	713	390.1659	256301.23	390.1648	0.0007	-0.72	0.0011	11	21	5d ⁴	28527.15(4)	284829.11(4)	pa
90	347	390.2772	256228.14	390.2751	0.0011	-1.36	0.0021	6	15	5d ⁴	7686.54(1)	263916.04(1)	pa
37	113	390.3128	256204.77	390.3085	0.0007	-2.85	0.0043	11	27	5d ⁴	41860.96(2)	298068.58(3)	pa
31	72	390.3537	256177.92	390.3546	0.0008	0.61	-0.0009	8	27	5d ⁴	41860.96(2)	298038.27(2)	pa
588	490	390.6195	256003.61	390.6190	0.0009	-0.32	0.0005	8	21	5d ⁴	63259.08(3)	319263.01(3)	pa

246	1146	390.8454	255855.64	390.8479	0.0008	1.65	-0.0025	12	20	5d ⁴	13534.10(2)	269388.09(3)	pa	700
2695	1406	390.8614	255845.17	390.8575	0.0010	-2.54	0.0039	4	18	5d ⁴	52325.64(5)	308173.35(4)	pa	
98	266	390.9481	255788.43	390.9490	0.0008	0.61	-0.0009	9	33	5d ⁴	44936.09(4)	300723.91(3)	pa	
1021	948	391.0664	255711.05	391.0654	0.0007	-0.67	0.0010	11	25	5d ⁴	59277.71(4)	314989.43(4)	pa	
136	158	391.1771	255638.69	391.1784	0.0008	0.84	-0.0013	10	21	5d ⁴	63259.08(3)	318896.93(4)	pa	
64	158	391.2296	255604.38	391.2299	0.0009	0.23	-0.0003	9	20	5d ⁴	35465.59(1)	291069.74(1)	pa	
318	153	391.4946	255431.36	391.4934	0.0016	-0.76	0.0012	4	8	5d ⁴	94582.78(2)	350014.90(1)	pa	
157	264	391.7183	255285.49	391.7210	0.0009	1.78	-0.0027	9	18	5d ⁴	52325.64(5)	307609.36(5)	pa	
223	900	391.8130	255223.79	391.8121	0.0015	-0.62	0.0009	5	21	5d ⁴	50713.26(2)	305937.67(2)	pa	
444	1000	391.8300	255212.72	391.8292	0.0007	-0.52	0.0008	9	21	5d ⁴	19256.00(4)	274469.24(4)	pa	
1126	1176	391.8960	255169.74	391.8961	0.0007	0.06	-0.0001	10	21	5d ⁴	28527.15(4)	283696.83(3)	pa	
126	341	391.9526	255132.89	391.9483	0.0008	-2.81	0.0043	9	23	5d ⁴	43373.73(3)	298509.43(3)	pa	
73	398	391.9762	255117.53	391.9750	0.0016	-0.80	0.0012	7	11	5d ⁴	53460.16(1)	308578.49(2)	pa	200
136	404	391.9886	255109.46	391.9902	0.0007	1.04	-0.0016	13	21	5d ⁴	28527.15(4)	283635.58(4)	pa	300
103	179	392.0256	255085.38	392.0228	0.0009	-1.83	0.0028	14	23	5d ⁴	48837.73(3)	303924.93(3)	pa	
42	82	392.5087	254771.42	392.5124	0.0009	2.39	-0.0037	11	20	5d ⁴	35465.59(1)	290234.62(2)	pa	
106	173	392.7656	254604.78	392.7663	0.0008	0.47	-0.0007	6	33	5d ⁴	44936.09(4)	299540.40(4)	pa	
206	530	392.9018	254516.52	392.8966	0.0007	-3.40	0.0052	10	26	5d ⁴	41310.48(4)	295830.40(4)	pa	Pt VIII(100)
18	51	393.0473	254422.30	393.0446	0.0008	-1.75	0.0027	11	20	5d ⁴	35465.59(1)	289889.64(2)	pa	
33	251	393.1498	254355.97	393.1438	0.0008	-3.90	0.0060	7	30	5d ⁴	17548.20(3)	271908.08(2)	pa	
241	695	393.2397	254297.82	393.2442	0.0012	2.94	-0.0045	3	15	5d ⁴	7686.54(1)	261981.43(0)	pa	
65	171	393.2900	254265.30	393.2883	0.0007	-1.07	0.0017	10	30	5d ⁴	32690.95(3)	286957.32(4)	pa	
27	83	393.4994	254129.99	393.5022	0.0010	1.79	-0.0028	11	28	5d ⁴	33418.14(2)	287546.35(3)	pa	
25	240	394.2561	253642.24	394.2593	0.0008	2.03	-0.0032	9	20	5d ⁴	13534.10(2)	267174.30(2)	pa	
277	686	394.6800	253369.82	394.6807	0.0008	0.48	-0.0007	13	22	5d ⁴	35217.21(5)	288586.55(5)	pa	
456	684	394.7940	253296.66	394.7969	0.0010	1.83	-0.0029	7	23	5d ⁴	48837.73(3)	302132.55(2)	pa	
44	148	394.9321	253208.08	394.9283	0.0008	-2.41	0.0038	11	20	5d ⁴	13534.10(2)	266744.59(3)	pa	
1634	1078	395.0509	253131.94	395.0500	0.0006	-0.55	0.0009	11	33	5d ⁴	44936.09(4)	298068.58(3)	pa	
216	664	395.1143	253091.32	395.1131	0.0007	-0.77	0.0012	12	30	5d ⁴	32690.95(3)	285783.04(2)	pa	Pt VIII(100)
3480	1254	395.3482	252941.58	395.3490	0.0010	0.49	-0.0008	9	10	5d ⁴	54668.26(6)	307609.36(5)	pa	
165	445	395.6473	252750.37	395.6469	0.0006	-0.28	0.0004	15	30	5d ⁴	32690.95(3)	285441.60(3)	pa	
75	109	395.8715	252607.22	395.8754	0.0008	2.46	-0.0039	10	22	5d ⁴	35217.21(5)	287821.96(5)	pa	
223	690	396.0219	252511.29	396.0233	0.0008	0.88	-0.0014	5	30	5d ⁴	17548.20(3)	270058.61(4)	pa	
17	58	396.3895	252277.12	396.3926	0.0008	1.98	-0.0031	11	21	5d ⁴	28527.15(4)	280802.29(5)	pa	
24	83	396.6052	252139.91	396.6080	0.0007	1.75	-0.0028	11	30	5d ⁴	32690.95(3)	284829.11(4)	pa	
872	1307	396.6811	252091.67	396.6797	0.0008	-0.87	0.0014	6	20	5d ⁴	13534.10(2)	265626.64(2)	pa	
208	660	396.9892	251896.02	396.9878	0.0009	-0.89	0.0014	5	28	5d ⁴	33418.14(2)	285315.06(1)	pa	
153	300	397.0068	251884.85	397.0047	0.0009	-1.33	0.0021	9	23	5d ⁴	48837.73(3)	300723.91(3)	pa	
576	691	397.0905	251831.76	397.0927	0.0021	1.40	-0.0022	3	17	5d ⁴	59968.71(2)	311799.07(1)	pa	
124	370	397.1528	251792.26	397.1545	0.0011	1.06	-0.0017	3	10	5d ⁴	54668.26(6)	306459.46(7)	pa	250, Pt VIII(150)
277	487	397.2361	251739.46	397.2351	0.0008	-0.66	0.0010	10	22	5d ⁴	35217.21(5)	286957.32(4)	pa	

121	697	397.3909	251641.39	397.3898	0.0015	-0.73	0.0011	8	5	5d ⁴	0.00(0)	251642.12(1)	pa
180	400	397.4050	251632.47	397.4062	0.0017	0.75	-0.0012	4	21	5d ⁴	50713.26(2)	302344.97(1)	pa
83	216	397.7435	251418.31	397.7420	0.0010	-0.97	0.0015	7	21	5d ⁴	50713.26(2)	302132.55(2)	pa
587	944	398.0087	251250.79	398.0079	0.0008	-0.50	0.0008	9	21	5d ⁴	28527.15(4)	279778.44(3)	pa
357	544	398.0678	251213.49	398.0713	0.0009	2.21	-0.0035	5	18	5d ⁴	52325.64(5)	303536.92(6)	pa
2074	1500	398.1754	251145.60	398.1760	0.0008	0.36	-0.0006	12	22	5d ⁴	35217.21(5)	286362.45(4)	pa
448	931	398.2350	251108.01	398.2345	0.0014	-0.35	0.0005	5	30	5d ⁴	32690.95(3)	283799.31(2)	pa
267	999	398.2723	251084.50	398.2725	0.0010	0.11	-0.0002	9	15	5d ⁴	7686.54(1)	258770.93(1)	pa
367	651	398.3164	251056.70	398.3158	0.0010	-0.37	0.0006	5	21	5d ⁴	74681.23(3)	325738.29(2)	pa
358	498	398.3430	251039.93	398.3430	0.0009	-0.03	0.0000	6	18	5d ⁴	66159.02(2)	317198.98(2)	pa
363	891	398.3983	251005.09	398.3970	0.0006	-0.79	0.0013	10	30	5d ⁴	32690.95(3)	283696.83(3)	pa
238	680	398.4219	250990.22	398.4210	0.0008	-0.57	0.0009	6	33	5d ⁴	44936.09(4)	295926.87(5)	pa
241	345	398.5166	250930.58	398.5162	0.0012	-0.26	0.0004	5	14	5d ⁴	74807.45(2)	325738.29(2)	pa
99	300	398.5500	250909.55	398.5512	0.0012	0.76	-0.0012	7	27	5d ⁴	41860.96(2)	292769.74(1)	pa
286	622	398.5735	250894.75	398.5742	0.0007	0.44	-0.0007	10	33	5d ⁴	44936.09(4)	295830.40(4)	pa
104	340	398.7440	250787.47	398.7441	0.0007	0.09	-0.0001	11	23	5d ⁴	43373.73(3)	294161.11(4)	pa
558	555	399.2902	250444.41	399.2905	0.0017	0.17	-0.0003	6	14	5d ⁴	74807.45(2)	325251.69(1)	pa
604	1112	399.3886	250382.71	399.3898	0.0011	0.77	-0.0012	6	20	5d ⁴	13534.10(2)	263916.04(1)	pa
79	1112	399.3886	250382.71	399.3911	0.0014	1.54	-0.0025	5	28	5d ⁴	33418.14(2)	283799.31(2)	pa 350
672	1253	399.4233	250360.96	399.4233	0.0009	-0.03	0.0000	13	13	5d ⁴	38225.56(6)	288586.55(5)	pa
42	170	399.4913	250318.34	399.4927	0.0009	0.89	-0.0014	12	20	5d ⁴	35465.59(1)	285783.04(2)	pa
42	66	399.5514	250280.69	399.5546	0.0007	2.00	-0.0032	10	28	5d ⁴	33418.14(2)	283696.83(3)	pa
53	113	399.6093	250244.43	399.6125	0.0018	1.98	-0.0032	6	9	5d ⁴	75009.25(1)	325251.69(1)	pa
960	1237	399.7908	250130.82	399.7888	0.0008	-1.28	0.0020	12	21	5d ⁴	19256.00(4)	269388.09(3)	pa
174	298	400.2413	249849.28	400.2410	0.0010	-0.19	0.0003	5	20	5d ⁴	35465.59(1)	285315.06(1)	pa
1057	993	400.5228	249673.68	400.5260	0.0009	1.97	-0.0032	9	23	5d ⁴	48837.73(3)	298509.43(3)	pa
919	1409	400.5970	249627.43	400.5991	0.0008	1.33	-0.0021	9	30	5d ⁴	17548.20(3)	267174.30(2)	pa
160	1409	400.5970	249627.43	400.6219	0.0008	15.53	-0.0249	11	22	5d ⁴	35217.21(5)	284829.11(4)	pa * 400
4028	1813	400.6494	249594.78	400.6468	0.0009	-1.62	0.0026	10	13	5d ⁴	38225.56(6)	287821.96(5)	pa
204	598	400.7403	249538.17	400.7406	0.0010	0.20	-0.0003	6	21	5d ⁴	74681.23(3)	324219.19(3)	pa 300
1276	1012	400.7701	249519.61	400.7718	0.0009	1.04	-0.0017	9	25	5d ⁴	59277.71(4)	308796.28(3)	pa
420	700	400.7936	249504.98	400.7948	0.0014	0.78	-0.0012	6	17	5d ⁴	59968.71(2)	309472.92(2)	pa
214	412	400.8577	249465.08	400.8585	0.0009	0.49	-0.0008	7	18	5d ⁴	66159.02(2)	315623.62(3)	pa
749	934	400.9309	249419.54	400.9274	0.0016	-2.16	0.0035	5	21	5d ⁴	63259.08(3)	312680.78(2)	pa Pt VIII(200)
81	373	401.0591	249339.81	401.0596	0.0009	0.29	-0.0005	8	21	5d ⁴	28527.15(4)	277866.67(5)	pa
139	250	401.2325	249232.05	401.2344	0.0007	1.20	-0.0019	11	23	5d ⁴	48837.73(3)	298068.58(3)	pa
1227	1256	401.2447	249224.48	401.2438	0.0007	-0.55	0.0009	11	33	5d ⁴	44936.09(4)	294161.11(4)	pa
312	1441	401.2740	249206.28	401.2700	0.0008	-2.51	0.0040	9	27	5d ⁴	41860.96(2)	291069.74(1)	pa 1000
927	1444	401.2831	249200.63	401.2832	0.0009	0.08	-0.0001	8	23	5d ⁴	48837.73(3)	298038.27(2)	pa
717	1389	401.2860	249198.83	401.2899	0.0008	2.44	-0.0039	11	30	5d ⁴	17548.20(3)	266744.59(3)	pa
12	124	401.5056	249062.53	401.5046	0.0008	-0.63	0.0010	10	21	5d ⁴	19256.00(4)	268319.16(5)	pa

183	400	401.7910	248885.61	401.7923	0.0018	0.80	-0.0013	4	11	5d ⁴	53460.16(1)	302344.97(1)	pa
1460	1265	401.8198	248867.78	401.8184	0.0010	-0.88	0.0014	5	10	5d ⁴	54668.26(6)	303536.92(6)	pa
1587	1191	401.9003	248817.93	401.9007	0.0008	0.22	-0.0004	8	26	5d ⁴	41310.48(4)	290128.19(3)	pa
20	74	402.1357	248672.28	402.1355	0.0014	-0.11	0.0002	7	11	5d ⁴	53460.16(1)	302132.55(2)	pa
44	262	402.2274	248615.58	402.2266	0.0006	-0.48	0.0008	11	30	5d ⁴	32690.95(3)	281307.02(3)	pa
34	158	402.3069	248566.45	402.3089	0.0008	1.20	-0.0020	10	21	5d ⁴	50713.26(2)	299278.51(2)	pa
559	706	402.3513	248539.02	402.3531	0.0009	1.10	-0.0018	7	21	5d ⁴	63259.08(3)	311797.01(3)	pa
1211	1234	402.5485	248417.27	402.5467	0.0008	-1.10	0.0018	13	22	5d ⁴	35217.21(5)	283635.58(4)	pa
101	272	402.6195	248373.46	402.6192	0.0009	-0.20	0.0003	11	27	5d ⁴	41860.96(2)	290234.62(2)	pa
107	524	402.6812	248335.41	402.6839	0.0015	1.69	-0.0027	5	20	5d ⁴	35465.59(1)	283799.31(2)	pa
152	524	402.6812	248335.41	402.6873	0.0007	3.76	-0.0061	9	25	5d ⁴	59277.71(4)	307609.36(5)	pa * 300
53	162	402.7931	248266.42	402.7918	0.0009	-0.81	0.0013	8	27	5d ⁴	41860.96(2)	290128.19(3)	pa
235	562	402.9627	248161.93	402.9627	0.0008	-0.03	0.0000	10	30	5d ⁴	32690.95(3)	280852.91(2)	pa
103	742	403.1010	248076.79	403.0983	0.0008	-1.65	0.0027	6	30	5d ⁴	17548.20(3)	265626.64(2)	pa
743	817	403.1105	248070.94	403.1123	0.0014	1.12	-0.0018	8	13	5d ⁴	73208.20(4)	321278.02(3)	pa
56	300	403.5574	247796.22	403.5575	0.0009	0.05	-0.0001	9	21	5d ⁴	50713.26(2)	298509.43(3)	pa
297	324	403.5771	247784.13	403.5768	0.0024	-0.16	0.0003	2	8	5d ⁴	94582.78(2)	342367.07(1)	pa
293	462	404.0632	247486.04	404.0662	0.0021	1.82	-0.0030	2	11	5d ⁴	53460.16(1)	300944.38(0)	pa
202	390	404.1627	247425.11	404.1606	0.0008	-1.27	0.0021	9	21	5d ⁴	63259.08(3)	310685.46(4)	pa
583	1003	404.2246	247387.22	404.2217	0.0008	-1.76	0.0029	10	21	5d ⁴	28527.15(4)	275916.14(3)	pa
64	664	404.2520	247370.45	404.2525	0.0008	0.29	-0.0005	7	30	5d ⁴	17548.20(3)	264918.36(4)	pa
59	262	404.4054	247276.62	404.4063	0.0007	0.55	-0.0009	13	26	5d ⁴	41310.48(4)	288586.55(5)	pa
571	913	404.5084	247213.65	404.5066	0.0010	-1.11	0.0018	6	18	5d ⁴	52325.64(5)	299540.40(4)	pa
151	516	404.6457	247129.77	404.6428	0.0016	-1.78	0.0029	6	5	5d ⁴	26647.34(0)	273778.89(1)	pa
330	1054	404.6881	247103.88	404.6877	0.0007	-0.23	0.0004	10	30	5d ⁴	17548.20(3)	264652.31(3)	pa
311	898	404.7146	247087.70	404.7149	0.0007	0.21	-0.0003	9	30	5d ⁴	32690.95(3)	279778.44(3)	pa
142	435	405.3685	246689.12	405.3688	0.0007	0.19	-0.0003	8	30	5d ⁴	32690.95(3)	279379.88(2)	pa
62	100	405.5200	246596.96	405.5203	0.0013	0.16	-0.0003	8	21	5d ⁴	74681.23(3)	321278.02(3)	pa
163	1166	405.6536	246515.75	405.6606	0.0007	4.26	-0.0070	10	26	5d ⁴	41310.48(4)	287821.96(5)	pa * 300
1316	1166	405.6536	246515.75	405.6533	0.0007	-0.16	0.0003	11	23	5d ⁴	43373.73(3)	289889.64(2)	pa
32	80	405.9074	246361.61	405.9096	0.0007	1.31	-0.0022	9	28	5d ⁴	33418.14(2)	279778.44(3)	pa
95	332	406.1133	246236.70	406.1147	0.0011	0.84	-0.0014	11	26	5d ⁴	41310.48(4)	287546.35(3)	pa
282	523	406.1537	246212.21	406.1510	0.0014	-1.63	0.0027	6	21	5d ⁴	63259.08(3)	309472.92(2)	pa
219	400	406.1778	246197.60	406.1778	0.0030	0.00	0.0000	2	1	5d ⁴	60798.47(0)	306996.07(1)	pa
495	492	406.4123	246055.55	406.4135	0.0012	0.74	-0.0012	8	13	5d ⁴	73208.20(4)	319263.01(3)	pa
300	890	406.5684	245961.07	406.5673	0.0007	-0.66	0.0011	8	28	5d ⁴	33418.14(2)	279379.88(2)	pa
524	1199	406.6028	245940.26	406.5998	0.0008	-1.82	0.0030	9	21	5d ⁴	28527.15(4)	274469.24(4)	pa
347	659	406.6798	245893.70	406.6797	0.0017	-0.07	0.0001	7	11	5d ⁴	53460.16(1)	299353.93(1)	pa
34	77	406.8072	245816.69	406.8045	0.0013	-1.66	0.0027	10	11	5d ⁴	53460.16(1)	299278.51(2)	pa
643	904	406.9797	245712.50	406.9806	0.0017	0.56	-0.0009	5	21	5d ⁴	74681.23(3)	320393.17(2)	pa
1892	1030	407.0157	245690.77	407.0191	0.0011	2.04	-0.0034	10	13	5d ⁴	73208.20(4)	318896.93(4)	pa

127	914	407.0609	245663.49	407.0628	0.0009	1.12	-0.0019	7	21	5d ⁴	19256.00(4)	264918.36(4)	pa	
686	1096	407.0867	245647.92	407.0885	0.0008	1.07	-0.0018	10	26	5d ⁴	41310.48(4)	286957.32(4)	pa	
1030	1454	407.1899	245585.66	407.1909	0.0009	0.58	-0.0010	11	22	5d ⁴	35217.21(5)	280802.29(5)	pa	
616	1454	407.1899	245585.66	407.1898	0.0019	-0.06	0.0001	5	14	5d ⁴	74807.45(2)	320393.17(2)	pa	900
1924	1406	407.2952	245522.17	407.2994	0.0010	2.55	-0.0042	5	18	5d ⁴	52325.64(5)	297845.26(5)	pa	
361	1133	407.4272	245442.62	407.4247	0.0010	-1.52	0.0025	8	15	5d ⁴	7686.54(1)	253130.69(2)	pa	
404	1256	407.5008	245398.29	407.5041	0.0008	1.98	-0.0033	10	21	5d ⁴	19256.00(4)	264652.31(3)	pa	
218	1256	407.5008	245398.29	407.4977	0.0009	-1.86	0.0031	6	21	5d ⁴	74681.23(3)	320081.37(4)	pa	
419	1052	407.5406	245374.33	407.5421	0.0016	0.93	-0.0015	8	5	5d ⁴	26647.34(0)	272020.74(1)	pa	
304	543	407.6312	245319.79	407.6318	0.0015	0.38	-0.0006	7	21	5d ⁴	63259.08(3)	308578.49(2)	pa	
344	735	407.7446	245251.56	407.7446	0.0030	0.00	0.0000	1	9	5d ⁴	75009.25(1)	320260.81(1)	pa	
237	924	407.7710	245235.68	407.7691	0.0009	-1.14	0.0019	9	20	5d ⁴	13534.10(2)	258770.93(1)	pa	
266	657	407.8448	245191.31	407.8435	0.0008	-0.79	0.0013	8	33	5d ⁴	44936.09(4)	290128.19(3)	pa	
691	1180	407.9072	245153.80	407.9048	0.0007	-1.47	0.0024	9	30	5d ⁴	32690.95(3)	277846.22(2)	pa	
125	822	407.9489	245128.74	407.9469	0.0011	-1.19	0.0020	2	15	5d ⁴	7686.54(1)	252816.47(0)	pa	
483	815	408.0756	245052.63	408.0767	0.0008	0.67	-0.0011	12	26	5d ⁴	41310.48(4)	286362.45(4)	pa	Pt VIII(150)
1158	965	408.1667	244997.94	408.1647	0.0012	-1.18	0.0020	6	12	5d ⁴	79220.07(4)	324219.19(3)	pa	
197	601	408.3371	244895.70	408.3371	0.0030	0.00	0.0000	1	20	5d ⁴	35465.59(1)	280361.29(0)	pa	
653	812	408.7527	244646.70	408.7518	0.0009	-0.52	0.0009	14	25	5d ⁴	59277.71(4)	303924.93(3)	pa	
638	838	408.8676	244577.95	408.8673	0.0014	-0.16	0.0003	8	11	5d ⁴	53460.16(1)	298038.27(2)	pa	
617	1015	408.9850	244507.74	408.9855	0.0019	0.28	-0.0005	4	28	5d ⁴	33418.14(2)	277925.61(1)	pa	
356	410	409.0738	244454.67	409.0723	0.0013	-0.89	0.0015	8	14	5d ⁴	74807.45(2)	319263.01(3)	pa	
437	954	409.1215	244426.17	409.1183	0.0007	-1.91	0.0032	9	28	5d ⁴	33418.14(2)	277846.22(2)	pa	
849	1464	409.1786	244392.06	409.1768	0.0011	-1.05	0.0018	2	13	5d ⁴	38225.56(6)	282618.67(6)	pa	
820	1007	409.5441	244173.95	409.5463	0.0011	1.33	-0.0022	11	23	5d ⁴	43373.73(3)	287546.35(3)	pa	
188	478	409.6156	244131.33	409.6160	0.0007	0.21	-0.0004	15	26	5d ⁴	41310.48(4)	285441.60(3)	pa	
182	1001	409.9081	243957.12	409.9107	0.0010	1.54	-0.0026	8	15	5d ⁴	7686.54(1)	251642.12(1)	pa	
346	1001	409.9081	243957.12	409.9096	0.0010	0.90	-0.0015	14	17	5d ⁴	59968.71(2)	303924.93(3)	pa	600
497	1023	409.9772	243916.00	409.9801	0.0009	1.71	-0.0029	8	20	5d ⁴	35465.59(1)	279379.88(2)	pa	
151	1023	409.9772	243916.00	409.9670	0.0008	-6.08	0.0102	12	27	5d ⁴	41860.96(2)	285783.04(2)	pa	* 400
129	379	410.4206	243652.49	410.4240	0.0007	2.03	-0.0034	13	33	5d ⁴	44936.09(4)	288586.55(5)	pa	
476	919	410.5421	243580.38	410.5417	0.0008	-0.26	0.0004	15	27	5d ⁴	41860.96(2)	285441.60(3)	pa	
393	778	410.7567	243453.12	410.7550	0.0010	-0.98	0.0017	5	27	5d ⁴	41860.96(2)	285315.06(1)	pa	
206	383	410.9910	243314.33	410.9917	0.0014	0.44	-0.0007	6	18	5d ⁴	66159.02(2)	309472.92(2)	pa	
491	961	411.1406	243225.80	411.1416	0.0007	0.61	-0.0010	10	30	5d ⁴	32690.95(3)	275916.14(3)	pa	
1547	1327	411.2240	243176.47	411.2231	0.0011	-0.53	0.0009	5	10	5d ⁴	54668.26(6)	297845.26(5)	pa	
38	72	411.5393	242990.16	411.5417	0.0008	1.44	-0.0024	12	23	5d ⁴	43373.73(3)	286362.45(4)	pa	
73	234	411.7119	242888.29	411.7160	0.0007	2.42	-0.0041	10	33	5d ⁴	44936.09(4)	287821.96(5)	pa	
465	730	412.0675	242678.69	412.0677	0.0016	0.10	-0.0002	5	21	5d ⁴	63259.08(3)	305937.67(2)	pa	
294	887	412.1166	242649.77	412.1171	0.0010	0.31	-0.0005	8	22	5d ⁴	35217.21(5)	277866.67(5)	pa	
298	677	412.1868	242608.45	412.1837	0.0011	-1.81	0.0031	11	33	5d ⁴	44936.09(4)	287546.35(3)	pa	

514	1050	412.2425	242575.67	412.2407	0.0010	-1.06	0.0018	11	13	5d ⁴	38225.56(6)	280802.29(5)	pa
191	319	412.3410	242517.72	412.3409	0.0009	-0.04	0.0001	6	21	5d ⁴	74681.23(3)	317198.98(2)	pa
220	1068	412.4462	242455.86	412.4391	0.0020	-4.15	0.0071	4	20	5d ⁴	35465.59(1)	277925.61(1)	pa * 800
1023	1068	412.4462	242455.86	412.4478	0.0017	0.96	-0.0016	4	8	5d ⁴	94582.78(2)	337037.68(2)	pa
237	760	412.5290	242407.20	412.5254	0.0008	-2.11	0.0036	12	23	5d ⁴	43373.73(3)	285783.04(2)	pa
98	1074	412.5681	242384.23	412.5742	0.0009	3.60	-0.0061	9	20	5d ⁴	35465.59(1)	277846.22(2)	pa * 200, m
401	1074	412.5681	242384.23	412.5645	0.0007	-2.12	0.0036	10	26	5d ⁴	41310.48(4)	283696.83(3)	pa
723	1140	412.6697	242324.55	412.6688	0.0008	-0.54	0.0009	13	26	5d ⁴	41310.48(4)	283635.58(4)	pa
192	289	412.8994	242189.74	412.8994	0.0014	0.01	0.0000	6	9	5d ⁴	75009.25(1)	317198.98(2)	pa
47	139	412.9448	242163.12	412.9436	0.0011	-0.72	0.0012	7	17	5d ⁴	59968.71(2)	302132.55(2)	pa
464	1211	413.1098	242066.39	413.1056	0.0009	-2.48	0.0042	4	22	5d ⁴	35217.21(5)	277286.08(6)	pa
100	1211	413.1098	242066.39	413.1073	0.0008	-1.47	0.0025	15	23	5d ⁴	43373.73(3)	285441.60(3)	pa 300
286	600	413.1270	242056.32	413.1267	0.0013	-0.17	0.0003	7	21	5d ⁴	50713.26(2)	292769.74(1)	pa
423	892	413.1853	242022.16	413.1869	0.0008	0.93	-0.0016	10	33	5d ⁴	44936.09(4)	286957.32(4)	pa
542	1013	413.3331	241935.62	413.3284	0.0015	-2.73	0.0047	5	27	5d ⁴	41860.96(2)	283799.31(2)	pa
265	575	413.5013	241837.21	413.5036	0.0008	1.34	-0.0023	10	27	5d ⁴	41860.96(2)	283696.83(3)	pa
84	382	413.5695	241797.33	413.5697	0.0012	0.14	-0.0002	4	10	5d ⁴	54668.26(6)	296465.45(6)	pa
261	462	413.5963	241781.66	413.5970	0.0011	0.43	-0.0007	11	13	5d ⁴	73208.20(4)	314989.43(4)	pa
1271	1495	414.0239	241531.95	414.0248	0.0009	0.50	-0.0009	5	21	5d ⁴	28527.15(4)	270058.61(4)	pa
559	1099	414.1556	241455.14	414.1552	0.0008	-0.23	0.0004	11	23	5d ⁴	43373.73(3)	284829.11(4)	pa
35	132	414.2568	241396.16	414.2555	0.0009	-0.74	0.0013	11	23	5d ⁴	48837.73(3)	290234.62(2)	pa
86	307	414.4401	241289.39	414.4383	0.0009	-1.07	0.0018	8	23	5d ⁴	48837.73(3)	290128.19(3)	pa Pt VI(150)
68	297	414.4967	241256.44	414.4930	0.0012	-2.17	0.0037	6	10	5d ⁴	54668.26(6)	295926.87(5)	pa
37	152	414.8483	241051.97	414.8484	0.0008	0.05	-0.0001	11	23	5d ⁴	48837.73(3)	289889.64(2)	pa
361	237	414.9342	241002.07	414.9342	0.0030	0.00	0.0000	2	14	5d ⁴	74807.45(2)	315809.52(1)	pa Pt VI
219	873	415.0364	240942.72	415.0370	0.0009	0.33	-0.0006	7	21	5d ⁴	74681.23(3)	315623.62(3)	pa 400
569	1213	415.0619	240927.92	415.0648	0.0008	1.68	-0.0029	11	30	5d ⁴	17548.20(3)	258474.44(4)	pa
340	1364	415.1761	240861.65	415.1773	0.0008	0.71	-0.0012	12	21	5d ⁴	28527.15(4)	269388.09(3)	pa 800
1308	1364	415.1761	240861.65	415.1767	0.0012	0.35	-0.0006	6	12	5d ⁴	79220.07(4)	320081.37(4)	pa
444	755	415.2185	240837.05	415.2185	0.0030	0.00	0.0000	2	18	5d ⁴	66159.02(2)	306996.07(1)	pa
77	174	415.3596	240755.24	415.3597	0.0010	0.04	-0.0001	9	17	5d ⁴	59968.71(2)	300723.91(3)	pa
220	450	415.5124	240666.70	415.5139	0.0010	0.85	-0.0015	14	21	5d ⁴	63259.08(3)	303924.93(3)	pa
475	655	415.9432	240417.44	415.9500	0.0011	3.93	-0.0068	9	13	5d ⁴	73208.20(4)	313621.71(5)	pa
60	810	416.0445	240358.90	416.0413	0.0009	-1.84	0.0032	6	28	5d ⁴	33418.14(2)	273778.89(1)	pa 300
286	810	416.0445	240358.90	416.0487	0.0009	2.42	-0.0042	9	21	5d ⁴	50713.26(2)	291069.74(1)	pa
835	1373	416.1254	240312.17	416.1278	0.0009	1.36	-0.0024	9	20	5d ⁴	13534.10(2)	253844.92(3)	pa
11	129	416.2088	240264.02	416.2126	0.0008	2.18	-0.0038	13	23	5d ⁴	43373.73(3)	283635.58(4)	pa
615	707	416.5923	240042.84	416.5921	0.0012	-0.09	0.0002	8	12	5d ⁴	79220.07(4)	319263.01(3)	pa
36	191	416.6708	239997.62	416.6727	0.0008	1.09	-0.0019	11	26	5d ⁴	41310.48(4)	281307.02(3)	pa
10	82	416.8520	239893.30	416.8525	0.0007	0.28	-0.0005	11	33	5d ⁴	44936.09(4)	284829.11(4)	pa
364	1029	417.0285	239791.77	417.0281	0.0008	-0.24	0.0004	10	21	5d ⁴	28527.15(4)	268319.16(5)	pa

55	345	417.3670	239597.29	417.3682	0.0009	0.70	-0.0012	8	20	5d ⁴	13534.10(2)	253130.69(2)	pa
571	995	417.4983	239521.93	417.4993	0.0009	0.57	-0.0010	11	21	5d ⁴	50713.26(2)	290234.62(2)	pa
70	329	417.5475	239493.71	417.5508	0.0008	1.90	-0.0033	11	26	5d ⁴	41310.48(4)	280802.29(5)	pa
55	251	417.6339	239444.16	417.6306	0.0008	-1.89	0.0033	11	27	5d ⁴	41860.96(2)	281307.02(3)	pa
119	235	417.6806	239417.39	417.6849	0.0009	2.47	-0.0043	8	21	5d ⁴	50713.26(2)	290128.19(3)	pa
152	792	417.8685	239309.73	417.8688	0.0016	0.15	-0.0003	7	11	5d ⁴	53460.16(1)	292769.74(1)	pa 300
294	792	417.8685	239309.73	417.8684	0.0010	-0.07	0.0001	10	17	5d ⁴	59968.71(2)	299278.51(2)	pa
464	1032	417.9702	239251.51	417.9693	0.0009	-0.53	0.0009	9	22	5d ⁴	35217.21(5)	274469.24(4)	pa
173	1200	418.0040	239232.16	418.0048	0.0009	0.44	-0.0008	9	25	5d ⁴	59277.71(4)	298509.43(3)	pa 600
1588	1748	418.0275	239218.71	418.0280	0.0008	0.27	-0.0005	11	21	5d ⁴	19256.00(4)	258474.44(4)	pa
93	1748	418.0275	239218.71	418.0303	0.0008	1.58	-0.0028	7	30	5d ⁴	32690.95(3)	271908.08(2)	pa 600
80	332	418.0998	239177.35	418.1015	0.0008	0.96	-0.0017	11	21	5d ⁴	50713.26(2)	289889.64(2)	pa
765	1274	418.3061	239059.39	418.3041	0.0010	-1.13	0.0020	4	13	5d ⁴	38225.56(6)	277286.08(6)	pa
81	388	418.4238	238992.14	418.4241	0.0009	0.19	-0.0003	10	27	5d ⁴	41860.96(2)	280852.91(2)	pa
59	123	418.7810	238788.29	418.7765	0.0007	-2.57	0.0045	11	25	5d ⁴	59277.71(4)	298068.58(3)	pa
135	377	418.8314	238759.56	418.8293	0.0007	-1.18	0.0021	10	33	5d ⁴	44936.09(4)	283696.83(3)	pa
57	178	418.9365	238699.66	418.9368	0.0007	0.17	-0.0003	13	33	5d ⁴	44936.09(4)	283635.58(4)	pa
83	340	419.1063	238602.95	419.1069	0.0009	0.35	-0.0006	8	28	5d ⁴	33418.14(2)	272020.74(1)	pa
113	380	419.1662	238568.85	419.1685	0.0008	1.31	-0.0023	5	25	5d ⁴	59277.71(4)	297845.26(5)	pa 300, Pt VI(300)
16	176	419.3079	238488.23	419.3049	0.0008	-1.70	0.0030	7	28	5d ⁴	33418.14(2)	271908.08(2)	pa
38	366	419.3397	238470.15	419.3435	0.0008	2.18	-0.0038	9	26	5d ⁴	41310.48(4)	279778.44(3)	pa
26	131	419.6155	238313.41	419.6157	0.0010	0.10	-0.0002	6	20	5d ⁴	35465.59(1)	273778.89(1)	pa
94	454	419.7844	238217.52	419.7846	0.0008	0.09	-0.0002	11	21	5d ⁴	28527.15(4)	266744.59(3)	pa
547	953	419.9591	238118.43	419.9570	0.0009	-1.17	0.0021	10	23	5d ⁴	48837.73(3)	286957.32(4)	pa
26	586	419.9780	238107.71	419.9775	0.0009	-0.31	0.0005	8	20	5d ⁴	13534.10(2)	251642.12(1)	pa 300
102	404	419.9951	238098.02	419.9918	0.0009	-1.85	0.0033	11	17	5d ⁴	59968.71(2)	298068.58(3)	pa 200
115	358	420.1666	238000.83	420.1689	0.0018	1.28	-0.0023	5	21	5d ⁴	74681.23(3)	312680.78(2)	pa
190	633	420.2860	237933.22	420.2859	0.0008	-0.07	0.0001	11	23	5d ⁴	43373.73(3)	281307.02(3)	pa
12	72	420.3919	237873.28	420.3918	0.0021	-0.05	0.0001	5	14	5d ⁴	74807.45(2)	312680.78(2)	pa *
3	66	420.8612	237608.03	420.8584	0.0015	-1.56	0.0028	9	11	5d ⁴	53460.16(1)	291069.74(1)	pa * Pt VI
75	431	421.0910	237478.36	421.0896	0.0009	-0.81	0.0014	10	23	5d ⁴	43373.73(3)	280852.91(2)	pa
444	1329	421.2925	237364.78	421.2935	0.0010	0.54	-0.0010	8	15	5d ⁴	7686.54(1)	245050.78(2)	pa
210	1329	421.2925	237364.78	421.2874	0.0009	-2.88	0.0051	5	30	5d ⁴	32690.95(3)	270058.61(4)	pa * 700
151	349	421.7312	237117.86	421.7349	0.0010	2.08	-0.0037	7	21	5d ⁴	74681.23(3)	311797.01(3)	pa
392	597	421.7642	237099.31	421.7642	0.0030	0.00	0.0000	2	1	5d ⁴	78710.21(0)	315809.52(1)	pa
98	625	421.9351	237003.27	421.9351	0.0030	0.00	0.0000	1	20	5d ⁴	35465.59(1)	272468.86(0)	pa
253	711	421.9611	236988.67	421.9595	0.0014	-0.89	0.0016	7	14	5d ⁴	74807.45(2)	311797.01(3)	pa 500
136	711	421.9611	236988.67	421.9558	0.0030	-2.95	0.0053	3	14	5d ⁴	74807.45(2)	311799.07(1)	pa * 200, m
38	200	422.0402	236944.25	422.0383	0.0009	-1.07	0.0019	12	23	5d ⁴	48837.73(3)	285783.04(2)	pa
416	1258	422.0748	236924.83	422.0775	0.0018	1.52	-0.0027	6	5	5d ⁴	0.00(0)	236923.31(1)	pa
285	569	422.2394	236832.47	422.2383	0.0012	-0.62	0.0011	11	21	5d ⁴	50713.26(2)	287546.35(3)	pa

311	388	422.3174	236788.73	422.3154	0.0023	-1.09	0.0020	3	9	5d ⁴	75009.25(1)	311799.07(1)	pa
95	333	422.4820	236696.48	422.4808	0.0008	-0.67	0.0012	12	30	5d ⁴	32690.95(3)	269388.09(3)	pa
20	261	422.6468	236604.18	422.6474	0.0008	0.31	-0.0006	15	23	5d ⁴	48837.73(3)	285441.60(3)	pa 100, Pt VI
30	970	422.7340	236555.38	422.7344	0.0010	0.22	-0.0004	8	20	5d ⁴	35465.59(1)	272020.74(1)	pa 150
138	970	422.7340	236555.38	422.7325	0.0009	-0.82	0.0015	8	26	5d ⁴	41310.48(4)	277866.67(5)	pa 400
295	970	422.7340	236555.38	422.7388	0.0007	2.69	-0.0048	10	25	5d ⁴	59277.71(4)	295830.40(4)	pa
69	673	422.9398	236440.27	422.9358	0.0010	-2.22	0.0040	7	20	5d ⁴	35465.59(1)	271908.08(2)	pa 300, Pt VI
46	490	423.0061	236403.21	423.0034	0.0008	-1.50	0.0027	9	23	5d ⁴	43373.73(3)	279778.44(3)	pa
179	490	423.0061	236403.21	423.0055	0.0012	-0.34	0.0006	7	12	5d ⁴	79220.07(4)	315623.62(3)	pa
128	830	423.1949	236297.74	423.1967	0.0008	1.03	-0.0018	9	30	5d ⁴	17548.20(3)	253844.92(3)	pa
478	1014	423.2162	236285.85	423.2243	0.0011	4.53	-0.0081	6	21	5d ⁴	63259.08(3)	299540.40(4)	pa * 900, Pt VI(150)
30	229	423.5060	236124.16	423.5042	0.0008	-0.99	0.0018	10	21	5d ⁴	28527.15(4)	264652.31(3)	pa
26	125	423.6120	236065.08	423.6128	0.0020	0.43	-0.0008	4	27	5d ⁴	41860.96(2)	277925.61(1)	pa
62	312	423.6930	236019.95	423.6939	0.0009	0.52	-0.0009	10	21	5d ⁴	63259.08(3)	299278.51(2)	pa
616	847	423.7266	236001.23	423.7212	0.0009	-3.00	0.0054	9	21	5d ⁴	74681.23(3)	310685.46(4)	pa
157	492	423.7845	235968.99	423.7828	0.0008	-0.96	0.0017	12	28	5d ⁴	33418.14(2)	269388.09(3)	pa
111	393	423.9698	235865.86	423.9692	0.0008	-0.34	0.0006	11	33	5d ⁴	44936.09(4)	280802.29(5)	pa
32	88	424.1430	235769.54	424.1433	0.0012	0.18	-0.0003	11	12	5d ⁴	79220.07(4)	314989.43(4)	pa
193	877	424.4793	235582.75	424.4798	0.0008	0.26	-0.0005	8	30	5d ⁴	17548.20(3)	253130.69(2)	pa
178	318	424.6328	235497.59	424.6351	0.0010	1.26	-0.0023	10	18	5d ⁴	52325.64(5)	287821.96(5)	pa
140	350	425.7421	234883.98	425.7432	0.0007	0.58	-0.0011	11	25	5d ⁴	59277.71(4)	294161.11(4)	pa
154	648	425.8990	234797.45	425.8983	0.0008	-0.40	0.0007	13	23	5d ⁴	48837.73(3)	283635.58(4)	pa
172	300	425.9090	234791.94	425.9095	0.0015	0.25	-0.0004	6	21	5d ⁴	74681.23(3)	309472.92(2)	pa
80	313	425.9422	234773.64	425.9321	0.0010	-5.55	0.0101	8	21	5d ⁴	63259.08(3)	298038.27(2)	pa * 100, Pt VI(200)
76	279	426.0257	234727.62	426.0244	0.0008	-0.72	0.0013	15	21	5d ⁴	50713.26(2)	285441.60(3)	pa
435	1490	426.1509	234658.66	426.1537	0.0009	1.53	-0.0028	7	21	5d ⁴	19256.00(4)	253913.13(5)	pa
322	919	426.2025	234630.25	426.1999	0.0010	-1.43	0.0026	10	18	5d ⁴	52325.64(5)	286957.32(4)	pa
26	634	426.2470	234605.76	426.2472	0.0009	0.10	-0.0002	10	26	5d ⁴	41310.48(4)	275916.14(3)	pa 200
85	929	426.2552	234601.24	426.2542	0.0011	-0.55	0.0010	5	21	5d ⁴	50713.26(2)	285315.06(1)	pa 200
327	1088	426.2755	234590.07	426.2776	0.0009	1.15	-0.0021	9	21	5d ⁴	19256.00(4)	253844.92(3)	pa
124	381	426.3231	234563.88	426.3213	0.0011	-1.01	0.0018	9	18	5d ⁴	66159.02(2)	300723.91(3)	pa
52	408	426.4690	234483.63	426.4695	0.0008	0.28	-0.0005	9	30	5d ⁴	32690.95(3)	267174.30(2)	pa
315	600	426.5043	234464.23	426.5053	0.0017	0.56	-0.0010	6	9	5d ⁴	75009.25(1)	309472.92(2)	pa
79	395	426.6138	234404.04	426.6191	0.0012	2.89	-0.0053	9	13	5d ⁴	73208.20(4)	307609.36(5)	pa * 200
168	395	426.6138	234404.04	426.6182	0.0011	2.40	-0.0044	9	12	5d ⁴	79220.07(4)	313621.71(5)	pa
80	137	427.1430	234113.63	427.1404	0.0010	-1.42	0.0026	9	21	5d ⁴	74681.23(3)	308796.28(3)	pa
80	407	427.2506	234054.67	427.2525	0.0008	1.03	-0.0019	11	30	5d ⁴	32690.95(3)	266744.59(3)	pa
55	189	427.2833	234036.76	427.2832	0.0010	-0.05	0.0001	12	18	5d ⁴	52325.64(5)	286362.45(4)	pa
41	69	427.3774	233985.23	427.3708	0.0014	-3.60	0.0066	9	14	5d ⁴	74807.45(2)	308796.28(3)	pa *
365	700	427.4969	233919.83	427.4997	0.0011	1.54	-0.0028	13	10	5d ⁴	54668.26(6)	288586.55(5)	pa
304	616	427.5390	233896.79	427.5381	0.0016	-0.47	0.0009	7	21	5d ⁴	74681.23(3)	308578.49(2)	pa

22	75	427.7734	233768.63	427.7690	0.0020	-2.41	0.0044	7	14	5d ⁴	74807.45(2)	308578.49(2)	pa *
37	102	428.1382	233569.44	428.1386	0.0018	0.20	-0.0004	7	9	5d ⁴	75009.25(1)	308578.49(2)	pa
91	269	428.2778	233493.31	428.2800	0.0011	1.18	-0.0022	4	21	5d ⁴	74681.23(3)	308173.35(4)	pa Pt VI
216	764	428.5855	233325.67	428.5841	0.0008	-0.77	0.0014	11	28	5d ⁴	33418.14(2)	266744.59(3)	pa
13	75	428.8193	233198.46	428.8258	0.0019	3.56	-0.0065	7	18	5d ⁴	66159.02(2)	299353.93(1)	pa *
141	548	428.8957	233156.92	428.8923	0.0008	-1.84	0.0034	9	26	5d ⁴	41310.48(4)	274469.24(4)	pa
195	580	428.9645	233119.52	428.9646	0.0010	0.04	-0.0001	10	18	5d ⁴	66159.02(2)	299278.51(2)	pa
135	812	428.9949	233103.00	428.9968	0.0009	1.05	-0.0019	10	22	5d ⁴	35217.21(5)	268319.16(5)	pa
163	1057	429.2004	232991.39	429.2027	0.0008	1.25	-0.0023	9	30	5d ⁴	17548.20(3)	250538.35(4)	pa Pt VI(300)
171	658	429.3140	232929.74	429.3125	0.0009	-0.84	0.0015	8	33	5d ⁴	44936.09(4)	277866.67(5)	pa
21	166	429.9739	232572.26	429.9756	0.0009	0.94	-0.0017	10	21	5d ⁴	63259.08(3)	295830.40(4)	pa *
40	255	430.0296	232542.13	430.0291	0.0009	-0.27	0.0005	10	23	5d ⁴	43373.73(3)	275916.14(3)	pa
49	220	430.3848	232350.21	430.3844	0.0011	-0.20	0.0004	9	18	5d ⁴	66159.02(2)	298509.43(3)	pa
272	1047	430.6117	232227.78	430.6124	0.0008	0.37	-0.0007	7	30	5d ⁴	32690.95(3)	264918.36(4)	pa
17	115	430.8043	232123.96	430.8050	0.0018	0.38	-0.0007	9	5	5d ⁴	26647.34(0)	258770.93(1)	pa
53	271	431.0099	232013.23	431.0063	0.0010	-1.95	0.0036	10	23	5d ⁴	48837.73(3)	280852.91(2)	pa
14	100	431.1042	231962.48	431.1063	0.0008	1.12	-0.0021	10	30	5d ⁴	32690.95(3)	264652.31(3)	pa
466	421	431.1282	231949.57	431.1282	0.0030	0.00	0.0000	4	1	5d ⁴	118065.33(0)	350014.90(1)	pa
199	375	431.2021	231909.82	431.2026	0.0009	0.26	-0.0005	11	18	5d ⁴	66159.02(2)	298068.58(3)	pa
6	49	431.2574	231880.08	431.2589	0.0011	0.83	-0.0015	8	18	5d ⁴	66159.02(2)	298038.27(2)	pa *
9	109	431.9291	231519.48	431.9343	0.0009	2.80	-0.0052	8	20	5d ⁴	13534.10(2)	245050.78(2)	pa
5	55	432.3200	231310.14	432.3204	0.0011	0.20	-0.0004	13	18	5d ⁴	52325.64(5)	283635.58(4)	pa *
64	814	432.3702	231283.29	432.3719	0.0009	0.93	-0.0017	9	21	5d ⁴	19256.00(4)	250538.35(4)	pa Pt VI(600)
313	999	432.4618	231234.30	432.4620	0.0008	0.13	-0.0002	10	28	5d ⁴	33418.14(2)	264652.31(3)	pa
475	518	432.6080	231156.15	432.6092	0.0015	0.64	-0.0012	5	8	5d ⁴	94582.78(2)	325738.29(2)	pa
34	74	432.7130	231100.06	432.7112	0.0011	-0.98	0.0018	9	17	5d ⁴	59968.71(2)	291069.74(1)	pa
15	120	432.9431	230977.23	432.9378	0.0009	-2.81	0.0053	10	33	5d ⁴	44936.09(4)	275916.14(3)	pa * Pt VI
7	78	433.0813	230903.53	433.0841	0.0009	1.49	-0.0028	11	21	5d ⁴	63259.08(3)	294161.11(4)	pa *
287	511	433.4374	230713.82	433.4319	0.0013	-2.91	0.0055	14	13	5d ⁴	73208.20(4)	303924.93(3)	pa
100	216	433.5247	230667.36	433.5218	0.0020	-1.55	0.0029	6	8	5d ⁴	94582.78(2)	325251.69(1)	pa
141	595	433.6682	230591.04	433.6631	0.0008	-2.72	0.0051	11	21	5d ⁴	50713.26(2)	281307.02(3)	pa
33	184	433.8450	230497.07	433.8434	0.0011	-0.83	0.0016	6	28	5d ⁴	33418.14(2)	263916.04(1)	pa
2	65	434.2775	230267.51	434.2805	0.0011	1.60	-0.0030	11	17	5d ⁴	59968.71(2)	290234.62(2)	pa *
37	394	434.4805	230159.93	434.4808	0.0010	0.14	-0.0003	8	27	5d ⁴	41860.96(2)	272020.74(1)	pa
75	394	434.4805	230159.93	434.4813	0.0011	0.45	-0.0008	8	17	5d ⁴	59968.71(2)	290128.19(3)	pa 300
19	1139	434.6096	230091.56	434.6229	0.0010	7.04	-0.0133	10	20	5d ⁴	13534.10(2)	243618.62(3)	pa * 350, m
311	1139	434.6096	230091.56	434.6058	0.0011	-2.04	0.0038	10	13	5d ⁴	38225.56(6)	268319.16(5)	pa
24	238	434.8779	229949.60	434.8823	0.0009	2.31	-0.0044	11	21	5d ⁴	28527.15(4)	258474.44(4)	pa Pt VI(100)
188	382	434.9335	229920.21	434.9321	0.0010	-0.73	0.0014	11	17	5d ⁴	59968.71(2)	289889.64(2)	pa
62	466	435.3476	229701.51	435.3483	0.0010	0.35	-0.0007	7	22	5d ⁴	35217.21(5)	264918.36(4)	pa
432	461	435.4719	229635.94	435.4710	0.0015	-0.47	0.0009	6	8	5d ⁴	94582.78(2)	324219.19(3)	pa

241	467	435.5887	229574.37	435.5852	0.0013	-1.85	0.0035	9	12	5d ⁴	79220.07(4)	308796.28(3)	pa
66	187	436.0944	229308.15	436.0931	0.0008	-0.68	0.0013	13	25	5d ⁴	59277.71(4)	288586.55(5)	pa
23	378	436.2242	229239.92	436.2302	0.0012	3.15	-0.0060	6	15	5d ⁴	7686.54(1)	236923.31(1)	pa * 250
62	378	436.2242	229239.92	436.2170	0.0012	-3.79	0.0072	14	21	5d ⁴	74681.23(3)	303924.93(3)	pa * 150
116	613	437.5694	228535.18	437.5710	0.0009	0.83	-0.0016	7	23	5d ⁴	43373.73(3)	271908.08(2)	pa
11	47	437.6789	228478.00	437.6815	0.0011	1.35	-0.0026	11	18	5d ⁴	52325.64(5)	280802.29(5)	pa *
17	86	437.7346	228448.93	437.7317	0.0013	-1.52	0.0029	6	20	5d ⁴	35465.59(1)	263916.04(1)	pa
400	361	437.8453	228391.17	437.8489	0.0012	1.88	-0.0036	9	12	5d ⁴	79220.07(4)	307609.36(5)	pa
98	317	438.0825	228267.51	438.0803	0.0013	-1.13	0.0022	11	25	5d ⁴	59277.71(4)	287546.35(3)	pa
8	15	438.4510	228075.66	438.4472	0.0009	-1.95	0.0038	12	26	5d ⁴	41310.48(4)	269388.09(3)	pa *
40	123	439.2133	227679.81	439.2137	0.0009	0.20	-0.0004	10	25	5d ⁴	59277.71(4)	286957.32(4)	pa
56	260	439.4100	227577.89	439.4105	0.0014	0.25	-0.0005	11	17	5d ⁴	59968.71(2)	287546.35(3)	pa Pt VI
27	290	439.5525	227504.11	439.5555	0.0009	1.53	-0.0030	8	30	5d ⁴	17548.20(3)	245050.78(2)	pa Pt VI(150)
10	12	439.7694	227391.90	439.7678	0.0016	-0.85	0.0016	10	11	5d ⁴	53460.16(1)	280852.91(2)	pa *
261	567	440.3668	227083.42	440.3643	0.0008	-1.31	0.0025	12	25	5d ⁴	59277.71(4)	286362.45(4)	pa Pt VI(100)
16	130	440.5143	227007.39	440.5118	0.0008	-1.29	0.0025	10	26	5d ⁴	41310.48(4)	268319.16(5)	pa
41	164	440.5802	226973.43	440.5761	0.0011	-2.11	0.0041	11	21	5d ⁴	63259.08(3)	290234.62(2)	pa
168	620	441.1421	226684.33	441.1410	0.0010	-0.55	0.0011	5	23	5d ⁴	43373.73(3)	270058.61(4)	pa
37	460	442.3411	226069.88	442.3401	0.0009	-0.53	0.0010	10	30	5d ⁴	17548.20(3)	243618.62(3)	pa
66	134	442.6074	225933.86	442.6049	0.0024	-1.26	0.0025	2	9	5d ⁴	75009.25(1)	300944.38(0)	pa
41	147	442.6365	225919.01	442.6415	0.0015	2.55	-0.0050	9	14	5d ⁴	74807.45(2)	300723.91(3)	pa
37	72	442.8478	225811.22	442.8494	0.0020	0.83	-0.0016	5	8	5d ⁴	94582.78(2)	320393.17(2)	pa
65	405	442.9013	225783.94	442.9022	0.0008	0.45	-0.0009	11	30	5d ⁴	32690.95(3)	258474.44(4)	pa
38	215	443.1988	225632.38	443.2005	0.0009	0.87	-0.0017	9	23	5d ⁴	48837.73(3)	274469.24(4)	pa
39	222	443.5111	225473.50	443.5123	0.0010	0.61	-0.0012	15	17	5d ⁴	59968.71(2)	285441.60(3)	pa
17	171	443.6853	225384.97	443.6833	0.0009	-1.00	0.0020	7	21	5d ⁴	28527.15(4)	253913.13(5)	pa
53	446	443.7474	225353.43	443.7487	0.0009	0.65	-0.0013	9	28	5d ⁴	33418.14(2)	258770.93(1)	pa
47	295	443.8246	225314.23	443.8264	0.0009	0.89	-0.0017	9	27	5d ⁴	41860.96(2)	267174.30(2)	pa
17	103	444.0491	225200.32	444.0441	0.0010	-2.55	0.0050	10	21	5d ⁴	50713.26(2)	275916.14(3)	pa
76	222	444.6204	224910.96	444.6209	0.0011	0.24	-0.0005	9	18	5d ⁴	66159.02(2)	291069.74(1)	pa
63	387	444.6740	224883.85	444.6744	0.0009	0.21	-0.0004	11	27	5d ⁴	41860.96(2)	266744.59(3)	pa
39	132	444.7216	224859.78	444.7228	0.0012	0.60	-0.0012	6	21	5d ⁴	74681.23(3)	299540.40(4)	pa
39	65	445.0764	224680.53	445.0770	0.0015	0.30	-0.0006	8	8	5d ⁴	94582.78(2)	319263.01(3)	pa
29	147	445.5300	224451.78	445.5295	0.0009	-0.23	0.0005	12	33	5d ⁴	44936.09(4)	269388.09(3)	pa
44	519	445.7061	224363.10	445.7070	0.0010	0.48	-0.0009	10	21	5d ⁴	19256.00(4)	243618.62(3)	pa
43	260	445.7423	224344.87	445.7427	0.0020	0.20	-0.0004	7	9	5d ⁴	75009.25(1)	299353.93(1)	pa
41	169	446.2806	224074.27	446.2780	0.0011	-1.33	0.0026	11	18	5d ⁴	66159.02(2)	290234.62(2)	pa
111	369	446.4900	223969.18	446.4900	0.0011	0.02	0.0000	8	18	5d ⁴	66159.02(2)	290128.19(3)	pa
80	532	446.7662	223830.72	446.7664	0.0018	0.12	-0.0002	5	17	5d ⁴	59968.71(2)	283799.31(2)	pa
12	83	446.8239	223801.82	446.8264	0.0009	1.24	-0.0025	9	23	5d ⁴	43373.73(3)	267174.30(2)	pa
119	541	447.0304	223698.43	447.0308	0.0010	0.19	-0.0004	10	21	5d ⁴	63259.08(3)	286957.32(4)	pa 300

35	279	447.2119	223607.65	447.2114	0.0010	-0.23	0.0005	7	26	5d ⁴	41310.48(4)	264918.36(4)	pa
7	149	447.6511	223388.26	447.6492	0.0011	-0.95	0.0019	6	20	5d ⁴	13534.10(2)	236923.31(1)	pa
18	159	447.7126	223357.57	447.7137	0.0011	0.53	-0.0011	8	21	5d ⁴	74681.23(3)	298038.27(2)	pa
23	225	447.7422	223342.81	447.7442	0.0009	0.98	-0.0020	10	26	5d ⁴	41310.48(4)	264652.31(3)	pa
26	217	447.9150	223256.64	447.9138	0.0010	-0.59	0.0012	11	22	5d ⁴	35217.21(5)	258474.44(4)	pa
28	107	448.2227	223103.38	448.2227	0.0010	0.01	0.0000	12	21	5d ⁴	63259.08(3)	286362.45(4)	pa
16	333	449.3872	222525.25	449.3898	0.0010	1.29	-0.0026	12	21	5d ⁴	63259.08(3)	285783.04(2)	pa 100
38	200	450.8391	221808.62	450.8394	0.0009	0.12	-0.0003	11	33	5d ⁴	44936.09(4)	266744.59(3)	pa
26	149	451.3257	221569.48	451.3246	0.0010	-0.55	0.0011	11	21	5d ⁴	63259.08(3)	284829.11(4)	pa
138	451	451.4184	221523.98	451.4172	0.0009	-0.60	0.0012	11	25	5d ⁴	59277.71(4)	280802.29(5)	pa
38	122	451.6967	221387.49	451.6970	0.0014	0.17	-0.0003	11	18	5d ⁴	66159.02(2)	287546.35(3)	pa
26	131	451.8587	221308.12	451.8600	0.0011	0.64	-0.0013	8	21	5d ⁴	50713.26(2)	272020.74(1)	pa
10	79	451.9183	221278.93	451.9190	0.0009	0.36	-0.0007	10	23	5d ⁴	43373.73(3)	264652.31(3)	pa
17	119	452.7238	220885.23	452.7259	0.0012	1.03	-0.0021	10	17	5d ⁴	59968.71(2)	280852.91(2)	pa
36	361	453.6424	220437.95	453.6387	0.0008	-1.79	0.0037	8	30	5d ⁴	32690.95(3)	253130.69(2)	pa
26	274	453.6670	220425.99	453.6654	0.0009	-0.78	0.0016	9	28	5d ⁴	33418.14(2)	253844.92(3)	pa
9	88	454.5848	219980.96	454.5821	0.0009	-1.32	0.0027	7	33	5d ⁴	44936.09(4)	264918.36(4)	pa
16	151	455.1376	219713.77	455.1402	0.0008	1.23	-0.0026	8	28	5d ⁴	33418.14(2)	253130.69(2)	pa
32	205	455.3218	219624.89	455.3236	0.0011	0.87	-0.0018	12	18	5d ⁴	66159.02(2)	285783.04(2)	pa 100, Pt VI(100)
28	195	457.3001	218674.78	457.3000	0.0010	-0.05	0.0001	12	21	5d ⁴	50713.26(2)	269388.09(3)	pa
115	566	457.4776	218589.94	457.4796	0.0010	0.98	-0.0020	8	25	5d ⁴	59277.71(4)	277866.67(5)	pa
35	147	458.7981	217960.80	458.7949	0.0018	-1.50	0.0032	7	14	5d ⁴	74807.45(2)	292769.74(1)	pa
38	387	459.0360	217847.84	459.0369	0.0008	0.44	-0.0009	9	30	5d ⁴	32690.95(3)	250538.35(4)	pa
20	225	461.0168	216911.83	461.0208	0.0010	1.87	-0.0040	9	27	5d ⁴	41860.96(2)	258770.93(1)	pa 150, Pt VI(100)
10	60	461.5963	216639.52	461.5986	0.0010	1.10	-0.0023	10	25	5d ⁴	59277.71(4)	275916.14(3)	pa
18	181	462.5831	216177.37	462.5849	0.0011	0.84	-0.0018	8	20	5d ⁴	35465.59(1)	251642.12(1)	pa
23	182	462.9775	215993.22	462.9769	0.0011	-0.30	0.0006	10	18	5d ⁴	52325.64(5)	268319.16(5)	pa
25	300	463.6300	215689.23	463.6336	0.0012	1.67	-0.0036	7	13	5d ⁴	38225.56(6)	253913.13(5)	pa Pt VI(80)
15	55	464.3048	215375.76	464.2992	0.0014	-2.58	0.0056	13	13	5d ⁴	73208.20(4)	288586.55(5)	pa *
64	808	464.4210	215321.87	464.4226	0.0011	0.73	-0.0016	9	22	5d ⁴	35217.21(5)	250538.35(4)	pa Pt VI(200)
25	427	464.9175	215091.92	464.9185	0.0011	0.46	-0.0010	10	21	5d ⁴	28527.15(4)	243618.62(3)	pa
10	50	468.3051	213536.01	468.2999	0.0009	-2.35	0.0052	11	33	5d ⁴	44936.09(4)	258474.44(4)	pa *
6	85	470.9017	212358.55	470.8989	0.0009	-1.28	0.0028	8	30	5d ⁴	32690.95(3)	245050.78(2)	pa
15	330	474.0928	210929.17	474.0962	0.0010	1.50	-0.0034	10	30	5d ⁴	32690.95(3)	243618.62(3)	pa
14	433	475.1230	210471.82	475.1244	0.0010	0.63	-0.0014	9	23	5d ⁴	43373.73(3)	253844.92(3)	pa 200
3	61	475.2292	210424.78	475.2233	0.0015	-2.59	0.0059	13	13	5d ⁴	73208.20(4)	283635.58(4)	pa *
15	769	475.5708	210273.63	475.5655	0.0023	-2.33	0.0053	6	5	5d ⁴	26647.34(0)	236923.31(1)	pa * 200, m(Pt VI)
13	348	475.7334	210201.76	475.7363	0.0010	1.29	-0.0029	10	28	5d ⁴	33418.14(2)	243618.62(3)	pa
31	250	475.9400	210110.52	475.9403	0.0010	0.14	-0.0003	12	25	5d ⁴	59277.71(4)	269388.09(3)	pa
27	548	477.1337	209584.86	477.1330	0.0011	-0.33	0.0007	8	20	5d ⁴	35465.59(1)	245050.78(2)	pa 300
10	79	477.6377	209363.71	477.6314	0.0014	-2.77	0.0063	13	12	5d ⁴	79220.07(4)	288586.55(5)	pa *

20	780	478.5183	208978.42	478.5215	0.0010	1.39	-0.0032	7	33	5d ⁴	44936.09(4)	253913.13(5)	pa * 200, m(Pt VI)
12	101	478.6751	208909.97	478.6777	0.0009	1.14	-0.0026	9	33	5d ⁴	44936.09(4)	253844.92(3)	pa
1	37	479.5677	208521.13	479.5674	0.0022	-0.14	0.0003	3	11	5d ⁴	53460.16(1)	261981.43(0)	pa *
73	329	481.7148	207591.71	481.7093	0.0015	-2.37	0.0055	11	13	5d ⁴	73208.20(4)	280802.29(5)	pa
11	84	482.0044	207466.99	482.0047	0.0010	0.11	-0.0003	11	25	5d ⁴	59277.71(4)	266744.59(3)	pa
2	33	486.3787	205601.11	486.3760	0.0010	-1.15	0.0027	9	33	5d ⁴	44936.09(4)	250538.35(4)	pa *
27	201	488.6248	204656.01	488.6189	0.0017	-2.46	0.0059	8	13	5d ⁴	73208.20(4)	277866.67(5)	pa *
17	278	491.3891	203504.72	491.3880	0.0011	-0.45	0.0011	6	28	5d ⁴	33418.14(2)	236923.31(1)	pa
9	258	492.1472	203191.24	492.1506	0.0011	1.42	-0.0034	8	27	5d ⁴	41860.96(2)	245050.78(2)	pa 100, Pt VI
5	326	494.2908	202310.06	494.2955	0.0012	1.92	-0.0047	10	26	5d ⁴	41310.48(4)	243618.62(3)	pa * 150, Pt VI(150)
7	350	495.7779	201703.22	495.7843	0.0011	2.60	-0.0064	9	23	5d ⁴	48837.73(3)	250538.35(4)	pa * 200, Pt VI(150)
10	94	497.4791	201013.47	497.4746	0.0013	-1.81	0.0045	9	18	5d ⁴	66159.02(2)	267174.30(2)	pa *
2	72	499.3931	200243.05	499.3885	0.0012	-1.83	0.0046	10	23	5d ⁴	43373.73(3)	243618.62(3)	pa *
18	236	502.0176	199196.20	502.0163	0.0010	-0.53	0.0013	11	25	5d ⁴	59277.71(4)	258474.44(4)	pa
4	156	512.2519	195216.45	512.2548	0.0012	1.09	-0.0029	11	21	5d ⁴	63259.08(3)	258474.44(4)	pa 50, Pt VI(100)
16	59	708.5109	141141.09	708.5045	0.0070	-1.28	0.0064	6	7	5d ³ 6s	200913.70(5)	342056.07(4)	pb *
12	68	752.5108	132888.46	752.5101	0.0015	-0.12	0.0007	10	11	5d ³ 6s	162941.82(4)	295830.40(4)	pb
44	103	771.1677	129673.48	771.1679	0.0019	0.04	-0.0002	9	5	5d ³ 6s	181012.01(5)	310685.46(4)	pb
11	80	772.4644	129455.80	772.4615	0.0019	-0.49	0.0029	12	13	5d ³ 6s	156906.15(3)	286362.45(4)	pb *
10	74	775.9344	128876.87	775.9343	0.0020	-0.02	0.0001	12	13	5d ³ 6s	156906.15(3)	285783.04(2)	pb
21	300	789.3390	126688.28	789.3379	0.0016	-0.18	0.0011	11	12	5d ³ 6s	163201.18(2)	289889.64(2)	pb 200
43	179	792.4588	126189.53	792.4606	0.0031	0.29	-0.0018	14	10	5d ³ 6s	177735.70(3)	303924.93(3)	pb
17	129	795.0110	125784.42	795.0106	0.0060	-0.07	0.0004	7	9	5d ³ 6s	182794.00(3)	308578.49(2)	pb *
21	83	795.4357	125717.26	795.4392	0.0090	0.55	-0.0035	4	3	5d ³ 6s	224298.19(2)	350014.90(1)	pb *
171	460	798.3252	125262.24	798.3234	0.0023	-0.28	0.0018	6	6	5d ³ 6s	194818.86(5)	320081.37(4)	pb
35	255	804.3193	124328.73	804.3207	0.0022	0.22	-0.0014	4	6	5d ³ 6s	190702.44(6)	315030.96(6)	pb
36	740	804.7002	124269.88	804.6943	0.0030	-0.91	0.0059	6	11	5d ³ 6s	149508.10(2)	273778.89(1)	pb * 200, m(2d ord)
56	350	807.1574	123891.57	807.1575	0.0017	0.02	-0.0001	11	10	5d ³ 6s	174177.03(4)	298068.58(3)	pb
11	136	813.4458	122933.82	813.4436	0.0022	-0.34	0.0022	9	10	5d ³ 6s	168135.58(2)	291069.74(1)	pb
70	350	813.5433	122919.09	813.5421	0.0018	-0.18	0.0012	9	6	5d ³ 6s	190702.44(6)	313621.71(5)	pb Pt IV
19	146	815.7162	122591.66	815.7172	0.0050	0.15	-0.0010	8	7	5d ³ 6s	198686.51(3)	321278.02(3)	pb *
25	467	816.3324	122499.12	816.3280	0.0019	-0.66	0.0044	15	11	5d ³ 6s	162941.82(4)	285441.60(3)	pb * 2d ord
24	100	816.5020	122473.67	816.5016	0.0020	-0.06	0.0004	8	13	5d ³ 6s	156906.15(3)	279379.88(2)	pb
18	171	816.9921	122400.20	816.9936	0.0021	0.22	-0.0015	7	11	5d ³ 6s	149508.10(2)	271908.08(2)	pb
25	83	818.4802	122177.66	818.4770	0.0016	-0.47	0.0032	11	11	5d ³ 6s	171982.98(3)	294161.11(4)	pb
21	145	820.4311	121887.14	820.4301	0.0018	-0.15	0.0010	11	11	5d ³ 6s	162941.82(4)	284829.11(4)	pb
30	372	821.3293	121753.85	821.3279	0.0017	-0.21	0.0014	11	10	5d ³ 6s	168135.58(2)	289889.64(2)	pb
58	334	822.7551	121542.85	822.7553	0.0021	0.04	-0.0002	10	10	5d ³ 6s	177735.70(3)	299278.51(2)	pb
71	646	823.4228	121444.29	823.4220	0.0016	-0.12	0.0008	13	9	5d ³ 6s	167142.13(5)	288586.55(5)	pb
60	384	824.6501	121263.55	824.6479	0.0022	-0.33	0.0022	7	6	5d ³ 6s	194359.74(3)	315623.62(3)	pb Pt IV(150)
24	56	826.1352	121045.56	826.1335	0.0050	-0.25	0.0017	8	5	5d ³ 6s	200232.21(4)	321278.02(3)	pb *

40	244	826.8546	120940.25	826.8558	0.0018	0.18	-0.0013	9	13	5d ³ 6s	156906.15(3)	277846.22(2)	pb
34	181	828.1230	120755.01	828.1230	0.0016	0.00	0.0000	10	11	5d ³ 6s	162941.82(4)	283696.83(3)	pb
172	765	828.5462	120693.33	828.5433	0.0017	-0.43	0.0029	13	11	5d ³ 6s	162941.82(4)	283635.58(4)	pb
114	447	828.6394	120679.76	828.6389	0.0017	-0.08	0.0005	10	9	5d ³ 6s	167142.13(5)	287821.96(5)	pb
43	197	828.9818	120629.91	828.9833	0.0022	0.22	-0.0015	11	6	5d ³ 6s	194359.74(3)	314989.43(4)	pb
38	164	831.0259	120333.19	831.0280	0.0017	0.31	-0.0021	11	10	5d ³ 6s	177735.70(3)	298068.58(3)	pb 2d ord
79	252	831.8758	120210.25	831.8747	0.0023	-0.16	0.0011	10	7	5d ³ 6s	198686.51(3)	318896.93(4)	pb 2d ord
74	594	834.1660	119880.22	834.1675	0.0020	0.22	-0.0015	12	11	5d ³ 6s	149508.10(2)	269388.09(3)	pb
63	612	835.7545	119652.36	835.7535	0.0030	-0.14	0.0010	6	5	5d ³ 6s	145974.13(1)	265626.64(2)	pb
164	473	836.3354	119569.25	836.3357	0.0030	0.04	-0.0003	6	4	5d ³ 6s	204649.97(4)	324219.19(3)	pb Pt III
23	339	837.4511	119409.96	837.4455	0.0040	-0.81	0.0056	11	10	5d ³ 6s	168135.58(2)	287546.35(3)	pb * Pt III
103	256	839.2057	119160.30	839.2054	0.0031	-0.04	0.0003	5	3	5d ³ 6s	224298.19(2)	343458.53(2)	pb
79	363	839.5969	119104.77	839.5963	0.0030	-0.09	0.0006	5	5	5d ³ 6s	206633.42(3)	325738.29(2)	pb
106	565	839.8048	119075.29	839.8053	0.0022	0.07	-0.0005	12	6	5d ³ 6s	166707.83(1)	285783.04(2)	pb
127	889	840.2674	119009.73	840.2656	0.0020	-0.25	0.0018	10	13	5d ³ 6s	156906.15(3)	275916.14(3)	pb
156	611	841.7314	118802.74	841.7306	0.0019	-0.11	0.0008	9	6	5d ³ 6s	194818.86(5)	313621.71(5)	pb
53	279	843.1179	118607.37	843.1189	0.0030	0.14	-0.0010	5	6	5d ³ 6s	166707.83(1)	285315.06(1)	pb
70	309	843.7953	118512.16	843.7931	0.0024	-0.31	0.0022	6	7	5d ³ 6s	198686.51(3)	317198.98(2)	pb
26	145	845.6528	118251.84	845.6542	0.0031	0.19	-0.0014	11	11	5d ³ 6s	171982.98(3)	290234.62(2)	pb
70	448	846.6964	118106.09	846.6982	0.0017	0.26	-0.0018	11	12	5d ³ 6s	163201.18(2)	281307.02(3)	pb
235	1076	846.7780	118094.71	846.7780	0.0018	0.00	0.0000	10	10	5d ³ 6s	177735.70(3)	295830.40(4)	pb
93	400	847.5761	117983.51	847.5781	0.0021	0.27	-0.0020	10	7	5d ³ 6s	200913.70(5)	318896.93(4)	pb
109	851	847.8731	117942.18	847.8751	0.0030	0.27	-0.0020	6	5	5d ³ 6s	145974.13(1)	263916.04(1)	pb
28	152	848.1231	117907.41	848.1285	0.0019	0.75	-0.0054	11	11	5d ³ 6s	171982.98(3)	289889.64(2)	pb
110	163	848.2116	117895.11	848.2119	0.0030	0.04	-0.0003	4	3	5d ³ 6s	232119.83(2)	350014.90(1)	pb
183	940	848.4632	117860.15	848.4609	0.0020	-0.32	0.0023	11	11	5d ³ 6s	162941.82(4)	280802.29(5)	pb
57	558	849.7131	117686.78	849.7117	0.0018	-0.19	0.0014	11	9	5d ³ 6s	167142.13(5)	284829.11(4)	pb
32	309	849.8623	117666.12	849.8617	0.0020	-0.08	0.0006	9	11	5d ³ 6s	149508.10(2)	267174.30(2)	pb
21	55	850.4416	117585.97	850.4431	0.0040	0.20	-0.0015	6	5	5d ³ 6s	206633.42(3)	324219.19(3)	pb *
249	1039	850.6060	117563.24	850.6071	0.0019	0.16	-0.0011	9	13	5d ³ 6s	156906.15(3)	274469.24(4)	pb
87	283	851.5192	117437.16	851.5185	0.0030	-0.10	0.0007	7	6	5d ³ 6s	194359.74(3)	311797.01(3)	pb
25	185	852.4688	117306.35	852.4712	0.0019	0.33	-0.0024	15	10	5d ³ 6s	168135.58(2)	285441.60(3)	pb
21	330	852.9761	117236.58	852.9767	0.0020	0.09	-0.0006	11	11	5d ³ 6s	149508.10(2)	266744.59(3)	pb
393	924	854.5397	117022.07	854.5399	0.0030	0.03	-0.0002	6	5	5d ³ 6s	200232.21(4)	317254.24(5)	pb
57	191	855.1560	116937.73	855.1605	0.0022	0.62	-0.0045	7	7	5d ³ 6s	198686.51(3)	315623.62(3)	pb
96	397	855.3826	116906.75	855.3814	0.0021	-0.16	0.0012	9	6	5d ³ 6s	190702.44(6)	307609.36(5)	pb
99	363	855.9237	116832.84	855.9208	0.0023	-0.40	0.0029	5	5	5d ³ 6s	181012.01(5)	297845.26(5)	pb
83	237	856.2313	116790.87	856.2339	0.0020	0.35	-0.0026	6	3	5d ³ 6s	200408.46(2)	317198.98(2)	pb
95	331	857.2083	116657.76	857.2083	0.0030	0.00	0.0000	6	1	5d ³ 6s	208593.93(1)	325251.69(1)	pb
118	543	858.9205	116425.21	858.9190	0.0018	-0.21	0.0015	11	10	5d ³ 6s	177735.70(3)	294161.11(4)	pb
46	290	859.6529	116326.02	859.6551	0.0022	0.30	-0.0022	9	6	5d ³ 6s	194359.74(3)	310685.46(4)	pb Pt IV

226	570	859.8253	116302.70	859.8236	0.0024	-0.22	0.0017	11	7	5d ³ 6s	198686.51(3)	314989.43(4)	pb
15	59	860.7483	116177.98	860.7430	0.0023	-0.72	0.0053	8	12	5d ³ 6s	163201.18(2)	279379.88(2)	pb *
78	500	861.1886	116118.58	861.1889	0.0020	0.05	-0.0003	6	11	5d ³ 6s	149508.10(2)	265626.64(2)	pb
55	548	861.3986	116090.27	861.4004	0.0031	0.24	-0.0018	9	2	5d ³ 6s	174979.71(1)	291069.74(1)	pb Pt III
36	450	862.0157	116007.17	862.0148	0.0030	-0.13	0.0009	3	5	5d ³ 6s	145974.13(1)	261981.43(0)	pb
44	269	862.4324	115951.12	862.4321	0.0030	-0.04	0.0003	8	10	5d ³ 6s	174177.03(4)	290128.19(3)	pb
132	602	863.0611	115866.65	863.0615	0.0022	0.05	-0.0004	9	6	5d ³ 6s	194818.86(5)	310685.46(4)	pb
183	604	863.1220	115858.48	863.1221	0.0030	0.01	-0.0001	8	3	5d ³ 6s	205419.56(2)	321278.02(3)	pb
387	277	863.6490	115787.78	863.6490	0.0030	0.00	0.0000	6	1	5d ³ 6s	226268.29(3)	342056.07(4)	pb
698	1302	863.8796	115756.87	863.8785	0.0030	-0.14	0.0011	3	6	5d ³ 6s	190702.44(6)	306459.46(7)	pb
146	441	864.1888	115715.46	864.1890	0.0030	0.02	-0.0002	9	9	5d ³ 6s	182794.00(3)	298509.43(3)	pb
511	1141	865.9764	115476.59	865.9768	0.0030	0.05	-0.0004	2	9	5d ³ 6s	167142.13(5)	282618.67(6)	pb
561	1031	866.1509	115453.32	866.1500	0.0030	-0.12	0.0009	4	5	5d ³ 6s	181012.01(5)	296465.45(6)	pb
47	238	867.4960	115274.31	867.4939	0.0019	-0.27	0.0021	11	9	5d ³ 6s	182794.00(3)	298068.58(3)	pb
135	403	867.7223	115244.24	867.7221	0.0030	-0.03	0.0002	8	9	5d ³ 6s	182794.00(3)	298038.27(2)	pb
103	194	867.9443	115214.77	867.9413	0.0021	-0.39	0.0030	7	3	5d ³ 6s	200408.46(2)	315623.62(3)	pb
114	610	868.4795	115143.77	868.4761	0.0020	-0.44	0.0034	10	11	5d ³ 6s	149508.10(2)	264652.31(3)	pb
242	828	870.1341	114924.81	870.1338	0.0030	-0.04	0.0003	8	11	5d ³ 6s	162941.82(4)	277866.67(5)	pb
64	310	870.2486	114909.69	870.2468	0.0031	-0.23	0.0018	11	2	5d ³ 6s	174979.71(1)	289889.64(2)	pb
156	412	870.5222	114873.58	870.5210	0.0030	-0.16	0.0012	9	6	5d ³ 6s	185850.18(2)	300723.91(3)	pb
23	66	871.4018	114757.62	871.4049	0.0030	0.40	-0.0031	11	5	5d ³ 6s	200232.21(4)	314989.43(4)	pb *
57	219	872.2564	114645.19	872.2576	0.0019	0.16	-0.0012	9	12	5d ³ 6s	163201.18(2)	277846.22(2)	pb
113	352	873.3216	114505.35	873.3216	0.0031	0.00	0.0000	7	1	5d ³ 6s	187627.20(1)	302132.55(2)	pb
33	155	874.0517	114409.71	874.0531	0.0018	0.19	-0.0014	13	10	5d ³ 6s	174177.03(4)	288586.55(5)	pb
301	690	874.1114	114401.89	874.1132	0.0030	0.23	-0.0018	6	6	5d ³ 6s	181525.21(4)	295926.87(5)	pb
76	300	874.8500	114305.31	874.8509	0.0020	0.12	-0.0009	10	6	5d ³ 6s	181525.21(4)	295830.40(4)	pb
155	339	875.2981	114246.79	875.2969	0.0023	-0.16	0.0012	10	4	5d ³ 6s	204649.97(4)	318896.93(4)	pb
60	231	876.0770	114145.22	876.0781	0.0030	0.14	-0.0011	10	6	5d ³ 6s	166707.83(1)	280852.91(2)	pb
520	820	876.2925	114117.15	876.2916	0.0024	-0.11	0.0009	4	7	5d ³ 6s	200913.70(5)	315030.96(6)	pb
221	313	876.4365	114098.40	876.4368	0.0031	0.04	-0.0003	6	3	5d ³ 6s	224298.19(2)	338396.55(3)	pb
10	42	876.6133	114075.38	876.6106	0.0031	-0.35	0.0027	11	7	5d ³ 6s	200913.70(5)	314989.43(4)	pb * Pt IV
47	53	878.3903	113844.61	878.3993	0.0060	1.16	-0.0090	8	3	5d ³ 6s	205419.56(2)	319263.01(3)	pb *
92	153	878.5886	113818.91	878.5886	0.0030	0.00	0.0000	4	1	5d ³ 6s	223218.77(1)	337037.68(2)	pb Pt IV
278	586	878.6293	113813.64	878.6296	0.0031	0.03	-0.0003	4	6	5d ³ 6s	194359.74(3)	308173.35(4)	pb
54	262	879.8128	113660.54	879.8158	0.0022	0.39	-0.0030	11	9	5d ³ 6s	167142.13(5)	280802.29(5)	pb
173	365	879.9329	113645.03	879.9336	0.0019	0.09	-0.0007	10	10	5d ³ 6s	174177.03(4)	287821.96(5)	pb
56	152	881.3796	113458.49	881.3786	0.0019	-0.13	0.0010	15	11	5d ³ 6s	171982.98(3)	285441.60(3)	pb
135	160	881.4594	113448.22	881.4615	0.0030	0.27	-0.0021	6	5	5d ³ 6s	206633.42(3)	320081.37(4)	pb
38	145	881.6146	113428.25	881.6139	0.0024	-0.08	0.0007	10	6	5d ³ 6s	185850.18(2)	299278.51(2)	pb
175	165	883.5884	113174.87	883.5882	0.0030	-0.02	0.0002	4	3	5d ³ 6s	232119.83(2)	345294.72(3)	pb
49	292	883.6167	113171.24	883.6152	0.0018	-0.19	0.0015	11	10	5d ³ 6s	168135.58(2)	281307.02(3)	pb

40	165	883.7636	113152.43	883.7634	0.0031	-0.03	0.0002	5	13	5d ³ 6s	156906.15(3)	270058.61(4)	pb	
36	141	884.6714	113036.32	884.6708	0.0020	-0.08	0.0006	10	9	5d ³ 6s	182794.00(3)	295830.40(4)	pb	2d ord
94	168	884.8855	113008.97	884.8855	0.0030	0.00	0.0000	14	1	5d ³ 6s	190915.96(2)	303924.93(3)	pb	
217	515	886.2544	112834.42	886.2540	0.0023	-0.06	0.0004	5	6	5d ³ 6s	190702.44(6)	303536.92(6)	pb	
6	68	886.5474	112797.13	886.5500	0.0040	0.33	-0.0026	9	5	5d ³ 6s	145974.13(1)	258770.93(1)	pb *	
103	170	886.5987	112790.60	886.5995	0.0022	0.10	-0.0008	9	6	5d ³ 6s	194818.86(5)	307609.36(5)	pb	
81	413	887.1911	112715.29	887.1937	0.0022	0.34	-0.0027	10	12	5d ³ 6s	163201.18(2)	275916.14(3)	pb	
82	142	887.2489	112707.95	887.2483	0.0020	-0.07	0.0006	9	7	5d ³ 6s	200913.70(5)	313621.71(5)	pb	
84	212	887.8138	112636.23	887.8164	0.0020	0.33	-0.0026	11	6	5d ³ 6s	181525.21(4)	294161.11(4)	pb	
157	252	887.8662	112629.58	887.8662	0.0031	0.00	0.0000	8	5	5d ³ 6s	206633.42(3)	319263.01(3)	pb	
170	391	888.3248	112571.44	888.3252	0.0030	0.04	-0.0004	6	3	5d ³ 6s	186969.01(4)	299540.40(4)	pb	
16	77	889.0264	112482.60	889.0316	0.0030	0.66	-0.0052	12	13	5d ³ 6s	156906.15(3)	269388.09(3)	pb *	
93	186	891.1173	112218.67	891.1194	0.0022	0.27	-0.0021	11	6	5d ³ 6s	185850.18(2)	298068.58(3)	pb	
55	162	891.3800	112185.60	891.3814	0.0021	0.18	-0.0014	12	10	5d ³ 6s	174177.03(4)	286362.45(4)	pb	
24	115	895.1472	111713.47	895.1441	0.0018	-0.38	0.0031	10	11	5d ³ 6s	171982.98(3)	283696.83(3)	pb	
120	329	895.6350	111652.63	895.6352	0.0020	0.03	-0.0002	13	11	5d ³ 6s	171982.98(3)	283635.58(4)	pb	Pt IV(200)
84	284	895.7147	111642.69	895.7134	0.0021	-0.17	0.0013	9	10	5d ³ 6s	168135.58(2)	279778.44(3)	pb	
38	408	896.6391	111527.59	896.6405	0.0019	0.17	-0.0014	9	11	5d ³ 6s	162941.82(4)	274469.24(4)	pb	Pt III
73	231	897.9287	111367.42	897.9311	0.0020	0.30	-0.0024	11	9	5d ³ 6s	182794.00(3)	294161.11(4)	pb	
16	55	898.9152	111245.20	898.9225	0.0030	0.90	-0.0073	8	10	5d ³ 6s	168135.58(2)	279379.88(2)	pb *	
126	532	903.7307	110652.43	903.7336	0.0020	0.35	-0.0029	11	10	5d ³ 6s	174177.03(4)	284829.11(4)	pb	Pt III
44	146	904.3402	110577.86	904.3414	0.0030	0.15	-0.0012	6	12	5d ³ 6s	163201.18(2)	273778.89(1)	pb	
68	276	907.9038	110143.83	907.9028	0.0023	-0.12	0.0010	4	9	5d ³ 6s	167142.13(5)	277286.08(6)	pb	
54	75	908.1843	110109.81	908.1846	0.0030	0.04	-0.0003	9	7	5d ³ 6s	198686.51(3)	308796.28(3)	pb	
90	193	910.5993	109817.79	910.5993	0.0030	0.00	0.0000	9	1	5d ³ 6s	198978.49(2)	308796.28(3)	pb	Pt III
54	196	911.4904	109710.43	911.4887	0.0020	-0.21	0.0017	9	10	5d ³ 6s	168135.58(2)	277846.22(2)	pb	
46	143	913.0744	109520.10	913.0769	0.0019	0.30	-0.0025	10	10	5d ³ 6s	174177.03(4)	283696.83(3)	pb	
13	40	914.7084	109324.46	914.7119	0.0019	0.42	-0.0035	11	11	5d ³ 6s	171982.98(3)	281307.02(3)	pb	
115	14	917.6696	108971.68	917.6691	0.0023	-0.06	0.0005	9	4	5d ³ 6s	204649.97(4)	313621.71(5)	pb	
287	678	919.8110	108717.99	919.8104	0.0024	-0.07	0.0006	5	6	5d ³ 6s	194818.86(5)	303536.92(6)	pb	
28	53	927.6811	107795.66	927.6828	0.0022	0.20	-0.0017	9	11	5d ³ 6s	171982.98(3)	279778.44(3)	pb	
49	141	931.1255	107396.91	931.1255	0.0024	0.00	0.0000	8	11	5d ³ 6s	171982.98(3)	279379.88(2)	pb	
61	301	936.2395	106810.28	936.2423	0.0030	0.33	-0.0028	10	5	5d ³ 6s	181012.01(5)	287821.96(5)	pc	200, Pt VI
144	303	937.2472	106695.44	937.2452	0.0030	-0.23	0.0020	9	7	5d ³ 6s	200913.70(5)	307609.36(5)	pc	
43	150	940.7676	106296.18	940.7625	0.0021	-0.58	0.0051	10	6	5d ³ 6s	181525.21(4)	287821.96(5)	pc	
32	106	943.7410	105961.27	943.7423	0.0022	0.14	-0.0013	10	10	5d ³ 6s	177735.70(3)	283696.83(3)	pc	
28	164	948.4791	105431.95	948.4776	0.0030	-0.17	0.0015	10	6	5d ³ 6s	181525.21(4)	286957.32(4)	pc	
69	391	953.1267	104917.85	953.1266	0.0040	-0.01	0.0001	4	3	5d ³ 6s	232119.83(2)	337037.68(2)	pc	
8	126	958.4290	104337.41	958.4345	0.0030	0.60	-0.0055	9	11	5d ³ 6s	149508.10(2)	253844.92(3)	pc *	
13	60	961.1684	104040.04	961.1737	0.0031	0.58	-0.0053	11	6	5d ³ 6s	185850.18(2)	289889.64(2)	pc *	
12	134	965.7735	103543.95	965.7785	0.0030	0.54	-0.0050	11	12	5d ³ 6s	163201.18(2)	266744.59(3)	pc *	2d ord

3	81	979.1022	102134.38	979.1057	0.0030	0.36	-0.0035	8	11	5d ³ 6s	149508.10(2)	251642.12(1)	pc *
21	63	983.0507	101724.15	983.0513	0.0041	0.06	-0.0006	7	3	5d ³ 6s	200408.46(2)	302132.55(2)	pc
67	155	984.0856	101617.18	984.0821	0.0030	-0.36	0.0035	13	3	5d ³ 6s	186969.01(4)	288586.55(5)	pc Pt V
8	28	984.5594	101568.27	984.5592	0.0030	-0.02	0.0002	11	13	5d ³ 6s	156906.15(3)	258474.44(4)	pc *
30	207	985.6923	101451.54	985.6963	0.0031	0.41	-0.0040	10	12	5d ³ 6s	163201.18(2)	264652.31(3)	pc
16	161	988.3694	101176.75	988.3667	0.0023	-0.28	0.0027	10	9	5d ³ 6s	167142.13(5)	268319.16(5)	pc
34	167	991.6525	100841.78	991.6545	0.0030	0.20	-0.0020	13	9	5d ³ 6s	182794.00(3)	283635.58(4)	pc
20	200	1039.2343	96224.69	1039.2360	0.0024	0.16	-0.0017	8	13	5d ³ 6s	156906.15(3)	253130.69(2)	pc 100
12	86	1046.3545	95569.90	1046.3563	0.0031	0.16	-0.0018	9	12	5d ³ 6s	163201.18(2)	258770.93(1)	pc
32	200	1062.2240	94142.10	1062.2237	0.0030	-0.03	0.0003	10	10	5d ³ 6s	174177.03(4)	268319.16(5)	pc
48	637	1062.5939	94109.33	1062.5805	0.0040	-1.19	0.0134	10	11	5d ³ 6s	149508.10(2)	243618.62(3)	pc * 400, m(2d ord)
37	452	1068.0087	93632.20	1068.0087	0.0030	0.00	0.0000	9	13	5d ³ 6s	156906.15(3)	250538.35(4)	pc 300
59	90	1073.0138	93195.45	1073.0157	0.0031	0.16	-0.0019	5	4	5d ³ 6s	204649.97(4)	297845.26(5)	pc
26	114	1085.3211	92138.63	1085.3230	0.0032	0.16	-0.0019	10	6	5d ³ 6s	194818.86(5)	286957.32(4)	pc Pt V
20	104	1086.2148	92062.82	1086.2115	0.0030	-0.28	0.0033	9	6	5d ³ 6s	166707.83(1)	258770.93(1)	pc
38	134	1090.8085	91675.12	1090.8071	0.0030	-0.12	0.0014	9	9	5d ³ 6s	182794.00(3)	274469.24(4)	pc
28	141	1091.0801	91652.30	1091.0789	0.0030	-0.10	0.0012	12	10	5d ³ 6s	177735.70(3)	269388.09(3)	pc
123	758	1094.8982	91332.69	1094.9028	0.0031	0.38	-0.0046	11	9	5d ³ 6s	167142.13(5)	258474.44(4)	pc 2d ord
24	152	1099.2439	90971.62	1099.2477	0.0030	0.32	-0.0038	7	11	5d ³ 6s	162941.82(4)	253913.13(5)	pc
92	478	1100.0707	90903.25	1100.0726	0.0030	0.15	-0.0019	9	11	5d ³ 6s	162941.82(4)	253844.92(3)	pc
18	92	1111.9832	89929.42	1111.9821	0.0030	-0.09	0.0011	8	12	5d ³ 6s	163201.18(2)	253130.69(2)	pc
50	167	1118.0874	89438.45	1118.0854	0.0030	-0.16	0.0020	9	10	5d ³ 6s	177735.70(3)	267174.30(2)	pc
41	122	1123.4844	89008.80	1123.4832	0.0030	-0.09	0.0012	11	10	5d ³ 6s	177735.70(3)	266744.59(3)	pc
11	94	1130.7047	88440.42	1130.6981	0.0031	-0.51	0.0066	8	12	5d ³ 6s	163201.18(2)	251642.12(1)	pc
50	380	1134.4982	88144.70	1134.4991	0.0030	0.07	-0.0009	8	13	5d ³ 6s	156906.15(3)	245050.78(2)	pc
21	98	1137.7727	87891.02	1137.7737	0.0030	0.08	-0.0010	6	10	5d ³ 6s	177735.70(3)	265626.64(2)	pc
27	68	1140.5561	87676.53	1140.5638	0.0050	0.59	-0.0077	12	7	5d ³ 6s	198686.51(3)	286362.45(4)	pc * Pt VIII
49	34	1140.6030	87672.92	1140.6039	0.0030	0.07	-0.0009	13	7	5d ³ 6s	200913.70(5)	288586.55(5)	pc
72	409	1141.5978	87596.52	1141.5977	0.0030	-0.01	0.0001	9	11	5d ³ 6s	162941.82(4)	250538.35(4)	pc
36	239	1143.9655	87415.22	1143.9657	0.0040	0.02	-0.0002	6	11	5d ³ 6s	149508.10(2)	236923.31(1)	pc
37	272	1144.8173	87350.18	1144.8172	0.0040	-0.01	0.0001	7	3	5d ³ 6s	205419.56(2)	292769.74(1)	pc
80	258	1145.3799	87307.28	1145.3816	0.0030	0.13	-0.0017	10	5	5d ³ 6s	181012.01(5)	268319.16(5)	pc Pt IV
11	86	1150.1234	86947.19	1150.1223	0.0030	-0.08	0.0011	11	6	5d ³ 6s	194359.74(3)	281307.02(3)	pc Pt V
88	728	1152.4608	86770.85	1152.4589	0.0030	-0.15	0.0019	7	9	5d ³ 6s	167142.13(5)	253913.13(5)	pc
51	433	1153.2389	86712.30	1153.2367	0.0040	-0.16	0.0022	10	13	5d ³ 6s	156906.15(3)	243618.62(3)	pc
115	76	1154.9501	86583.83	1154.9526	0.0030	0.19	-0.0025	4	6	5d ³ 6s	190702.44(6)	277286.08(6)	pc Pt VI
54	339	1155.0593	86575.64	1155.0593	0.0040	0.00	0.0000	1	5	5d ³ 6s	145974.13(1)	232549.77(2)	pc
29	78	1160.4900	86170.50	1160.4891	0.0041	-0.07	0.0009	8	6	5d ³ 6s	185850.18(2)	272020.74(1)	pc
44	92	1161.0323	86130.25	1161.0325	0.0030	0.01	-0.0002	12	5	5d ³ 6s	200232.21(4)	286362.45(4)	pc
11	54	1161.3232	86108.67	1161.3236	0.0040	0.03	-0.0004	2	6	5d ³ 6s	166707.83(1)	252816.47(0)	pc
25	141	1162.0078	86057.94	1162.0083	0.0030	0.04	-0.0005	7	6	5d ³ 6s	185850.18(2)	271908.08(2)	pc

30	149	1173.5800	85209.36	1173.5796	0.0030	-0.03	0.0004	15	5	5d ³ 6s	200232.21(4)	285441.60(3)	pc
22	112	1176.5383	84995.11	1176.5384	0.0030	0.01	-0.0001	8	10	5d ³ 6s	168135.58(2)	253130.69(2)	pc
14	70	1177.3808	84934.29	1177.3807	0.0030	-0.01	0.0001	8	6	5d ³ 6s	166707.83(1)	251642.12(1)	pc
39	139	1186.2821	84296.98	1186.2760	0.0030	-0.43	0.0061	11	10	5d ³ 6s	174177.03(4)	258474.44(4)	pc
20	91	1197.5058	83506.90	1197.5111	0.0031	0.37	-0.0053	8	10	5d ³ 6s	168135.58(2)	251642.12(1)	pc
19	276	1202.9781	83127.03	1202.9771	0.0030	-0.07	0.0010	10	6	5d ³ 6s	181525.21(4)	264652.31(3)	pc
41	160	1217.6654	82124.37	1217.6654	0.0040	0.00	0.0000	7	9	5d ³ 6s	182794.00(3)	264918.36(4)	pc
22	508	1221.5725	81861.70	1221.5689	0.0030	-0.24	0.0036	9	11	5d ³ 6s	171982.98(3)	253844.92(3)	pc 200
14	107	1221.7560	81849.40	1221.7531	0.0030	-0.19	0.0029	8	12	5d ³ 6s	163201.18(2)	245050.78(2)	pc
61	88	1229.2521	81350.28	1229.2540	0.0030	0.13	-0.0019	10	3	5d ³ 6s	186969.01(4)	268319.16(5)	pc
61	77	1254.1423	79735.77	1254.1371	0.0040	-0.33	0.0052	7	10	5d ³ 6s	174177.03(4)	253913.13(5)	pd
25	140	1254.2514	79728.83	1254.2484	0.0050	-0.19	0.0030	12	5	5d ³ 6s	206633.42(3)	286362.45(4)	pd
41	82	1272.9904	78555.19	1272.9874	0.0040	-0.18	0.0030	9	11	5d ³ 6s	171982.98(3)	250538.35(4)	pd

Table 2Experimental and calculated energy levels (cm⁻¹) in the 5d⁴ and 5d³6s configurations of Pt VII.

E _{obs}	E _{calc}	Δ	N	N _{opt}	rwmv ₁	rwmv ₂	Unc	Composition				
J = 0												
-	193577.78	-						66% 2 ⁽⁴ P) ³ P	+	34% 2 ⁽² P) ³ P		
-	176718.20	-						66% 2 ⁽² P) ³ P	+	34% 2 ⁽⁴ P) ³ P		
118065.33	118051.80	13.53	1	1	1.61	1.61	1.90	76% 1 ¹ S1	+	13% 1 ¹ S2	+	8% 1 ³ P1
78710.21	78671.67	38.54	1	1	1.69	1.69	3.00	54% 1 ³ P1	+	22% 1 ³ P2	+	19% 1 ¹ S2
60798.47	60834.06	-35.59	1	1	1.82	1.82	3.00	53% 1 ¹ S2	+	30% 1 ³ P2	+	16% 1 ¹ S1
26647.34	26663.49	-16.15	5	4	0.92	0.61	1.10	43% 1 ⁵ D	+	26% 1 ³ P2	+	15% 1 ³ P1
0.00	20.68	-20.68	5	4	0.95	0.79	1.20	56% 1 ⁵ D	+	22% 1 ³ P1	+	18% 1 ³ P2
J = 1												
223218.77	223214.11	4.66	1	1	0.39	0.39	1.10	59% 2 ⁽² D1) ³ D	+	36% 2 ⁽² D2) ³ D	+	2% 2 ⁽⁴ P) ³ P
208593.93	208645.73	-51.80	1	1	0.41	0.41	1.10	50% 2 ⁽² P) ¹ P	+	19% 2 ⁽⁴ P) ³ P	+	16% 2 ⁽² D1) ³ D
-	191995.80	-						43% 2 ⁽⁴ P) ³ P	+	28% 2 ⁽² D2) ³ D	+	13% 2 ⁽² P) ³ P
187627.20	187595.94	31.26	1	1	0.39	0.39	0.70	50% 2 ⁽² P) ³ P	+	20% 2 ⁽⁴ P) ⁵ P	+	16% 2 ⁽² P) ¹ P
174979.71	175000.51	-20.80	2	2	0.28	0.24	0.40	30% 2 ⁽² P) ¹ P	+	27% 2 ⁽⁴ P) ³ P	+	15% 2 ⁽² D2) ³ D
166707.83	166677.79	30.04	6	6	0.14	0.06	0.30	68% 2 ⁽⁴ P) ⁵ P	+	25% 2 ⁽² P) ³ P	+	3% 2 ⁽⁴ F) ⁵ F
145974.13	145995.34	-21.21	5	3	0.24	0.14	0.40	83% 2 ⁽⁴ F) ⁵ F	+	9% 2 ⁽² D2) ³ D	+	6% 2 ⁽² D1) ³ D
75009.25	75016.59	-7.34	9	8	0.60	0.35	0.80	60% 1 ³ P1	+	36% 1 ³ P2	+	2% 1 ³ D
53460.16	53447.29	12.87	11	8	0.65	0.36	0.80	81% 1 ³ D	+	10% 1 ³ P1	+	5% 1 ⁵ D
35465.59	35455.09	10.50	20	16	0.44	0.34	0.60	51% 1 ³ P2	+	19% 1 ³ P1	+	16% 1 ³ D
7686.54	7672.80	13.74	15	14	0.53	0.37	0.60	80% 1 ⁵ D	+	11% 1 ³ P1	+	8% 1 ³ P2
J = 2												
232119.83	232139.46	-19.63	3	3	0.24	0.02	1.00	73% 2 ⁽² D1) ¹ D	+	10% 2 ⁽² D2) ¹ D	+	7% 2 ⁽² F) ³ F
224298.19	224345.23	-47.04	3	2	0.29	0.04	1.00	62% 2 ⁽² D1) ³ D	+	19% 2 ⁽² D2) ³ D	+	10% 2 ⁽² D2) ¹ D
205419.56	205440.65	-21.09	3	2	0.24	0.01	0.70	42% 2 ⁽² P) ³ P	+	24% 2 ⁽² D2) ¹ D	+	11% 2 ⁽² D1) ³ D
200408.46	200359.54	48.92	3	3	0.23	0.22	0.40	41% 2 ⁽² F) ³ F	+	30% 2 ⁽⁴ P) ³ P	+	16% 2 ⁽² D2) ¹ D
198978.49	198995.52	-17.03	1	1	0.36	0.36	0.60	36% 2 ⁽² F) ³ F	+	26% 2 ⁽² D2) ¹ D	+	25% 2 ⁽² D2) ³ D
190915.96	190927.78	-11.82	1	1	0.38	0.38	0.60	58% 2 ⁽⁴ P) ³ P	+	12% 2 ⁽² D1) ³ D	+	11% 2 ⁽² F) ³ F
185850.18	185843.12	7.06	6	5	0.15	0.07	0.30	34% 2 ⁽⁴ P) ⁵ P	+	27% 2 ⁽² D2) ³ D	+	16% 2 ⁽² P) ³ P
168135.58	168127.12	8.46	10	8	0.13	0.10	0.30	51% 2 ⁽⁴ F) ³ F	+	35% 2 ⁽⁴ P) ⁵ P	+	11% 2 ⁽² P) ³ P
163201.18	163190.75	10.43	12	10	0.11	0.09	0.30	26% 2 ⁽⁴ F) ³ F	+	23% 2 ⁽⁴ P) ⁵ P	+	19% 2 ⁽⁴ F) ⁵ F
149508.10	149525.20	-17.10	11	7	0.15	0.08	0.22	74% 2 ⁽⁴ F) ⁵ F	+	8% 2 ⁽² D2) ³ D	+	7% 2 ⁽⁴ F) ³ F
94582.78	94573.35	9.43	8	8	0.59	0.31	0.70	76% 1 ¹ D1	+	12% 1 ¹ D2	+	5% 1 ³ D
74807.45	74823.61	-16.16	14	9	0.58	0.45	0.80	35% 1 ¹ D2	+	22% 1 ³ F2	+	19% 1 ³ F1
66159.02	66167.20	-8.18	18	14	0.44	0.16	0.50	47% 1 ³ P1	+	29% 1 ³ F1	+	8% 1 ¹ D1
59968.71	59963.11	5.60	17	16	0.42	0.24	0.50	48% 1 ³ P2	+	24% 1 ³ D	+	14% 1 ³ F1
50713.26	50712.72	0.54	21	20	0.39	0.32	0.50	28% 1 ³ P1	+	24% 1 ¹ D2	+	15% 1 ³ F1
41860.96	41849.44	11.52	27	21	0.37	0.31	0.50	43% 1 ³ D	+	36% 1 ³ P2	+	15% 1 ³ F2
33418.14	33415.49	2.65	28	25	0.34	0.23	0.40	40% 1 ³ F2	+	17% 1 ³ F1	+	16% 1 ¹ D2
13534.10	13523.55	10.55	20	18	0.45	0.44	0.60	87% 1 ⁵ D	+	4% 1 ³ P1	+	3% 1 ³ D
J = 3												
226268.29	226213.00	55.29	1	1	0.40	0.40	1.40	72% 2 ⁽² D1) ³ D	+	13% 2 ⁽² F) ¹ F	+	8% 2 ⁽² F) ³ F
206633.42	206616.48	16.94	5	4	0.20	0.10	0.40	82% 2 ⁽² F) ¹ F	+	7% 2 ⁽² D1) ³ D	+	5% 2 ⁽² F) ³ F
198686.51	198697.62	-11.11	7	5	0.18	0.16	0.40	83% 2 ⁽² F) ³ F	+	9% 2 ⁽² D1) ³ D	+	3% 2 ⁽⁴ P) ⁵ P
194359.74	194370.34	-10.60	6	6	0.16	0.09	0.30	87% 2 ⁽² D2) ³ D	+	6% 2 ⁽⁴ F) ³ F	+	3% 2 ⁽² D1) ³ D
182794.00	182793.43	0.57	9	8	0.13	0.06	0.24	46% 2 ⁽² G) ³ G	+	44% 2 ⁽⁴ F) ³ F	+	7% 2 ⁽⁴ F) ⁵ F
177735.70	177755.46	-19.76	10	10	0.12	0.05	0.00	89% 2 ⁽⁴ P) ⁵ P	+	7% 2 ⁽² D1) ³ D	+	2% 2 ⁽² G) ³ G
171982.98	171983.48	-0.50	11	11	0.11	0.10	0.23	46% 2 ⁽² G) ³ G	+	45% 2 ⁽⁴ F) ³ F	+	2% 2 ⁽² F) ¹ F

156906.15	156897.40	8.75	13	10	0.12	0.04	0.30	89% 2 ^(4F) ^{5F}	+	4% 2 ^(4F) ^{3F}	+	3% 2 ^(2D2) ^{3D}
74681.23	74687.26	-6.03	21	20	0.39	0.27	0.50	61% 1 ^{3F1}	+	21% 1 ^{1F}	+	14% 1 ^{3F2}
63259.08	63266.57	-7.49	21	17	0.40	0.27	0.50	56% 1 ^{1F}	+	25% 1 ^{3D}	+	10% 1 ^{3F1}
48837.73	48837.15	0.58	23	21	0.40	0.30	0.50	31% 1 ^{3F2}	+	26% 1 ^{3G}	+	23% 1 ^{3D}
43373.73	43361.90	11.83	23	21	0.37	0.30	0.50	42% 1 ^{3D}	+	41% 1 ^{3F2}	+	15% 1 ^{1F}
32690.95	32699.82	-8.87	30	26	0.34	0.20	0.40	62% 1 ^{3G}	+	12% 1 ^{5D}	+	11% 1 ^{3F1}
17548.20	17543.44	4.76	30	24	0.39	0.34	0.50	79% 1 ^{5D}	+	7% 1 ^{3D}	+	6% 1 ^{3F1}

J = 4

204649.97	204628.81	21.16	4	4	0.19	0.07	0.40	46% 2 ^(2G) ^{1G}	+	24% 2 ^(4F) ^{3F}	+	14% 2 ^(2H) ^{3H}
200232.21	200228.66	3.55	5	3	0.19	0.02	0.30	89% 2 ^(2F) ^{3F}	+	7% 2 ^(2G) ^{3G}	+	2% 2 ^(4F) ^{3F}
186969.01	186988.13	-19.12	3	3	0.19	0.14	0.30	54% 2 ^(4F) ^{3F}	+	41% 2 ^(2H) ^{3H}	+	5% 2 ^(2G) ^{3G}
181525.21	181513.34	11.87	6	6	0.15	0.12	0.30	41% 2 ^(2G) ^{3G}	+	35% 2 ^(2G) ^{1G}	+	14% 2 ^(4F) ^{5F}
174177.03	174164.36	12.67	10	10	0.12	0.09	0.24	44% 2 ^(2H) ^{3H}	+	21% 2 ^(2G) ^{3G}	+	17% 2 ^(4F) ^{3F}
162941.82	162931.09	10.73	11	10	0.12	0.07	0.24	82% 2 ^(4F) ^{5F}	+	13% 2 ^(2G) ^{3G}	+	2% 2 ^(2F) ^{3F}
79220.07	79222.89	-2.82	12	11	0.53	0.42	0.70	43% 1 ^{1G1}	+	24% 1 ^{1G2}	+	23% 1 ^{3F1}
73208.20	73201.25	6.95	13	9	0.58	0.77	1.00	48% 1 ^{3F1}	+	36% 1 ^{1G1}	+	5% 1 ^{3G}
59277.71	59282.04	-4.33	25	23	0.34	0.24	0.40	40% 1 ^{1G2}	+	27% 1 ^{3F2}	+	19% 1 ^{3F1}
44936.09	44934.64	1.45	33	25	0.35	0.21	0.40	44% 1 ^{3F2}	+	19% 1 ^{3H}	+	18% 1 ^{5D}
41310.48	41307.00	3.48	26	22	0.38	0.29	0.50	65% 1 ^{3G}	+	19% 1 ^{1G2}	+	10% 1 ^{3H}
28527.15	28537.80	-10.65	21	21	0.40	0.24	0.50	52% 1 ^{3H}	+	28% 1 ^{5D}	+	10% 1 ^{3G}
19256.00	19261.23	-5.23	21	21	0.41	0.27	0.50	49% 1 ^{5D}	+	21% 1 ^{3F2}	+	8% 1 ^{3H}

J = 5

200913.70	200921.50	-7.80	7	5	0.17	0.08	0.30	49% 2 ^(2H) ^{1H}	+	41% 2 ^(2G) ^{3G}	+	6% 2 ^(4F) ^{5F}
194818.86	194826.38	-7.52	6	6	0.16	0.06	0.30	45% 2 ^(2H) ^{3H}	+	35% 2 ^(2H) ^{1H}	+	15% 2 ^(2G) ^{3G}
181012.01	181013.70	-1.69	5	5	0.18	0.12	0.30	46% 2 ^(2H) ^{3H}	+	30% 2 ^(4F) ^{5F}	+	12% 2 ^(2H) ^{1H}
167142.13	167143.63	-1.50	9	9	0.13	0.08	0.30	59% 2 ^(4F) ^{5F}	+	31% 2 ^(2G) ^{3G}	+	6% 2 ^(2H) ^{3H}
52325.64	52337.48	-11.84	18	14	0.49	0.43	0.60	74% 1 ^{3G}	+	26% 1 ^{3H}		
35217.21	35222.82	-5.61	22	18	0.43	0.27	0.50	74% 1 ^{3H}	+	26% 1 ^{3G}		

J = 6

190702.44	190707.22	-4.78	6	6	0.16	0.08	0.30	100% 2 ^(2H) ^{3H}				
54668.26	54655.42	12.84	10	10	0.59	0.35	0.70	68% 1 ^{1I}	+	32% 1 ^{3H}		
38225.56	38224.62	0.94	13	13	0.52	0.49	0.70	68% 1 ^{3H}	+	32% 1 ^{1I}		

Table 3Experimental and calculated energy levels (cm⁻¹) in the 5d³6p configuration of Pt VII.

E _{obs}	E _{calc}	Δ	N	N _{opt}	rwmv ₁	rwmv ₂	Unc	Composition
J = 0								
-	343957.20	-						64% (2D1) ³ P + 35% (2D2) ³ P
-	317345.13	-						27% (2P) ¹ S + 26% (2D2) ³ P + 25% (2P) ³ P
300944.38	301016.15	-71.77	2	2	1.18	1.54	1.60	54% (4P) ³ P + 18% (2D2) ³ P + 10% (2P) ¹ S
280361.29	280367.25	-5.96	1	1	1.80	1.80	1.90	30% (4F) ⁵ D + 23% (4P) ³ P + 18% (2P) ³ P
272468.86	272543.04	-74.18	1	1	1.69	1.69	1.80	35% (2P) ³ P + 34% (4P) ⁵ D + 25% (2P) ¹ S
261981.43	261947.97	33.46	3	2	0.40	1.53	0.60	55% (4F) ⁵ D + 14% (2P) ¹ S + 14% (2D2) ³ P
252816.47	252864.98	-48.51	2	2	0.29	0.61	0.40	51% (4P) ⁵ D + 21% (2P) ³ P + 10% (2P) ¹ S
J = 1								
350014.90	349998.21	16.69	4	2	0.41	0.40	1.00	51% (2D1) ¹ P + 20% (2D1) ³ P + 10% (2F) ³ D
342367.07	342403.48	-36.41	2	2	1.43	0.21	1.50	31% (2D1) ³ P + 21% (2D2) ³ P + 16% (2D1) ³ D
325251.69	325271.68	-19.99	6	4	0.91	0.76	1.10	38% (2P) ¹ P + 14% (2D1) ³ P + 10% (2P) ³ S
320260.81	320223.35	37.46	1	1	1.80	1.80	2.00	66% (2F) ³ D + 9% (4P) ³ S + 5% (2D1) ³ D
315809.52	315711.76	97.76	2	1	1.74	1.74	1.90	42% (2D2) ¹ P + 17% (2D1) ³ D + 10% (2D2) ³ P
311799.07	311800.35	-1.28	3	2	1.26	1.25	1.50	33% (2D1) ³ D + 32% (4P) ³ S + 18% (2D2) ³ P
306996.07	306992.20	3.87	2	1	1.74	1.74	1.80	20% (4P) ³ S + 13% (4P) ³ D + 11% (2D2) ¹ P
302344.97	302340.19	4.78	4	4	1.00	0.54	1.10	17% (2P) ³ P + 16% (2D2) ³ D + 14% (4P) ³ D
299353.93	299347.81	6.12	7	5	0.84	0.43	0.90	22% (2D2) ³ D + 17% (4P) ³ P + 13% (2P) ³ S
292769.74	292737.49	32.25	7	7	0.28	0.28	0.70	36% (2P) ³ P + 9% (2D2) ¹ P + 9% (2D1) ³ D
291069.74	291087.95	-18.21	9	8	0.28	0.29	0.40	27% (4P) ³ D + 26% (2P) ¹ P + 8% (4F) ³ D
285315.06	285330.71	-15.65	5	5	0.38	0.26	0.50	41% (4P) ³ P + 20% (2P) ³ S + 11% (4P) ⁵ D
277925.61	277938.38	-12.77	4	3	1.07	0.46	1.10	30% (2P) ³ D + 23% (4P) ⁵ P + 14% (2P) ¹ P
273778.89	273782.01	-3.12	6	5	0.34	0.45	0.40	35% (4F) ⁵ D + 20% (4F) ³ D + 11% (4P) ⁵ D
272020.74	271992.60	28.14	8	7	0.27	0.15	0.40	18% (4P) ⁵ D + 15% (2P) ³ D + 12% (2D2) ¹ P
263916.04	263883.83	32.21	6	6	0.37	0.45	0.50	39% (4F) ⁵ D + 25% (4F) ⁵ F + 8% (4F) ³ D
258770.93	258703.56	67.37	9	8	0.23	0.19	0.30	34% (4P) ⁵ P + 11% (4P) ³ P + 11% (2P) ³ D
251642.12	251658.36	-16.24	8	7	0.17	0.18	0.30	35% (4P) ⁵ D + 15% (2P) ³ D + 13% (2P) ³ P
236923.31	236904.08	19.23	6	4	0.29	0.36	0.40	38% (4F) ³ D + 34% (4F) ⁵ F + 5% (4F) ⁵ D
J = 2								
343458.53	343482.84	-24.31	5	4	0.40	0.21	1.00	41% (2D1) ³ P + 15% (2D1) ³ D + 12% (2D1) ¹ D
337037.68	337034.41	3.27	4	4	0.28	0.15	1.00	32% (2D1) ¹ D + 17% (2D1) ³ F + 10% (2D2) ¹ D
325738.29	325781.27	-42.98	5	5	0.39	0.35	0.50	41% (2F) ¹ D + 13% (2D1) ³ D + 11% (2D1) ³ F
320393.17	320412.05	-18.88	5	4	0.88	0.62	1.10	24% (2D1) ³ D + 16% (2P) ³ P + 9% (2P) ¹ D
317198.98	317172.30	26.68	6	6	0.28	0.20	0.40	40% (2F) ³ D + 21% (2F) ³ F + 12% (2D1) ³ P
312680.78	312648.88	31.90	5	4	0.95	0.78	1.20	30% (2D2) ¹ D + 21% (2D2) ³ P + 14% (2D1) ¹ D
309472.92	309448.05	24.87	6	6	0.73	0.37	0.80	17% (2D1) ³ D + 15% (2F) ³ D + 13% (2D1) ³ P
308578.49	308568.81	9.68	7	5	0.80	0.27	0.90	17% (4P) ³ D + 11% (2P) ¹ D + 11% (2D2) ³ D
305937.67	305939.55	-1.88	5	5	0.89	0.36	0.90	16% (2D2) ³ F + 12% (4P) ³ D + 9% (2D1) ¹ D
302132.55	302154.78	-22.23	7	6	0.37	0.35	0.50	27% (2P) ³ D + 14% (2F) ³ F + 13% (2P) ¹ D
299278.51	299282.34	-3.83	10	8	0.27	0.17	0.30	44% (4P) ⁵ S + 26% (4P) ³ P + 8% (4P) ³ D
298038.27	298052.26	-13.99	8	6	0.36	0.15	0.40	55% (2G) ³ F + 7% (4F) ³ D + 6% (4F) ⁵ D
290234.62	290251.88	-17.26	11	8	0.35	0.39	0.40	25% (2P) ³ D + 18% (2D1) ³ F + 15% (2G) ³ F
289889.64	289917.26	-27.62	11	10	0.21	0.19	0.30	22% (4P) ³ D + 12% (2P) ³ P + 11% (4P) ³ P
285783.04	285801.23	-18.19	12	11	0.28	0.24	0.40	20% (4P) ⁵ D + 19% (4P) ⁵ P + 8% (4F) ³ D
283799.31	283775.55	23.76	5	5	0.79	0.79	1.10	21% (2F) ³ F + 13% (2F) ¹ D + 12% (2D2) ³ P
280852.91	280823.35	29.56	10	9	0.33	0.31	0.40	11% (2D2) ¹ D + 11% (2D2) ³ P + 10% (4F) ³ D
279379.88	279390.35	-10.47	8	6	0.26	0.16	0.30	18% (2D2) ³ D + 12% (4F) ⁵ F + 9% (2D2) ³ P
277846.22	277858.56	-12.34	9	8	0.22	0.21	0.30	44% (4F) ³ F + 27% (4F) ⁵ D + 4% (4F) ⁵ G
271908.08	271917.39	-9.31	7	7	0.24	0.35	0.30	26% (2D2) ³ F + 19% (4P) ⁵ D + 10% (2D1) ³ F

267174.30	267174.17	0.13	9	8	0.24	0.19	0.30	34%	$(^4P)^5P$	+	14%	$(^4P)^3P$	+	9%	$(^4P)^5S$
265626.64	265639.75	-13.11	6	6	0.21	0.14	0.22	27%	$(^4F)^5F$	+	18%	$(^4F)^5D$	+	11%	$(^4P)^5P$
253130.69	253144.25	-13.56	8	8	0.18	0.14	0.30	23%	$(^4P)^5D$	+	12%	$(^2P)^3D$	+	10%	$(^4P)^3P$
245050.78	245053.10	-2.32	8	8	0.19	0.23	0.30	31%	$(^4F)^5F$	+	28%	$(^4F)^3D$	+	10%	$(^4F)^5D$
232549.77	232520.40	29.37	1	1	0.30	0.30	0.50	57%	$(^4F)^5G$	+	12%	$(^4F)^3F$	+	11%	$(^2D)^3F$

J = 3

345294.72	345291.73	2.99	4	4	0.37	0.11	1.00	47%	$(^2D)^1F$	+	14%	$(^2D)^3D$	+	10%	$(^2D)^1F$
338396.55	338389.11	7.44	6	4	0.37	0.43	1.00	42%	$(^2D)^3D$	+	28%	$(^2D)^3F$	+	11%	$(^2D)^3F$
324219.19	324239.95	-20.76	6	5	0.39	0.29	0.50	21%	$(^2G)^1F$	+	16%	$(^2F)^1F$	+	13%	$(^2G)^3F$
321278.02	321255.14	22.88	8	5	0.37	0.40	0.70	34%	$(^2P)^3D$	+	19%	$(^2D)^1F$	+	10%	$(^2F)^3D$
319263.01	319217.28	45.73	8	7	0.34	0.15	0.50	41%	$(^2F)^1F$	+	20%	$(^2F)^3D$	+	7%	$(^2F)^3G$
315623.62	315617.56	6.06	7	7	0.23	0.22	0.40	18%	$(^2F)^3F$	+	18%	$(^2D)^3D$	+	9%	$(^2P)^3D$
311797.01	311818.98	-21.97	7	5	0.38	0.46	0.50	29%	$(^2D)^3D$	+	17%	$(^2D)^1F$	+	14%	$(^2H)^3G$
308796.28	308795.97	0.31	9	7	0.33	0.52	0.50	16%	$(^2F)^3G$	+	16%	$(^2D)^3D$	+	13%	$(^2F)^3F$
303924.93	303912.77	12.16	14	9	0.39	0.43	0.50	27%	$(^4P)^3D$	+	25%	$(^4F)^3D$	+	8%	$(^2H)^3G$
300723.91	300734.09	-10.18	9	9	0.34	0.40	0.40	24%	$(^2H)^3G$	+	20%	$(^4P)^5D$	+	8%	$(^2D)^3F$
298509.43	298505.17	4.26	9	7	0.35	0.39	0.40	28%	$(^2G)^3G$	+	15%	$(^4F)^3F$	+	12%	$(^2G)^1F$
298068.58	298022.16	46.42	11	11	0.20	0.19	0.24	20%	$(^4P)^5P$	+	12%	$(^2H)^3G$	+	12%	$(^4P)^3D$
290128.19	290137.55	-9.36	8	8	0.34	0.30	0.40	18%	$(^4F)^3F$	+	13%	$(^2G)^1F$	+	11%	$(^2F)^3D$
287546.35	287583.04	-36.69	11	9	0.57	0.37	0.70	14%	$(^2F)^3D$	+	13%	$(^2F)^1F$	+	13%	$(^2F)^3G$
285441.60	285446.36	-4.76	15	14	0.19	0.10	0.30	20%	$(^2F)^3D$	+	17%	$(^2F)^3F$	+	17%	$(^4F)^3F$
283696.83	283692.12	4.71	10	10	0.19	0.16	0.30	21%	$(^2G)^3F$	+	14%	$(^2F)^3G$	+	9%	$(^4P)^5P$
281307.02	281279.70	27.32	11	11	0.17	0.19	0.30	16%	$(^2P)^3D$	+	13%	$(^2F)^3G$	+	13%	$(^2D)^1F$
279778.44	279808.46	-30.02	9	9	0.24	0.25	0.30	22%	$(^2D)^3F$	+	12%	$(^4P)^5P$	+	9%	$(^4F)^5D$
275916.14	275941.95	-25.81	10	8	0.26	0.27	0.30	30%	$(^4F)^3G$	+	30%	$(^4F)^5F$	+	13%	$(^4F)^5D$
269388.09	269406.92	-18.83	12	10	0.24	0.14	0.30	21%	$(^4F)^5F$	+	12%	$(^4P)^3D$	+	11%	$(^4P)^5D$
266744.59	266756.15	-11.56	11	10	0.23	0.19	0.24	23%	$(^4P)^5D$	+	15%	$(^4P)^3D$	+	10%	$(^2G)^3F$
264652.31	264651.41	0.90	10	10	0.19	0.16	0.30	26%	$(^4F)^3G$	+	15%	$(^2G)^3G$	+	13%	$(^4F)^5D$
253844.92	253817.44	27.48	9	8	0.20	0.18	0.30	27%	$(^4F)^5D$	+	26%	$(^4F)^5F$	+	17%	$(^4F)^3D$
243618.62	243632.15	-13.53	10	6	0.27	0.33	0.40	70%	$(^4F)^5G$	+	10%	$(^4F)^3F$	+	5%	$(^4F)^3G$

J = 4

342056.07	342060.31	-4.24	6	3	1.27	0.91	1.50	71%	$(^2D)^3F$	+	9%	$(^2F)^1G$	+	7%	$(^2F)^3G$
320081.37	320050.67	30.70	6	5	0.29	0.24	0.40	31%	$(^2F)^1G$	+	23%	$(^2H)^1G$	+	15%	$(^2F)^3F$
318896.93	318953.75	-56.82	10	7	0.23	0.19	0.40	14%	$(^2G)^3F$	+	14%	$(^2G)^1G$	+	10%	$(^4F)^3F$
314989.43	315000.61	-11.18	11	8	0.28	0.12	0.40	35%	$(^2F)^3G$	+	22%	$(^2F)^3F$	+	12%	$(^2D)^3F$
310685.46	310699.30	-13.84	9	7	0.24	0.27	0.30	32%	$(^2H)^3G$	+	21%	$(^2H)^1G$	+	15%	$(^2F)^3F$
308173.35	308193.06	-19.71	4	3	0.37	0.79	0.50	62%	$(^2D)^3F$	+	8%	$(^2F)^3F$	+	5%	$(^4F)^3G$
299540.40	299533.23	7.17	6	5	0.35	0.32	0.50	27%	$(^4F)^3F$	+	14%	$(^2H)^1G$	+	12%	$(^2H)^3H$
295830.40	295831.47	-1.07	10	7	0.21	0.22	0.30	43%	$(^4P)^5D$	+	17%	$(^2G)^1G$	+	6%	$(^2G)^3H$
294161.11	294179.25	-18.14	11	9	0.19	0.17	0.24	32%	$(^4P)^5D$	+	12%	$(^2G)^3G$	+	9%	$(^2G)^1G$
286957.32	286974.91	-17.59	10	10	0.25	0.16	0.30	34%	$(^2G)^3G$	+	29%	$(^2G)^3F$	+	14%	$(^2H)^3H$
286362.45	286371.82	-9.37	12	10	0.19	0.11	0.30	28%	$(^2F)^3G$	+	18%	$(^2F)^3F$	+	12%	$(^2F)^1G$
284829.11	284844.80	-15.69	11	10	0.22	0.16	0.30	17%	$(^4F)^3F$	+	12%	$(^2F)^1G$	+	10%	$(^2G)^3F$
283635.58	283627.97	7.61	13	11	0.22	0.15	0.30	41%	$(^4F)^3G$	+	32%	$(^4F)^5F$	+	10%	$(^2G)^1G$
274469.24	274456.77	12.47	9	9	0.20	0.15	0.30	23%	$(^4F)^3G$	+	22%	$(^4F)^5F$	+	18%	$(^4F)^5G$
270058.61	270039.04	19.57	5	4	0.36	0.24	0.40	22%	$(^2H)^3H$	+	17%	$(^4F)^5D$	+	10%	$(^4F)^5F$
264918.36	264937.07	-18.71	7	7	0.25	0.21	0.30	40%	$(^2G)^3H$	+	24%	$(^4F)^5G$	+	9%	$(^2H)^3H$
258474.44	258472.39	2.05	11	9	0.20	0.24	0.30	28%	$(^4F)^5D$	+	19%	$(^2G)^3F$	+	11%	$(^2H)^3H$
250538.35	250526.83	11.52	9	7	0.19	0.11	0.30	41%	$(^4F)^5G$	+	17%	$(^2G)^3H$	+	13%	$(^4F)^3G$

J = 5

317254.24	317232.42	21.82	6	6	0.38	0.35	0.50	77%	$(^2F)^3G$	+	9%	$(^2G)^1H$	+	4%	$(^2G)^3G$
313621.71	313616.50	5.21	9	9	0.19	0.21	0.30	29%	$(^2G)^3G$	+	19%	$(^2H)^3G$	+	14%	$(^2H)^3H$
307609.36	307592.23	17.13	9	6	0.23	0.19	0.40	48%	$(^2H)^1H$	+	23%	$(^2H)^3G$	+	8%	$(^2G)^3G$

297845.26	297854.99	-9.73	5	5	0.26	0.30	0.40	32%	$(^4\text{F})^3\text{G}$	+	20%	$(^2\text{G})^1\text{H}$	+	16%	$(^2\text{H})^3\text{H}$
295926.87	295928.11	-1.24	6	6	0.36	0.47	0.40	25%	$(^2\text{G})^1\text{H}$	+	22%	$(^4\text{F})^5\text{F}$	+	22%	$(^2\text{G})^3\text{H}$
288586.55	288554.34	32.21	13	11	0.18	0.13	0.30	43%	$(^2\text{G})^3\text{H}$	+	17%	$(^4\text{F})^5\text{F}$	+	12%	$(^2\text{H})^3\text{I}$
287821.96	287832.19	-10.23	10	9	0.21	0.22	0.30	27%	$(^2\text{G})^3\text{G}$	+	24%	$(^4\text{F})^3\text{G}$	+	17%	$(^2\text{H})^3\text{I}$
280802.29	280809.17	-6.88	11	10	0.26	0.28	0.40	25%	$(^2\text{H})^3\text{H}$	+	20%	$(^2\text{H})^3\text{G}$	+	17%	$(^4\text{F})^5\text{F}$
277866.67	277854.92	11.75	8	7	0.34	0.22	0.40	33%	$(^4\text{F})^5\text{G}$	+	17%	$(^2\text{H})^3\text{G}$	+	15%	$(^2\text{H})^3\text{H}$
268319.16	268307.73	11.43	10	10	0.16	0.11	0.30	35%	$(^2\text{H})^3\text{I}$	+	25%	$(^4\text{F})^5\text{G}$	+	12%	$(^4\text{F})^3\text{G}$
253913.13	253915.25	-2.12	7	6	0.19	0.20	0.30	17%	$(^2\text{G})^3\text{H}$	+	14%	$(^2\text{H})^3\text{I}$	+	14%	$(^2\text{G})^3\text{G}$

J = 6

315030.96	315018.96	12.00	4	4	0.29	0.21	0.40	50%	$(^2\text{G})^3\text{H}$	+	28%	$(^2\text{H})^1\text{I}$	+	10%	$(^2\text{H})^3\text{I}$
303536.92	303515.55	21.37	5	5	0.25	0.28	0.40	52%	$(^2\text{H})^3\text{H}$	+	20%	$(^2\text{H})^1\text{I}$	+	19%	$(^2\text{H})^3\text{I}$
296465.45	296471.09	-5.64	4	4	0.38	0.42	0.50	29%	$(^4\text{F})^5\text{G}$	+	28%	$(^2\text{H})^3\text{I}$	+	26%	$(^2\text{H})^1\text{I}$
282618.67	282613.32	5.35	2	2	0.39	0.55	0.50	56%	$(^4\text{F})^5\text{G}$	+	27%	$(^2\text{G})^3\text{H}$	+	13%	$(^2\text{H})^1\text{I}$
277286.08	277313.48	-27.40	4	4	0.23	0.27	0.40	42%	$(^2\text{H})^3\text{I}$	+	35%	$(^2\text{H})^3\text{H}$	+	13%	$(^2\text{H})^1\text{I}$

J = 7

306459.46	306469.47	-10.01	3	3	0.39	0.87	0.50	100%	$(^2\text{H})^3\text{I}$						
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Table 4Fitted and calculated parameter values (cm^{-1}) in the $5d^4$, $5d^36s$ and $5d^26s^2$ configurations of Pt VII.

Parameter	Fitted value	HFR	Fitted/HFR
$5d^4$			
E_{av}	48918.7 (3.5)	53101.9	0.9212
O_2	7562.9 (4.9)	8917.4	0.8481
O_2'	4805.3 (4.6)	5984.2	0.8030
E_α	101.0 (4.5)		
E_β	87.1 (4.1)		
ζ_d	6241.5 (4.6)	6377.6	0.9787
T_1	-0.77 (0.17)		
T_2	-0.11 (0.14)		
T_3	0.0		
T_4	0.0		
A_c	25.8 (4.0)		
A_3	1.3 (3.0)		
A_4	5.0 (3.4)		
A_5	9.0 (3.0)		
A_6	13.6 (2.9)		
A_1	-1.3 (2.8)		
A_2	2.9 (2.7)		
A_0	-1.8		
$5d^36s$			
E_{av}	187893.1 (3.3)	196083.4	0.9720 ^a
O_2	7679.5 (6.9)	9059.1	0.8477
O_2'	4873.4 (4.7)	6068.7	0.8030
E_α	102.4 (3.7)		
E_β	92.6 (4.4)		
ζ_d	6493.6 (4.2)	6618.2	0.9812
T_1	-0.79 (0.19)		
T_2	-0.16 (0.21)		
T_3	0.0		
T_4	0.0		
A_c	27.5 (4.8)		
A_3	1.3		
A_4	5.0		
A_5	9.0		
A_6	13.1 (3.0)		
A_1	-1.3		
A_2	2.9		
A_0	-1.8		
C_{ds}	3343.7 (5.5)	4026.7	0.8304
T_{dds}	-38.1 (5.8)		
A_{mso}	55.2 (3.1)		
A_{ss}	0.0		
$5d^26s^2$			
E_{av}	342334.0	357833.4	0.9629 ^a

O ₂	7798.0	9197.0	0.8479
O ₂ '	4927.0	6150.9	0.8010
E _α	97.0		
E _β	100.0		
ζ _d	6732.0	6861.3	0.9812
A _c	25.8		
A ₃	1.3		
A ₄	5.0		
A ₅	9.0		
A ₆	13.6		
A ₁	-1.3		
A ₂	2.9		
A ₀	-1.8		
R ² (dd, ds)12 ^b	-22674.0	-27317.9	0.83
R ² (dd, ss)13	20888.0	25166.1	0.83
R ² (dd, ds)23	-22652.0	-27291.3	0.83

Mean Deviation^c = 20 cm⁻¹

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- ^a The energy differences with respect to the ground configuration were used:
(E_{av}(conf) - E_{av}(5d⁴))_{LSF}/(E_{av}(conf) - E_{av}(5d⁴))_{HFR}, where "conf" is either 5d³6s or 5d²6s².
- ^b Trailing digits xy in the *R*-integral labels denote interaction between configurations x and y, where 1 stands for 5d⁴, 2 stands for 5d³6s and 3 stands for 5d²6s².
- ^c Mean Deviation = [(Σ(E_{obs}-E_{calc})²)/(n-m)]^{1/2}, where n is the number of known levels, m is the number of free parameters.

Table 5Fitted and calculated parameter values (cm^{-1}) in the $5d^36p$, $5d^26s6p$ and $5d6s^26p$ configurations of Pt VII.

Parameter	Fitted value	HFR	Fitted/HFR
$5d^36p$			
E_{av}	293427.0 (2.7)	300120.7	0.9898 ^a
O_2	7697.7 (8.5)	9094.6	0.8464
O_2'	4868.4 (7.5)	6089.6	0.7995
E_α	86.1 (5.0)		
E_β	95.4 (6.4)		
ζ_d	6592.6 (5.4)	6673.3	0.9879
T_1	-1.15 (0.27)		
T_2	-0.07 (0.26)		
T_3	0.0		
T_4	0.0		
A_c	28.9 (6.9)		
A_3	1.3		
A_4	9.6 (4.3)		
A_5	10.3 (4.0)		
A_6	9.2 (3.9)		
A_1	-1.3		
A_2	2.9		
A_0	-1.8		
$C_1(dp)$	3625.0 (8.8)	4241.5	0.8547
$C_2(dp)$	2684.6 (10.5)	3438.9	0.7807
$C_3(dp)$	1365.1 (8.6)	1690.1	0.8077
$S_1(dp)$	140.4 (8.5)		
$S_2(dp)$	-107.6 (7.8)		
ζ_p	18582.0 (12.8)	17096.8	1.0869
$S_d \cdot L_p$	-95.8 (9.6)		
$S_p \cdot L_d$	-14.9 (13.6)		
$Z_{pp'}^2$	-40.4 (9.0)		
$Z_{dd'}^2$	82.8 (10.4)		
$Z_{pp'}^1$	159.9 (6.8)		
$Z_{dd'}^1$	-1.6 (6.9)		
$Z_{pp'}^3$	64.3 (8.4)		
$Z_{dd'}^3$	-12.1 (8.1)		
SS_{02}	-10.1 (8.3)		
SS_{20}	-27.3 (9.1)		
T_{16}	-42.5 (6.8)		
T_{17}	15.9 (4.8)		
T_{18}	-27.1 (5.2)		
T_{19}	-22.4 (5.0)		
T_{20}	-55.5 (5.0)		
T_{21}	-15.1 (6.5)		
T_{22}	-26.8 (6.0)		
T_{23}	-8.6 (5.6)		
T_{24}	-9.9 (6.1)		
T_{25}	15.4 (6.1)		
T_{26}	-38.4 (7.8)		
T_{27}	-2.0 (6.2)		
T_{28}	70.2 (7.3)		
T_{29}	-23.8 (6.8)		
T_{30}	1.1 (7.9)		

T ₃₁	-7.5 (5.8)
T ₃₂	-7.9 (4.8)
T ₃₃	18.8 (5.2)
T ₃₄	-58.3 (4.7)
T ₃₅	-72.6 (7.2)

5d²6s6p

E _{av}	444082.0	454642.3	0.9841 ^a
O ₂	7836.0	9229.5	0.8490
O ₂ '	4932.0	6170.0	0.7993
E _α	85.0		
E _β	110.0		
ζ _d	6850.0	6914.1	0.9907
A _c	30.5		
A ₃	5.4		
A ₄	9.2		
A ₅	8.1		
A ₆	12.2		
A ₁	-1.3		
A ₂	2.9		
A ₀	-1.8		
C _{ds}	3294.0	4016.6	0.8201
T _{dds}	-25.0		
A _{mso}	57.0		
A _{ss}	0.0		
C ₁ (dp)	3695.0	4381.7	0.8433
C ₂ (dp)	2763.0	3497.5	0.7900
C ₃ (dp)	1369.0	1705.1	0.8029
S ₁ (dp)	145.0		
S ₂ (dp)	-72.0		
T ₁₆	-25.0		
T ₁₇	15.0		
T ₁₈	-15.0		
T ₁₉	-10.0		
T ₂₀	-65.0		
T ₂₁	-10.0		
T ₂₂	-35.0		
T ₂₃	-10.0		
T ₂₄	-15.0		
T ₂₅	5.0		
T ₂₆	-25.0		
T ₂₇	5.0		
T ₂₈	50.0		
T ₂₉	-33.0		
T ₃₀	10.0		
T ₃₁	-10.0		
T ₃₂	-5.0		
T ₃₃	10.0		
T ₃₄	-55.0		
T ₃₅	-60.0		
ζ _p	19922.0	18376.5	1.0841
S _d .L _p	-110.0		
S _p .L _d	-21.0		
Z _{pp'} ²	-60.0		
Z _{dd'} ²	65.0		
Z _{pp'} ¹	160.0		

$Z_{dd'}^1$	-15.0		
$Z_{pp'}^3$	70.0		
$Z_{dd'}^3$	0.0		
C_{sp}	13986.0	17266.3	0.8100
$A_{mso}(sp)$	-750.0		

5d6s²6p

E_{av}	610001.0	628126.3	0.9758 ^a
$C_1(dp)$	3815.0	4524.0	0.8433
$C_2(dp)$	2814.0	3561.7	0.7901
$C_3(dp)$	1383.0	1723.2	0.8026
$S_1(dp)$	145.0		
$S_2(dp)$	-72.0		
ζ_d	7088.0	7153.8	0.9908
ζ_p	21398.0	19737.6	1.0841
$S_d \cdot L_p$	-110.0		
$S_p \cdot L_d$	-21.0		
$Z_{pp'}^2$	-60.0		
$Z_{dd'}^2$	65.0		
$Z_{pp'}^1$	160.0		
$Z_{dd'}^1$	-15.0		
$Z_{pp'}^3$	70.0		
$Z_{dd'}^3$	0.0		
SS_{02}	-5.0		
SS_{20}	-10.0		
$R^2(dd, ds)12^b$	-22545.1	-27162.8	0.83
$R^2(dp, sp)12$	-22520.3	-27132.9	0.83
$R^1(dp, ps)12$	-19256.6	-23200.7	0.83
$R^2(dd, ss)13$	20823.6	25088.7	0.83
$R^2(dd, ds)23$	-22546.4	-27164.3	0.83
$R^2(dp, sp)23$	-22753.6	-27414.0	0.83
$R^1(dp, ps)23$	-19360.4	-23325.8	0.83

Mean Deviation^c = 28 cm⁻¹

^a The energy differences with respect to the ground configuration were used:

$(E_{av}(conf) - E_{av}(5d^4))_{LSF} / (E_{av}(conf) - E_{av}(5d^4))_{HFR}$, where "conf" is either 5d³6p, 5d²6s6p or 5d6s²6p.

^b Trailing digits xy in the *R*-integral labels denote interaction between configurations x and y, where 1 stands for 5d³6p, 2 stands for 5d²6s6p and 3 stands for 5d6s²6p.

^c Mean Deviation = $[(\sum(E_{obs} - E_{calc})^2) / (n-m)]^{1/2}$, where n is the number of known levels, m is the number of free parameters.