The fourth spectrum of iridium (Ir IV)

Vladimir I. Azarov¹ and Robert R. Gayasov²

¹Department of Research and Development, Parametric Technology Corporation,
140 Kendrick Street, Needham, MA 02494, USA. E-mail: vlad_azarov@yahoo.com

²Institute of Spectroscopy, Russian Academy of Sciences,
Troitsk, Moscow region, Russian Federation 142092.

Abstract. The spectrum of three times ionized iridium, Ir IV, was investigated in the 650 - 2045 Å wavelength region. The analysis has led to the determination of the $5d^6$, $5d^56s$ and $5d^56p$ configurations. Twenty-nine of 34 theoretically possible $5d^6$ levels, 44 of 74 possible $5d^56s$ levels and 150 of 214 possible $5d^56p$ levels have been established. The levels are based on 1348 classified spectral lines. The level structure and transition probabilities were calculated using the orthogonal operators technique. The energy parameters have been determined by the least squares fit to the observed levels. Calculated energy values and *LS*-compositions obtained from the fitted parameter values are given. The level optimization procedure and the determination of uncertainties of the obtained energy level values are discussed.

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1. Introduction and experiment

A 100-year period of investigation of iridium ions having rather simple ground-state configurations $5d$, $5d^2$, $5d^8$, and $5d^9$ was started by Kayser [1] in 1898 and was finished in 1995-1998 when the spectra of Ir VIII and Ir IX [2,3] had been studied. During this long-lasting period, many authors have contributed to analyses of the spectra Ir I, Ir II, Ir VIII, and Ir IX [4-9]. Analyses of the more complicated iridium spectra of the ions with three to five electrons in the outer $5d$ -shell, such as Ir VII, Ir VI, and Ir V [10-13], have become possible due to refinement in theoretical calculations utilizing the orthogonal operators approach [14-17], development of the program suite IDEN [18,19], and successful analyses of the neighboring Os VI, Os V, and Os IV spectra [20-22].

The objective of the present work is to study the spectrum of three times ionized iridium, Ir IV, which has not been investigated previously. The ion has the $5d^6$ ground-state configuration. Due to the overlapping of the lowest three configurations in both parities, the Ir IV spectrum is extremely complex.

In the most recent investigations of iridium spectra [11,12] we have utilized two sets of spectrograms photographed in the wavelength region of 300 - 2100 Å at the Spectroscopic Laboratory of St. Francis Xavier University, Antigonish, Canada, and the Institute of Spectroscopy, Troitsk, Russian Federation. Although both sets of spectrograms were suitable for the analysis of Ir IV, we used the Troitsk set in our study because it has more spectral lines of lower ionization stages, while the Antigonish set was helpful in the line discrimination on ionization stages. The experimental details of this set are given in the Ir VI paper [12]. At the Troitsk laboratory a 6.65-m normal incidence spectrograph was used, which has the plate factor of 1.25 Å/mm in the first order. The sources were vacuum sliding and triggered sparks with operating voltage of 4.0 – 4.5 kV. The sparks were fed from a low-inductance 10 µF capacitor. In both laboratories the plates were measured on automatic comparators controlled by the system for automatic processing of photo-spectrograms [23] and initially reduced by using impurity lines of O, C, N, Al and Si [24] present in the spectrograms. The initial uncertainty of wavelength measurements was about 0.007 Å and 0.010 Å for the wavelengths below and higher than about 1000 Å, respectively. It increased to about 0.020 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. By using additional internally derived Ritz standards, as well as wavelengths measured in the second order of diffraction, we have improved the accuracy of our wavelength measurements in the course of the analysis and have the final standard deviation of isolated lines from the calculated positions within 0.005 Å in the region of 650 - 2045 Å.

2. Level optimization

In the IDEN computer program [18,19], with which we perform spectra analyses, to optimize the energy level system having levels "connected" by wavenumbers of the identified spectral lines, an iterative procedure of refining values of the energy levels is utilized. The "weighted mean" technique is used for this purpose. The weighted mean of n sample data elements with measured values x_i having weights w_i is determined as

$$\bar{x} = \frac{\sum_{i=1}^n w_i x_i}{\sum_{i=1}^n w_i}. \quad (1)$$

The biased weighted estimator of the sample variance can be shown as

$$\sigma^2 = \frac{\sum_{i=1}^n w_i (x_i - \bar{x})^2}{\sum_{i=1}^n w_i}. \quad (2)$$

The unbiased weighted estimator of the sample variance can be computed as follows

$$s^2 = A \cdot \frac{\sum_{i=1}^n w_i (x_i - \bar{x})^2}{\sum_{i=1}^n w_i}, \quad (3)$$

where A is a correction coefficient making the biased variance estimator unbiased

$$A = \frac{(\sum_{i=1}^n w_i)^2}{(\sum_{i=1}^n w_i)^2 - \sum_{i=1}^n w_i^2}. \quad (4)$$

When all weights are equal, $w_i = w_0$, the coefficient becomes: $A = n/(n-1)$. In general, $A \rightarrow 1$ when $n \rightarrow \infty$. The most critical cases that need special consideration are: a) $n = 1$ and b) when there is only one sample with a

high weight and all other weights are negligible. In the latter case A becomes very large. These cases are considered in Section 3.

For the weighted mean of a set of data, for which each element x_i comes with known (or estimated) variance σ_i^2 , and one possible choice for the weights is given by

$$w_i = \frac{1}{\sigma_i^2}. \quad (5)$$

The weighted mean in this case is

$$\bar{x} = \frac{\sum_{i=1}^n (x_i \sigma_i^{-2})}{\sum_{i=1}^n \sigma_i^{-2}}, \quad (6)$$

and the variance of the weighted mean (WMV) is

$$\sigma_{\bar{x}}^2 = \frac{1}{\sum_{i=1}^n \sigma_i^{-2}}, \quad (7)$$

which reduces to $\sigma_{\bar{x}}^2 = \sigma_0^2/n$, when all $\sigma_i = \sigma_0$.

If, instead of variances σ_i^2 of the data elements, estimated uncertainties u_i are specified, variances of the data elements can be obtained as $\sigma_i^2 = u_i^2$. The only requirement for the estimated uncertainties u_i of the data elements is the following. Regardless how the uncertainty of a data element is obtained, it must be evaluated as a standard uncertainty (standard deviation). We have to note that all uncertainties given in this paper are on the level of one standard deviation.

Typically, experimental data contain some inaccuracy in estimation of the variance/uncertainty attributed to each data point. Often the data points are obtained (and their uncertainties are estimated) by using references in interpolation or calibration procedures. Resulting data depend on the availability of references, their uncertainties and other factors. Thus, the obtained uncertainty estimations of data points may be inaccurate and need further justification. Therefore, a correction to account for the real data distribution could be used to adjust the above expression for variance (7). In unbiased form it is as follows

$$s_{\bar{x}}^2 = A \cdot \frac{1}{\sum_{i=1}^n \sigma_i^{-2}} \cdot \frac{\sum_{i=1}^n (\sigma_i^{-2} \cdot (x_i - \bar{x})^2)}{n}. \quad (8)$$

If all data variances are equal, $\sigma_i = \sigma_0$, then the weighted mean variance reduces to the standard deviation of the mean (squared): $s_{\bar{x}}^2 = s^2/n$, where

$$s^2 = \frac{\sum_{i=1}^n (x_i - \bar{x})^2}{n - 1} \quad (9)$$

is a simple standard deviation (squared) of the data points used in the calculation of the mean value.

We have to stress here that, if the uncertainties of the data points are correctly estimated, the variance given by the equation (7) may be considered as the uncertainty (squared) of the weighted mean for the given data set. The equation (8), in fact, re-estimates the data uncertainties based on the real deviations of the data points from the weighted mean values and uses these values for the WMV estimation. The variance given by the equation (8) does not include the value σ_0 if all input data variances are equal (e.g., σ_0^2), and this equation may give a significantly lower value than the equation (7), or even a zero value. This indicates that the number of samples is too small, or the specified data uncertainties are overestimated (too large). If the equation (8) gives much larger value than the equation (7), it may indicate that the number of samples is too small, or the specified estimated uncertainties of the data points are underestimated (too small), or the data points are incorrectly measured.

In the case of the energy level optimization procedure (LOP) adopted in IDEN, the variables $\bar{x}$ and x_i should be substituted as follows: $\bar{x} = \bar{E}$, where $\bar{E}$ is the weighted mean value of the given energy level, $x_i = E_i \pm v_i$, where E_i is the value of the energy level connected to the given level by the transition with the wavenumber v_i having uncertainty σ_i . The sign "+" is used if the given level E is the upper level and "-" is used if E is the lower level for the transition. Thus, in each iteration cycle, we calculate $\bar{E}$ for the level E using levels E_i directly connected to the level E by transitions. When we estimate the variance/uncertainty of $\bar{E}$ using the equation (7) or (8), we neglect dependency of the level E_i on all wavenumbers taking part in the averaging, except for v_i . This is an insignificant limitation for our energy level system studied here.

In the spectra identification and level determination problem, the most accurate pieces of information (data elements) are intervals between pairs of levels. One group of such accurate intervals contains pairs of

levels directly connected by identified transitions. Another group contains pairs of close same-parity levels, where splitting of each such pair is determined by several couples of identified transitions from/to the connecting levels of opposite parity. The spectral lines in each such couple are close and therefore the systematic uncertainty of their measurements is absorbed in the connecting level, thus giving the value of the two-level splitting with lower uncertainty. Usually, any sub-system or combination of the mentioned data elements has derived values with larger uncertainties. For instance, the derived distance between two opposite-parity levels, which are not directly connected by a transition, may have rather large uncertainty compared to the uncertainties of all wavenumbers in the system.

In publications, uncertainties of levels found in analyses are usually given with respect to the ground level having assigned uncertainty equal to zero. In the case when the ground level is not well determined, all levels may be presented as having a large estimated uncertainty. A better choice is to select some well-determined level as a “base” level, give its uncertainty with respect to the ground level and present the uncertainties of all other levels with respect to the selected one. This approach is discussed in details in the publication describing the program for energy level optimization, LOPT [25].

For the comparison (e.g., along iso-electronic sequences) of obtained in analyses level uncertainties, the uncertainties given with respect to the ground level or some “base” level may not be convenient. First, the uncertainties may be too large, especially if they are given with respect to the ground level. Second, for the comparison of level uncertainties in different ions of an iso-electronic sequence, the uncertainties should be recalculated using the same “base” level, which may not be determined yet in all ions of the considered sequence.

For the purpose of the quality check of the analysis, we consider the uncertainty of determination of each given level with respect to the levels directly connected to it by identified transitions. Such values are usually smaller than values given with respect to the ground state or a “base” level, and they do not depend on the selection of the “base” level. In addition, such way of level uncertainty estimations comes naturally from the “old style” analyses when one checks levels in an even-odd level table along rows (even) and columns (odd) and calculates root-mean-square (rms) deviations of the experimental wavenumbers from the calculated (Ritz) values. We always perform this kind of level uncertainty estimations during the IDEN program runs with visualization, interactively adjusting the level position, and analyse the quality of the resulting level identification and determination. Such approach for estimation of the level uncertainty could be described as the following. In the program LOPT we may declare each of the n existing levels to be a “base”. Then, in the output file, each level we will contain $n-1$ uncertainty estimations with respect to $n-1$ “bases”. Now for each level we can consider all these $n-1$ uncertainties and take the smallest one, or use the equation (7) to combine them. This is equivalent to a level declaration as a “base”, analysis of uncertainty values given by LOPT for all other levels with respect to the given “base”, and adoption of the smallest one or combination all of them using the equation (7).

The result of a spectrum analysis consists of a set of classified spectral lines, which are to be used for determination of the energy level structure. Ideally, if all identifications are correct, each level is connected with all other levels by transitions having wavenumbers with correctly estimated and comparable uncertainties; the resulting optimized (weighted mean) energy values will be the variances calculated from the equation (8) close to the values calculated from the equation (7). The values of the first and third factors in the equation (8) will be close to unity in this case.

However, the number of level connections is limited not only by selection rules, but also by experimental conditions. Many allowed transitions may not be observed or identified. It often happens that some spectral lines are masked, blended, or their identifications are doubtful. These lines may increase the third factor in the equation (8) significantly. In most of the cases, these lines can be detected and excluded from the level optimization. We also exclude from the LOP all levels determined by a single transition. From the other side, by raising the number of excluded and/or not observed spectral lines, one increases the first factor in the equation (8) and thus makes WMVs calculated by the equation (8) larger. It also makes the system less inter-connected and may even break it into unconnected fragments.

If the uncertainties of wavelengths of the spectral lines used in the optimization are estimated correctly, and all disturbed lines are removed from the optimization, we expect the values given for most levels by the expression (8) to be close to or smaller than those given by the expression (7). In our analyses we verify this relation for each level and use it as a quality check for the results of the LOP and the entire analysis.

3. Analysis

The ground-state configuration of Ir IV is $5d^6$ and the lowest two excited configurations of different parities are $5d^56s$ and $5d^56p$. This ion belongs to the W I iso-electronic sequence. Only two members in the sequence have been investigated so far: W I and Re II [26-29]. In our publication of the Ir VI analysis [12], we described a procedure for estimation of parameters of Ir VI configurations through iso-electronic, iso-ionic and iso-nuclear comparison. It includes a record of all relevant known ions and references. Since then there no additional data on the neighboring ions have been published. These described data and extrapolation procedure are also suitable for obtaining initial parameters for the Ir^{3+} ion studied here. It should be noticed that a general procedure for inter- and extrapolation of energy parameters of ions in a larger (than a sequence) group of ions of neighboring elements (e.g., ions with open $5d$ -shell of the platinum group elements) was presented in Ref. [30]. This procedure is also designed for critical analyses of known experimental energy levels and parameters, for analyses of regularities in experimental parameters and deviations of experimental levels from their calculated positions, thus allowing systematic investigation of small magnetic and electrostatic effects. Unfortunately, the data on the W I and Re II spectra, which are in the same iso-electronic sequence as Ir IV, are not applicable in the extrapolation of parameters of Ir IV. Many studies show [14,31,32], although there is quite regular evolution of the experimental parameters or scaling factors of their *ab initio* values along the iso-electronic sequence, when the ionization stage lowers, the trends of parameters become more irregular. For instance, the mentioned factors for electrostatic parameters fall down sharply when we approach the third and second spectra.

The most useful in the estimation of Ir IV parameters were the published data on the neighboring Ir V, Ir VI, Os VI, Os V, and Os IV spectra [13,12,20-22] and our unpublished data on the neighboring Os III, Pt V, Pt IV, and Ir III spectra, analyses of which are currently being finalized and will be published soon. In fact, in the publication [12] it was mentioned that we were simultaneously making analyses of Ir VI, Ir IV and Ir III spectra utilizing the same sets of spectrograms having spectra photographed under the different source conditions. This allowed us to avoid line misidentifications in the very dense iridium 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 (using the level optimization procedure, LOP) was carried out by utilizing the program suite IDEN [18,19] allowing visualization. The program LOPT [25] was used for verification of the optimized by IDEN energy values, and calculation of level and Ritz wavelengths uncertainties.

In the region of 650 - 2045 Å, we have identified 1348 spectral lines belonging to the $(5d^6 + 5d^56s) - 5d^56p$ transition array of Ir IV. Twenty-two spectral lines are doubly classified and two lines have triple classification. The list of identified lines is presented in Table 1. Transition probabilities (gA) have been calculated from the final fitted parameter values using the orthogonal operators approach. Intensities of the spectral lines (Int) have been obtained by measuring the plate darkening and converting optical density to spectral intensity, and subtracting the spectral background approximated by a spline curve. The agreement between gA and Int for the isolated unperturbed and unsaturated lines is quite good when we compare lines originating from the same upper level or from close upper levels. Taking into account the Boltzmann factor, describing a decrease of population for levels with an increasing energy, agreement between the presented gA and Int values is good throughout the entire list. In each case when the intensity of an identified spectral line is notably higher than expected, we give the expected value in Table 1. The uncertainties of the Ritz wavelengths ($Unc \lambda_{calc}$) were calculated using the program LOPT [25]. The numbers N_{odd} and N_{even} of the observed transitions define the odd and even level involved in the particular transition and the difference between the experimental and Ritz wavelengths of the transition, $\Delta(\lambda)$, and they are helpful for detecting local systematic deviations (LSD, see Ref. [33]). Indeed, after the values of energy levels are optimized, one would expect the values of $\Delta(\lambda)$ to be randomly distributed in the linelist. For several reasons, such as ends of plates, defects in the plate holder, or lack of standards of wavelengths, $\Delta(\lambda)$ may exhibit the LSD effect which should only be considered for transitions having both levels derived from many significantly distant lines. Levels defined by a single or close multiple lines always result in $\Delta(\lambda)$ values with no systematic deviation, as the latter is absorbed in the level value. Therefore, such levels should not be accounted for in the LSD detection. Due to strong mixing of levels, labels in the LS -coupling scheme are omitted in Table 1. For each tabulated transition we also provide the following contents: a name of the linelist part (pa - pg) to refer to the wavelength uncertainty of the

given part as in 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 lines that are also identified as belonging to another ion or impurity. We have excluded from LOP runs transitions corresponding to lines that are masked, much stronger than expected, have suspiciously large deviations, or have small gA values for which chances of wrong identification are substantial. If the line is blended by a known line of the other 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 as another Ir ion (e.g., Ir III) and, when using the same linelist, the expected intensity of that identification (e.g., 400) is lower than the observed line intensity, we give "Ir III (400)".

For comparison of the gA and Int values accounting for the Boltzmann factor, $\exp(-E/kT)$, we have used two sets of plates, which may have been obtained under somewhat different experimental conditions (and thus different kT values). Linelist parts pa and pb - pg correspond to two different sets (exposures); parts pb - pd and pe - pg correspond to two plates from the same set (exposure).

Experimental and calculated energy values of the even parity levels in the $5d^6$ and $5d^56s$ configurations and the odd parity levels in the $5d^56p$ and $5d^46s6p$ configurations of Ir IV are given in Table 2 and Table 3, respectively. The uncertainties of the levels were calculated by the program LOPT [25] and given with respect to the "base" even level with $J = 4$ at 71191.62 cm^{-1} . A reasonable estimate of uncertainty of excitation energy for any level can be deduced from these data. As it 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 the 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 equation (7) $rwmv_1$ values, which are, in turn, equal to the estimated uncertainties of the corresponding wavenumbers (see, for instance, the level at $152556.11 \text{ cm}^{-1}$, $J = 8$).

In the present analysis, 29 of 34 theoretically possible $5d^6$ levels, 44 of 74 possible $5d^56s$ levels and 150 of 214 possible $5d^56p$ levels have been established. Levels that have not been established either result in 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 distinguished without ambiguity.

From the beginning of the analysis, we have divided the linelist into seven parts, pa - pg (see Table 1, last column), and assigned to them initial estimated uncertainties. The assigned uncertainties are based on the available standards, distribution of the standards around the wavelength interpolation curve, and the expected increased uncertainty near ends of the plates. The root-mean-square (rms) deviation of wavelengths of the undisturbed experimental lines from their calculated (Ritz) positions were deduced after LSD corrections of the linelist in the course of the analysis and after the final LOP run, for each part. The linelist parts are presented in Table A below; each linelist part includes the number of lines used in the LOP.

Table A
Description of the linelist parts.

Linelist part	pa	pb	pc	pd	pe	pf	pg
Initial estimated uncertainty, mÅ	10	10	15	20	15	10	15
Resulting <i>rms</i> , mÅ	4	4	5	6	5	3	6
Final estimated uncertainty, mÅ	5	5	7	10	7	5	7
Number of lines used in LOP	533	128	277	4	68	94	3

The *rms* deviation of all undisturbed identified lines from their Ritz positions, including lines not used in the LOP, is about 0.005 Å . Thus, our initial linelist has been significantly improved. The final estimated uncertainties of wavelength measurements that were used for the $rwmv_1$ and $rwmv_2$ calculations and in the program LOPT [25] are shown in Table A. These uncertainties 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 a very good

agreement: 95% of levels have differences within 0.03 cm^{-1} , which is close to the rounding errors of wavelengths. The remaining 5% of the levels differ by less than 0.06 cm^{-1} , which is a small fraction of their calculated uncertainties. The rounding error of the presented wavelengths is $< 0.5 \text{ mÅ}$. It corresponds to the wavenumber errors of $< 0.01 \text{ cm}^{-1}$ and $< 0.11 \text{ cm}^{-1}$ for the last and first lines presented in Table 1, respectively.

Comparison of the values of rwmv_1 and rwmv_2 in Tables 2 and 3 shows consistency: $\text{rwmv}_1 \geq \text{rwmv}_2$ for most of the levels (83%). Only 17 of 223 found levels (8%) have rwmv_2 values 20% greater than rwmv_1 values, and only two levels at $154852.06 \text{ cm}^{-1}$ and $159629.42 \text{ cm}^{-1}$ have the difference greater than 50% but less than 77%. Both levels were represented in the LOP run by three transitions with relatively large but not critical deviations from the calculated values. These former and latter levels have nine and three transitions beyond the LOP supporting identified transitions, respectively. Therefore, the identification of these two levels is correct. We do not have cases when the value of the coefficient A given by the equation (4) is large enough to treat the corresponding level in a special way, as we treated the levels determined by a single transition. The maximum value of 4.7 belongs to the level at $150748.58 \text{ cm}^{-1}$, $J = 1$. This level is determined by two transitions with consistent and relatively small rwmv_1 and rwmv_2 .

The comparison of the shown in Tables 2 and 3 values N , N_{opt} , rwmv_1 , and rwmv_2 indicates the most accurately determined level at 71191.62 cm^{-1} . It has the smallest rwmv_1 (0.05 cm^{-1}), $\text{rwmv}_1 > \text{rwmv}_2$ ($0.05 \text{ cm}^{-1} > 0.04 \text{ cm}^{-1}$), and one of the largest N_{opt} (22). This level was chosen to be the "base" in the current presentation of the analysis. The unpublished results on Ir III spectrum contributed to LSDs determination.

4. Calculations

We used the orthogonal operators approach in our calculations. Table 4 and 5 present energy parameters obtained (or kept fixed) for the even and odd systems, respectively. The parameter values were taken from the final least squares fit (LSF) of the investigated configurations. The parameter *ab initio* values were calculated using the Hartree-Fock method with relativistic correction (HFR) implemented in the code developed by Cowan [34]. The *ab initio* HFR values of the orthogonal electrostatic parameters were calculated as in Ref. [16] from the Slater parameters given by the Cowan code. The obtained or predetermined for fixed parameters scaling factors (LSF/HFR) are shown in Tables 4 and 5.

In both the even and odd parity systems, three configurations were included in the calculations: ($5d^6 + 5d^5 6s + 5d^4 6s^2$) and ($5d^5 6p + 5d^4 6s 6p + 5d^3 6s^2 6p$), respectively. The interaction between these 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 Tables 4 and 5 indicate, the scaling factors for the strong electrostatic core operators O_2 , O_2' , and spin-orbit interaction parameter ζ_d for the $5d^6$, $5d^5 6s$ and $5d^5 6p$ configurations are close to each other. The parameters E_α and E_β are also consistent for the three configurations, and the parameters of the 2-particle magnetic interaction of the *ds*-type (A_{mso}) in $5d^5 6s$ and of the *dp*-type (Z_{II}^k) in $5d^5 6p$ configuration are well defined with a small uncertainty. These values are in agreement with those obtained in Os V and Os IV spectra [21,22]. The mean deviations of the fit for the even and odd systems in Ir IV are 20 and 36 cm^{-1} , respectively. The last values are close to those in Os IV [22]: 22 cm^{-1} and 46 cm^{-1} .

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Explanation of Tables

Table 1. Classified lines in the $(5d^6 + 5d^56s) - 5d^56p$ transition array of Ir IV

gA	Transition probability ($10^7 s^{-1}$)
Int	Intensity of the experimental spectral line (relative)
λ	Wavelength of the experimental spectral line (Å)
ν	Wavenumber of the experimental spectral line (cm^{-1})

λ_{calc}	Calculated (Ritz) wavelength (Å)
Unc λ_{calc}	Uncertainty of the calculated (Ritz) wavelength (Å)
$\Delta(\nu)$	Difference between the experimental and Ritz wavenumbers (cm ⁻¹)
$\Delta(\lambda)$	Difference between the experimental and Ritz wavelengths (Å)
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), <i>J</i> -value (in parentheses) and the configuration of the even level involved in the transition
Odd level	Experimental energy value (cm ⁻¹) and <i>J</i> -value (in parentheses) of the odd level involved in the transition
Remark	Remarks for the identified transitions: m The Ir IV 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 LOP pa - pg Parts of the linelist with assigned wavelength uncertainties (see text, Table A) Ir III (without "bl") The line is also identified as Ir III line. The line does not appear as a blend in the spectrogram, but blending is possible due to a near coincidence of wavelengths. Ir III (400) The line is also identified as Ir III line with expected intensity 400 2d ord The line has a contribution from a line seen in the 2d order

Table 2. Experimental and calculated energy levels (cm⁻¹) in the 5d⁶ and 5d⁵6s configurations of Ir IV

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 _{obs} - E _{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 value of the weighted mean variance given by the equation (7)
rwmv ₂	Square root value of the weighted mean variance given by the equation (8), except for the levels determined by a single line (see text).
Unc	Uncertainty of the level with respect to the "base" even level with <i>J</i> = 4 at 71191.62 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 ⁶ and 2 stands for 5d ⁵ 6s.

Table 3. Experimental and calculated energy levels (cm⁻¹) in the 5d⁵6p and 5d⁴6s6p configurations of Ir IV

Calculated levels of the 5d ⁴ 6s6p configuration that are inside the energy range of the 5d ⁵ 6p configuration are given. Other 5d ⁴ 6s6p levels are omitted.	
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 _{obs} - E _{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 value of the weighted mean variance given by the equation (7)
rwmv ₂	Square root value of the weighted mean variance given by the equation (8),

Unc	except for the levels determined by a single line (see text). Uncertainty of the level with respect to the "base" even level with $J = 4$ at 71191.62 cm^{-1} (see text).
Composition	<i>LS</i> -composition of the level. The number preceding the symbol " " and the term name has the following meaning: 1 stands for $5d^56p$ and 2 stands for $5d^46s6p$.

Table 4. Fitted and calculated parameter values (cm^{-1}) in the $5d^6$, $5d^56s$ and $5d^46s^2$ configurations of Ir IV

Parameter	Parameter name
Fitted value	Parameter value (cm^{-1}) obtained in the final least squares fitting (LSF). Uncertainty of the fitted parameter value is given in parentheses.
HFR	<i>Ab initio</i> value 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 $5d^56p$, $5d^46s6p$ and $5d^36s^26p$ configurations of Ir IV

Parameter	Parameter name
Fitted value	Parameter value (cm^{-1}) obtained in the final least squares fitting (LSF). Uncertainty of the fitted parameter value is given in parentheses.
HFR	<i>Ab initio</i> value 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 $(5d^6 + 5d^56s) - 5d^56p$ transition array of Ir IV.

gA (10 ⁷ 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	Odd level	Remark	
10	15	651.836	153412.70	651.8389	0.0009	0.57	-0.002	14	26	5d ⁶	0.00(4)	153412.13(4)	pa *
181	77	657.898	151999.34	657.8899	0.0023	-1.79	0.008	3	36	5d ⁶	27940.65(4)	179941.78(3)	pa
26	20	660.754	151342.30	660.7501	0.0011	-0.84	0.004	11	39	5d ⁶	5824.11(3)	157167.25(4)	pa *
58	72	663.927	150619.08	663.9277	0.0011	0.26	-0.001	7	23	5d ⁶	19096.89(6)	169715.71(6)	pa
25	17	671.026	149025.61	671.0151	0.0019	-2.34	0.011	12	39	5d ⁶	5824.11(3)	154852.06(2)	pa *
101	52	672.680	148659.07	672.6791	0.0012	-0.22	0.001	8	32	5d ⁶	14546.32(4)	163205.61(3)	pa
76	90	675.607	148015.00	675.6078	0.0014	0.13	-0.001	9	30	5d ⁶	5178.26(2)	153193.13(2)	pa
80	85	677.571	147586.01	677.5618	0.0009	-2.01	0.009	14	39	5d ⁶	5824.11(3)	153412.13(4)	pa *
83	100	679.363	147196.63	679.3692	0.0012	1.26	-0.006	13	30	5d ⁶	5178.26(2)	152373.63(3)	pa
250	277	681.081	146825.50	681.0767	0.0015	-0.84	0.004	4	23	5d ⁶	19096.89(6)	165923.23(6)	pa
59	130	681.688	146694.57	681.6918	0.0020	0.72	-0.003	3	30	5d ⁶	5178.26(2)	151872.11(1)	pa
109	165	682.356	146551.00	682.3632	0.0011	1.48	-0.007	13	39	5d ⁶	5824.11(3)	152373.63(3)	pa
184	475	683.609	146282.43	683.6190	0.0013	2.12	-0.010	8	37	5d ⁶	18463.42(5)	164743.73(4)	pa
296	500	687.122	145534.63	687.1260	0.0011	0.91	-0.004	8	37	5d ⁶	18463.42(5)	163997.14(4)	pa
148	130	687.169	145524.65	687.1660	0.0010	-0.60	0.003	17	26	5d ⁶	0.00(4)	145525.25(5)	pa
105	295	689.634	145004.49	689.6372	0.0009	0.71	-0.003	19	26	5d ⁶	0.00(4)	145003.78(4)	pa
53	240	691.531	144606.68	691.5329	0.0018	0.41	-0.002	8	25	5d ⁶	19128.73(2)	163735.00(3)	pa * 100
49	105	692.468	144410.92	692.4681	0.0011	-0.06	0.000	11	39	5d ⁶	5824.11(3)	150235.09(3)	pa *
354	1050	696.587	143557.05	696.5872	0.0011	0.00	0.000	11	23	5d ⁶	19096.89(6)	162653.94(5)	pa
106	277	697.159	143439.28	697.1625	0.0011	0.69	-0.003	9	37	5d ⁶	18463.42(5)	161902.01(4)	pa
43	57	698.421	143180.10	698.4312	0.0022	2.08	-0.010	7	25	5d ⁶	22138.98(2)	165317.00(2)	pa *
30	15	700.418	142771.95	700.4227	0.0019	1.03	-0.005	7	25	5d ⁶	22138.98(2)	164909.90(2)	pa *
145	1312	703.214	142204.30	703.2409	0.0010	5.52	-0.027	13	26	5d ⁶	0.00(4)	142198.78(4)	pa * 700, bl
163	310	703.414	142163.85	703.4155	0.0011	0.37	-0.002	10	30	5d ⁶	5178.26(2)	147341.74(3)	pa
237	735	704.536	141937.47	704.5275	0.0010	-1.64	0.008	11	39	5d ⁶	5824.11(3)	147763.22(4)	pa
175	400	705.506	141742.30	705.5043	0.0015	-0.29	0.001	9	36	5d ⁶	27940.65(4)	169683.24(3)	pa
44	60	706.469	141548.95	706.4649	0.0012	-0.89	0.004	8	36	5d ⁶	27940.65(4)	169490.49(5)	pa *
277	1517	706.626	141517.54	706.6257	0.0011	-0.09	0.000	10	39	5d ⁶	5824.11(3)	147341.74(3)	pa
128	127	707.722	141298.46	707.7177	0.0013	-0.83	0.004	8	37	5d ⁶	18463.42(5)	159762.71(5)	pa
181	1320	708.508	141141.77	708.5105	0.0011	0.61	-0.003	15	26	5d ⁶	0.00(4)	141141.16(4)	pa
390	795	708.901	141063.50	708.8998	0.0011	-0.16	0.001	7	32	5d ⁶	28652.05(5)	169715.71(6)	pa
96	125	708.965	141050.75	708.9605	0.0011	-0.84	0.004	10	32	5d ⁶	14546.32(4)	155597.91(4)	pa
46	305	709.494	140945.62	709.4969	0.0023	0.68	-0.003	5	39	5d ⁶	21190.03(3)	162134.97(2)	pa 100
251	1257	711.549	140538.40	711.5478	0.0013	-0.30	0.002	13	32	5d ⁶	14546.32(4)	155085.02(3)	pa 400
8	25	712.451	140360.61	712.4432	0.0011	-1.46	0.007	17	39	5d ⁶	5824.11(3)	146186.18(3)	pa *
49	40	713.384	140177.00	713.3753	0.0031	-1.66	0.008	6	39	5d ⁶	21190.03(3)	161368.69(3)	pa *
59	42	714.124	140031.80	714.1221	0.0017	-0.28	0.001	8	25	5d ⁶	19128.73(2)	159160.81(2)	pa
131	1550	714.298	139997.69	714.2940	0.0010	-0.69	0.004	15	26	5d ⁶	0.00(4)	139998.38(4)	pa

91	255	714.934	139873.15	714.9346	0.0018	0.21	-0.001	9	39	5d ⁶	21190.03(3)	161062.97(2)	pa	
306	1575	715.617	139739.48	715.6157	0.0010	-0.33	0.002	16	26	5d ⁶	0.00(4)	139739.81(5)	pa	
45	107	715.692	139725.01	715.6920	0.0011	0.10	-0.001	12	37	5d ⁶	18463.42(5)	158188.33(4)	pa	
142	600	716.609	139546.07	716.6144	0.0017	1.01	-0.005	5	25	5d ⁶	22138.98(2)	161684.04(1)	pa	300
164	1377	717.972	139281.10	717.9670	0.0011	-1.06	0.005	12	32	5d ⁶	14546.32(4)	153828.48(4)	pa	400
156	1780	719.018	139078.48	719.0173	0.0023	-0.24	0.001	7	17	5d ⁶	26238.28(1)	165317.00(2)	pa	500
174	262	719.262	139031.32	719.2638	0.0010	0.28	-0.001	15	39	5d ⁶	5824.11(3)	144855.15(3)	pa	
77	57	719.820	138923.56	719.8181	0.0019	-0.43	0.002	9	25	5d ⁶	22138.98(2)	161062.97(2)	pa	
248	880	720.135	138862.76	720.1271	0.0011	-1.61	0.008	11	37	5d ⁶	18463.42(5)	157327.79(6)	pa	
26	37	720.452	138801.77	720.4505	0.0011	-0.27	0.001	9	39	5d ⁶	5824.11(3)	144626.15(2)	pa *	
563	1352	720.875	138720.30	720.8766	0.0016	0.30	-0.002	5	30	5d ⁶	25969.65(4)	164689.65(3)	pa	
57	20	721.484	138603.17	721.4920	0.0017	1.50	-0.008	8	39	5d ⁶	21190.03(3)	159791.70(4)	pa *	
388	1705	721.864	138530.33	721.8663	0.0011	0.52	-0.003	10	26	5d ⁶	0.00(4)	138529.81(3)	pa	
232	405	722.259	138454.57	722.2549	0.0012	-0.71	0.004	7	32	5d ⁶	28652.05(5)	167107.33(4)	pa	
42	42	722.339	138439.14	722.3378	0.0019	-0.26	0.001	6	39	5d ⁶	21190.03(3)	159629.42(3)	pa *	
1680	1875	722.625	138384.27	722.6261	0.0011	0.11	-0.001	12	23	5d ⁶	19096.89(6)	157481.05(5)	pa	
179	492	722.845	138342.19	722.8459	0.0018	0.12	-0.001	5	36	5d ⁶	27940.65(4)	166282.72(5)	pa	
330	385	723.464	138223.86	723.4619	0.0020	-0.42	0.002	3	32	5d ⁶	28652.05(5)	166876.33(4)	pa	Ir V
131	100	724.502	138025.94	724.4934	0.0013	-1.55	0.008	8	30	5d ⁶	25969.65(4)	163997.14(4)	pa *	
216	242	724.794	137970.33	724.7911	0.0016	-0.45	0.002	8	39	5d ⁶	21190.03(3)	159160.81(2)	pa	
240	747	725.876	137764.56	725.8719	0.0019	-0.79	0.004	8	30	5d ⁶	25969.65(4)	163735.00(3)	pa *	200
156	725	725.918	137756.55	725.9100	0.0010	-1.58	0.008	15	32	5d ⁶	14546.32(4)	152304.45(5)	pa	
84	322	726.289	137686.22	726.2858	0.0012	-0.62	0.003	13	30	5d ⁶	5178.26(2)	142865.10(2)	pa	
36	27	727.332	137488.72	727.3233	0.0021	-1.72	0.009	6	25	5d ⁶	22138.98(2)	159629.42(3)	pa *	
386	560	728.257	137314.12	728.2533	0.0017	-0.73	0.004	6	12	5d ⁶	33303.67(6)	170618.53(5)	pa	
237	1737	728.455	137276.80	728.4522	0.0011	-0.56	0.003	9	26	5d ⁶	0.00(4)	137277.36(4)	pa	
267	592	728.676	137235.17	728.6720	0.0014	-0.79	0.004	8	30	5d ⁶	25969.65(4)	163205.61(3)	pa	
372	1237	729.211	137134.54	729.2112	0.0011	0.05	0.000	10	37	5d ⁶	18463.42(5)	155597.91(4)	pa	
101	550	729.711	137040.55	729.7087	0.0012	-0.44	0.002	13	39	5d ⁶	5824.11(3)	142865.10(2)	pa	
119	397	729.814	137021.23	729.8107	0.0016	-0.60	0.003	8	25	5d ⁶	22138.98(2)	159160.81(2)	pa	
37	25	729.934	136998.59	729.9361	0.0011	0.29	-0.002	12	39	5d ⁶	21190.03(3)	158188.33(4)	pa *	
73	37	730.980	136802.70	730.9777	0.0014	-0.38	0.002	8	36	5d ⁶	27940.65(4)	164743.73(4)	pa *	
142	315	731.273	136747.78	731.2668	0.0016	-1.22	0.007	5	36	5d ⁶	27940.65(4)	164689.65(3)	pa	
1253	1622	731.545	136697.01	731.5440	0.0011	-0.18	0.001	12	37	5d ⁶	18463.42(5)	155160.61(5)	pa	
228	1230	732.133	136587.11	732.1311	0.0013	-0.44	0.002	6	32	5d ⁶	28652.05(5)	165239.60(5)	pa	
341	1502	732.979	136429.50	732.9804	0.0011	0.21	-0.001	12	26	5d ⁶	0.00(4)	136429.29(5)	pa	
33	75	733.277	136374.17	733.2740	0.0010	-0.50	0.003	13	39	5d ⁶	5824.11(3)	142198.78(4)	pa	
74	125	733.371	136356.56	733.3676	0.0023	-0.71	0.004	7	43	5d ⁶	28959.73(3)	165317.00(2)	pa	
34	332	733.734	136289.23	733.7376	0.0015	0.72	-0.004	5	30	5d ⁶	5178.26(2)	141466.77(2)	pa	
1328	1855	734.283	136187.22	734.2854	0.0017	0.40	-0.002	8	12	5d ⁶	33303.67(6)	169490.49(5)	pa	
657	922	734.799	136091.71	734.7988	0.0014	0.03	0.000	8	32	5d ⁶	28652.05(5)	164743.73(4)	pa	
1336	1985	734.951	136063.57	734.9498	0.0012	-0.15	0.001	12	23	5d ⁶	19096.89(6)	155160.61(5)	pa	
104	210	735.094	136037.06	735.0990	0.0011	0.96	-0.005	14	30	5d ⁶	5178.26(2)	141214.36(3)	pa	
27	62	735.416	135977.44	735.4173	0.0014	0.22	-0.001	11	39	5d ⁶	21190.03(3)	157167.25(4)	pa *	

143	60	735.563	135950.36	735.5636	0.0020	0.19	-0.001	7	43	5d ⁶	28959.73(3)	164909.90(2)	pa
818	1805	735.658	135932.67	735.6600	0.0013	0.31	-0.002	9	30	5d ⁶	25969.65(4)	161902.01(4)	pa
51	60	736.260	135821.66	736.2640	0.0016	0.82	-0.004	7	14	5d ⁶	8526.56(1)	144347.40(1)	pa
451	1050	736.406	135794.66	736.4077	0.0019	0.31	-0.002	8	36	5d ⁶	27940.65(4)	163735.00(3)	pa
373	1147	736.748	135731.64	736.7572	0.0016	1.72	-0.009	5	43	5d ⁶	28959.73(3)	164689.65(3)	pa
108	465	737.136	135660.21	737.1351	0.0019	-0.14	0.001	7	7	5d ⁶	8687.05(0)	144347.40(1)	pa
212	1152	737.216	135645.55	737.2312	0.0016	2.89	-0.016	5	39	5d ⁶	5824.11(3)	141466.77(2)	pa * 900, bl
1242	1942	737.486	135595.83	737.4879	0.0011	0.39	-0.002	17	26	5d ⁶	0.00(4)	135595.44(4)	pa
222	1147	738.001	135501.10	738.0041	0.0012	0.50	-0.003	8	30	5d ⁶	5178.26(2)	140678.86(1)	pa
300	730	738.301	135446.18	738.3029	0.0018	0.42	-0.002	5	17	5d ⁶	26238.28(1)	161684.04(1)	pa
185	1237	738.444	135419.92	738.4432	0.0011	-0.11	0.001	15	26	5d ⁶	0.00(4)	135420.03(3)	pa
477	992	738.562	135398.32	738.5577	0.0030	-0.72	0.004	6	30	5d ⁶	25969.65(4)	161368.69(3)	pa
79	240	738.611	135389.17	738.6056	0.0011	-1.08	0.006	14	39	5d ⁶	5824.11(3)	141214.36(3)	pa
24	95	738.841	135347.10	738.8326	0.0010	-1.56	0.009	15	30	5d ⁶	5178.26(2)	140526.92(3)	pa
176	1105	739.006	135316.92	739.0052	0.0010	-0.13	0.001	15	39	5d ⁶	5824.11(3)	141141.16(4)	pa
91	460	739.436	135238.14	739.4306	0.0013	-1.06	0.006	11	39	5d ⁶	21190.03(3)	156429.22(2)	pa
364	1137	739.668	135195.86	739.6693	0.0011	0.31	-0.002	12	37	5d ⁶	18463.42(5)	153658.98(5)	pa
462	1702	740.511	135041.97	740.5355	0.0013	4.56	-0.025	8	43	5d ⁶	28959.73(3)	163997.14(4)	pa * 800, bl
185	470	740.612	135023.56	740.6101	0.0014	-0.26	0.001	13	25	5d ⁶	19128.73(2)	154152.55(3)	pa
129	400	741.028	134947.76	741.0223	0.0011	-0.95	0.005	14	37	5d ⁶	18463.42(5)	153412.13(4)	pa
68	60	741.706	134824.40	741.7039	0.0021	-0.29	0.002	9	17	5d ⁶	26238.28(1)	161062.97(2)	pa
24	42	741.966	134777.12	741.9759	0.0020	1.85	-0.010	8	43	5d ⁶	28959.73(3)	163735.00(3)	pa *
235	422	742.318	134713.21	742.3173	0.0011	-0.08	0.000	11	36	5d ⁶	27940.65(4)	162653.94(5)	pa
146	537	742.358	134705.88	742.3689	0.0015	1.96	-0.011	8	30	5d ⁶	27670.52(2)	162374.44(3)	pa * 200
48	90	742.808	134624.24	742.8115	0.0024	0.57	-0.003	7	31	5d ⁶	30693.33(3)	165317.00(2)	pa
467	1002	743.000	134589.45	743.0044	0.0014	0.75	-0.004	7	32	5d ⁶	28652.05(5)	163240.75(5)	pa
433	1117	743.152	134561.92	743.1514	0.0012	-0.17	0.001	12	23	5d ⁶	19096.89(6)	153658.98(5)	pa
568	880	743.685	134465.55	743.6910	0.0030	1.10	-0.006	5	30	5d ⁶	27670.52(2)	162134.97(2)	pa
119	127	743.861	134433.81	743.8606	0.0015	0.02	0.000	8	36	5d ⁶	27940.65(4)	162374.44(3)	pa
154	357	744.001	134408.39	744.0040	0.0011	0.51	-0.003	10	39	5d ⁶	21190.03(3)	155597.91(4)	pa
110	415	744.077	134394.64	744.0952	0.0012	3.24	-0.018	12	32	5d ⁶	14546.32(4)	148937.72(5)	pa * 200
463	1707	744.383	134339.41	744.3880	0.0015	0.87	-0.005	13	14	5d ⁶	8526.56(1)	142865.10(2)	pa
170	105	744.916	134243.32	744.9169	0.0017	0.15	-0.001	9	29	5d ⁶	35440.07(3)	169683.24(3)	pa
81	290	744.988	134230.37	744.9875	0.0010	-0.07	0.000	11	39	5d ⁶	5824.11(3)	140054.55(3)	pa
807	985	745.061	134217.14	745.0645	0.0021	0.58	-0.003	7	31	5d ⁶	30693.33(3)	164909.90(2)	pa
320	325	745.185	134194.85	745.1874	0.0020	0.41	-0.002	3	12	5d ⁶	33303.67(6)	167498.11(7)	pa
783	1465	745.739	134095.23	745.7372	0.0015	-0.27	0.002	6	23	5d ⁶	19096.89(6)	153192.39(7)	pa
35	15	745.905	134065.28	745.9102	0.0017	0.88	-0.005	9	25	5d ⁶	19128.73(2)	153193.13(2)	pa *
280	400	745.988	134050.34	745.9881	0.0015	-0.05	0.000	8	31	5d ⁶	30693.33(3)	164743.73(4)	pa
530	1872	746.129	134025.15	746.1277	0.0011	-0.16	0.001	16	26	5d ⁶	0.00(4)	134025.31(4)	pa
157	175	746.262	134001.11	746.2581	0.0012	-0.78	0.004	11	32	5d ⁶	28652.05(5)	162653.94(5)	pa
677	1197	746.485	133961.20	746.4839	0.0013	-0.16	0.001	9	36	5d ⁶	27940.65(4)	161902.01(4)	pa
441	1170	746.852	133895.30	746.8539	0.0014	0.31	-0.002	13	39	5d ⁶	21190.03(3)	155085.02(3)	pa
116	677	747.158	133840.46	747.1551	0.0010	-0.56	0.003	15	37	5d ⁶	18463.42(5)	152304.45(5)	pa 300

485	1660	747.313	133812.76	747.3146	0.0013	0.30	-0.002	8	32	5d ⁶	14546.32(4)	148358.78(3)	pa	
11	55	748.151	133662.77	748.1556	0.0023	0.74	-0.004	12	39	5d ⁶	21190.03(3)	154852.06(2)	pa *	
168	870	749.424	133435.79	749.4325	0.0011	1.49	-0.008	8	30	5d ⁶	5178.26(2)	138612.56(2)	pa	
222	1707	749.554	133412.60	749.5534	0.0011	-0.18	0.001	8	26	5d ⁶	0.00(4)	133412.78(5)	pa	
60	120	749.656	133394.45	749.6676	0.0020	2.00	-0.011	9	30	5d ⁶	27670.52(2)	161062.97(2)	pa *	
125	925	749.896	133351.86	749.8975	0.0011	0.31	-0.002	10	30	5d ⁶	5178.26(2)	138529.81(3)	pa	
77	50	749.979	133337.08	749.9717	0.0012	-1.27	0.007	11	32	5d ⁶	14546.32(4)	147884.68(4)	pa	
158	290	750.491	133246.01	750.4978	0.0014	1.11	-0.006	13	25	5d ⁶	19128.73(2)	152373.63(3)	pa	
756	1455	750.659	133216.37	750.6555	0.0011	-0.53	0.003	11	32	5d ⁶	14546.32(4)	147763.22(4)	pa	
388	697	750.709	133207.44	750.7081	0.0012	-0.12	0.001	15	23	5d ⁶	19096.89(6)	152304.45(5)	pa	
503	1762	751.664	133038.13	751.6659	0.0011	0.30	-0.002	14	26	5d ⁶	0.00(4)	133037.83(3)	pa	
2996	1810	751.998	132978.99	751.9982	0.0022	-0.06	0.000	5	12	5d ⁶	33303.67(6)	166282.72(5)	pa	
53	232	752.318	132922.44	752.3179	0.0019	-0.09	0.000	8	17	5d ⁶	26238.28(1)	159160.81(2)	pa	
160	387	752.441	132900.84	752.4378	0.0011	-0.52	0.003	9	37	5d ⁶	18463.42(5)	151364.78(6)	pa	
716	1865	753.074	132789.09	753.0775	0.0011	0.64	-0.004	8	39	5d ⁶	5824.11(3)	138612.56(2)	pa	
97	400	753.543	132706.38	753.5471	0.0011	0.67	-0.004	10	39	5d ⁶	5824.11(3)	138529.81(3)	pa	
790	1305	753.564	132702.75	753.5639	0.0050	0.00	0.000	1	43	5d ⁶	28959.73(3)	161662.48(2)	pa	
133	185	753.929	132638.43	753.9292	0.0012	-0.02	0.000	12	39	5d ⁶	21190.03(3)	153828.48(4)	pa	
1445	1870	754.034	132619.93	754.0366	0.0020	0.37	-0.002	4	12	5d ⁶	33303.67(6)	165923.23(6)	pa	
107	932	754.594	132521.58	754.5895	0.0012	-0.80	0.005	12	30	5d ⁶	5178.26(2)	137700.64(3)	pa	
256	525	755.232	132409.63	755.2359	0.0030	0.67	-0.004	6	43	5d ⁶	28959.73(3)	161368.69(3)	pa	
342	382	755.881	132295.92	755.8838	0.0018	0.46	-0.003	9	23	5d ⁶	37387.78(4)	169683.24(3)	pa	
346	1777	756.045	132267.33	756.0414	0.0013	-0.56	0.003	9	23	5d ⁶	19096.89(6)	151364.78(6)	pa	
749	1777	756.045	132267.33	756.0492	0.0014	0.80	-0.005	11	25	5d ⁶	19128.73(2)	151395.26(3)	pa	
168	1777	756.045	132267.33	756.0450	0.0013	0.07	0.000	7	36	5d ⁶	27940.65(4)	160207.91(4)	pa	300
478	1290	756.185	132242.82	756.1858	0.0012	0.20	-0.001	11	37	5d ⁶	18463.42(5)	150706.05(4)	pa	
99	165	756.327	132217.96	756.3228	0.0012	-0.72	0.004	12	30	5d ⁶	25969.65(4)	158188.33(4)	pa	
63	200	756.986	132102.89	756.9837	0.0021	-0.35	0.002	9	43	5d ⁶	28959.73(3)	161062.97(2)	pa	100
217	200	756.986	132102.89	756.9867	0.0016	0.18	-0.001	8	23	5d ⁶	37387.78(4)	169490.49(5)	pa *	
51	1150	757.094	132083.98	757.0700	0.0011	-4.20	0.024	15	26	5d ⁶	0.00(4)	132088.18(4)	pa *	300, bl
20	95	757.277	132052.01	757.2843	0.0011	1.21	-0.007	12	30	5d ⁶	5178.26(2)	137229.06(2)	pa	
111	132	757.498	132013.50	757.4979	0.0015	-0.07	0.000	13	25	5d ⁶	22138.98(2)	154152.55(3)	pa	
597	1442	757.561	132002.50	757.5580	0.0017	-0.60	0.003	9	39	5d ⁶	21190.03(3)	153193.13(2)	pa	
58	57	757.628	131990.92	757.6228	0.0019	-0.89	0.005	8	7	5d ⁶	8687.05(0)	140678.86(1)	pa	
502	1630	757.881	131946.77	757.8820	0.0016	0.10	-0.001	10	14	5d ⁶	8526.56(1)	140473.23(2)	pa	
757	1947	758.282	131877.02	758.2850	0.0011	0.49	-0.003	12	39	5d ⁶	5824.11(3)	137700.64(3)	pa	
272	245	758.426	131851.95	758.4316	0.0019	0.90	-0.005	8	36	5d ⁶	27940.65(4)	159791.70(4)	pa	
835	1970	759.418	131679.77	759.4104	0.0017	-1.34	0.008	8	31	5d ⁶	30693.33(3)	162374.44(3)	pa *	bl(O V)
98	140	759.648	131639.95	759.6483	0.0013	0.09	-0.001	17	32	5d ⁶	14546.32(4)	146186.18(3)	pa	
502	1042	759.765	131619.65	759.7638	0.0020	-0.20	0.001	2	25	5d ⁶	19128.73(2)	150748.58(1)	pa	
684	557	760.132	131556.05	760.1334	0.0013	0.19	-0.001	7	32	5d ⁶	28652.05(5)	160207.91(4)	pa	
263	687	760.510	131490.64	760.5124	0.0018	0.35	-0.002	8	30	5d ⁶	27670.52(2)	159160.81(2)	pa	
2175	1552	760.725	131453.58	760.7267	0.0011	0.33	-0.002	9	39	5d ⁶	5824.11(3)	137277.36(4)	pa	
431	120	760.796	131441.19	760.7939	0.0030	-0.44	0.003	5	31	5d ⁶	30693.33(3)	162134.97(2)	pa	

608	977	761.001	131405.80	761.0063	0.0011	0.85	-0.005	12	39	5d ⁶	5824.11(3)	137229.06(2)	pa
235	272	762.210	131197.37	762.2091	0.0015	-0.23	0.001	11	30	5d ⁶	25969.65(4)	157167.25(4)	pa
31	12	762.299	131182.19	762.2904	0.0014	-1.41	0.008	13	39	5d ⁶	21190.03(3)	152373.63(3)	pa *
559	1350	762.546	131139.63	762.5459	0.0019	-0.02	0.000	8	32	5d ⁶	28652.05(5)	159791.70(4)	pa
485	1182	762.719	131109.95	762.7145	0.0015	-0.71	0.004	8	32	5d ⁶	28652.05(5)	159762.71(5)	pa
180	260	763.040	131054.76	763.0434	0.0018	0.61	-0.004	9	25	5d ⁶	22138.98(2)	153193.13(2)	pa
588	1485	763.415	130990.44	763.4149	0.0013	0.07	0.000	7	32	5d ⁶	14546.32(4)	145536.69(3)	pa
245	455	764.231	130850.42	764.2311	0.0030	-0.05	0.000	7	8	5d ⁶	34466.53(1)	165317.00(2)	pa
277	467	764.345	130831.04	764.3392	0.0019	-0.93	0.005	8	43	5d ⁶	28959.73(3)	159791.70(4)	pa
320	985	764.598	130787.68	764.5967	0.0013	-0.23	0.001	11	30	5d ⁶	25969.65(4)	156757.56(3)	pa
39	107	764.691	130771.74	764.6886	0.0012	-0.44	0.003	10	30	5d ⁶	5178.26(2)	135950.44(1)	pa
203	772	765.269	130672.95	765.2884	0.0022	3.26	-0.019	6	43	5d ⁶	28959.73(3)	159629.42(3)	pa * 400
212	772	765.269	130672.95	765.2552	0.0041	-2.40	0.014	6	31	5d ⁶	30693.33(3)	161368.69(3)	pa * 400
298	1302	765.900	130565.37	765.9020	0.0016	0.36	-0.002	5	23	5d ⁶	19096.89(6)	149661.90(7)	pa
656	1390	766.432	130474.79	766.4345	0.0013	0.49	-0.003	12	37	5d ⁶	18463.42(5)	148937.72(5)	pa
676	1590	766.535	130457.20	766.5334	0.0010	-0.26	0.002	19	32	5d ⁶	14546.32(4)	145003.78(4)	pa
344	495	767.042	130370.89	767.0498	0.0021	1.25	-0.007	9	31	5d ⁶	30693.33(3)	161062.97(2)	pa
225	1457	767.422	130306.40	767.4226	0.0014	0.10	-0.001	6	30	5d ⁶	5178.26(2)	135484.56(1)	pa
192	1457	767.422	130306.40	767.4077	0.0011	-2.43	0.014	15	32	5d ⁶	14546.32(4)	144855.15(3)	pa * 300
1000	1910	767.800	130242.32	767.8028	0.0011	0.55	-0.003	15	30	5d ⁶	5178.26(2)	135420.03(3)	pa
1756	2012	767.947	130217.24	767.9531	0.0012	0.95	-0.006	9	23	5d ⁶	19096.89(6)	149313.18(6)	pa
72	120	768.043	130200.99	768.0428	0.0018	-0.09	0.001	8	43	5d ⁶	28959.73(3)	159160.81(2)	pa
55	62	768.106	130190.45	768.1026	0.0016	-0.49	0.003	11	17	5d ⁶	26238.28(1)	156429.22(2)	pa
217	717	768.883	130058.87	768.8822	0.0020	-0.07	0.000	2	39	5d ⁶	21190.03(3)	151248.97(2)	pa
137	1455	769.434	129965.66	769.4312	0.0010	-0.47	0.003	14	32	5d ⁶	14546.32(4)	144512.45(5)	pa 700
294	565	769.958	129877.21	769.9597	0.0021	0.29	-0.002	7	29	5d ⁶	35440.07(3)	165317.00(2)	pa
428	1540	770.174	129840.84	770.1738	0.0014	0.01	0.000	12	23	5d ⁶	19096.89(6)	148937.72(5)	pa 1000
8	35	770.589	129770.93	770.5862	0.0011	-0.40	0.002	17	39	5d ⁶	5824.11(3)	135595.44(4)	pa *
221	230	770.809	129733.88	770.8131	0.0030	0.75	-0.004	3	25	5d ⁶	22138.98(2)	151872.11(1)	pa
1146	1675	770.892	129719.86	770.8938	0.0016	0.31	-0.002	7	23	5d ⁶	37387.78(4)	167107.33(4)	pa
1349	2000	771.433	129628.85	771.4367	0.0013	0.59	-0.004	10	30	5d ⁶	25969.65(4)	155597.91(4)	pa
72	1082	771.635	129594.98	771.6292	0.0011	-0.93	0.006	15	39	5d ⁶	5824.11(3)	135420.03(3)	pa * 300
99	220	771.859	129557.31	771.8643	0.0020	0.85	-0.005	6	25	5d ⁶	19128.73(2)	148685.19(2)	pa Ir V
306	725	771.988	129535.74	771.9845	0.0012	-0.54	0.003	12	32	5d ⁶	28652.05(5)	158188.33(4)	pa
84	280	772.026	129529.35	772.0256	0.0012	-0.03	0.000	13	30	5d ⁶	5178.26(2)	134707.64(2)	pa
234	600	772.152	129508.18	772.1507	0.0020	-0.23	0.001	4	25	5d ⁶	19128.73(2)	148637.14(1)	pa
250	412	772.261	129489.90	772.2691	0.0023	1.35	-0.008	3	23	5d ⁶	37387.78(4)	166876.33(4)	pa
109	192	772.392	129468.02	772.3807	0.0023	-1.81	0.011	7	29	5d ⁶	35440.07(3)	164909.90(2)	pa *
421	1290	772.665	129422.23	772.6706	0.0012	0.97	-0.006	11	37	5d ⁶	18463.42(5)	147884.68(4)	pa
2249	1505	773.090	129350.98	773.0946	0.0017	0.71	-0.004	11	12	5d ⁶	33303.67(6)	162653.94(5)	pa
1947	1572	773.394	129300.13	773.3964	0.0012	0.34	-0.002	11	37	5d ⁶	18463.42(5)	147763.22(4)	pa
363	1072	773.819	129229.17	773.8225	0.0012	0.57	-0.003	12	43	5d ⁶	28959.73(3)	158188.33(4)	pa
237	755	774.042	129191.94	774.0480	0.0013	0.98	-0.006	12	30	5d ⁶	25969.65(4)	155160.61(5)	pa
152	1895	774.518	129112.59	774.5011	0.0016	-2.78	0.017	13	30	5d ⁶	25969.65(4)	155085.02(3)	pa * 200, m(O V)

97	112	774.668	129087.57	774.6711	0.0012	0.53	-0.003	11	30	5d ⁶	27670.52(2)	156757.56(3)	pa
997	2070	774.773	129070.06	774.7735	0.0012	0.08	0.000	10	26	5d ⁶	0.00(4)	129069.98(3)	pa
353	587	774.924	129044.85	774.9231	0.0013	-0.21	0.001	11	39	5d ⁶	21190.03(3)	150235.09(3)	pa
786	1835	775.150	129007.34	775.1519	0.0015	0.37	-0.002	8	25	5d ⁶	19128.73(2)	148135.70(2)	pa
710	1292	775.571	128937.23	775.5781	0.0022	1.14	-0.007	6	31	5d ⁶	30693.33(3)	159629.42(3)	pa
217	1090	775.899	128882.79	775.8943	0.0012	-0.74	0.004	13	39	5d ⁶	5824.11(3)	134707.64(2)	pa
522	1010	776.225	128828.64	776.2227	0.0012	-0.36	0.002	12	32	5d ⁶	28652.05(5)	157481.05(5)	pa
521	95	776.293	128817.27	776.2956	0.0012	0.36	-0.002	11	36	5d ⁶	27940.65(4)	156757.56(3)	pa
47	167	776.987	128702.23	776.9857	0.0014	-0.27	0.002	12	14	5d ⁶	8526.56(1)	137229.06(2)	pa
30	200	777.141	128676.84	777.1473	0.0013	1.10	-0.007	11	32	5d ⁶	28652.05(5)	157327.79(6)	pa *
175	217	777.166	128672.59	777.1647	0.0018	-0.27	0.002	4	20	5d ⁶	46354.20(4)	175027.06(4)	pa
396	450	777.302	128650.18	777.3017	0.0050	0.00	0.000	1	8	5d ⁶	34466.53(1)	163116.70(1)	pa
574	1575	777.514	128615.11	777.5076	0.0016	-1.00	0.006	8	14	5d ⁶	8526.56(1)	137142.67(1)	pa
189	1575	777.514	128615.11	777.5217	0.0030	1.33	-0.008	12	17	5d ⁶	26238.28(1)	154852.06(2)	pa * 200
273	275	777.872	128555.84	777.8646	0.0015	-1.23	0.007	8	29	5d ⁶	35440.07(3)	163997.14(4)	pa
1387	1527	778.118	128515.16	778.1181	0.0015	-0.04	0.000	11	32	5d ⁶	28652.05(5)	157167.25(4)	pa
146	1552	778.242	128494.74	778.2512	0.0011	1.53	-0.009	14	26	5d ⁶	0.00(4)	128493.21(4)	pa
236	1370	778.477	128455.93	778.4790	0.0020	0.31	-0.002	8	7	5d ⁶	8687.05(0)	137142.67(1)	pa
315	287	779.450	128295.58	779.4540	0.0022	0.65	-0.004	8	29	5d ⁶	35440.07(3)	163735.00(3)	pa
176	500	779.953	128212.94	779.9521	0.0014	-0.07	0.000	10	25	5d ⁶	19128.73(2)	147341.74(3)	pa
93	310	780.029	128200.33	780.0239	0.0010	-0.87	0.005	16	39	5d ⁶	5824.11(3)	134025.31(4)	pa
950	1532	780.134	128183.14	780.1353	0.0014	0.24	-0.001	13	30	5d ⁶	25969.65(4)	154152.55(3)	pa
148	100	780.394	128140.47	780.3973	0.0021	0.61	-0.004	5	43	5d ⁶	28959.73(3)	157099.59(2)	pa
100	377	780.671	128094.87	780.6638	0.0015	-1.24	0.008	11	25	5d ⁶	22138.98(2)	150235.09(3)	pa
64	80	780.799	128073.87	780.7956	0.0016	-0.63	0.004	8	39	5d ⁶	21190.03(3)	149264.53(2)	pa
194	1187	781.093	128025.68	781.0923	0.0013	-0.16	0.001	11	30	5d ⁶	5178.26(2)	133204.10(2)	pa
570	2057	782.108	127859.65	782.1081	0.0011	0.08	0.000	14	30	5d ⁶	5178.26(2)	133037.83(3)	pa
701	2057	782.108	127859.65	782.1126	0.0014	0.81	-0.005	12	30	5d ⁶	25969.65(4)	153828.48(4)	pa
82	285	783.151	127689.21	783.1508	0.0013	-0.12	0.001	12	30	5d ⁶	25969.65(4)	153658.98(5)	pa
1263	345	783.192	127682.63	783.1964	0.0031	0.73	-0.004	3	16	5d ⁶	52259.88(3)	179941.78(3)	pa
597	1672	783.347	127657.27	783.3475	0.0013	0.01	0.000	10	36	5d ⁶	27940.65(4)	155597.91(4)	pa
899	1840	783.376	127652.65	783.3770	0.0011	0.19	-0.001	13	32	5d ⁶	14546.32(4)	142198.78(4)	pa
95	382	784.343	127495.19	784.3435	0.0020	0.03	0.000	6	39	5d ⁶	21190.03(3)	148685.19(2)	pa
121	462	784.503	127469.27	784.5014	0.0014	-0.22	0.001	11	43	5d ⁶	28959.73(3)	156429.22(2)	pa
381	1612	784.783	127423.84	784.7823	0.0016	-0.04	0.000	10	14	5d ⁶	8526.56(1)	135950.44(1)	pa
127	152	784.843	127414.07	784.8400	0.0016	-0.43	0.003	13	30	5d ⁶	27670.52(2)	155085.02(3)	pa
70	247	785.054	127379.82	785.0527	0.0013	-0.17	0.001	11	39	5d ⁶	5824.11(3)	133204.10(2)	pa
702	967	785.202	127355.81	785.2008	0.0018	-0.14	0.001	8	23	5d ⁶	37387.78(4)	164743.73(4)	pa
312	1332	785.605	127290.37	785.6074	0.0012	0.32	-0.002	8	30	5d ⁶	5178.26(2)	132468.31(2)	pa
135	212	785.769	127263.83	785.7719	0.0019	0.44	-0.003	10	7	5d ⁶	8687.05(0)	135950.44(1)	pa
421	1647	786.077	127214.05	786.0787	0.0011	0.33	-0.002	14	39	5d ⁶	5824.11(3)	133037.83(3)	pa
148	150	786.267	127183.20	786.2776	0.0031	1.66	-0.010	12	30	5d ⁶	27670.52(2)	154852.06(2)	pa
470	885	786.357	127168.65	786.3567	0.0014	-0.10	0.001	8	39	5d ⁶	21190.03(3)	148358.78(3)	pa
495	1327	786.619	127126.36	786.6239	0.0018	0.81	-0.005	8	25	5d ⁶	22138.98(2)	149264.53(2)	pa

769	1637	787.019	127061.77	787.0184	0.0011	-0.06	0.000	17	37	5d ⁶	18463.42(5)	145525.25(5)	pa
115	397	787.540	126977.66	787.5471	0.0011	1.13	-0.007	16	37	5d ⁶	18463.42(5)	145439.95(4)	pa
293	310	787.801	126935.58	787.8087	0.0018	1.21	-0.007	8	29	5d ⁶	35440.07(3)	162374.44(3)	pa
325	1425	788.657	126797.80	788.6590	0.0021	0.29	-0.002	6	7	5d ⁶	8687.05(0)	135484.56(1)	pa
667	1732	789.294	126695.54	789.2993	0.0013	0.89	-0.006	11	39	5d ⁶	21190.03(3)	147884.68(4)	pa
130	1732	789.294	126695.54	789.2978	0.0030	0.64	-0.004	5	29	5d ⁶	35440.07(3)	162134.97(2)	pa * 200
1481	2100	789.462	126668.59	789.4651	0.0012	0.55	-0.003	14	32	5d ⁶	14546.32(4)	141214.36(3)	pa
107	82	789.651	126638.22	789.6513	0.0013	0.04	0.000	10	43	5d ⁶	28959.73(3)	155597.91(4)	pa
620	985	789.829	126609.70	789.8310	0.0017	0.34	-0.002	8	23	5d ⁶	37387.78(4)	163997.14(4)	pa
136	342	789.915	126595.85	789.9216	0.0012	1.01	-0.006	15	32	5d ⁶	14546.32(4)	141141.16(4)	pa
226	342	789.915	126595.85	789.9116	0.0030	-0.59	0.004	9	8	5d ⁶	34466.53(1)	161062.97(2)	pa
276	1737	790.202	126550.00	790.2252	0.0022	3.79	-0.024	6	25	5d ⁶	22138.98(2)	148685.19(2)	pa * 600, bl(O IV)
1048	1242	790.259	126540.86	790.2617	0.0010	0.50	-0.003	19	37	5d ⁶	18463.42(5)	145003.78(4)	pa
1894	1525	790.460	126508.66	790.4603	0.0013	0.10	-0.001	12	32	5d ⁶	28652.05(5)	155160.61(5)	pa
219	210	790.525	126498.16	790.5254	0.0021	0.01	0.000	4	25	5d ⁶	22138.98(2)	148637.14(1)	pa
297	365	790.677	126473.98	790.6769	0.0016	0.06	0.000	11	31	5d ⁶	30693.33(3)	157167.25(4)	pa
43	25	790.752	126461.87	790.7517	0.0016	-0.07	0.000	9	29	5d ⁶	35440.07(3)	161902.01(4)	pa *
2386	2117	790.960	126428.63	790.9618	0.0013	0.27	-0.002	17	23	5d ⁶	19096.89(6)	145525.25(5)	pa
94	175	791.099	126406.41	791.1001	0.0031	0.16	-0.001	5	31	5d ⁶	30693.33(3)	157099.59(2)	pa
222	165	791.450	126350.42	791.4697	0.0024	3.20	-0.020	8	23	5d ⁶	37387.78(4)	163735.00(3)	pa * 100
817	1545	791.545	126335.19	791.5475	0.0012	0.39	-0.002	15	30	5d ⁶	25969.65(4)	152304.45(5)	pa
44	150	791.991	126264.03	791.9909	0.0011	-0.04	0.000	15	39	5d ⁶	5824.11(3)	132088.18(4)	pa
487	947	792.318	126211.97	792.3183	0.0015	0.07	0.000	13	36	5d ⁶	27940.65(4)	154152.55(3)	pa
301	1067	792.510	126181.34	792.5118	0.0015	0.26	-0.002	13	14	5d ⁶	8526.56(1)	134707.64(2)	pa
746	780	792.695	126152.00	792.6963	0.0014	0.29	-0.002	10	39	5d ⁶	21190.03(3)	147341.74(3)	pa
255	125	792.860	126125.64	792.8624	0.0016	0.35	-0.002	13	43	5d ⁶	28959.73(3)	155085.02(3)	pa
1364	1302	792.942	126112.69	792.9422	0.0020	0.09	-0.001	4	12	5d ⁶	33303.67(6)	159416.27(6)	pa
892	952	793.265	126061.34	793.2680	0.0022	0.54	-0.003	2	30	5d ⁶	27670.52(2)	153731.32(1)	pa
830	1290	793.346	126048.46	793.3421	0.0011	-0.57	0.004	14	37	5d ⁶	18463.42(5)	144512.45(5)	pa
2194	2135	793.761	125982.59	793.7633	0.0012	0.45	-0.003	11	26	5d ⁶	0.00(4)	125982.14(5)	pa
1643	720	793.903	125959.94	793.9042	0.0031	0.16	-0.001	3	10	5d ⁶	53982.00(4)	179941.78(3)	pa
437	1167	794.350	125889.04	794.3580	0.0013	1.21	-0.008	12	36	5d ⁶	27940.65(4)	153828.48(4)	pa
213	1167	794.350	125889.04	794.3296	0.0031	-3.29	0.021	12	43	5d ⁶	28959.73(3)	154852.06(2)	pa * 200
72	35	794.577	125853.05	794.5780	0.0018	0.08	0.000	7	23	5d ⁶	37387.78(4)	163240.75(5)	pa *
73	85	794.792	125819.16	794.7999	0.0019	1.33	-0.008	8	23	5d ⁶	37387.78(4)	163205.61(3)	pa *
167	87	794.983	125788.88	794.9794	0.0030	-0.53	0.003	7	7	5d ⁶	39120.48(2)	164909.90(2)	pa
348	455	795.316	125736.12	795.3179	0.0015	0.24	-0.001	11	31	5d ⁶	30693.33(3)	156429.22(2)	pa
190	367	795.371	125727.54	795.3778	0.0013	1.12	-0.007	15	25	5d ⁶	19128.73(2)	144855.15(3)	pa
84	102	795.439	125716.71	795.4290	0.0012	-1.62	0.010	12	36	5d ⁶	27940.65(4)	153658.98(5)	pa *
847	1967	795.564	125696.97	795.5641	0.0012	-0.01	0.000	10	30	5d ⁶	5178.26(2)	130875.24(2)	pa
1193	1600	795.917	125641.27	795.9143	0.0012	-0.39	0.002	7	32	5d ⁶	28652.05(5)	154293.71(6)	pa
118	127	795.971	125632.78	795.9640	0.0030	-1.05	0.007	3	17	5d ⁶	26238.28(1)	151872.11(1)	pa
50	320	796.664	125523.45	796.6692	0.0019	0.84	-0.005	9	30	5d ⁶	27670.52(2)	153193.13(2)	pa O II
631	1605	796.828	125497.66	796.8291	0.0014	0.24	-0.002	9	25	5d ⁶	19128.73(2)	144626.15(2)	pa

153	452	796.994	125471.51	796.9939	0.0012	0.03	0.000	14	36	5d ⁶	27940.65(4)	153412.13(4)	pa	
86	212	797.118	125451.86	797.1172	0.0011	-0.20	0.001	15	32	5d ⁶	14546.32(4)	139998.38(4)	pa	
69	232	797.345	125416.27	797.3492	0.0013	0.71	-0.005	14	23	5d ⁶	19096.89(6)	144512.45(5)	pa	
174	1467	798.293	125267.21	798.2858	0.0012	-1.22	0.008	14	37	5d ⁶	18463.42(5)	143731.85(5)	pa	* 1000
430	1467	798.293	125267.21	798.3002	0.0016	1.05	-0.007	11	23	5d ⁶	37387.78(4)	162653.94(5)	pa	1000
866	2030	798.564	125224.83	798.5638	0.0012	0.02	0.000	15	26	5d ⁶	0.00(4)	125224.81(4)	pa	
194	200	798.703	125202.97	798.7044	0.0016	0.21	-0.001	10	25	5d ⁶	22138.98(2)	147341.74(3)	pa	
615	1670	798.762	125193.77	798.7636	0.0011	0.28	-0.002	16	32	5d ⁶	14546.32(4)	139739.81(5)	pa	
179	1670	798.762	125193.77	798.7679	0.0015	0.95	-0.006	13	43	5d ⁶	28959.73(3)	154152.55(3)	pa	300
165	245	798.870	125176.84	798.8724	0.0014	0.41	-0.003	12	32	5d ⁶	28652.05(5)	153828.48(4)	pa	
86	310	799.091	125142.19	799.1026	0.0015	1.81	-0.012	6	39	5d ⁶	21190.03(3)	146330.41(2)	pa	
74	280	799.668	125051.90	799.6729	0.0012	0.77	-0.005	10	39	5d ⁶	5824.11(3)	130875.24(2)	pa	C II
953	1387	799.730	125042.14	799.7337	0.0013	0.52	-0.003	8	36	5d ⁶	27940.65(4)	152982.27(4)	pa	
302	352	799.807	125030.21	799.8049	0.0014	-0.28	0.002	10	30	5d ⁶	25969.65(4)	151000.14(5)	pa	
918	1650	799.951	125007.58	799.9557	0.0013	0.65	-0.004	12	32	5d ⁶	28652.05(5)	153658.98(5)	pa	
39	80	800.032	124994.97	800.0246	0.0014	-1.18	0.008	17	39	5d ⁶	21190.03(3)	146186.18(3)	pa	
360	795	800.839	124869.11	800.8409	0.0014	0.36	-0.002	12	43	5d ⁶	28959.73(3)	153828.48(4)	pa	
22	15	801.527	124761.88	801.5384	0.0013	1.80	-0.012	14	32	5d ⁶	28652.05(5)	153412.13(4)	pa	*
155	277	801.910	124702.27	801.9046	0.0015	-0.84	0.005	13	30	5d ⁶	27670.52(2)	152373.63(3)	pa	
39	397	801.953	124695.52	801.9663	0.0011	2.00	-0.013	16	37	5d ⁶	18463.42(5)	143156.95(4)	pa	* 100
209	397	801.953	124695.52	801.9614	0.0034	1.24	-0.008	8	8	5d ⁶	34466.53(1)	159160.81(2)	pa	
197	1272	802.070	124677.35	802.0691	0.0016	-0.19	0.001	11	14	5d ⁶	8526.56(1)	133204.10(2)	pa	
280	1375	802.342	124635.18	802.3431	0.0013	0.22	-0.001	14	23	5d ⁶	19096.89(6)	143731.85(5)	pa	
255	422	803.132	124512.53	803.1211	0.0017	-1.70	0.011	9	23	5d ⁶	37387.78(4)	161902.01(4)	pa	
399	1110	803.645	124433.07	803.6455	0.0016	0.09	-0.001	13	36	5d ⁶	27940.65(4)	152373.63(3)	pa	
299	967	803.911	124391.90	803.9123	0.0017	0.21	-0.001	13	31	5d ⁶	30693.33(3)	155085.02(3)	pa	
83	105	804.094	124363.55	804.0925	0.0012	-0.25	0.002	15	36	5d ⁶	27940.65(4)	152304.45(5)	pa	
72	65	804.180	124350.25	804.1712	0.0023	-1.38	0.009	8	29	5d ⁶	35440.07(3)	159791.70(4)	pa	*
652	1802	804.736	124264.43	804.7290	0.0015	-1.01	0.007	11	30	5d ⁶	25969.65(4)	150235.09(3)	pa	
1027	1802	804.736	124264.43	804.7362	0.0018	0.10	-0.001	6	20	5d ⁶	46354.20(4)	170618.53(5)	pa	
107	340	804.831	124249.72	804.8295	0.0011	-0.20	0.001	16	39	5d ⁶	21190.03(3)	145439.95(4)	pa	
393	650	805.159	124199.10	805.1608	0.0012	0.31	-0.002	10	37	5d ⁶	18463.42(5)	142662.22(6)	pa	
333	342	805.208	124191.50	805.2085	0.0017	0.07	0.000	6	25	5d ⁶	22138.98(2)	146330.41(2)	pa	
477	275	805.297	124177.71	805.2996	0.0018	0.33	-0.002	12	12	5d ⁶	33303.67(6)	157481.05(5)	pa	
863	992	805.356	124168.66	805.3539	0.0014	-0.36	0.002	9	39	5d ⁶	21190.03(3)	145359.05(2)	pa	
353	442	805.427	124157.73	805.4206	0.0031	-1.00	0.006	12	31	5d ⁶	30693.33(3)	154852.06(2)	pa	
239	130	805.892	124086.03	805.8983	0.0030	0.90	-0.006	8	7	5d ⁶	39120.48(2)	163205.61(3)	pa	
539	1252	806.144	124047.24	806.1448	0.0015	0.04	0.000	17	25	5d ⁶	22138.98(2)	146186.18(3)	pa	
3209	1892	806.295	124024.15	806.2948	0.0020	0.03	0.000	11	12	5d ⁶	33303.67(6)	157327.79(6)	pa	
135	775	806.560	123983.31	806.5590	0.0013	-0.18	0.001	10	32	5d ⁶	14546.32(4)	138529.81(3)	pa	C II
24	315	806.835	123941.09	806.8306	0.0016	-0.66	0.004	8	14	5d ⁶	8526.56(1)	132468.31(2)	pa	*
39	167	807.151	123892.57	807.1564	0.0012	0.85	-0.006	10	30	5d ⁶	5178.26(2)	129069.98(3)	pa	
273	747	808.244	123725.03	808.2458	0.0013	0.29	-0.002	11	30	5d ⁶	27670.52(2)	151395.26(3)	pa	
179	312	808.720	123652.21	808.7186	0.0012	-0.19	0.001	15	32	5d ⁶	28652.05(5)	152304.45(5)	pa	

3623	1820	809.290	123565.05	809.2885	0.0014	-0.28	0.002	10	23	5d ⁶	19096.89(6)	142662.22(6)	pa
57	82	809.995	123457.51	809.9841	0.0016	-1.71	0.011	13	31	5d ⁶	30693.33(3)	154152.55(3)	pa *
268	1242	810.136	123436.00	810.1356	0.0013	-0.12	0.001	9	39	5d ⁶	21190.03(3)	144626.15(2)	pa
183	430	810.284	123413.53	810.2815	0.0016	-0.37	0.002	13	43	5d ⁶	28959.73(3)	152373.63(3)	pa
127	72	810.849	123327.48	810.8390	0.0021	-1.56	0.010	9	20	5d ⁶	46354.20(4)	169683.24(3)	pa *
762	697	811.327	123254.91	811.3330	0.0030	0.95	-0.006	8	7	5d ⁶	39120.48(2)	162374.44(3)	pa
599	1782	811.383	123246.31	811.3862	0.0011	0.44	-0.003	10	39	5d ⁶	5824.11(3)	129069.98(3)	pa
143	160	811.556	123220.01	811.5561	0.0016	-0.06	0.000	9	25	5d ⁶	22138.98(2)	145359.05(2)	pa
254	1345	811.679	123201.46	811.6747	0.0012	-0.60	0.004	13	26	5d ⁶	0.00(4)	123202.06(3)	pa
561	1625	811.988	123154.50	811.9894	0.0013	0.18	-0.001	12	32	5d ⁶	14546.32(4)	137700.64(3)	pa
167	835	812.103	123137.12	812.0867	0.0012	-2.44	0.016	11	32	5d ⁶	14546.32(4)	137685.88(5)	pa *
194	835	812.103	123137.12	812.1158	0.0015	1.97	-0.013	12	31	5d ⁶	30693.33(3)	153828.48(4)	pa *
307	92	812.226	123118.50	812.2246	0.0023	-0.15	0.001	9	7	5d ⁶	46564.59(2)	169683.24(3)	pa
196	505	812.615	123059.57	812.6151	0.0014	0.08	-0.001	10	36	5d ⁶	27940.65(4)	151000.14(5)	pa
546	455	812.918	123013.67	812.9124	0.0030	-0.82	0.005	5	7	5d ⁶	39120.48(2)	162134.97(2)	pa
381	872	813.216	122968.62	813.2192	0.0015	0.55	-0.004	12	30	5d ⁶	25969.65(4)	148937.72(5)	pa
86	242	814.571	122763.99	814.5618	0.0014	-1.41	0.009	11	36	5d ⁶	27940.65(4)	150706.05(4)	pa * 100
417	1605	814.789	122731.16	814.7898	0.0013	0.12	-0.001	9	32	5d ⁶	14546.32(4)	137277.36(4)	pa
70	302	814.903	122713.95	814.9114	0.0014	1.22	-0.008	9	32	5d ⁶	28652.05(5)	151364.78(6)	pa
436	1190	815.145	122677.51	815.1438	0.0012	-0.22	0.001	15	37	5d ⁶	18463.42(5)	141141.16(4)	pa
426	1312	815.356	122645.80	815.3544	0.0013	-0.25	0.002	8	30	5d ⁶	5178.26(2)	127824.31(1)	pa
379	1250	815.903	122563.66	815.8965	0.0015	-0.91	0.006	11	30	5d ⁶	27670.52(2)	150235.09(3)	pa
49	55	816.331	122499.30	816.3279	0.0020	-0.50	0.003	9	31	5d ⁶	30693.33(3)	153193.13(2)	pa
42	132	816.415	122486.76	816.4120	0.0016	-0.41	0.003	9	25	5d ⁶	22138.98(2)	144626.15(2)	pa
117	635	816.675	122447.73	816.6805	0.0023	0.82	-0.005	6	17	5d ⁶	26238.28(1)	148685.19(2)	pa
41	112	816.752	122436.13	816.7564	0.0014	0.60	-0.004	11	43	5d ⁶	28959.73(3)	151395.26(3)	pa *
49	132	816.997	122399.51	817.0011	0.0022	0.66	-0.004	4	17	5d ⁶	26238.28(1)	148637.14(1)	pa
98	225	817.061	122389.93	817.0660	0.0016	0.80	-0.005	8	30	5d ⁶	25969.65(4)	148358.78(3)	pa
54	82	817.152	122376.21	817.1608	0.0019	1.28	-0.009	8	23	5d ⁶	37387.78(4)	159762.71(5)	pa
196	1740	817.406	122338.21	817.4032	0.0014	-0.44	0.003	7	26	5d ⁶	0.00(4)	122338.65(5)	pa
369	912	817.735	122289.04	817.7355	0.0015	0.10	-0.001	8	31	5d ⁶	30693.33(3)	152982.27(4)	pa
151	157	818.059	122240.53	818.0519	0.0030	-1.11	0.007	6	23	5d ⁶	37387.78(4)	159629.42(3)	pa
167	1227	818.270	122209.04	818.2742	0.0018	0.62	-0.004	7	25	5d ⁶	22138.98(2)	144347.40(1)	pa
151	580	819.103	122084.81	819.0972	0.0014	-0.82	0.005	14	25	5d ⁶	19128.73(2)	141214.36(3)	pa
212	980	819.310	122053.98	819.3095	0.0014	-0.02	0.000	11	32	5d ⁶	28652.05(5)	150706.05(4)	pa
511	1440	819.895	121966.84	819.8944	0.0011	-0.08	0.001	16	39	5d ⁶	21190.03(3)	143156.95(4)	pa
132	500	819.924	121962.46	819.9229	0.0025	-0.23	0.002	11	8	5d ⁶	34466.53(1)	156429.22(2)	pa
229	172	820.244	121914.91	820.2434	0.0015	-0.12	0.001	11	30	5d ⁶	25969.65(4)	147884.68(4)	pa
914	1922	820.334	121901.52	820.3291	0.0013	-0.77	0.005	14	26	5d ⁶	0.00(4)	121902.29(3)	pa
136	310	820.462	121882.48	820.4592	0.0012	-0.49	0.003	12	32	5d ⁶	14546.32(4)	136429.29(5)	pa
350	1172	821.061	121793.63	821.0614	0.0014	0.06	0.000	11	30	5d ⁶	25969.65(4)	147763.22(4)	pa
59	77	821.508	121727.29	821.5092	0.0018	0.11	-0.001	11	29	5d ⁶	35440.07(3)	157167.25(4)	pa
49	142	821.836	121678.76	821.8258	0.0017	-1.53	0.010	13	31	5d ⁶	30693.33(3)	152373.63(3)	pa *
228	585	821.967	121659.36	821.9661	0.0031	-0.16	0.001	5	29	5d ⁶	35440.07(3)	157099.59(2)	pa

87	210	822.414	121593.25	822.4089	0.0018	-0.76	0.005	8	30	5d ⁶	27670.52(2)	149264.53(2)	pa	
14	20	822.712	121549.28	822.7058	0.0016	-0.85	0.006	8	25	5d ⁶	19128.73(2)	140678.86(1)	pa *	
31	52	822.817	121533.71	822.8085	0.0012	-1.25	0.008	15	37	5d ⁶	18463.42(5)	139998.38(4)	pa	
272	967	824.104	121343.95	824.1000	0.0015	-0.55	0.004	10	25	5d ⁶	19128.73(2)	140473.23(2)	pa	
1092	1230	824.288	121316.76	824.2835	0.0015	-0.73	0.005	11	29	5d ⁶	35440.07(3)	156757.56(3)	pa	
97	1252	824.571	121275.24	824.5628	0.0011	-1.14	0.008	16	37	5d ⁶	18463.42(5)	139739.81(5)	pa *	200
458	1252	824.571	121275.24	824.5698	0.0015	-0.12	0.001	11	43	5d ⁶	28959.73(3)	150235.09(3)	pa	
1016	1177	826.139	121045.04	826.1386	0.0022	-0.02	0.000	4	10	5d ⁶	53982.00(4)	175027.06(4)	pa	
103	137	826.472	120996.28	826.4663	0.0015	-0.79	0.005	12	36	5d ⁶	27940.65(4)	148937.72(5)	pa	
171	892	826.958	120925.15	826.9533	0.0013	-0.66	0.005	11	25	5d ⁶	19128.73(2)	140054.55(3)	pa	
169	432	827.812	120800.43	827.8108	0.0017	-0.12	0.001	12	23	5d ⁶	37387.78(4)	158188.33(4)	pa	
327	280	828.143	120752.11	828.1359	0.0018	-1.02	0.007	7	20	5d ⁶	46354.20(4)	167107.33(4)	pa	
167	782	828.328	120725.08	828.3212	0.0017	-1.04	0.007	13	25	5d ⁶	22138.98(2)	142865.10(2)	pa	
107	207	828.586	120687.47	828.5810	0.0016	-0.79	0.005	8	30	5d ⁶	27670.52(2)	148358.78(3)	pa	
109	180	828.770	120660.78	828.7673	0.0013	-0.35	0.002	9	32	5d ⁶	28652.05(5)	149313.18(6)	pa	
156	577	828.892	120642.99	828.8924	0.0013	0.07	-0.001	16	23	5d ⁶	19096.89(6)	139739.81(5)	pa	
137	615	828.975	120630.94	828.9721	0.0014	-0.37	0.003	5	37	5d ⁶	18463.42(5)	139094.74(6)	pa	
98	527	830.118	120464.83	830.1154	0.0016	-0.35	0.002	8	30	5d ⁶	27670.52(2)	148135.70(2)	pa	
13	35	830.655	120386.88	830.6646	0.0040	1.35	-0.009	12	8	5d ⁶	34466.53(1)	154852.06(2)	pa *	
80	1960	831.197	120308.44	831.2220	0.0019	3.64	-0.025	8	43	5d ⁶	28959.73(3)	149264.53(2)	pa *	400, m
99	285	831.828	120217.22	831.8324	0.0016	0.69	-0.005	17	30	5d ⁶	25969.65(4)	146186.18(3)	pa	
45	40	833.161	120024.89	833.1644	0.0013	0.56	-0.004	14	39	5d ⁶	21190.03(3)	141214.36(3)	pa	
126	87	833.243	120013.08	833.2450	0.0015	0.37	-0.003	11	31	5d ⁶	30693.33(3)	150706.05(4)	pa	
154	77	833.830	119928.45	833.8300	0.0020	-0.07	0.000	5	20	5d ⁶	46354.20(4)	166282.72(5)	pa	
577	1137	834.108	119888.48	834.1068	0.0021	-0.24	0.002	6	12	5d ⁶	33303.67(6)	153192.39(7)	pa	
115	205	834.576	119821.34	834.5673	0.0014	-1.23	0.009	11	36	5d ⁶	27940.65(4)	147763.22(4)	pa	
171	225	834.871	119778.93	834.8676	0.0019	-0.54	0.004	11	23	5d ⁶	37387.78(4)	157167.25(4)	pa	
284	1472	835.294	119718.37	835.2442	0.0023	-7.09	0.049	6	43	5d ⁶	28959.73(3)	148685.19(2)	pa *	600, m(O III)
1039	1870	835.721	119657.14	835.7166	0.0012	-0.64	0.004	10	37	5d ⁶	18463.42(5)	138121.21(6)	pa	
54	122	836.433	119555.35	836.4309	0.0013	-0.26	0.002	17	30	5d ⁶	25969.65(4)	145525.25(5)	pa	
69	195	836.531	119541.28	836.5278	0.0017	-0.47	0.003	11	31	5d ⁶	30693.33(3)	150235.09(3)	pa	
182	1465	836.969	119478.79	836.9672	0.0012	-0.19	0.001	16	32	5d ⁶	14546.32(4)	134025.31(4)	pa	
338	827	837.440	119411.54	837.4368	0.0031	-0.45	0.003	12	29	5d ⁶	35440.07(3)	154852.06(2)	pa	
243	1522	837.517	119400.53	837.5160	0.0011	-0.17	0.001	15	39	5d ⁶	5824.11(3)	125224.81(4)	pa	
493	1777	837.756	119366.55	837.7527	0.0015	-0.41	0.003	5	23	5d ⁶	19096.89(6)	138463.86(7)	pa	
61	397	837.963	119336.95	837.9639	0.0012	0.06	0.000	15	39	5d ⁶	21190.03(3)	140526.92(3)	pa	
31	395	838.234	119298.40	838.2388	0.0017	0.65	-0.005	8	14	5d ⁶	8526.56(1)	127824.31(1)	pa	
44	42	838.464	119265.69	838.4667	0.0020	0.37	-0.003	9	14	5d ⁵ 6s	50417.92(2)	169683.24(3)	pa *	
145	422	838.703	119231.69	838.6966	0.0015	-0.94	0.007	11	32	5d ⁶	28652.05(5)	147884.68(4)	pa	170
231	1525	838.770	119222.21	838.7682	0.0012	-0.25	0.002	11	37	5d ⁶	18463.42(5)	137685.88(5)	pa	
77	12	839.181	119163.85	839.1765	0.0040	-0.60	0.004	5	3	5d ⁶	42519.60(1)	161684.04(1)	pa *	
322	1612	839.493	119119.53	839.4842	0.0017	-1.24	0.009	9	17	5d ⁶	26238.28(1)	145359.05(2)	pa	900
151	970	839.804	119075.46	839.8042	0.0016	0.08	-0.001	14	25	5d ⁶	22138.98(2)	141214.36(3)	pa	
805	2180	841.280	118866.48	841.2802	0.0012	0.02	0.000	8	32	5d ⁶	14546.32(4)	133412.78(5)	pa	

110	770	841.696	118807.71	841.6917	0.0012	-0.64	0.005	15	39	5d ⁶	21190.03(3)	139998.38(4)	pa	
94	132	842.372	118712.44	842.3714	0.0017	-0.04	0.000	13	29	5d ⁶	35440.07(3)	154152.55(3)	pa	
63	272	842.747	118659.64	842.7448	0.0017	-0.25	0.002	6	30	5d ⁶	27670.52(2)	146330.41(2)	pa	
39	327	843.373	118571.53	843.3752	0.0020	0.33	-0.002	8	31	5d ⁶	30693.33(3)	149264.53(2)	pa	200
88	42	843.576	118542.91	843.5731	0.0040	-0.46	0.003	9	3	5d ⁶	42519.60(1)	161062.97(2)	pa	
77	117	843.777	118514.68	843.7704	0.0016	-0.98	0.007	17	30	5d ⁶	27670.52(2)	146186.18(3)	pa	
257	1477	843.945	118491.18	843.9423	0.0013	-0.33	0.002	14	32	5d ⁶	14546.32(4)	133037.83(3)	pa	
102	1485	844.679	118388.17	844.6806	0.0016	0.23	-0.002	15	25	5d ⁶	22138.98(2)	140526.92(3)	pa	
290	1485	844.679	118388.17	844.6773	0.0017	-0.24	0.002	12	29	5d ⁶	35440.07(3)	153828.48(4)	pa	
625	1485	844.679	118388.17	844.6693	0.0021	-1.36	0.010	8	20	5d ⁶	46354.20(4)	164743.73(4)	pa *	900
295	220	844.992	118344.30	844.9849	0.0030	-1.01	0.007	7	7	5d ⁶	46564.59(2)	164909.90(2)	pa	
434	2197	845.093	118330.13	845.0910	0.0013	-0.32	0.002	13	26	5d ⁶	0.00(4)	118330.45(3)	pa	
112	812	845.705	118244.61	845.6979	0.0017	-0.92	0.007	17	36	5d ⁶	27940.65(4)	146186.18(3)	pa	
140	942	846.549	118126.67	846.5404	0.0016	-1.18	0.008	5	23	5d ⁶	19096.89(6)	137224.74(7)	pa	
134	475	846.680	118108.33	846.6747	0.0021	-0.79	0.006	7	17	5d ⁶	26238.28(1)	144347.40(1)	pa	
19	95	846.737	118100.49	846.7377	0.0014	0.16	-0.001	12	25	5d ⁶	19128.73(2)	137229.06(2)	pa	
102	162	847.611	117978.69	847.6077	0.0030	-0.42	0.003	5	7	5d ⁶	39120.48(2)	157099.59(2)	pa	
304	1017	847.659	117972.04	847.6583	0.0015	-0.02	0.000	14	29	5d ⁶	35440.07(3)	153412.13(4)	pa	800
126	1060	847.699	117966.46	847.7028	0.0013	0.59	-0.004	12	37	5d ⁶	18463.42(5)	136429.29(5)	pa *	500
143	390	848.427	117865.25	848.4199	0.0015	-0.92	0.007	7	30	5d ⁶	27670.52(2)	145536.69(3)	pa	
39	125	849.241	117752.21	849.2348	0.0022	-0.85	0.006	9	29	5d ⁶	35440.07(3)	153193.13(2)	pa	
54	110	849.641	117696.80	849.6376	0.0021	-0.44	0.003	13	23	5d ⁶	37387.78(4)	155085.02(3)	pa *	
228	1087	850.457	117583.83	850.4515	0.0013	-0.77	0.006	17	36	5d ⁶	27940.65(4)	145525.25(5)	pa	
64	572	850.578	117567.17	850.5714	0.0013	-0.86	0.006	9	30	5d ⁶	5178.26(2)	122746.29(2)	pa	
184	690	850.760	117541.98	850.7583	0.0016	-0.22	0.002	8	29	5d ⁶	35440.07(3)	152982.27(4)	pa	
77	205	851.481	117442.47	851.4815	0.0018	0.11	-0.001	8	31	5d ⁶	30693.33(3)	148135.70(2)	pa	
75	792	851.634	117421.26	851.6253	0.0013	-1.26	0.009	8	39	5d ⁶	21190.03(3)	138612.56(2)	pa	
37	82	852.003	117370.42	852.0015	0.0017	-0.26	0.002	6	43	5d ⁶	28959.73(3)	146330.41(2)	pa	
48	195	852.281	117332.25	852.2795	0.0015	-0.15	0.001	12	23	5d ⁶	19096.89(6)	136429.29(5)	pa	
25	125	853.052	117226.13	853.0498	0.0016	-0.32	0.002	17	43	5d ⁶	28959.73(3)	146186.18(3)	pa	
107	767	853.361	117183.76	853.3542	0.0013	-0.87	0.006	15	30	5d ⁶	27670.52(2)	144855.15(3)	pa	
69	642	853.736	117132.26	853.7375	0.0012	0.24	-0.002	17	37	5d ⁶	18463.42(5)	135595.44(4)	pa	
24	80	855.190	116933.02	855.1865	0.0019	-0.54	0.004	13	29	5d ⁶	35440.07(3)	152373.63(3)	pa *	
98	865	855.272	116921.88	855.2697	0.0012	-0.30	0.002	9	39	5d ⁶	5824.11(3)	122746.29(2)	pa	
142	152	855.537	116885.64	855.5304	0.0019	-0.91	0.007	7	20	5d ⁶	46354.20(4)	163240.75(5)	pa	
200	242	855.786	116851.64	855.7877	0.0021	0.23	-0.002	8	20	5d ⁶	46354.20(4)	163205.61(3)	pa	
136	1895	856.742	116721.21	856.7216	0.0013	-2.82	0.021	14	30	5d ⁶	5178.26(2)	121902.29(3)	pa *	1200, bl(Al III)
229	200	857.328	116641.45	857.3313	0.0024	0.42	-0.003	8	7	5d ⁶	46564.59(2)	163205.61(3)	pa	
502	817	857.361	116637.02	857.3643	0.0022	0.49	-0.004	6	10	5d ⁶	53982.00(4)	170618.53(5)	pa	
69	400	857.812	116575.63	857.8024	0.0016	-1.33	0.010	7	43	5d ⁶	28959.73(3)	145536.69(3)	pa	
62	370	858.293	116510.36	858.2909	0.0014	-0.25	0.002	12	39	5d ⁶	21190.03(3)	137700.64(3)	pa	
157	1257	858.543	116476.44	858.5149	0.0013	-3.78	0.028	16	43	5d ⁶	28959.73(3)	145439.95(4)	pa *	600, m(C II)
123	802	859.171	116391.20	859.1742	0.0017	0.37	-0.003	10	25	5d ⁶	22138.98(2)	138529.81(3)	pa	
276	950	859.421	116357.35	859.4149	0.0024	-0.88	0.006	5	12	5d ⁶	33303.67(6)	149661.90(7)	pa	

97	397	859.468	116351.02	859.4629	0.0013	-0.71	0.005	19	32	5d ⁶	28652.05(5)	145003.78(4)	pa	
31	87	859.903	116292.12	859.9096	0.0015	0.82	-0.006	15	25	5d ⁶	19128.73(2)	135420.03(3)	pa	
97	1360	860.728	116180.76	860.7222	0.0014	-0.75	0.006	8	30	5d ⁶	5178.26(2)	121359.77(1)	pa	
29	657	861.466	116081.19	861.4884	0.0013	3.01	-0.022	14	39	5d ⁶	5824.11(3)	121902.29(3)	pa *	300
74	100	861.757	116041.98	861.7417	0.0013	-2.07	0.015	19	43	5d ⁶	28959.73(3)	145003.78(4)	pa *	
146	417	861.905	116022.11	861.9186	0.0023	1.87	-0.014	8	20	5d ⁶	46354.20(4)	162374.44(3)	pa *	200
40	50	862.392	115956.55	862.4021	0.0017	1.36	-0.010	11	29	5d ⁶	35440.07(3)	151395.26(3)	pa *	
368	1235	862.845	115895.68	862.8469	0.0014	0.26	-0.002	15	43	5d ⁶	28959.73(3)	144855.15(3)	pa	
599	1642	863.626	115790.82	863.6235	0.0013	-0.38	0.003	14	36	5d ⁶	27940.65(4)	143731.85(5)	pa	
22	315	864.208	115712.82	864.2038	0.0013	-0.62	0.005	11	30	5d ⁶	5178.26(2)	120891.70(2)	pa	
168	130	864.298	115700.82	864.2950	0.0020	-0.42	0.003	9	10	5d ⁶	53982.00(4)	169683.24(3)	pa	
35	232	864.556	115666.32	864.5552	0.0015	-0.10	0.001	9	43	5d ⁶	28959.73(3)	144626.15(2)	pa	
91	255	865.095	115594.28	865.0931	0.0018	-0.21	0.002	8	23	5d ⁶	37387.78(4)	152982.27(4)	pa	
62	285	865.215	115578.18	865.2098	0.0016	-0.73	0.005	13	25	5d ⁶	19128.73(2)	134707.64(2)	pa	
92	702	865.339	115561.61	865.3372	0.0012	-0.28	0.002	16	37	5d ⁶	18463.42(5)	134025.31(4)	pa	
55	32	865.448	115547.03	865.4426	0.0020	-0.78	0.006	9	20	5d ⁶	46354.20(4)	161902.01(4)	pa *	
80	32	865.734	115508.93	865.7372	0.0022	0.44	-0.003	8	10	5d ⁶	53982.00(4)	169490.49(5)	pa	
119	1132	866.188	115448.45	866.1885	0.0012	0.14	-0.001	8	37	5d ⁶	18463.42(5)	133911.73(6)	pa	
132	647	867.560	115265.87	867.5587	0.0017	-0.11	0.001	11	29	5d ⁶	35440.07(3)	150706.05(4)	pa	
157	750	867.846	115227.86	867.8409	0.0024	-0.63	0.005	5	17	5d ⁶	26238.28(1)	141466.77(2)	pa	
25	195	867.944	115214.79	867.9327	0.0013	-1.51	0.011	16	36	5d ⁶	27940.65(4)	143156.95(4)	pa *	
94	1150	868.096	115194.59	868.0964	0.0016	0.01	0.000	13	30	5d ⁶	27670.52(2)	142865.10(2)	pa	
137	262	868.665	115119.24	868.6629	0.0030	-0.21	0.002	5	7	5d ⁶	46564.59(2)	161684.04(1)	pa	
137	1377	869.056	115067.44	869.0544	0.0013	-0.15	0.001	11	39	5d ⁶	5824.11(3)	120891.70(2)	pa	
27	47	869.460	115013.96	869.4557	0.0050	-0.53	0.004	6	20	5d ⁶	46354.20(4)	161368.69(3)	pa *	
20	32	870.200	114916.16	870.1958	0.0017	-0.51	0.004	15	23	5d ⁶	37387.78(4)	152304.45(5)	pa *	
122	120	870.729	114846.34	870.7202	0.0017	-1.11	0.008	7	16	5d ⁶	52259.88(3)	167107.33(4)	pa	
25	117	870.972	114814.27	870.9676	0.0015	-0.57	0.004	8	23	5d ⁶	19096.89(6)	133911.73(6)	pa	
75	395	871.102	114797.16	871.0953	0.0031	-0.84	0.006	8	8	5d ⁶	34466.53(1)	149264.53(2)	pa	
23	57	872.103	114665.41	872.1003	0.0017	-0.31	0.002	9	31	5d ⁶	30693.33(3)	145359.05(2)	pa *	
80	805	872.932	114556.41	872.9258	0.0015	-0.86	0.007	15	30	5d ⁶	25969.65(4)	140526.92(3)	pa	
71	362	873.329	114504.37	873.3251	0.0013	-0.53	0.004	16	32	5d ⁶	28652.05(5)	143156.95(4)	pa	
83	137	873.371	114498.87	873.3748	0.0030	0.48	-0.004	9	7	5d ⁶	46564.59(2)	161062.97(2)	pa	
46	197	873.816	114440.58	873.8159	0.0019	0.00	0.000	8	17	5d ⁶	26238.28(1)	140678.86(1)	pa	
45	220	874.084	114405.48	874.0845	0.0013	0.07	-0.001	17	39	5d ⁶	21190.03(3)	135595.44(4)	pa	
57	342	874.812	114310.30	874.8107	0.0014	-0.14	0.001	19	31	5d ⁶	30693.33(3)	145003.78(4)	pa	150
30	130	875.414	114231.68	875.4268	0.0014	1.68	-0.013	15	39	5d ⁶	21190.03(3)	135420.03(3)	pa *	
25	52	875.675	114197.59	875.6781	0.0013	0.37	-0.003	16	43	5d ⁶	28959.73(3)	143156.95(4)	pa *	
13	12	875.942	114162.81	875.9496	0.0016	0.99	-0.008	15	31	5d ⁶	30693.33(3)	144855.15(3)	pa *	
82	1145	876.614	114075.31	876.6134	0.0016	-0.06	0.000	11	25	5d ⁶	19128.73(2)	133204.10(2)	pa	
44	182	876.981	114027.50	876.9720	0.0014	-1.23	0.009	15	30	5d ⁶	25969.65(4)	139998.38(4)	pa	
66	410	877.118	114009.69	877.1147	0.0014	-0.48	0.004	10	32	5d ⁶	28652.05(5)	142662.22(6)	pa	
55	630	877.602	113946.84	877.6018	0.0013	-0.05	0.000	14	32	5d ⁶	14546.32(4)	128493.21(4)	pa	
261	957	877.886	113910.02	877.8890	0.0040	0.40	-0.003	11	3	5d ⁶	42519.60(1)	156429.22(2)	pa	

236	470	878.326	113852.93	878.3201	0.0019	-0.78	0.006	7	20	5d ⁶	46354.20(4)	160207.91(4)	pa	
33	45	878.540	113825.17	878.5458	0.0022	0.71	-0.005	8	29	5d ⁶	35440.07(3)	149264.53(2)	pa	
8	87	878.959	113770.90	878.9651	0.0014	0.74	-0.006	16	30	5d ⁶	25969.65(4)	139739.81(5)	pa	
25	117	880.096	113623.98	880.0899	0.0013	-0.77	0.006	15	37	5d ⁶	18463.42(5)	132088.18(4)	pa	
309	1285	880.187	113612.21	880.1859	0.0019	-0.15	0.001	10	23	5d ⁶	37387.78(4)	151000.14(5)	pa	
57	235	880.715	113544.04	880.7171	0.0015	0.21	-0.002	14	30	5d ⁶	27670.52(2)	141214.36(3)	pa	
16	47	880.922	113517.36	880.9206	0.0015	-0.25	0.002	13	39	5d ⁶	21190.03(3)	134707.64(2)	pa	
10	645	881.354	113461.79	881.3496	0.0021	-0.56	0.004	4	26	5d ⁶	0.00(4)	113462.35(4)	pa	
252	1835	882.228	113349.33	882.2260	0.0015	-0.31	0.002	9	30	5d ⁶	5178.26(2)	118527.90(2)	pa	
40	145	882.319	113337.71	882.3043	0.0016	-1.87	0.015	8	25	5d ⁶	19128.73(2)	132468.31(2)	pa *	
34	110	882.765	113280.48	882.7602	0.0017	-0.57	0.004	15	25	5d ⁶	22138.98(2)	135420.03(3)	pa	
98	382	883.087	113239.13	883.0876	0.0014	0.08	-0.001	13	43	5d ⁶	28959.73(3)	142198.78(4)	pa	
20	247	884.894	113007.94	884.8904	0.0017	-0.40	0.003	8	30	5d ⁶	27670.52(2)	140678.86(1)	pa	100
17	452	886.268	112832.62	886.2639	0.0018	-0.59	0.005	8	14	5d ⁶	8526.56(1)	121359.77(1)	pa	
57	127	886.506	112802.34	886.5035	0.0016	-0.37	0.003	10	30	5d ⁶	27670.52(2)	140473.23(2)	pa	
202	1600	887.281	112703.85	887.2816	0.0014	0.07	-0.001	9	39	5d ⁶	5824.11(3)	118527.90(2)	pa	
37	622	887.521	112673.40	887.5263	0.0024	0.68	-0.005	8	7	5d ⁶	8687.05(0)	121359.77(1)	pa	
106	550	888.204	112586.70	888.2078	0.0014	0.43	-0.003	15	36	5d ⁶	27940.65(4)	140526.92(3)	pa	
56	817	888.839	112506.37	888.8388	0.0013	0.03	0.000	13	39	5d ⁶	5824.11(3)	118330.45(3)	pa	
37	212	888.966	112490.24	888.9749	0.0015	1.13	-0.009	15	32	5d ⁶	28652.05(5)	141141.16(4)	pa	
77	417	889.181	112463.02	889.1765	0.0015	-0.60	0.005	16	31	5d ⁶	30693.33(3)	143156.95(4)	pa	
45	687	889.957	112364.98	889.9557	0.0018	-0.16	0.001	11	14	5d ⁶	8526.56(1)	120891.70(2)	pa	
136	392	890.288	112323.15	890.2884	0.0017	0.00	0.000	11	29	5d ⁶	35440.07(3)	147763.22(4)	pa	
34	62	890.670	112274.97	890.6720	0.0030	0.19	-0.001	11	7	5d ⁶	39120.48(2)	151395.26(3)	pa *	
92	240	890.840	112253.65	890.8319	0.0015	-0.98	0.008	14	43	5d ⁶	28959.73(3)	141214.36(3)	pa	
9	85	891.082	112223.14	891.0942	0.0023	1.56	-0.012	17	12	5d ⁶	33303.67(6)	145525.25(5)	pa *	
135	445	891.418	112180.83	891.4131	0.0015	-0.60	0.005	15	43	5d ⁶	28959.73(3)	141141.16(4)	pa	
34	50	891.489	112171.95	891.4899	0.0018	0.18	-0.001	13	31	5d ⁶	30693.33(3)	142865.10(2)	pa	
18	75	891.945	112114.60	891.9501	0.0014	0.70	-0.006	11	36	5d ⁶	27940.65(4)	140054.55(3)	pa *	
43	35	893.639	111901.97	893.6417	0.0020	0.30	-0.002	10	29	5d ⁶	35440.07(3)	147341.74(3)	pa *	
40	25	894.189	111833.14	894.1814	0.0019	-0.99	0.008	12	20	5d ⁶	46354.20(4)	158188.33(4)	pa *	
8	77	894.466	111798.50	894.4611	0.0013	-0.66	0.005	16	36	5d ⁶	27940.65(4)	139739.81(5)	pa	
39	122	895.003	111731.47	895.0068	0.0016	0.48	-0.004	12	30	5d ⁶	25969.65(4)	137700.64(3)	pa	
61	330	895.127	111715.93	895.1251	0.0015	-0.30	0.002	11	30	5d ⁶	25969.65(4)	137685.88(5)	pa	
166	332	896.464	111549.41	896.4595	0.0020	-0.53	0.004	12	23	5d ⁶	37387.78(4)	148937.72(5)	pa	
73	677	897.374	111436.28	897.3775	0.0014	0.46	-0.004	11	32	5d ⁶	14546.32(4)	125982.14(5)	pa	
148	170	898.817	111257.35	898.8150	0.0023	-0.25	0.002	6	10	5d ⁶	53982.00(4)	165239.60(5)	pa	
54	237	900.968	110991.75	900.9757	0.0018	0.97	-0.008	12	17	5d ⁶	26238.28(1)	137229.06(2)	pa	
116	910	901.728	110898.17	901.7283	0.0013	0.02	0.000	15	39	5d ⁶	21190.03(3)	132088.18(4)	pa	
68	120	902.963	110746.46	902.9663	0.0019	0.35	-0.003	17	29	5d ⁶	35440.07(3)	146186.18(3)	pa	
120	1585	906.947	110260.03	906.9496	0.0019	0.32	-0.003	7	14	5d ⁶	8526.56(1)	118786.27(1)	pa	
48	1152	908.277	110098.52	908.2716	0.0031	-0.70	0.006	7	7	5d ⁶	8687.05(0)	118786.27(1)	pa	
83	480	908.839	110030.43	908.8448	0.0013	0.64	-0.005	14	37	5d ⁶	18463.42(5)	128493.21(4)	pa	
17	232	909.082	110001.10	909.0798	0.0020	-0.24	0.002	9	14	5d ⁶	8526.56(1)	118527.90(2)	pa	

36	292	909.099	109999.06	909.0919	0.0017	-0.82	0.007	16	29	5d ⁶	35440.07(3)	145439.95(4)	pa *	100
11	157	909.580	109940.88	909.5767	0.0016	-0.37	0.003	10	25	5d ⁶	19128.73(2)	129069.98(3)	pa	
29	810	910.646	109812.19	910.6466	0.0014	0.11	-0.001	8	39	5d ⁶	5824.11(3)	115636.19(3)	pa	
109	580	911.194	109746.08	911.2013	0.0014	0.85	-0.007	11	36	5d ⁶	27940.65(4)	137685.88(5)	pa	
66	260	911.474	109712.45	911.4760	0.0019	0.29	-0.002	10	17	5d ⁶	26238.28(1)	135950.44(1)	pa	
11	67	912.653	109570.71	912.6579	0.0016	0.62	-0.005	10	43	5d ⁶	28959.73(3)	138529.81(3)	pa *	
131	777	913.492	109470.00	913.4993	0.0015	0.84	-0.007	10	32	5d ⁶	28652.05(5)	138121.21(6)	pa	
49	305	913.961	109413.91	913.9508	0.0018	-1.17	0.010	15	29	5d ⁶	35440.07(3)	144855.15(3)	pa *	100
47	105	914.389	109362.59	914.4010	0.0016	1.37	-0.011	11	31	5d ⁶	30693.33(3)	140054.55(3)	pa *	
130	790	914.854	109307.11	914.8709	0.0016	2.06	-0.017	15	31	5d ⁶	30693.33(3)	139998.38(4)	pa *	bl
119	437	919.072	108805.36	919.0635	0.0020	-1.05	0.009	12	20	5d ⁶	46354.20(4)	155160.61(5)	pa *	
16	17	919.617	108740.91	919.6171	0.0017	0.00	0.000	12	43	5d ⁶	28959.73(3)	137700.64(3)	pa *	
152	205	920.205	108671.46	920.2007	0.0023	-0.48	0.004	11	10	5d ⁶	53982.00(4)	162653.94(5)	pa	
47	397	920.338	108655.67	920.3379	0.0014	-0.07	0.001	13	32	5d ⁶	14546.32(4)	123202.06(3)	pa	
18	550	920.562	108629.28	920.5632	0.0015	0.13	-0.001	8	30	5d ⁶	5178.26(2)	113807.41(2)	pa	
32	125	922.518	108399.00	922.5214	0.0034	0.43	-0.004	13	8	5d ⁶	34466.53(1)	142865.10(2)	pa	
46	112	923.535	108279.62	923.5323	0.0016	-0.30	0.003	10	30	5d ⁶	27670.52(2)	135950.44(1)	pa	
15	82	923.610	108270.85	923.6226	0.0016	1.52	-0.013	12	43	5d ⁶	28959.73(3)	137229.06(2)	pa *	
57	252	924.745	108137.86	924.7488	0.0019	0.39	-0.003	17	23	5d ⁶	37387.78(4)	145525.25(5)	pa	
18	32	927.522	107814.13	927.5230	0.0019	0.09	-0.001	6	30	5d ⁶	27670.52(2)	135484.56(1)	pa	
95	150	927.653	107798.99	927.6580	0.0022	0.64	-0.005	13	20	5d ⁶	46354.20(4)	154152.55(3)	pa	
76	460	928.357	107717.24	928.3596	0.0017	0.36	-0.003	16	29	5d ⁶	35440.07(3)	143156.95(4)	pa	
7	375	929.034	107638.66	929.0379	0.0022	0.42	-0.004	4	39	5d ⁶	5824.11(3)	113462.35(4)	pa	
22	115	930.890	107424.11	930.8818	0.0021	-0.92	0.008	13	29	5d ⁶	35440.07(3)	142865.10(2)	pa *	
25	255	931.471	107357.03	931.4806	0.0015	1.06	-0.009	14	32	5d ⁶	14546.32(4)	121902.29(3)	pa	
61	1160	931.937	107303.38	931.9388	0.0013	0.20	-0.002	14	39	5d ⁶	21190.03(3)	128493.21(4)	pa	
23	205	933.499	107123.83	933.4918	0.0019	-0.84	0.007	14	23	5d ⁶	37387.78(4)	144512.45(5)	pa *	
52	275	934.246	107038.24	934.2553	0.0017	1.11	-0.010	13	30	5d ⁶	27670.52(2)	134707.64(2)	pa	
55	387	935.573	106886.43	935.5828	0.0017	1.18	-0.010	11	23	5d ⁶	19096.89(6)	125982.14(5)	pa	
76	647	936.664	106761.89	936.6682	0.0014	0.51	-0.004	15	37	5d ⁶	18463.42(5)	125224.81(4)	pa	
25	10	937.835	106628.52	937.8352	0.0031	-0.02	0.000	9	7	5d ⁶	46564.59(2)	153193.13(2)	pa *	
12	22	942.645	106084.44	942.6434	0.0015	-0.22	0.002	16	36	5d ⁶	27940.65(4)	134025.31(4)	pa *	
66	167	943.834	105950.80	943.8392	0.0019	0.55	-0.005	15	20	5d ⁶	46354.20(4)	152304.45(5)	pa	
14	32	945.449	105769.82	945.4551	0.0020	0.65	-0.006	16	23	5d ⁶	37387.78(4)	143156.95(4)	pa *	
28	117	949.051	105368.46	949.0610	0.0016	1.15	-0.010	14	30	5d ⁶	27670.52(2)	133037.83(3)	pa *	
29	747	954.219	104797.76	954.2186	0.0017	-0.03	0.000	8	30	5d ⁶	27670.52(2)	132468.31(2)	pa *	200, Ir III
20	32	955.694	104635.95	955.6853	0.0022	-1.01	0.009	10	17	5d ⁶	26238.28(1)	130875.24(2)	pa *	
33	37	959.974	104169.53	959.9754	0.0020	0.19	-0.002	11	16	5d ⁶	52259.88(3)	156429.22(2)	pa *	
30	915	960.158	104149.55	960.1740	0.0017	1.76	-0.016	6	37	5d ⁶	18463.42(5)	122611.21(6)	pa *	300
20	140	963.533	103784.68	963.5385	0.0015	0.55	-0.005	13	32	5d ⁶	14546.32(4)	118330.45(3)	pa	
40	332	965.084	103617.92	965.0874	0.0017	0.36	-0.003	9	25	5d ⁶	19128.73(2)	122746.29(2)	pa	
25	625	966.044	103515.00	966.0499	0.0020	0.68	-0.006	6	23	5d ⁶	19096.89(6)	122611.21(6)	pa *	300
78	65	966.190	103499.27	966.1924	0.0024	0.22	-0.002	12	10	5d ⁶	53982.00(4)	157481.05(5)	pa	
28	110	966.774	103436.81	966.7802	0.0016	0.68	-0.006	15	32	5d ⁶	28652.05(5)	132088.18(4)	pa	

47	105	972.984	102776.65	972.9940	0.0030	1.10	-0.010	11	10	5d ⁶	53982.00(4)	156757.56(3)	pa *
19	97	981.197	101916.33	981.2049	0.0017	0.82	-0.008	10	43	5d ⁶	28959.73(3)	130875.24(2)	pa
9	212	982.681	101762.45	982.6757	0.0019	-0.52	0.005	11	25	5d ⁶	19128.73(2)	120891.70(2)	pa
46	425	984.382	101586.62	984.3873	0.0022	0.59	-0.006	8	17	5d ⁶	26238.28(1)	127824.31(1)	pa
17	57	986.243	101394.88	986.2434	0.0018	0.03	0.000	15	31	5d ⁶	30693.33(3)	132088.18(4)	pa *
17	145	986.642	101353.83	986.6531	0.0041	1.08	-0.011	10	7	5d ⁶	39120.48(2)	140473.23(2)	pa *
8	97	989.472	101063.99	989.4810	0.0020	0.91	-0.009	13	25	5d ⁶	22138.98(2)	123202.06(3)	pa *
72	1812	992.219	100784.18	992.2450	0.0016	2.62	-0.026	10	43	5d ⁶	28959.73(3)	129741.29(3)	pa * 500, bl(Ir III)
96	1585	994.293	100573.97	994.2980	0.0022	0.50	-0.005	4	26	5d ⁶	0.00(4)	100573.47(3)	pa
36	42	998.293	100170.99	998.2974	0.0031	0.44	-0.004	13	10	5d ⁶	53982.00(4)	154152.55(3)	pa *
28	337	998.905	100109.67	998.8987	0.0017	-0.58	0.006	10	43	5d ⁶	28959.73(3)	129069.98(3)	pa 100
7	22	999.880	100012.04	999.8751	0.0018	-0.45	0.004	11	30	5d ⁶	25969.65(4)	125982.14(5)	pa *
92	655	1008.355	99171.43	1008.3588	0.0022	0.38	-0.004	17	20	5d ⁶	46354.20(4)	145525.25(5)	pa 200
11	122	1014.334	98586.88	1014.3253	0.0019	-0.82	0.008	11	18	5d ⁵ 6s	58740.09(6)	157327.79(6)	pa *
16	107	1027.910	97284.76	1027.9166	0.0017	0.60	-0.006	15	36	5d ⁶	27940.65(4)	125224.81(4)	pa
31	422	1038.788	96266.08	1038.7983	0.0017	1.00	-0.011	15	43	5d ⁶	28959.73(3)	125224.81(4)	pa * 100
24	215	1055.419	94749.09	1055.4161	0.0022	-0.27	0.003	4	39	5d ⁶	5824.11(3)	100573.47(3)	pa
16	342	1058.734	94452.44	1058.7355	0.0030	0.14	-0.002	6	18	5d ⁵ 6s	58740.09(6)	153192.39(7)	pa * 100
20	295	1059.339	94398.44	1059.3445	0.0020	0.44	-0.005	7	36	5d ⁶	27940.65(4)	122338.65(5)	pa
24	170	1061.205	94232.54	1061.2132	0.0018	0.77	-0.009	14	30	5d ⁶	27670.52(2)	121902.29(3)	pa
50	427	1064.275	93960.68	1064.2922	0.0022	1.52	-0.017	6	32	5d ⁶	28652.05(5)	122611.21(6)	pa *
12	507	1071.239	93349.82	1071.2368	0.0031	-0.23	0.003	2	30	5d ⁶	5178.26(2)	98528.30(2)	pa
14	105	1072.406	93248.27	1072.3980	0.0017	-0.68	0.008	15	10	5d ⁵ 6s	31975.85(3)	125224.81(4)	pa
110	247	1079.644	92623.12	1079.6257	0.0020	-1.57	0.018	9	18	5d ⁵ 6s	58740.09(6)	151364.78(6)	pa * 100
23	260	1079.703	92618.05	1079.7110	0.0019	0.67	-0.008	8	39	5d ⁶	21190.03(3)	113807.41(2)	pa
101	122	1081.062	92501.67	1081.0542	0.0023	-0.63	0.007	6	20	5d ⁵ 6s	72737.30(6)	165239.60(5)	pa
9	42	1086.109	92071.76	1086.1237	0.0021	1.22	-0.014	10	32	5d ⁶	28652.05(5)	120722.59(4)	pa *
18	40	1089.437	91790.56	1089.4429	0.0022	0.53	-0.006	10	22	5d ⁵ 6s	59210.11(5)	151000.14(5)	pa *
37	37	1093.223	91472.62	1093.2140	0.0021	-0.78	0.009	11	24	5d ⁵ 6s	59232.65(3)	150706.05(4)	pa *
12	175	1096.388	91208.56	1096.3836	0.0022	-0.39	0.005	14	31	5d ⁶	30693.33(3)	121902.29(3)	pa
23	82	1099.200	90975.25	1099.1929	0.0016	-0.59	0.007	16	23	5d ⁵ 6s	54464.11(3)	145439.95(4)	pa *
32	60	1099.848	90921.65	1099.8461	0.0030	-0.16	0.002	5	18	5d ⁵ 6s	58740.09(6)	149661.90(7)	pa
21	12	1104.486	90539.82	1104.4882	0.0015	0.15	-0.002	19	23	5d ⁵ 6s	54464.11(3)	145003.78(4)	pa *
54	210	1110.184	90075.13	1110.1848	0.0030	0.04	-0.001	12	20	5d ⁶	46354.20(4)	136429.29(5)	pa
182	160	1110.605	90041.01	1110.6064	0.0031	0.11	-0.001	6	18	5d ⁵ 6s	80577.63(6)	170618.53(5)	pa
111	1180	1112.023	89926.21	1112.0200	0.0019	-0.23	0.003	14	10	5d ⁵ 6s	31975.85(3)	121902.29(3)	pa
14	45	1120.555	89241.48	1120.5582	0.0030	0.24	-0.003	17	20	5d ⁶	46354.20(4)	135595.44(4)	pa *
45	37	1121.848	89138.60	1121.8550	0.0024	0.52	-0.006	7	18	5d ⁵ 6s	80577.63(6)	169715.71(6)	pa
15	275	1124.659	88915.82	1124.6589	0.0019	-0.03	0.000	11	10	5d ⁵ 6s	31975.85(3)	120891.70(2)	pa
14	22	1125.097	88881.24	1125.0963	0.0022	-0.04	0.000	15	16	5d ⁶	52259.88(3)	141141.16(4)	pa *
20	20	1127.724	88674.22	1127.7190	0.0023	-0.35	0.004	11	22	5d ⁵ 6s	59210.11(5)	147884.68(4)	pa *
39	122	1131.204	88401.42	1131.2091	0.0024	0.43	-0.005	13	23	5d ⁵ 6s	54464.11(3)	142865.10(2)	pa
40	20	1131.337	88391.02	1131.3265	0.0018	-0.79	0.010	15	20	5d ⁵ 6s	63912.64(4)	152304.45(5)	pa *
106	45	1132.205	88323.20	1132.2134	0.0019	0.63	-0.008	12	23	5d ⁵ 6s	69158.48(5)	157481.05(5)	pa

16	7	1133.625	88212.63	1133.6153	0.0033	-0.72	0.009	10	16	5d ⁶	52259.88(3)	140473.23(2)	pa *	bl(Al IV)
25	27	1134.506	88144.08	1134.5046	0.0025	-0.12	0.002	17	22	5d ⁵ 6s	58041.98(4)	146186.18(3)	pa *	
166	297	1134.939	88110.45	1134.9446	0.0024	0.42	-0.005	7	20	5d ⁵ 6s	81605.68(5)	169715.71(6)	pa	
19	412	1136.801	87966.14	1136.8071	0.0023	0.47	-0.006	8	30	5d ⁶	27670.52(2)	115636.19(3)	pa *	
19	77	1139.460	87760.90	1139.4685	0.0060	0.69	-0.009	12	6	5d ⁵ 6s	67091.85(1)	154852.06(2)	pa *	
11	30	1139.795	87735.08	1139.8003	0.0017	0.41	-0.005	13	23	5d ⁵ 6s	54464.11(3)	142198.78(4)	pa *	
95	345	1143.080	87482.92	1143.0757	0.0018	-0.35	0.005	17	22	5d ⁵ 6s	58041.98(4)	145525.25(5)	pa	
42	10	1145.448	87302.12	1145.4495	0.0020	0.15	-0.002	14	25	5d ⁵ 6s	66110.16(3)	153412.13(4)	pa *	
97	237	1147.572	87140.48	1147.5783	0.0030	0.45	-0.006	7	19	5d ⁵ 6s	73067.88(5)	160207.91(4)	pa	
42	35	1148.261	87088.21	1148.2704	0.0023	0.71	-0.009	10	20	5d ⁵ 6s	63912.64(4)	151000.14(5)	pa	
48	112	1149.092	87025.25	1149.0897	0.0030	-0.16	0.002	8	20	5d ⁵ 6s	72737.30(6)	159762.71(5)	pa *	
19	15	1149.708	86978.61	1149.7003	0.0025	-0.58	0.008	17	21	5d ⁵ 6s	59206.99(2)	146186.18(3)	pa *	
47	67	1149.930	86961.85	1149.9302	0.0016	0.05	-0.001	19	22	5d ⁵ 6s	58041.98(4)	145003.78(4)	pa	
20	25	1150.045	86953.11	1150.0396	0.0024	-0.42	0.006	17	24	5d ⁵ 6s	59232.65(3)	146186.18(3)	pa *	
78	40	1150.155	86944.83	1150.1468	0.0031	-0.59	0.008	7	22	5d ⁵ 6s	76295.33(5)	163240.75(5)	pa	
90	22	1150.479	86920.35	1150.4768	0.0040	-0.13	0.002	3	18	5d ⁵ 6s	80577.63(6)	167498.11(7)	pa	
242	695	1152.275	86784.86	1152.2707	0.0019	-0.30	0.004	17	18	5d ⁵ 6s	58740.09(6)	145525.25(5)	pa	
11	30	1153.077	86724.47	1153.0734	0.0031	-0.28	0.004	8	14	5d ⁵ 6s	50417.92(2)	137142.67(1)	pa *	
10	37	1153.713	86676.66	1153.7079	0.0019	-0.39	0.005	15	23	5d ⁵ 6s	54464.11(3)	141141.16(4)	pa *	
19	27	1154.784	86596.25	1154.7780	0.0051	-0.48	0.006	12	19	5d ⁵ 6s	68255.33(2)	154852.06(2)	pa *	
129	435	1155.374	86552.02	1155.3741	0.0022	-0.03	0.000	9	10	5d ⁵ 6s	31975.85(3)	118527.90(2)	pa	
18	20	1156.469	86470.08	1156.4642	0.0018	-0.39	0.005	14	22	5d ⁵ 6s	58041.98(4)	144512.45(5)	pa *	
299	997	1158.017	86354.49	1158.0159	0.0019	-0.11	0.002	13	10	5d ⁵ 6s	31975.85(3)	118330.45(3)	pa	
56	70	1158.543	86315.29	1158.5453	0.0018	0.15	-0.002	17	22	5d ⁵ 6s	59210.11(5)	145525.25(5)	pa	
25	45	1158.692	86304.21	1158.6943	0.0023	0.17	-0.002	7	24	5d ⁵ 6s	59232.65(3)	145536.69(3)	pa	
129	160	1159.695	86229.57	1159.6914	0.0018	-0.27	0.004	16	22	5d ⁵ 6s	59210.11(5)	145439.95(4)	pb	
50	74	1161.036	86129.97	1161.0294	0.0031	-0.49	0.007	11	18	5d ⁵ 6s	70298.76(2)	156429.22(2)	pb	
85	82	1165.594	85793.13	1165.5872	0.0017	-0.54	0.007	19	22	5d ⁵ 6s	59210.11(5)	145003.78(4)	pb	
25	50	1165.869	85772.96	1165.8767	0.0022	0.60	-0.008	14	18	5d ⁵ 6s	58740.09(6)	144512.45(5)	pb *	
74	93	1165.896	85770.98	1165.8935	0.0016	-0.15	0.002	19	24	5d ⁵ 6s	59232.65(3)	145003.78(4)	pb	
58	42	1167.004	85689.53	1166.9991	0.0019	-0.34	0.005	14	22	5d ⁵ 6s	58041.98(4)	143731.85(5)	pb	
41	40	1167.257	85670.95	1167.2507	0.0024	-0.45	0.006	10	7	5d ⁶	52858.41(2)	138529.81(3)	pb	
66	35	1167.571	85647.93	1167.5674	0.0019	-0.23	0.003	15	21	5d ⁵ 6s	59206.99(2)	144855.15(3)	pb	
43	40	1168.414	85586.10	1168.4064	0.0021	-0.56	0.008	14	23	5d ⁵ 6s	55627.70(2)	141214.36(3)	pb	
145	261	1169.124	85534.11	1169.1220	0.0017	-0.16	0.002	15	23	5d ⁵ 6s	54464.11(3)	139998.38(4)	pb	
19	63	1170.698	85419.13	1170.6975	0.0024	-0.03	0.000	9	21	5d ⁵ 6s	59206.99(2)	144626.15(2)	pb *	
41	78	1176.599	84990.75	1176.5846	0.0021	-1.01	0.014	14	18	5d ⁵ 6s	58740.09(6)	143731.85(5)	pb *	
85	69	1177.183	84948.54	1177.1847	0.0040	0.10	-0.001	9	16	5d ⁵ 6s	84734.80(4)	169683.24(3)	pb	
156	34	1177.802	84903.91	1177.8030	0.0030	0.07	-0.001	4	13	5d ⁵ 6s	90123.22(5)	175027.06(4)	pb	
69	63	1177.874	84898.73	1177.8671	0.0019	-0.49	0.007	15	23	5d ⁵ 6s	55627.70(2)	140526.92(3)	pb	
95	130	1181.065	84669.35	1181.0559	0.0023	-0.65	0.009	12	23	5d ⁵ 6s	69158.48(5)	153828.48(4)	pb	
172	113	1181.410	84644.62	1181.4110	0.0040	0.07	-0.001	2	19	5d ⁵ 6s	74545.24(3)	159189.79(3)	pb	
22	30	1182.693	84552.82	1182.6860	0.0061	-0.48	0.007	12	18	5d ⁵ 6s	70298.76(2)	154852.06(2)	pb *	
134	879	1183.128	84521.67	1183.1276	0.0019	-0.07	0.001	14	22	5d ⁵ 6s	59210.11(5)	143731.85(5)	pb	200, Ir III

33	373	1183.390	84503.00	1183.3953	0.0031	0.38	-0.005	4	43	5d ⁶	28959.73(3)	113462.35(4)	pb
142	77	1184.653	84412.88	1184.6493	0.0020	-0.29	0.004	12	19	5d ⁵ 6s	73067.88(5)	157481.05(5)	pb
53	40	1188.253	84157.19	1188.2581	0.0018	0.39	-0.006	13	22	5d ⁵ 6s	58041.98(4)	142198.78(4)	pb
67	65	1190.526	83996.49	1190.5245	0.0043	-0.10	0.001	8	15	5d ⁵ 6s	75164.22(2)	159160.81(2)	pb
174	214	1191.583	83922.00	1191.5808	0.0021	-0.13	0.002	10	18	5d ⁵ 6s	58740.09(6)	142662.22(6)	pb
125	54	1192.980	83823.70	1192.9787	0.0024	-0.09	0.001	8	23	5d ⁵ 6s	69158.48(5)	152982.27(4)	pb
118	465	1194.695	83703.37	1194.6916	0.0031	-0.24	0.003	8	19	5d ⁵ 6s	79502.00(4)	163205.61(3)	pb
175	1176	1195.304	83660.70	1195.3095	0.0022	0.36	-0.005	8	10	5d ⁵ 6s	31975.85(3)	115636.19(3)	pb
79	40	1195.556	83643.09	1195.5560	0.0024	0.00	0.000	12	19	5d ⁵ 6s	74545.24(3)	158188.33(4)	pb
122	94	1197.199	83528.32	1197.1969	0.0040	-0.12	0.002	4	5	5d ⁵ 6s	65108.69(0)	148637.14(1)	pb
123	109	1198.291	83452.18	1198.2921	0.0020	0.07	-0.001	10	22	5d ⁵ 6s	59210.11(5)	142662.22(6)	pb
48	88	1199.964	83335.81	1199.9679	0.0022	0.25	-0.004	17	16	5d ⁶	52259.88(3)	135595.44(4)	pb
279	387	1202.314	83172.96	1202.3222	0.0022	0.58	-0.008	14	22	5d ⁵ 6s	58041.98(4)	141214.36(3)	pb
140	82	1202.793	83139.82	1202.7915	0.0024	-0.11	0.002	11	19	5d ⁵ 6s	68255.33(2)	151395.26(3)	pb
154	129	1204.912	82993.65	1204.9116	0.0050	0.01	0.000	2	19	5d ⁵ 6s	68255.33(2)	151248.97(2)	pb
130	24	1206.868	82859.08	1206.8741	0.0064	0.39	-0.006	7	14	5d ⁵ 6s	82458.31(3)	165317.00(2)	pb *
66	65	1210.356	82620.31	1210.3620	0.0020	0.40	-0.006	14	14	5d ⁵ 6s	50417.92(2)	133037.83(3)	pb
64	21	1211.325	82554.26	1211.3232	0.0061	-0.09	0.001	5	19	5d ⁵ 6s	74545.24(3)	157099.59(2)	pb *
27	134	1212.895	82447.38	1212.8892	0.0024	-0.38	0.006	13	16	5d ⁶	52259.88(3)	134707.64(2)	pb
166	61	1213.588	82400.31	1213.5921	0.0030	0.30	-0.004	9	19	5d ⁵ 6s	79502.00(4)	161902.01(4)	pb
161	104	1213.717	82391.52	1213.7180	0.0030	0.06	-0.001	8	20	5d ⁵ 6s	81605.68(5)	163997.14(4)	pb
69	31	1213.826	82384.15	1213.8337	0.0050	0.54	-0.008	8	9	5d ⁵ 6s	81351.39(2)	163735.00(3)	pb *
161	428	1216.240	82220.59	1216.2415	0.0021	0.08	-0.001	14	26	5d ⁵ 6s	71191.62(4)	153412.13(4)	pb
146	114	1216.364	82212.21	1216.3627	0.0024	-0.11	0.002	11	19	5d ⁵ 6s	74545.24(3)	156757.56(3)	pb
163	66	1218.132	82092.89	1218.1347	0.0023	0.16	-0.002	12	19	5d ⁵ 6s	73067.88(5)	155160.61(5)	pb
273	160	1218.388	82075.66	1218.3784	0.0024	-0.65	0.010	11	18	5d ⁵ 6s	80577.63(6)	162653.94(5)	pb
112	139	1218.423	82073.31	1218.4284	0.0022	0.37	-0.005	12	23	5d ⁵ 6s	55627.70(2)	137700.64(3)	pb
174	295	1219.325	82012.58	1219.3253	0.0019	0.01	0.000	11	22	5d ⁵ 6s	58041.98(4)	140054.55(3)	pb
174	144	1219.782	81981.85	1219.7843	0.0022	0.14	-0.002	14	24	5d ⁵ 6s	59232.65(3)	141214.36(3)	pb
59	77	1220.162	81956.36	1220.1610	0.0019	-0.04	0.001	15	22	5d ⁵ 6s	58041.98(4)	139998.38(4)	pb
100	149	1220.543	81930.75	1220.5385	0.0021	-0.30	0.004	15	22	5d ⁵ 6s	59210.11(5)	141141.16(4)	pb
211	296	1220.877	81908.30	1220.8744	0.0020	-0.21	0.003	15	24	5d ⁵ 6s	59232.65(3)	141141.16(4)	pb
73	26	1220.988	81900.86	1220.9923	0.0041	0.26	-0.004	9	17	5d ⁵ 6s	87782.64(4)	169683.24(3)	pb *
70	29	1221.245	81883.62	1221.2401	0.0030	-0.36	0.005	11	19	5d ⁵ 6s	74545.24(3)	156429.22(2)	pb *
155	112	1221.798	81846.57	1221.7967	0.0050	-0.10	0.002	2	6	5d ⁵ 6s	71884.65(1)	153731.32(1)	pb
319	322	1221.991	81833.66	1221.9913	0.0030	0.02	0.000	11	11	5d ⁵ 6s	75494.15(7)	157327.79(6)	pb
29	330	1222.018	81831.84	1222.0224	0.0022	0.28	-0.004	8	10	5d ⁵ 6s	31975.85(3)	113807.41(2)	pb
61	53	1222.872	81774.71	1222.8748	0.0025	0.19	-0.003	11	25	5d ⁵ 6s	66110.16(3)	147884.68(4)	pb
51	244	1223.009	81765.55	1223.0108	0.0021	0.12	-0.002	16	16	5d ⁶	52259.88(3)	134025.31(4)	pb
107	28	1223.859	81708.75	1223.8726	0.0030	0.90	-0.014	8	17	5d ⁵ 6s	87782.64(4)	169490.49(5)	pb *
308	623	1224.024	81697.73	1224.0227	0.0018	-0.10	0.001	16	22	5d ⁵ 6s	58041.98(4)	139739.81(5)	pb
126	112	1224.686	81653.55	1224.6938	0.0023	0.49	-0.007	11	25	5d ⁵ 6s	66110.16(3)	147763.22(4)	pb
311	226	1225.300	81612.69	1225.3008	0.0020	0.08	-0.001	17	20	5d ⁵ 6s	63912.64(4)	145525.25(5)	pb
153	150	1225.466	81601.59	1225.4698	0.0020	0.23	-0.003	12	23	5d ⁵ 6s	55627.70(2)	137229.06(2)	pb

121	770	1225.562	81595.25	1225.5902	0.0032	1.91	-0.029	11	15	5d ⁵ 6s	75164.22(2)	156757.56(3)	pb *	100, m
166	62	1226.143	81556.54	1226.1452	0.0021	0.13	-0.002	7	20	5d ⁵ 6s	72737.30(6)	154293.71(6)	pb	
297	553	1226.582	81527.35	1226.5828	0.0019	0.04	-0.001	16	20	5d ⁵ 6s	63912.64(4)	145439.95(4)	pb	
62	49	1226.769	81514.95	1226.7685	0.0030	-0.02	0.000	8	23	5d ⁵ 6s	55627.70(2)	137142.67(1)	pb	
1887	1349	1227.202	81486.18	1227.1971	0.0041	-0.32	0.005	4	10	5d ⁵ 6s	31975.85(3)	113462.35(4)	pb	
65	455	1227.420	81471.70	1227.4175	0.0030	-0.17	0.003	8	21	5d ⁵ 6s	59206.99(2)	140678.86(1)	pb	Ir III
108	138	1230.100	81294.19	1230.0990	0.0020	-0.08	0.001	15	24	5d ⁵ 6s	59232.65(3)	140526.92(3)	pb	
45	64	1230.525	81266.16	1230.5233	0.0030	-0.08	0.001	10	21	5d ⁵ 6s	59206.99(2)	140473.23(2)	pb	
295	598	1230.914	81240.42	1230.9119	0.0030	-0.16	0.002	10	24	5d ⁵ 6s	59232.65(3)	140473.23(2)	pb	Ir III (150)
234	166	1231.044	81231.88	1231.0483	0.0030	0.30	-0.005	10	25	5d ⁵ 6s	66110.16(3)	147341.74(3)	pb	
141	37	1231.136	81225.78	1231.1355	0.0021	-0.04	0.001	7	19	5d ⁵ 6s	73067.88(5)	154293.71(6)	pb	
348	741	1231.619	81193.95	1231.6211	0.0041	0.15	-0.002	5	9	5d ⁵ 6s	60272.97(1)	141466.77(2)	pb	
181	44	1231.748	81185.44	1231.7437	0.0022	-0.28	0.004	12	22	5d ⁵ 6s	76295.33(5)	157481.05(5)	pb	
330	884	1232.573	81131.09	1232.5695	0.0019	-0.24	0.004	17	23	5d ⁵ 6s	54464.11(3)	135595.44(4)	pb	
175	64	1232.849	81112.91	1232.8506	0.0020	0.08	-0.001	15	26	5d ⁵ 6s	71191.62(4)	152304.45(5)	pb	
193	48	1232.997	81103.18	1232.9961	0.0024	-0.08	0.001	12	21	5d ⁵ 6s	74057.35(4)	155160.61(5)	pb	
247	141	1233.830	81048.44	1233.8328	0.0020	0.18	-0.003	11	20	5d ⁵ 6s	81605.68(5)	162653.94(5)	pb	
124	44	1233.898	81043.98	1233.8999	0.0041	0.12	-0.002	8	6	5d ⁵ 6s	67091.85(1)	148135.70(2)	pb	O IV 2d ord
68	51	1234.081	81031.95	1234.0734	0.0030	-0.51	0.008	11	22	5d ⁵ 6s	76295.33(5)	157327.79(6)	pb *	O IV 2d ord
52	74	1234.151	81027.35	1234.1463	0.0040	-0.32	0.005	13	21	5d ⁵ 6s	74057.35(4)	155085.02(3)	pb *	
106	134	1234.570	80999.84	1234.5722	0.0020	0.12	-0.002	16	18	5d ⁵ 6s	58740.09(6)	139739.81(5)	pb	
207	162	1235.440	80942.82	1235.4448	0.0021	0.31	-0.005	15	20	5d ⁵ 6s	63912.64(4)	144855.15(3)	pb	
97	32	1235.749	80922.57	1235.7628	0.0024	0.89	-0.014	12	20	5d ⁵ 6s	72737.30(6)	153658.98(5)	pb *	
158	72	1236.523	80871.94	1236.5231	0.0030	0.02	0.000	11	22	5d ⁵ 6s	76295.33(5)	157167.25(4)	pb	
48	37	1236.888	80848.04	1236.8957	0.0019	0.48	-0.007	11	21	5d ⁵ 6s	59206.99(2)	140054.55(3)	pb	
50	82	1237.961	80777.97	1237.9616	0.0023	0.02	0.000	14	16	5d ⁶	52259.88(3)	133037.83(3)	pb	
396	761	1238.146	80765.94	1238.1489	0.0019	0.21	-0.003	15	24	5d ⁵ 6s	59232.65(3)	139998.38(4)	pb	
284	136	1238.217	80761.27	1238.2276	0.0030	0.67	-0.010	12	19	5d ⁵ 6s	73067.88(5)	153828.48(4)	pb	
208	231	1240.696	80599.95	1240.6977	0.0020	0.14	-0.002	14	20	5d ⁵ 6s	63912.64(4)	144512.45(5)	pb	
348	904	1241.775	80529.89	1241.7779	0.0018	0.19	-0.003	16	22	5d ⁵ 6s	59210.11(5)	139739.81(5)	pb	700
142	33	1242.161	80504.84	1242.1620	0.0032	0.04	-0.001	6	16	5d ⁵ 6s	84734.80(4)	165239.60(5)	pb	
147	111	1242.326	80494.18	1242.3331	0.0030	0.47	-0.007	11	21	5d ⁵ 6s	69741.38(3)	150235.09(3)	pb	
300	244	1242.929	80455.14	1242.9294	0.0030	0.05	-0.001	6	20	5d ⁵ 6s	72737.30(6)	153192.39(7)	pb	
94	56	1243.010	80449.85	1243.0108	0.0050	0.03	0.000	2	18	5d ⁵ 6s	70298.76(2)	150748.58(1)	pb	
195	803	1243.687	80406.05	1243.6900	0.0030	0.16	-0.002	8	9	5d ⁵ 6s	60272.97(1)	140678.86(1)	pb	
86	40	1244.483	80354.68	1244.4831	0.0031	0.03	0.000	5	18	5d ⁵ 6s	58740.09(6)	139094.74(6)	pb	
125	24	1244.826	80332.53	1244.8239	0.0040	-0.12	0.002	5	9	5d ⁵ 6s	81351.39(2)	161684.04(1)	pb	
43	24	1244.983	80322.36	1244.9774	0.0024	-0.38	0.006	10	23	5d ⁵ 6s	55627.70(2)	135950.44(1)	pb *	
61	55	1245.889	80263.95	1245.8906	0.0021	0.08	-0.001	11	20	5d ⁵ 6s	76493.69(3)	156757.56(3)	pb	
113	41	1245.940	80260.65	1245.9396	0.0040	-0.05	0.001	8	19	5d ⁵ 6s	79502.00(4)	159762.71(5)	pb	
203	359	1246.204	80243.66	1246.2064	0.0023	0.13	-0.002	13	23	5d ⁵ 6s	54464.11(3)	134707.64(2)	pb	
28	29	1246.820	80204.04	1246.8262	0.0031	0.40	-0.006	11	26	5d ⁵ 6s	71191.62(4)	151395.26(3)	pb *	
387	175	1247.586	80154.76	1247.5875	0.0020	0.06	-0.001	9	23	5d ⁵ 6s	69158.48(5)	149313.18(6)	pb	
102	241	1248.809	80076.32	1248.8133	0.0034	0.30	-0.005	17	25	5d ⁵ 6s	66110.16(3)	146186.18(3)	pb	

176	44	1249.857	80009.15	1249.8605	0.0040	0.22	-0.003	8	16	5d ⁵ 6s	84734.80(4)	164743.73(4)	pb	
2105	1616	1251.806	79884.58	1251.8053	0.0030	-0.05	0.001	5	22	5d ⁵ 6s	59210.11(5)	139094.74(6)	pb	
281	735	1252.243	79856.72	1252.2406	0.0030	-0.14	0.002	6	23	5d ⁵ 6s	55627.70(2)	135484.56(1)	pb	
65	345	1252.699	79827.64	1252.6886	0.0023	-0.66	0.010	15	16	5d ⁶	52259.88(3)	132088.18(4)	pb	
587	911	1252.829	79819.34	1252.8312	0.0021	0.13	-0.002	14	20	5d ⁵ 6s	63912.64(4)	143731.85(5)	pb	
21	29	1253.245	79792.88	1253.2533	0.0021	0.55	-0.009	15	23	5d ⁵ 6s	55627.70(2)	135420.03(3)	pb *	
1267	1290	1254.327	79724.00	1254.3310	0.0024	0.23	-0.004	5	18	5d ⁵ 6s	58740.09(6)	138463.86(7)	pb	
66	34	1254.891	79688.21	1254.8966	0.0060	0.37	-0.006	12	15	5d ⁵ 6s	75164.22(2)	154852.06(2)	pb *	
419	1067	1255.586	79644.09	1255.5889	0.0021	0.19	-0.003	11	22	5d ⁵ 6s	58041.98(4)	137685.88(5)	pb	
458	118	1256.407	79592.06	1256.3999	0.0030	-0.43	0.007	7	13	5d ⁵ 6s	90123.22(5)	169715.71(6)	pb	
241	99	1256.800	79567.14	1256.8001	0.0021	-0.01	0.000	15	20	5d ⁵ 6s	72737.30(6)	152304.45(5)	pb	
304	839	1256.890	79561.45	1256.8941	0.0018	0.25	-0.004	16	23	5d ⁵ 6s	54464.11(3)	134025.31(4)	pb	
146	468	1257.628	79514.79	1257.6334	0.0021	0.36	-0.006	11	26	5d ⁵ 6s	71191.62(4)	150706.05(4)	pb	bl(Al IV)
350	144	1258.747	79444.06	1258.7530	0.0030	0.36	-0.006	9	14	5d ⁵ 6s	82458.31(3)	161902.01(4)	pb	
165	37	1258.810	79440.07	1258.8120	0.0040	0.10	-0.002	5	9	5d ⁵ 6s	85249.67(3)	164689.65(3)	pb	
69	58	1259.015	79427.15	1259.0252	0.0030	0.62	-0.010	7	25	5d ⁵ 6s	66110.16(3)	145536.69(3)	pb	
263	266	1259.367	79404.96	1259.3575	0.0022	-0.61	0.010	8	21	5d ⁵ 6s	59206.99(2)	138612.56(2)	pb	
595	749	1259.471	79398.39	1259.4717	0.0041	0.02	0.000	4	9	5d ⁵ 6s	95628.69(5)	175027.06(4)	pb	O V 2d ord
727	1074	1259.746	79381.09	1259.7454	0.0021	-0.03	0.000	10	18	5d ⁵ 6s	58740.09(6)	138121.21(6)	pb	
231	160	1259.800	79377.70	1259.8017	0.0030	0.13	-0.002	6	14	5d ⁵ 6s	91240.96(6)	170618.53(5)	pb	
487	101	1259.967	79367.16	1259.9652	0.0030	-0.11	0.002	8	13	5d ⁵ 6s	90123.22(5)	169490.49(5)	pb	
349	255	1260.167	79354.59	1260.1635	0.0024	-0.19	0.003	14	21	5d ⁵ 6s	74057.35(4)	153412.13(4)	pb	
252	342	1260.563	79329.63	1260.5605	0.0020	-0.16	0.003	16	25	5d ⁵ 6s	66110.16(3)	145439.95(4)	pb	
268	630	1260.641	79324.71	1260.6415	0.0030	0.02	0.000	7	17	5d ⁵ 6s	87782.64(4)	167107.33(4)	pb	
735	1168	1260.663	79323.35	1260.6713	0.0024	0.53	-0.008	10	21	5d ⁵ 6s	59206.99(2)	138529.81(3)	pb	
44	31	1261.910	79244.96	1261.9203	0.0020	0.65	-0.010	16	20	5d ⁵ 6s	63912.64(4)	143156.95(4)	pb *	
80	71	1262.009	79238.73	1262.0094	0.0040	0.02	0.000	7	5	5d ⁵ 6s	65108.69(0)	144347.40(1)	pb	
416	433	1262.054	79235.93	1262.0590	0.0032	0.32	-0.005	7	12	5d ⁵ 6s	84005.15(4)	163240.75(5)	pb	
97	199	1264.162	79103.77	1264.1551	0.0032	-0.45	0.007	10	20	5d ⁵ 6s	76493.69(3)	155597.91(4)	pb	
58	72	1264.538	79080.30	1264.5432	0.0023	0.36	-0.006	13	23	5d ⁵ 6s	55627.70(2)	134707.64(2)	pb	
113	37	1265.937	78992.87	1265.9391	0.0032	0.12	-0.002	8	13	5d ⁵ 6s	90497.75(4)	169490.49(5)	pb	
134	291	1267.246	78911.28	1267.2488	0.0020	0.18	-0.003	10	22	5d ⁵ 6s	59210.11(5)	138121.21(6)	pb	
198	114	1267.962	78866.74	1267.9592	0.0024	-0.15	0.002	14	19	5d ⁵ 6s	74545.24(3)	153412.13(4)	pb	
93	50	1268.413	78838.65	1268.4136	0.0030	0.01	0.000	4	18	5d ⁵ 6s	80577.63(6)	159416.27(6)	pb	
137	99	1269.047	78799.29	1269.0426	0.0024	-0.27	0.004	7	11	5d ⁵ 6s	75494.15(7)	154293.71(6)	pb	
196	35	1269.880	78747.57	1269.8821	0.0030	0.10	-0.002	8	9	5d ⁵ 6s	85249.67(3)	163997.14(4)	pb	
331	359	1270.225	78726.23	1270.2252	0.0031	0.03	0.000	11	23	5d ⁵ 6s	69158.48(5)	147884.68(4)	pb	
113	195	1271.424	78651.97	1271.4225	0.0021	-0.09	0.001	10	14	5d ⁵ 6s	50417.92(2)	129069.98(3)	pb	
227	219	1271.820	78627.49	1271.8200	0.0032	0.01	0.000	9	20	5d ⁵ 6s	72737.30(6)	151364.78(6)	pb	
298	731	1272.694	78573.51	1272.6902	0.0020	-0.21	0.003	14	23	5d ⁵ 6s	54464.11(3)	133037.83(3)	pb	
66	58	1273.612	78516.85	1273.6259	0.0030	0.86	-0.014	9	25	5d ⁵ 6s	66110.16(3)	144626.15(2)	pc *	
563	97	1273.884	78500.10	1273.8841	0.0050	0.02	0.000	5	17	5d ⁵ 6s	87782.64(4)	166282.72(5)	pc	
1791	1091	1274.142	78484.18	1274.1345	0.0030	-0.47	0.008	5	18	5d ⁵ 6s	58740.09(6)	137224.74(7)	pc	
112	286	1274.295	78474.74	1274.2787	0.0023	-1.03	0.017	11	22	5d ⁵ 6s	59210.11(5)	137685.88(5)	pc *	

777	286	1274.295	78474.74	1274.2952	0.0030	-0.01	0.000	7	14	5d ⁵ 6s	91240.96(6)	169715.71(6)	pc
456	158	1274.359	78470.84	1274.3592	0.0040	0.03	0.000	8	16	5d ⁵ 6s	84734.80(4)	163205.61(3)	pc
194	354	1274.401	78468.23	1274.4050	0.0020	0.23	-0.004	12	24	5d ⁵ 6s	59232.65(3)	137700.64(3)	pc
875	1131	1275.711	78387.67	1275.7167	0.0023	0.36	-0.006	12	22	5d ⁵ 6s	58041.98(4)	136429.29(5)	pc
200	208	1276.495	78339.49	1276.4938	0.0031	-0.10	0.002	8	9	5d ⁵ 6s	60272.97(1)	138612.56(2)	pc
1663	959	1277.186	78297.13	1277.1898	0.0031	0.23	-0.004	9	19	5d ⁵ 6s	73067.88(5)	151364.78(6)	pc
124	188	1277.676	78267.12	1277.6744	0.0040	-0.08	0.001	9	6	5d ⁵ 6s	67091.85(1)	145359.05(2)	pc
433	499	1277.998	78247.38	1278.0026	0.0022	0.28	-0.005	15	21	5d ⁵ 6s	74057.35(4)	152304.45(5)	pc
412	181	1279.475	78157.06	1279.4754	0.0040	0.03	-0.001	8	20	5d ⁵ 6s	81605.68(5)	159762.71(5)	pc
296	549	1280.947	78067.27	1280.9469	0.0020	0.02	0.000	9	22	5d ⁵ 6s	59210.11(5)	137277.36(4)	pc
209	191	1281.064	78060.12	1281.0655	0.0030	0.10	-0.002	8	18	5d ⁵ 6s	70298.76(2)	148358.78(3)	pc
120	106	1281.312	78044.98	1281.3168	0.0024	0.27	-0.004	9	24	5d ⁵ 6s	59232.65(3)	137277.36(4)	pc
251	114	1281.572	78029.14	1281.5763	0.0040	0.23	-0.004	9	15	5d ⁵ 6s	75164.22(2)	153193.13(2)	pc
233	137	1281.687	78022.17	1281.6924	0.0030	0.33	-0.005	11	21	5d ⁵ 6s	69741.38(3)	147763.22(4)	pc
256	91	1282.396	77979.02	1282.3957	0.0031	-0.03	0.000	12	19	5d ⁵ 6s	79502.00(4)	157481.05(5)	pc
445	167	1282.727	77958.93	1282.7298	0.0041	0.19	-0.003	11	19	5d ⁵ 6s	79208.51(3)	157167.25(4)	pc
629	697	1283.169	77932.05	1283.1657	0.0031	-0.21	0.003	10	19	5d ⁵ 6s	73067.88(5)	151000.14(5)	pc
460	109	1283.379	77919.27	1283.3817	0.0030	0.13	-0.002	11	16	5d ⁵ 6s	84734.80(4)	162653.94(5)	pc
58	44	1284.732	77837.27	1284.7370	0.0032	0.33	-0.005	8	18	5d ⁵ 6s	70298.76(2)	148135.70(2)	pc
67	49	1284.881	77828.20	1284.8782	0.0040	-0.19	0.003	13	19	5d ⁵ 6s	74545.24(3)	152373.63(3)	pc
1761	1035	1285.172	77810.60	1285.1721	0.0030	0.01	0.000	4	20	5d ⁵ 6s	81605.68(5)	159416.27(6)	pc
448	528	1286.226	77746.85	1286.2382	0.0030	0.75	-0.012	12	26	5d ⁵ 6s	71191.62(4)	148937.72(5)	pc
1552	1048	1287.029	77698.33	1287.0304	0.0040	0.09	-0.001	6	11	5d ⁵ 6s	75494.15(7)	153192.39(7)	pc
143	164	1287.554	77666.66	1287.5771	0.0041	1.41	-0.023	11	19	5d ⁵ 6s	79502.00(4)	157167.25(4)	pc * bl(Ir V)
415	987	1288.262	77623.97	1288.2602	0.0020	-0.10	0.002	15	23	5d ⁵ 6s	54464.11(3)	132088.18(4)	pc
175	396	1289.052	77576.41	1289.0518	0.0030	0.01	0.000	11	23	5d ⁵ 6s	55627.70(2)	133204.10(2)	pc
386	730	1289.431	77553.61	1289.4331	0.0021	0.15	-0.002	17	22	5d ⁵ 6s	58041.98(4)	135595.44(4)	pc
168	90	1289.499	77549.47	1289.5064	0.0030	0.42	-0.007	11	19	5d ⁵ 6s	79208.51(3)	156757.56(3)	pc
429	228	1289.767	77533.35	1289.7709	0.0032	0.20	-0.003	12	22	5d ⁵ 6s	76295.33(5)	153828.48(4)	pc
83	28	1291.031	77457.47	1291.0396	0.0031	0.51	-0.009	6	17	5d ⁵ 6s	87782.64(4)	165239.60(5)	pc
89	108	1291.821	77410.11	1291.8206	0.0020	-0.02	0.000	14	23	5d ⁵ 6s	55627.70(2)	133037.83(3)	pc
13	22	1292.360	77377.83	1292.3562	0.0024	-0.22	0.004	15	22	5d ⁵ 6s	58041.98(4)	135420.03(3)	pc *
140	74	1292.595	77363.75	1292.5967	0.0030	0.10	-0.002	12	22	5d ⁵ 6s	76295.33(5)	153658.98(5)	pc
195	365	1293.072	77335.23	1293.1025	0.0050	1.84	-0.031	8	14	5d ⁵ 6s	82458.31(3)	159791.70(4)	pc * 100, bl
173	97	1293.973	77281.39	1293.9731	0.0030	0.03	0.000	7	19	5d ⁵ 6s	68255.33(2)	145536.69(3)	pc
85	90	1294.403	77255.68	1294.4052	0.0030	0.12	-0.002	11	19	5d ⁵ 6s	79502.00(4)	156757.56(3)	pc
160	376	1294.861	77228.35	1294.8584	0.0023	-0.17	0.003	15	20	5d ⁵ 6s	63912.64(4)	141141.16(4)	pc
257	505	1295.016	77219.14	1295.0150	0.0023	-0.04	0.001	12	22	5d ⁵ 6s	59210.11(5)	136429.29(5)	pc
160	47	1295.821	77171.18	1295.8217	0.0060	0.06	-0.001	6	14	5d ⁵ 6s	82458.31(3)	159629.42(3)	pc
3306	1627	1297.657	77061.96	1297.6571	0.0070	0.00	0.000	1	11	5d ⁵ 6s	75494.15(7)	152556.11(8)	pc
212	86	1297.980	77042.80	1297.9768	0.0030	-0.18	0.003	10	18	5d ⁵ 6s	70298.76(2)	147341.74(3)	pc
111	73	1299.371	76960.34	1299.3579	0.0040	-0.75	0.013	8	17	5d ⁵ 6s	87782.64(4)	164743.73(4)	pc
139	98	1299.439	76956.30	1299.4423	0.0030	0.21	-0.004	12	9	5d ⁵ 6s	60272.97(1)	137229.06(2)	pc
2148	1224	1299.964	76925.20	1299.9743	0.0040	0.60	-0.010	5	20	5d ⁵ 6s	72737.30(6)	149661.90(7)	pc Ir III

283	107	1300.070	76918.93	1300.0784	0.0030	0.49	-0.008	14	20	5d ⁵ 6s	76493.69(3)	153412.13(4)	pc	
137	60	1300.334	76903.34	1300.3323	0.0030	-0.08	0.001	12	18	5d ⁵ 6s	80577.63(6)	157481.05(5)	pc	
21	57	1302.859	76754.29	1302.8477	0.0033	-0.65	0.011	13	25	5d ⁵ 6s	66110.16(3)	142865.10(2)	pc *	
1000	555	1302.931	76750.03	1302.9289	0.0030	-0.13	0.002	11	18	5d ⁵ 6s	80577.63(6)	157327.79(6)	pc	
13	25	1303.029	76744.28	1303.0428	0.0030	0.83	-0.014	10	21	5d ⁵ 6s	59206.99(2)	135950.44(1)	pc *	
179	130	1303.248	76731.38	1303.2461	0.0051	-0.10	0.002	2	14	5d ⁵ 6s	82458.31(3)	159189.79(3)	pc	
22	69	1304.842	76637.62	1304.8447	0.0050	0.15	-0.003	13	7	5d ⁶	46564.59(2)	123202.06(3)	pc	
140	38	1305.313	76609.97	1305.3198	0.0031	0.39	-0.007	7	13	5d ⁵ 6s	90497.75(4)	167107.33(4)	pc	
10	16	1305.476	76600.39	1305.4861	0.0020	0.57	-0.010	15	19	5d ⁵ 6s	68255.33(2)	144855.15(3)	pc *	
988	912	1305.899	76575.61	1305.8942	0.0023	-0.27	0.005	9	20	5d ⁵ 6s	72737.30(6)	149313.18(6)	pc	
14	30	1308.708	76411.25	1308.7099	0.0024	0.12	-0.002	10	23	5d ⁵ 6s	54464.11(3)	130875.24(2)	pc *	
290	90	1309.080	76389.52	1309.0822	0.0030	0.12	-0.002	10	19	5d ⁵ 6s	79208.51(3)	155597.91(4)	pc	
23	59	1309.143	76385.87	1309.1519	0.0022	0.54	-0.009	17	22	5d ⁵ 6s	59210.11(5)	135595.44(4)	pc	
331	132	1309.272	76378.31	1309.2676	0.0060	-0.27	0.005	3	13	5d ⁵ 6s	90497.75(4)	166876.33(4)	pc	
415	354	1309.474	76366.52	1309.4701	0.0022	-0.25	0.004	17	23	5d ⁵ 6s	69158.48(5)	145525.25(5)	pc	
136	122	1309.537	76362.85	1309.5383	0.0021	0.06	-0.001	17	24	5d ⁵ 6s	59232.65(3)	135595.44(4)	pc	
46	35	1310.939	76281.19	1310.9344	0.0022	-0.28	0.005	16	23	5d ⁵ 6s	69158.48(5)	145439.95(4)	pc	
24	26	1310.997	76277.85	1311.0014	0.0031	0.28	-0.005	6	21	5d ⁵ 6s	59206.99(2)	135484.56(1)	pc	
2631	976	1311.351	76257.23	1311.3524	0.0050	0.08	-0.001	3	14	5d ⁵ 6s	91240.96(6)	167498.11(7)	pc	
19	39	1311.768	76232.98	1311.7622	0.0024	-0.36	0.006	14	16	5d ⁶	52259.88(3)	128493.21(4)	pc	
47	50	1312.125	76212.24	1312.1114	0.0023	-0.80	0.014	15	21	5d ⁵ 6s	59206.99(2)	135420.03(3)	pc	
182	550	1312.330	76200.35	1312.3287	0.0030	-0.07	0.001	12	20	5d ⁵ 6s	72737.30(6)	148937.72(5)	pc	Ir III (400)
128	172	1312.552	76187.43	1312.5533	0.0023	0.05	-0.001	15	24	5d ⁵ 6s	59232.65(3)	135420.03(3)	pc	
148	55	1313.038	76159.24	1313.0338	0.0060	-0.26	0.004	5	13	5d ⁵ 6s	90123.22(5)	166282.72(5)	pc *	
115	18	1313.725	76119.46	1313.7321	0.0100	0.44	-0.008	6	9	5d ⁵ 6s	85249.67(3)	161368.69(3)	pc *	
490	733	1314.257	76088.64	1314.2570	0.0021	0.02	0.000	13	25	5d ⁵ 6s	66110.16(3)	142198.78(4)	pc	
416	264	1315.633	76009.03	1315.6316	0.0023	-0.09	0.002	15	22	5d ⁵ 6s	76295.33(5)	152304.45(5)	pc	
224	34	1316.003	75987.66	1315.9999	0.0040	-0.19	0.003	8	10	5d ⁵ 6s	88009.29(3)	163997.14(4)	pc	
24	21	1316.085	75982.92	1316.0781	0.0021	-0.41	0.007	16	22	5d ⁵ 6s	58041.98(4)	134025.31(4)	pc *	
134	58	1317.929	75876.65	1317.9309	0.0040	0.14	-0.002	13	19	5d ⁵ 6s	79208.51(3)	155085.02(3)	pc	
196	145	1318.048	75869.78	1318.0469	0.0030	-0.06	0.001	12	19	5d ⁵ 6s	73067.88(5)	148937.72(5)	pc	
1447	695	1319.260	75800.10	1319.2610	0.0051	0.09	-0.002	4	13	5d ⁵ 6s	90123.22(5)	165923.23(6)	pc	
290	165	1319.495	75786.57	1319.4953	0.0050	0.02	0.000	8	12	5d ⁵ 6s	84005.15(4)	159791.70(4)	pc	
925	767	1320.001	75757.49	1320.0003	0.0040	-0.07	0.001	8	12	5d ⁵ 6s	84005.15(4)	159762.71(5)	pc *	
200	54	1320.481	75729.99	1320.4803	0.0030	-0.03	0.001	12	14	5d ⁵ 6s	82458.31(3)	158188.33(4)	pc	
208	76	1320.560	75725.47	1320.5555	0.0060	-0.24	0.004	8	10	5d ⁵ 6s	88009.29(3)	163735.00(3)	pc	
273	118	1320.614	75722.38	1320.6182	0.0030	0.27	-0.005	11	20	5d ⁵ 6s	81605.68(5)	157327.79(6)	pc	
142	120	1321.034	75698.27	1321.0289	0.0022	-0.30	0.005	16	21	5d ⁵ 6s	69741.38(3)	145439.95(4)	pc	
82	22	1321.736	75658.07	1321.7266	0.0031	-0.54	0.009	12	19	5d ⁵ 6s	79502.00(4)	155160.61(5)	pc *	
72	23	1322.437	75617.99	1322.4422	0.0030	0.32	-0.006	9	21	5d ⁵ 6s	69741.38(3)	145359.05(2)	pc *	
44	50	1324.489	75500.79	1324.4919	0.0030	0.14	-0.003	13	21	5d ⁵ 6s	59206.99(2)	134707.64(2)	pc	
30	40	1324.945	75474.82	1324.9422	0.0031	-0.17	0.003	13	24	5d ⁵ 6s	59232.65(3)	134707.64(2)	pc	
241	63	1324.974	75473.18	1324.9752	0.0040	0.07	-0.001	7	16	5d ⁵ 6s	84734.80(4)	160207.91(4)	pc	
622	278	1325.232	75458.47	1325.2386	0.0040	0.36	-0.006	7	17	5d ⁵ 6s	87782.64(4)	163240.75(5)	pc	

272	431	1327.070	75353.97	1327.0701	0.0021	0.00	0.000	14	23	5d ⁵ 6s	69158.48(5)	144512.45(5)	pc
21	137	1328.416	75277.61	1328.4238	0.0020	0.43	-0.008	10	23	5d ⁵ 6s	54464.11(3)	129741.29(3)	pc
60	56	1328.683	75262.51	1328.6847	0.0020	0.11	-0.002	19	21	5d ⁵ 6s	69741.38(3)	145003.78(4)	pc
126	399	1330.293	75171.43	1330.2889	0.0024	-0.21	0.004	8	18	5d ⁵ 6s	58740.09(6)	133911.73(6)	pc
67	57	1331.486	75104.04	1331.4835	0.0030	-0.16	0.003	14	25	5d ⁵ 6s	66110.16(3)	141214.36(3)	pc
123	85	1331.940	75078.43	1331.9511	0.0040	0.60	-0.011	11	9	5d ⁵ 6s	81351.39(2)	156429.22(2)	pc
334	364	1332.094	75069.79	1332.0998	0.0031	0.34	-0.006	9	22	5d ⁵ 6s	76295.33(5)	151364.78(6)	pc
21	35	1332.279	75059.36	1332.2624	0.0031	-0.93	0.016	9	18	5d ⁵ 6s	70298.76(2)	145359.05(2)	pc *
29	77	1332.833	75028.17	1332.8373	0.0050	0.26	-0.005	8	16	5d ⁵ 6s	84734.80(4)	159762.71(5)	pc *
159	302	1333.410	74995.69	1333.4071	0.0023	-0.16	0.003	14	22	5d ⁵ 6s	58041.98(4)	133037.83(3)	pc
129	302	1333.410	74995.69	1333.4301	0.0031	1.13	-0.020	17	26	5d ⁵ 6s	71191.62(4)	146186.18(3)	pc *
899	239	1333.522	74989.41	1333.5140	0.0041	-0.43	0.008	6	9	5d ⁵ 6s	95628.69(5)	170618.53(5)	pc
505	203	1334.078	74958.12	1334.0761	0.0040	-0.12	0.002	7	9	5d ⁵ 6s	85249.67(3)	160207.91(4)	pc
130	125	1334.334	74943.74	1334.3289	0.0032	-0.30	0.005	13	19	5d ⁵ 6s	79208.51(3)	154152.55(3)	pc
31	31	1335.086	74901.52	1335.0855	0.0030	-0.05	0.001	11	20	5d ⁵ 6s	76493.69(3)	151395.26(3)	pc *
522	272	1335.468	74880.10	1335.4635	0.0030	-0.27	0.005	12	21	5d ⁵ 6s	74057.35(4)	148937.72(5)	pc
53	67	1336.620	74815.58	1336.6268	0.0021	0.38	-0.007	16	22	5d ⁵ 6s	59210.11(5)	134025.31(4)	pc
105	106	1337.028	74792.74	1337.0296	0.0020	0.08	-0.001	16	24	5d ⁵ 6s	59232.65(3)	134025.31(4)	pc
736	494	1337.933	74742.16	1337.9385	0.0040	0.31	-0.006	6	13	5d ⁵ 6s	90497.75(4)	165239.60(5)	pc
102	21	1338.533	74708.66	1338.5279	0.0041	-0.28	0.005	11	14	5d ⁵ 6s	82458.31(3)	157167.25(4)	pc *
52	82	1338.617	74703.98	1338.6019	0.0030	-0.83	0.015	10	22	5d ⁵ 6s	76295.33(5)	151000.14(5)	pc
648	238	1339.006	74682.24	1339.0059	0.0050	-0.03	0.001	4	14	5d ⁵ 6s	91240.96(6)	165923.23(6)	pc
76	243	1339.181	74672.52	1339.1777	0.0024	-0.17	0.003	8	18	5d ⁵ 6s	58740.09(6)	133412.78(5)	pc
28	32	1340.321	74608.99	1340.3070	0.0032	-0.78	0.014	13	19	5d ⁵ 6s	68255.33(2)	142865.10(2)	pc *
62	61	1340.372	74606.16	1340.3771	0.0022	0.29	-0.005	10	23	5d ⁵ 6s	54464.11(3)	129069.98(3)	pc
291	88	1340.786	74583.10	1340.7885	0.0030	0.12	-0.002	12	18	5d ⁵ 6s	80577.63(6)	155160.61(5)	pc
178	124	1340.962	74573.30	1340.9613	0.0023	-0.07	0.001	14	23	5d ⁵ 6s	69158.48(5)	143731.85(5)	pc
46	24	1341.270	74556.23	1341.2667	0.0030	-0.16	0.003	15	18	5d ⁵ 6s	70298.76(2)	144855.15(3)	pc *
123	82	1341.535	74541.47	1341.5250	0.0060	-0.56	0.010	8	9	5d ⁵ 6s	85249.67(3)	159791.70(4)	pc *
20	36	1343.476	74433.76	1343.4600	0.0030	-0.91	0.016	13	9	5d ⁵ 6s	60272.97(1)	134707.64(2)	pc *
35	46	1343.796	74416.07	1343.7833	0.0024	-0.69	0.012	15	25	5d ⁵ 6s	66110.16(3)	140526.92(3)	pc
131	53	1344.542	74374.77	1344.5392	0.0051	-0.15	0.003	5	6	5d ⁵ 6s	67091.85(1)	141466.77(2)	pc
9	91	1344.644	74369.12	1344.6573	0.0040	0.73	-0.013	10	20	5d ⁶	46354.20(4)	120722.59(4)	pc *
326	61	1344.726	74364.59	1344.7159	0.0040	-0.56	0.010	8	10	5d ⁵ 6s	88009.29(3)	162374.44(3)	pc
111	129	1345.282	74333.83	1345.2861	0.0024	0.20	-0.004	17	26	5d ⁵ 6s	71191.62(4)	145525.25(5)	pc
85	149	1348.017	74183.02	1348.0145	0.0030	-0.16	0.003	12	12	5d ⁵ 6s	84005.15(4)	158188.33(4)	pc
269	149	1348.500	74156.48	1348.4907	0.0031	-0.50	0.009	12	19	5d ⁵ 6s	79502.00(4)	153658.98(5)	pc
106	89	1348.809	74139.49	1348.8005	0.0050	-0.46	0.008	6	19	5d ⁵ 6s	74545.24(3)	148685.19(2)	pc
166	121	1349.188	74118.68	1349.1750	0.0040	-0.69	0.013	9	17	5d ⁵ 6s	87782.64(4)	161902.01(4)	pc
68	303	1349.269	74114.19	1349.2802	0.0020	0.60	-0.011	10	23	5d ⁵ 6s	55627.70(2)	129741.29(3)	pc
848	305	1349.769	74086.72	1349.7641	0.0040	-0.30	0.005	7	9	5d ⁵ 6s	95628.69(5)	169715.71(6)	pc
57	88	1351.397	73997.48	1351.4041	0.0030	0.37	-0.007	11	21	5d ⁵ 6s	59206.99(2)	133204.10(2)	pc
68	124	1351.878	73971.18	1351.8828	0.0040	0.26	-0.005	11	14	5d ⁵ 6s	82458.31(3)	156429.22(2)	pc
99	48	1352.989	73910.45	1352.9945	0.0030	0.32	-0.006	14	19	5d ⁵ 6s	79502.00(4)	153412.13(4)	pc

89	88	1353.409	73887.47	1353.3957	0.0022	-0.75	0.014	15	25	5d ⁵ 6s	66110.16(3)	139998.38(4)	pc *
311	39	1353.884	73861.58	1353.8798	0.0040	-0.22	0.004	8	9	5d ⁵ 6s	95628.69(5)	169490.49(5)	pc
55	56	1354.443	73831.07	1354.4475	0.0023	0.23	-0.004	14	21	5d ⁵ 6s	59206.99(2)	133037.83(3)	pc
79	58	1354.667	73818.88	1354.6642	0.0030	-0.15	0.003	9	11	5d ⁵ 6s	75494.15(7)	149313.18(6)	pc
346	333	1354.791	73812.13	1354.7903	0.0020	-0.03	0.000	19	26	5d ⁵ 6s	71191.62(4)	145003.78(4)	pc
8	34	1355.241	73787.64	1355.2339	0.0030	-0.36	0.007	12	20	5d ⁵ 6s	63912.64(4)	137700.64(3)	pc
526	885	1355.508	73773.09	1355.5051	0.0024	-0.15	0.003	11	20	5d ⁵ 6s	63912.64(4)	137685.88(5)	pc
93	61	1356.236	73733.45	1356.2332	0.0040	-0.18	0.003	13	9	5d ⁵ 6s	81351.39(2)	155085.02(3)	pc
449	324	1356.557	73716.04	1356.5561	0.0030	-0.04	0.001	7	18	5d ⁵ 6s	80577.63(6)	154293.71(6)	pc
137	70	1356.746	73705.77	1356.7440	0.0030	-0.10	0.002	11	21	5d ⁵ 6s	74057.35(4)	147763.22(4)	pc
232	46	1357.135	73684.66	1357.1405	0.0060	0.32	-0.006	7	2	5d ⁵ 6s	91225.56(2)	164909.90(2)	pc
95	99	1357.522	73663.65	1357.5239	0.0024	0.12	-0.002	15	26	5d ⁵ 6s	71191.62(4)	144855.15(3)	pc
121	34	1359.526	73555.03	1359.5282	0.0030	0.10	-0.002	12	20	5d ⁵ 6s	81605.68(5)	155160.61(5)	pc
176	206	1360.469	73504.07	1360.4750	0.0030	0.33	-0.006	10	23	5d ⁵ 6s	69158.48(5)	142662.22(6)	pc
264	135	1360.908	73480.33	1360.9095	0.0030	0.06	-0.001	8	19	5d ⁵ 6s	79502.00(4)	152982.27(4)	pc
445	159	1361.215	73463.77	1361.2092	0.0063	-0.32	0.006	5	2	5d ⁵ 6s	91225.56(2)	164689.65(3)	pc
12	26	1362.733	73381.92	1362.7435	0.0050	0.54	-0.010	10	6	5d ⁵ 6s	67091.85(1)	140473.23(2)	pc *
116	82	1363.059	73364.38	1363.0530	0.0030	-0.34	0.006	9	20	5d ⁵ 6s	63912.64(4)	137277.36(4)	pc
299	271	1363.526	73339.25	1363.5228	0.0030	-0.19	0.003	11	19	5d ⁵ 6s	74545.24(3)	147884.68(4)	pc
144	56	1366.223	73194.48	1366.2218	0.0040	-0.08	0.002	8	15	5d ⁵ 6s	75164.22(2)	148358.78(3)	pc
69	35	1366.773	73165.02	1366.7715	0.0040	-0.10	0.002	13	19	5d ⁵ 6s	79208.51(3)	152373.63(3)	pc
53	620	1367.549	73123.51	1367.5453	0.0031	-0.21	0.004	13	21	5d ⁵ 6s	69741.38(3)	142865.10(2)	pc 100, Ir III
367	336	1369.530	73017.72	1369.5281	0.0020	-0.13	0.002	9	22	5d ⁵ 6s	76295.33(5)	149313.18(6)	pc
38	41	1370.397	72971.54	1370.3984	0.0042	0.06	-0.001	8	15	5d ⁵ 6s	75164.22(2)	148135.70(2)	pc
18	27	1370.517	72965.18	1370.5214	0.0020	0.25	-0.005	15	16	5d ⁶	52259.88(3)	125224.81(4)	pc
27	54	1372.144	72878.66	1372.1549	0.0023	0.59	-0.011	15	22	5d ⁵ 6s	59210.11(5)	132088.18(4)	pc
64	68	1373.847	72788.32	1373.8538	0.0031	0.37	-0.007	17	20	5d ⁵ 6s	72737.30(6)	145525.25(5)	pc
21	208	1373.931	72783.88	1373.9257	0.0023	-0.26	0.005	13	14	5d ⁵ 6s	50417.92(2)	123202.06(3)	pc
150	180	1374.175	72770.93	1374.1768	0.0050	0.10	-0.002	8	20	5d ⁵ 6s	76493.69(3)	149264.53(2)	pc
455	1149	1374.691	72743.60	1374.6413	0.0030	-2.65	0.050	12	16	5d ⁵ 6s	84734.80(4)	157481.05(5)	pc * 200, m(C II)
223	1149	1374.691	72743.60	1374.7027	0.0043	0.60	-0.011	7	13	5d ⁵ 6s	90497.75(4)	163240.75(5)	pc * 300, m(C II)
706	847	1377.131	72614.74	1377.1305	0.0040	-0.02	0.000	6	18	5d ⁵ 6s	80577.63(6)	153192.39(7)	pc
211	434	1378.544	72540.31	1378.5454	0.0025	0.08	-0.002	14	26	5d ⁵ 6s	71191.62(4)	143731.85(5)	pc
210	33	1378.723	72530.88	1378.7261	0.0030	0.16	-0.003	11	13	5d ⁵ 6s	90123.22(5)	162653.94(5)	pc
185	261	1378.995	72516.59	1378.9937	0.0030	-0.06	0.001	12	20	5d ⁵ 6s	63912.64(4)	136429.29(5)	pc
38	94	1379.263	72502.47	1379.2647	0.0031	0.07	-0.001	8	25	5d ⁵ 6s	66110.16(3)	138612.56(2)	pc
31	28	1380.030	72462.21	1380.0194	0.0040	-0.54	0.010	7	6	5d ⁵ 6s	71884.65(1)	144347.40(1)	pc *
21	86	1380.119	72457.49	1380.1213	0.0023	0.09	-0.002	13	21	5d ⁵ 6s	69741.38(3)	142198.78(4)	pc
15	151	1382.583	72328.38	1382.5833	0.0020	0.01	0.000	9	14	5d ⁵ 6s	50417.92(2)	122746.29(2)	pc
102	62	1383.668	72271.65	1383.6696	0.0031	0.06	-0.001	15	19	5d ⁵ 6s	68255.33(2)	140526.92(3)	pc
78	92	1384.699	72217.85	1384.6983	0.0030	-0.05	0.001	10	19	5d ⁵ 6s	68255.33(2)	140473.23(2)	pc
29	63	1385.107	72196.61	1385.1066	0.0030	0.00	0.000	8	23	5d ⁵ 6s	55627.70(2)	127824.31(1)	pc
288	118	1387.868	72052.94	1387.8615	0.0030	-0.36	0.007	12	20	5d ⁵ 6s	81605.68(5)	153658.98(5)	pc
16	29	1388.245	72033.40	1388.2337	0.0040	-0.59	0.011	8	5	5d ⁵ 6s	65108.69(0)	137142.67(1)	pc *

156	150	1389.224	71982.64	1389.2231	0.0030	-0.04	0.001	15	23	5d ⁵ 6s	69158.48(5)	141141.16(4)	pc
53	44	1390.128	71935.81	1390.1265	0.0023	-0.09	0.002	19	19	5d ⁵ 6s	73067.88(5)	145003.78(4)	pc
206	51	1391.273	71876.63	1391.2716	0.0050	-0.06	0.001	8	13	5d ⁵ 6s	90497.75(4)	162374.44(3)	pc
56	75	1393.243	71775.00	1393.2399	0.0030	-0.15	0.003	14	20	5d ⁵ 6s	72737.30(6)	144512.45(5)	pc
122	153	1395.839	71641.50	1395.8499	0.0032	0.56	-0.011	17	19	5d ⁵ 6s	74545.24(3)	146186.18(3)	pc
101	153	1395.839	71641.50	1395.8291	0.0041	-0.51	0.010	8	20	5d ⁵ 6s	76493.69(3)	148135.70(2)	pc
137	190	1398.643	71497.89	1398.6495	0.0030	0.35	-0.007	11	19	5d ⁵ 6s	79208.51(3)	150706.05(4)	pc
128	190	1398.643	71497.89	1398.6378	0.0041	-0.25	0.005	10	19	5d ⁵ 6s	79502.00(4)	151000.14(5)	pc
88	220	1398.909	71484.29	1398.9072	0.0030	-0.08	0.002	14	14	5d ⁵ 6s	50417.92(2)	121902.29(3)	pc
224	49	1399.011	71479.06	1399.0193	0.0040	0.42	-0.008	7	9	5d ⁵ 6s	95628.69(5)	167107.33(4)	pc
385	533	1399.128	71473.07	1399.1301	0.0030	0.09	-0.002	14	21	5d ⁵ 6s	69741.38(3)	141214.36(3)	pc
177	128	1399.224	71468.16	1399.2296	0.0031	0.26	-0.005	17	21	5d ⁵ 6s	74057.35(4)	145525.25(5)	pc
146	40	1400.300	71413.27	1400.3057	0.0030	0.29	-0.006	11	14	5d ⁵ 6s	91240.96(6)	162653.94(5)	pc
94	41	1400.737	71391.01	1400.7370	0.0030	0.02	0.000	11	20	5d ⁵ 6s	76493.69(3)	147884.68(4)	pc
53	70	1400.899	71382.75	1400.9016	0.0030	0.15	-0.003	16	21	5d ⁵ 6s	74057.35(4)	145439.95(4)	pc
125	34	1403.127	71269.40	1403.1242	0.0030	-0.13	0.003	11	20	5d ⁵ 6s	76493.69(3)	147763.22(4)	pc
62	43	1406.860	71080.30	1406.8681	0.0050	0.43	-0.009	13	12	5d ⁵ 6s	84005.15(4)	155085.02(3)	pc *
89	21	1407.917	71026.93	1407.9236	0.0040	0.35	-0.007	11	19	5d ⁵ 6s	79208.51(3)	150235.09(3)	pc *
80	119	1408.011	71022.18	1408.0152	0.0041	0.22	-0.004	17	15	5d ⁵ 6s	75164.22(2)	146186.18(3)	pc
160	119	1408.011	71022.18	1408.0096	0.0040	-0.06	0.001	13	9	5d ⁵ 6s	81351.39(2)	152373.63(3)	pc
177	81	1409.513	70946.47	1409.5142	0.0023	0.04	-0.001	19	21	5d ⁵ 6s	74057.35(4)	145003.78(4)	pc
24	26	1409.607	70941.77	1409.6052	0.0030	-0.08	0.002	8	14	5d ⁵ 6s	50417.92(2)	121359.77(1)	pc
29	15	1412.467	70798.11	1412.4733	0.0030	0.31	-0.006	15	21	5d ⁵ 6s	74057.35(4)	144855.15(3)	pc *
35	19	1412.715	70785.67	1412.7179	0.0030	0.13	-0.003	15	21	5d ⁵ 6s	69741.38(3)	140526.92(3)	pc *
97	469	1413.217	70760.53	1413.2138	0.0021	-0.17	0.003	15	23	5d ⁵ 6s	54464.11(3)	125224.81(4)	pc
119	108	1416.808	70581.18	1416.8053	0.0021	-0.15	0.003	16	23	5d ⁵ 6s	69158.48(5)	139739.81(5)	pc
40	58	1418.264	70508.71	1418.2659	0.0021	0.08	-0.002	10	24	5d ⁵ 6s	59232.65(3)	129741.29(3)	pc
64	42	1419.269	70458.80	1419.2744	0.0024	0.26	-0.005	19	19	5d ⁵ 6s	74545.24(3)	145003.78(4)	pc
20	22	1419.353	70454.64	1419.3437	0.0030	-0.46	0.009	14	21	5d ⁵ 6s	74057.35(4)	144512.45(5)	pc *
25	32	1419.412	70451.71	1419.4216	0.0023	0.48	-0.010	14	22	5d ⁵ 6s	58041.98(4)	128493.21(4)	pc *
287	960	1419.992	70422.92	1420.0005	0.0040	0.41	-0.008	10	18	5d ⁵ 6s	80577.63(6)	151000.14(5)	pc
44	97	1421.449	70350.73	1421.4597	0.0050	0.51	-0.010	13	16	5d ⁵ 6s	84734.80(4)	155085.02(3)	pc *
8	20	1421.601	70343.24	1421.5924	0.0030	-0.41	0.008	13	7	5d ⁶	52858.41(2)	123202.06(3)	pc *
28	42	1422.200	70313.60	1422.2087	0.0031	0.43	-0.009	11	21	5d ⁵ 6s	69741.38(3)	140054.55(3)	pc *
80	50	1422.994	70274.35	1422.9917	0.0030	-0.12	0.003	10	19	5d ⁵ 6s	68255.33(2)	138529.81(3)	pc
412	844	1423.342	70257.16	1423.3457	0.0024	0.16	-0.003	15	21	5d ⁵ 6s	69741.38(3)	139998.38(4)	pc
208	58	1424.928	70178.98	1424.9269	0.0030	-0.06	0.001	12	10	5d ⁵ 6s	88009.29(3)	158188.33(4)	pc
55	40	1425.008	70175.05	1425.0197	0.0041	0.58	-0.012	10	18	5d ⁵ 6s	70298.76(2)	140473.23(2)	pc
28	31	1426.286	70112.19	1426.2757	0.0023	-0.48	0.010	16	20	5d ⁵ 6s	63912.64(4)	134025.31(4)	pc *
103	70	1429.601	69949.57	1429.6020	0.0030	0.03	-0.001	15	26	5d ⁵ 6s	71191.62(4)	141141.16(4)	pc
95	187	1429.865	69936.66	1429.8734	0.0030	0.40	-0.008	5	23	5d ⁵ 6s	69158.48(5)	139094.74(6)	pc
60	75	1431.923	69836.17	1431.9115	0.0040	-0.55	0.011	6	20	5d ⁵ 6s	76493.69(3)	146330.41(2)	pc
22	29	1433.509	69758.87	1433.5047	0.0031	-0.23	0.005	9	20	5d ⁵ 6s	81605.68(5)	151364.78(6)	pc *
74	119	1434.514	69710.00	1434.5111	0.0040	-0.16	0.003	7	13	5d ⁵ 6s	90497.75(4)	160207.91(4)	pc

148	40	1434.752	69698.45	1434.7530	0.0030	0.04	-0.001	12	17	5d ⁵ 6s	87782.64(4)	157481.05(5)	pc
100	81	1435.244	69674.57	1435.2453	0.0030	0.07	-0.002	14	21	5d ⁵ 6s	74057.35(4)	143731.85(5)	pc
255	143	1435.673	69653.75	1435.6712	0.0030	-0.08	0.002	12	12	5d ⁵ 6s	84005.15(4)	153658.98(5)	pc
182	287	1436.911	69593.75	1436.8985	0.0030	-0.59	0.012	10	19	5d ⁵ 6s	73067.88(5)	142662.22(6)	pc
28	47	1439.158	69485.09	1439.1537	0.0020	-0.19	0.004	17	25	5d ⁵ 6s	66110.16(3)	135595.44(4)	pc
20	12	1442.256	69335.81	1442.2668	0.0030	0.51	-0.011	15	26	5d ⁵ 6s	71191.62(4)	140526.92(3)	pc *
58	83	1442.793	69309.99	1442.7960	0.0030	0.12	-0.002	15	25	5d ⁵ 6s	66110.16(3)	135420.03(3)	pc
315	1601	1443.821	69260.66	1443.8232	0.0021	0.10	-0.002	14	24	5d ⁵ 6s	59232.65(3)	128493.21(4)	pc
312	748	1444.466	69229.75	1444.4622	0.0030	-0.17	0.004	17	22	5d ⁵ 6s	76295.33(5)	145525.25(5)	pc
62	38	1445.440	69183.10	1445.4380	0.0050	-0.08	0.002	7	15	5d ⁵ 6s	75164.22(2)	144347.40(1)	pc
87	50	1446.242	69144.72	1446.2441	0.0030	0.10	-0.002	16	22	5d ⁵ 6s	76295.33(5)	145439.95(4)	pc
49	39	1447.157	69101.02	1447.1703	0.0041	0.65	-0.014	11	20	5d ⁵ 6s	81605.68(5)	150706.05(4)	pc *
443	1050	1447.509	69084.20	1447.5075	0.0040	-0.07	0.001	5	18	5d ⁵ 6s	80577.63(6)	149661.90(7)	pc
49	72	1448.380	69042.65	1448.3728	0.0040	-0.35	0.007	7	20	5d ⁵ 6s	76493.69(3)	145536.69(3)	pc
275	858	1450.060	68962.67	1450.0586	0.0025	-0.06	0.001	10	23	5d ⁵ 6s	69158.48(5)	138121.21(6)	pc
36	201	1450.409	68946.07	1450.4050	0.0030	-0.20	0.004	16	20	5d ⁵ 6s	76493.69(3)	145439.95(4)	pc *
37	43	1451.313	68903.14	1451.3181	0.0051	0.26	-0.005	13	9	5d ⁵ 6s	85249.67(3)	154152.55(3)	pc *
67	78	1451.651	68887.10	1451.6455	0.0040	-0.24	0.005	8	19	5d ⁵ 6s	68255.33(2)	137142.67(1)	pc
161	516	1452.159	68862.96	1452.1601	0.0024	0.03	-0.001	11	26	5d ⁵ 6s	71191.62(4)	140054.55(3)	pc
38	33	1452.291	68856.73	1452.2898	0.0050	-0.05	0.001	8	19	5d ⁵ 6s	79502.00(4)	148358.78(3)	pc *
47	36	1453.344	68806.83	1453.3456	0.0021	0.07	-0.002	15	26	5d ⁵ 6s	71191.62(4)	139998.38(4)	pc
82	86	1454.587	68748.03	1454.5821	0.0041	-0.24	0.005	11	10	5d ⁵ 6s	88009.29(3)	156757.56(3)	pc
81	558	1454.804	68737.79	1454.8004	0.0023	-0.16	0.003	13	23	5d ⁵ 6s	54464.11(3)	123202.06(3)	pc
77	139	1454.842	68735.97	1454.8512	0.0030	0.42	-0.009	9	18	5d ⁵ 6s	80577.63(6)	149313.18(6)	pc
32	45	1455.424	68708.51	1455.4251	0.0024	0.06	-0.001	19	22	5d ⁵ 6s	76295.33(5)	145003.78(4)	pc
95	134	1456.085	68677.30	1456.0846	0.0040	-0.03	0.001	14	16	5d ⁵ 6s	84734.80(4)	153412.13(4)	pc
56	159	1457.357	68617.36	1457.3580	0.0030	0.04	-0.001	8	21	5d ⁵ 6s	59206.99(2)	127824.31(1)	pc
588	1811	1457.771	68597.90	1457.7765	0.0040	0.28	-0.006	4	10	5d ⁵ 6s	31975.85(3)	100573.47(3)	pc
50	58	1458.837	68547.76	1458.8277	0.0022	-0.43	0.009	16	26	5d ⁵ 6s	71191.62(4)	139739.81(5)	pc
42	41	1459.273	68527.29	1459.2703	0.0031	-0.11	0.002	11	23	5d ⁵ 6s	69158.48(5)	137685.88(5)	pc
18	368	1460.630	68463.62	1460.6492	0.0032	0.91	-0.019	10	16	5d ⁶	52259.88(3)	120722.59(4)	pc * 150, Ir V
202	1247	1462.662	68368.48	1462.6651	0.0030	0.13	-0.003	7	14	5d ⁵ 6s	50417.92(2)	118786.27(1)	pc
227	307	1462.806	68361.74	1462.8125	0.0030	0.28	-0.006	15	20	5d ⁵ 6s	76493.69(3)	144855.15(3)	pc
189	311	1463.707	68319.70	1463.7032	0.0041	-0.16	0.003	13	19	5d ⁵ 6s	74545.24(3)	142865.10(2)	pc Ir III
26	61	1463.832	68313.83	1463.8331	0.0030	0.03	-0.001	8	18	5d ⁵ 6s	70298.76(2)	138612.56(2)	pc
39	154	1464.509	68282.27	1464.5109	0.0020	0.09	-0.002	9	23	5d ⁵ 6s	54464.11(3)	122746.29(2)	pc
63	68	1465.262	68247.19	1465.2558	0.0041	-0.28	0.006	8	16	5d ⁵ 6s	84734.80(4)	152982.27(4)	pc
62	28	1467.530	68141.70	1467.5360	0.0030	0.27	-0.006	13	21	5d ⁵ 6s	74057.35(4)	142198.78(4)	pc
47	186	1467.729	68132.48	1467.7292	0.0030	0.02	0.000	9	20	5d ⁵ 6s	76493.69(3)	144626.15(2)	pc
124	168	1468.025	68118.72	1468.0218	0.0030	-0.16	0.003	9	23	5d ⁵ 6s	69158.48(5)	137277.36(4)	pc
289	1356	1468.212	68110.04	1468.2136	0.0031	0.06	-0.001	9	14	5d ⁵ 6s	50417.92(2)	118527.90(2)	pc
39	33	1469.008	68073.13	1469.0052	0.0030	-0.15	0.003	15	19	5d ⁵ 6s	73067.88(5)	141141.16(4)	pc
80	592	1471.479	67958.83	1471.4698	0.0030	-0.43	0.009	12	21	5d ⁵ 6s	69741.38(3)	137700.64(3)	pc * 300, Ir III
140	799	1471.886	67940.05	1471.8835	0.0030	-0.11	0.002	11	22	5d ⁵ 6s	58041.98(4)	125982.14(5)	pc

137	991	1472.478	67912.74	1472.4823	0.0030	0.21	-0.005	13	14	5d ⁵ 6s	50417.92(2)	118330.45(3)	pc	
143	42	1474.588	67815.56	1474.5941	0.0040	0.29	-0.006	10	17	5d ⁵ 6s	87782.64(4)	155597.91(4)	pc	
59	19	1475.443	67776.26	1475.4315	0.0050	-0.52	0.011	11	14	5d ⁵ 6s	82458.31(3)	150235.09(3)	pc	*
105	72	1476.946	67707.27	1476.9413	0.0030	-0.23	0.005	9	20	5d ⁵ 6s	81605.68(5)	149313.18(6)	pc	
40	88	1477.206	67695.38	1477.2116	0.0031	0.26	-0.006	10	19	5d ⁵ 6s	68255.33(2)	135950.44(1)	pc	
95	29	1477.304	67690.87	1477.3104	0.0040	0.29	-0.006	12	13	5d ⁵ 6s	90497.75(4)	158188.33(4)	pc	
111	902	1479.849	67574.45	1479.8512	0.0023	0.09	-0.002	13	23	5d ⁵ 6s	55627.70(2)	123202.06(3)	pc	
45	202	1480.355	67551.38	1480.3555	0.0030	0.04	-0.001	8	9	5d ⁵ 6s	60272.97(1)	127824.31(1)	pc	
58	107	1481.754	67487.57	1481.7519	0.0030	-0.11	0.002	12	21	5d ⁵ 6s	69741.38(3)	137229.06(2)	pc	
98	184	1482.877	67436.47	1482.8760	0.0030	-0.05	0.001	14	22	5d ⁵ 6s	76295.33(5)	143731.85(5)	pc	
156	238	1483.898	67390.07	1483.8973	0.0041	-0.04	0.001	11	12	5d ⁵ 6s	84005.15(4)	151395.26(3)	pc	
66	29	1485.826	67302.63	1485.8316	0.0050	0.25	-0.006	13	17	5d ⁵ 6s	87782.64(4)	155085.02(3)	pc	*
59	75	1486.532	67270.69	1486.5289	0.0030	-0.12	0.003	12	23	5d ⁵ 6s	69158.48(5)	136429.29(5)	pc	
599	1748	1487.159	67242.33	1487.1647	0.0033	0.28	-0.006	11	18	5d ⁵ 6s	58740.09(6)	125982.14(5)	pc	
52	136	1487.451	67229.12	1487.4482	0.0040	-0.11	0.002	6	19	5d ⁵ 6s	68255.33(2)	135484.56(1)	pc	Ir III
117	90	1487.998	67204.39	1487.9940	0.0040	-0.18	0.004	11	13	5d ⁵ 6s	90123.22(5)	157327.79(6)	pc	
492	1089	1488.798	67168.26	1488.8026	0.0031	0.19	-0.004	10	11	5d ⁵ 6s	75494.15(7)	142662.22(6)	pc	
51	79	1488.884	67164.40	1488.8773	0.0030	-0.30	0.007	15	19	5d ⁵ 6s	68255.33(2)	135420.03(3)	pc	
36	106	1489.790	67123.56	1489.7810	0.0050	-0.40	0.009	13	9	5d ⁵ 6s	85249.67(3)	152373.63(3)	pc	*
84	185	1489.822	67122.13	1489.8267	0.0050	0.23	-0.005	6	19	5d ⁵ 6s	79208.51(3)	146330.41(2)	pc	
73	559	1489.900	67118.61	1489.9002	0.0020	0.02	0.000	9	23	5d ⁵ 6s	55627.70(2)	122746.29(2)	pc	
116	102	1492.373	67007.39	1492.3727	0.0050	-0.01	0.000	8	9	5d ⁵ 6s	81351.39(2)	148358.78(3)	pc	
82	192	1492.479	67002.61	1492.4814	0.0030	0.10	-0.002	16	20	5d ⁵ 6s	72737.30(6)	139739.81(5)	pc	
40	40	1493.046	66977.17	1493.0349	0.0045	-0.50	0.011	17	19	5d ⁵ 6s	79208.51(3)	146186.18(3)	pc	
27	90	1494.091	66930.32	1494.0916	0.0030	0.02	0.000	12	18	5d ⁵ 6s	70298.76(2)	137229.06(2)	pc	
46	90	1494.091	66930.32	1494.0872	0.0030	-0.18	0.004	15	19	5d ⁵ 6s	73067.88(5)	139998.38(4)	pc	
103	1856	1496.061	66842.19	1496.0226	0.0050	-1.72	0.038	8	18	5d ⁵ 6s	70298.76(2)	137142.67(1)	pc	* 400, m(Ir III)
124	859	1497.629	66772.20	1497.6331	0.0030	0.17	-0.004	11	22	5d ⁵ 6s	59210.11(5)	125982.14(5)	pc	
42	22	1499.234	66700.74	1499.2301	0.0041	-0.16	0.004	11	12	5d ⁵ 6s	84005.15(4)	150706.05(4)	pc	*
79	98	1499.882	66671.90	1499.8817	0.0030	-0.03	0.001	16	19	5d ⁵ 6s	73067.88(5)	139739.81(5)	pc	
20	22	1499.938	66669.43	1499.9448	0.0040	0.31	-0.007	14	19	5d ⁵ 6s	74545.24(3)	141214.36(3)	pc	*
78	16	1500.146	66660.16	1500.1397	0.0040	-0.30	0.007	11	16	5d ⁵ 6s	84734.80(4)	151395.26(3)	pc	*
498	1864	1502.572	66552.57	1502.5743	0.0060	0.12	-0.003	2	10	5d ⁵ 6s	31975.85(3)	98528.30(2)	pc	
280	1048	1503.890	66494.22	1503.8892	0.0030	-0.04	0.001	11	26	5d ⁵ 6s	71191.62(4)	137685.88(5)	pc	
9	24	1505.395	66427.74	1505.3986	0.0030	0.15	-0.003	11	23	5d ⁵ 6s	54464.11(3)	120891.70(2)	pc	*
38	23	1506.704	66370.03	1506.7069	0.0051	0.12	-0.003	13	17	5d ⁵ 6s	87782.64(4)	154152.55(3)	pc	*
367	912	1506.776	66366.85	1506.7754	0.0030	-0.04	0.001	10	22	5d ⁵ 6s	76295.33(5)	142662.22(6)	pc	
65	176	1506.970	66358.30	1506.9739	0.0030	0.15	-0.003	8	25	5d ⁵ 6s	66110.16(3)	132468.31(2)	pc	
145	1150	1508.878	66274.40	1508.8739	0.0030	-0.19	0.004	14	23	5d ⁵ 6s	55627.70(2)	121902.29(3)	pc	
18	42	1509.076	66265.72	1509.0845	0.0050	0.38	-0.009	10	16	5d ⁵ 6s	84734.80(4)	151000.14(5)	pc	*
102	1198	1509.238	66258.62	1509.2408	0.0031	0.14	-0.003	10	23	5d ⁵ 6s	54464.11(3)	120722.59(4)	pc	
151	83	1509.660	66240.08	1509.6598	0.0030	-0.01	0.000	12	14	5d ⁵ 6s	91240.96(6)	157481.05(5)	pc	
14	33	1509.863	66231.16	1509.8570	0.0030	-0.28	0.006	16	19	5d ⁵ 6s	79208.51(3)	145439.95(4)	pc	*
195	231	1511.545	66157.49	1511.5435	0.0040	-0.05	0.001	11	20	5d ⁵ 6s	81605.68(5)	147763.22(4)	pc	

49	43	1511.701	66150.63	1511.7035	0.0040	0.09	-0.002	9	19	5d ⁵ 6s	79208.51(3)	145359.05(2)	pc	
42	23	1512.572	66112.56	1512.5790	0.0060	0.31	-0.007	11	6	5d ⁵ 6s	67091.85(1)	133204.10(2)	pc *	
150	369	1513.155	66087.07	1513.1608	0.0040	0.24	-0.005	11	14	5d ⁵ 6s	91240.96(6)	157327.79(6)	pc	
10	28	1513.520	66071.15	1513.5332	0.0032	0.57	-0.013	13	16	5d ⁶	52259.88(3)	118330.45(3)	pc *	
77	51	1514.112	66045.31	1514.0999	0.0041	-0.53	0.012	12	17	5d ⁵ 6s	87782.64(4)	153828.48(4)	pc	
408	1598	1514.823	66014.31	1514.8141	0.0022	-0.39	0.009	15	22	5d ⁵ 6s	59210.11(5)	125224.81(4)	pc	bl(Ir III)
28	112	1515.338	65991.87	1515.3315	0.0024	-0.29	0.007	15	24	5d ⁵ 6s	59232.65(3)	125224.81(4)	pc	
42	65	1515.561	65982.15	1515.5722	0.0030	0.47	-0.011	15	19	5d ⁵ 6s	74545.24(3)	140526.92(3)	pc	
112	1642	1515.628	65979.24	1515.6563	0.0030	1.22	-0.028	15	25	5d ⁵ 6s	66110.16(3)	132088.18(4)	pc *	900, bl(Ir III)
44	403	1516.810	65927.84	1516.8094	0.0040	-0.02	0.001	7	7	5d ⁶	52858.41(2)	118786.27(1)	pc	
115	277	1517.986	65876.75	1517.9957	0.0040	0.41	-0.009	12	17	5d ⁵ 6s	87782.64(4)	153658.98(5)	pc	
10	41	1521.327	65732.07	1521.3274	0.0030	0.00	0.000	8	23	5d ⁵ 6s	55627.70(2)	121359.77(1)	pc	
130	1318	1521.443	65727.09	1521.4549	0.0031	0.53	-0.012	5	20	5d ⁵ 6s	72737.30(6)	138463.86(7)	pc	
35	23	1522.583	65677.88	1522.5940	0.0054	0.49	-0.011	8	14	5d ⁵ 6s	82458.31(3)	148135.70(2)	pc *	
51	806	1522.753	65670.54	1522.7772	0.0042	1.06	-0.024	9	7	5d ⁶	52858.41(2)	118527.90(2)	pc *	400, bl
25	88	1526.373	65514.79	1526.3764	0.0040	0.15	-0.003	8	15	5d ⁵ 6s	75164.22(2)	140678.86(1)	pc	
281	329	1527.305	65474.79	1527.3077	0.0041	0.10	-0.002	10	13	5d ⁵ 6s	90123.22(5)	155597.91(4)	pc	
13	56	1527.358	65472.52	1527.3695	0.0030	0.48	-0.011	13	7	5d ⁶	52858.41(2)	118330.45(3)	pc	
30	32	1528.982	65402.98	1528.9856	0.0040	0.14	-0.003	14	10	5d ⁵ 6s	88009.29(3)	153412.13(4)	pc *	
42	48	1529.424	65384.11	1529.4283	0.0030	0.20	-0.005	10	20	5d ⁵ 6s	72737.30(6)	138121.21(6)	pc	
132	757	1529.918	65362.99	1529.9246	0.0031	0.29	-0.007	15	15	5d ⁵ 6s	75164.22(2)	140526.92(3)	pc	Ir III (100)
24	199	1532.233	65264.22	1532.2383	0.0030	0.22	-0.005	11	23	5d ⁵ 6s	55627.70(2)	120891.70(2)	pc	
109	1352	1533.309	65218.44	1533.3127	0.0031	0.17	-0.004	8	14	5d ⁵ 6s	50417.92(2)	115636.19(3)	pc	
394	1761	1534.747	65157.34	1534.7465	0.0030	0.00	0.000	10	20	5d ⁵ 6s	63912.64(4)	129069.98(3)	pc	
55	1118	1535.594	65121.40	1535.5966	0.0040	0.13	-0.003	15	18	5d ⁵ 6s	70298.76(2)	135420.03(3)	pc *	100, m
86	219	1537.194	65053.60	1537.2004	0.0030	0.27	-0.006	10	19	5d ⁵ 6s	73067.88(5)	138121.21(6)	pc	
72	1162	1538.209	65010.68	1538.2142	0.0030	0.23	-0.005	14	19	5d ⁵ 6s	79502.00(4)	144512.45(5)	pc	
70	318	1539.671	64948.96	1539.6750	0.0040	0.19	-0.004	11	19	5d ⁵ 6s	68255.33(2)	133204.10(2)	pc	
75	106	1541.212	64883.99	1541.2255	0.0050	0.56	-0.013	10	14	5d ⁵ 6s	82458.31(3)	147341.74(3)	pc *	
197	774	1542.110	64846.22	1542.1192	0.0030	0.39	-0.009	15	22	5d ⁵ 6s	76295.33(5)	141141.16(4)	pc	
60	196	1543.625	64782.58	1543.6268	0.0030	0.08	-0.002	14	19	5d ⁵ 6s	68255.33(2)	133037.83(3)	pc	
150	877	1544.041	64765.14	1544.0419	0.0032	0.06	-0.001	10	25	5d ⁵ 6s	66110.16(3)	130875.24(2)	pc	
406	1400	1544.312	64753.74	1544.3240	0.0030	0.49	-0.012	8	23	5d ⁵ 6s	69158.48(5)	133911.73(6)	pc	
241	1117	1548.449	64580.77	1548.4534	0.0031	0.20	-0.005	14	20	5d ⁵ 6s	63912.64(4)	128493.21(4)	pd	
145	1893	1550.759	64484.57	1550.6896	0.0040	-2.87	0.069	5	20	5d ⁵ 6s	72737.30(6)	137224.74(7)	pd *	1000, m(C IV)
102	426	1552.589	64408.53	1552.5809	0.0041	-0.35	0.008	13	18	5d ⁵ 6s	70298.76(2)	134707.64(2)	pd	
33	155	1552.710	64403.52	1552.7029	0.0030	-0.30	0.007	17	26	5d ⁵ 6s	71191.62(4)	135595.44(4)	pd	
113	1807	1555.290	64296.69	1555.2905	0.0030	0.02	-0.001	7	22	5d ⁵ 6s	58041.98(4)	122338.65(5)	pd	
70	91	1560.889	64066.07	1560.8954	0.0040	0.28	-0.007	10	6	5d ⁵ 6s	71884.65(1)	135950.44(1)	pe	
14	37	1560.936	64064.12	1560.9442	0.0030	0.33	-0.008	9	23	5d ⁵ 6s	54464.11(3)	118527.90(2)	pe	
36	35	1561.683	64033.50	1561.6891	0.0030	0.27	-0.007	15	20	5d ⁵ 6s	76493.69(3)	140526.92(3)	pe	
141	1727	1562.612	63995.40	1562.6204	0.0030	0.33	-0.008	13	21	5d ⁵ 6s	59206.99(2)	123202.06(3)	pe	
152	1577	1563.246	63969.47	1563.2472	0.0030	0.07	-0.002	13	24	5d ⁵ 6s	59232.65(3)	123202.06(3)	pe	
80	129	1563.764	63948.25	1563.7598	0.0030	-0.19	0.005	16	19	5d ⁵ 6s	79208.51(3)	143156.95(4)	pe	

338	1004	1564.471	63919.36	1564.4641	0.0040	-0.29	0.007	12	14	5d ⁵ 6s	91240.96(6)	155160.61(5)	pe	Ir III (200)
660	2302	1565.648	63871.33	1565.6528	0.0042	0.21	-0.005	6	18	5d ⁵ 6s	58740.09(6)	122611.21(6)	pe	
47	203	1565.768	63866.41	1565.7700	0.0030	0.07	-0.002	13	23	5d ⁵ 6s	54464.11(3)	118330.45(3)	pe	
181	1704	1565.919	63860.25	1565.9179	0.0030	-0.06	0.001	14	22	5d ⁵ 6s	58041.98(4)	121902.29(3)	pe	
32	59	1566.540	63834.96	1566.5566	0.0030	0.69	-0.017	16	20	5d ⁵ 6s	81605.68(5)	145439.95(4)	pe *	
246	138	1567.704	63787.55	1567.7033	0.0050	-0.03	0.001	4	9	5d ⁵ 6s	95628.69(5)	159416.27(6)	pe	
64	109	1570.057	63691.96	1570.0561	0.0030	-0.03	0.001	12	20	5d ⁵ 6s	72737.30(6)	136429.29(5)	pe	
68	51	1570.977	63654.64	1570.9734	0.0050	-0.16	0.004	13	13	5d ⁵ 6s	90497.75(4)	154152.55(3)	pe	
228	1027	1571.265	63643.00	1571.2576	0.0040	-0.29	0.007	12	21	5d ⁵ 6s	74057.35(4)	137700.64(3)	pe	
137	1110	1571.564	63630.87	1571.5578	0.0030	-0.26	0.006	10	25	5d ⁵ 6s	66110.16(3)	129741.29(3)	pe	
80	95	1571.627	63628.35	1571.6220	0.0032	-0.18	0.004	11	21	5d ⁵ 6s	74057.35(4)	137685.88(5)	pe	
96	420	1572.317	63600.39	1572.3125	0.0040	-0.20	0.005	5	11	5d ⁵ 6s	75494.15(7)	139094.74(6)	pe	
275	1958	1572.363	63598.56	1572.3626	0.0040	0.00	0.000	7	18	5d ⁵ 6s	58740.09(6)	122338.65(5)	pe	
80	46	1573.916	63535.81	1573.9168	0.0040	0.05	-0.001	12	13	5d ⁵ 6s	90123.22(5)	153658.98(5)	pe	
171	1942	1574.469	63513.47	1574.4649	0.0030	-0.17	0.004	9	24	5d ⁵ 6s	59232.65(3)	122746.29(2)	pe	
36	92	1574.682	63504.90	1574.6868	0.0031	0.21	-0.005	15	20	5d ⁵ 6s	76493.69(3)	139998.38(4)	pe	
40	57	1575.736	63462.42	1575.7282	0.0040	-0.30	0.007	11	21	5d ⁵ 6s	69741.38(3)	133204.10(2)	pe	
101	318	1576.174	63444.76	1576.1813	0.0030	0.28	-0.007	16	22	5d ⁵ 6s	76295.33(5)	139739.81(5)	pe	
192	1683	1577.265	63400.89	1577.2597	0.0030	-0.21	0.005	6	22	5d ⁵ 6s	59210.11(5)	122611.21(6)	pe	
47	878	1577.552	63389.34	1577.5486	0.0030	-0.15	0.004	8	14	5d ⁵ 6s	50417.92(2)	113807.41(2)	pe	
34	398	1577.868	63376.64	1577.8767	0.0041	0.33	-0.008	8	16	5d ⁶	52259.88(3)	115636.19(3)	pe	
31	26	1578.263	63360.80	1578.2478	0.0030	-0.60	0.015	12	19	5d ⁵ 6s	73067.88(5)	136429.29(5)	pe *	
141	116	1578.872	63336.35	1578.8662	0.0050	-0.24	0.006	10	12	5d ⁵ 6s	84005.15(4)	147341.74(3)	pe	
11	41	1583.314	63158.65	1583.3164	0.0030	0.08	-0.002	7	23	5d ⁵ 6s	55627.70(2)	118786.27(1)	pe	
477	1828	1584.065	63128.72	1584.0696	0.0031	0.18	-0.005	7	22	5d ⁵ 6s	59210.11(5)	122338.65(5)	pe	
176	187	1585.973	63052.79	1585.9736	0.0040	0.04	-0.001	7	14	5d ⁵ 6s	91240.96(6)	154293.71(6)	pe	
308	1308	1588.065	62969.71	1588.0651	0.0040	0.00	0.000	5	11	5d ⁵ 6s	75494.15(7)	138463.86(7)	pe	Ir III (900)
51	443	1589.076	62929.64	1589.0748	0.0030	-0.06	0.002	15	23	5d ⁵ 6s	69158.48(5)	132088.18(4)	pe	
169	1850	1589.663	62906.42	1589.6540	0.0032	-0.35	0.009	14	20	5d ⁵ 6s	81605.68(5)	144512.45(5)	pe	
47	374	1589.814	62900.46	1589.8201	0.0032	0.26	-0.006	9	23	5d ⁵ 6s	55627.70(2)	118527.90(2)	pe	
62	48	1590.854	62859.31	1590.8608	0.0040	0.26	-0.007	8	13	5d ⁵ 6s	90123.22(5)	152982.27(4)	pe	
47	113	1591.502	62833.72	1591.5029	0.0030	0.03	-0.001	16	26	5d ⁵ 6s	71191.62(4)	134025.31(4)	pe	
33	558	1592.916	62777.93	1592.9203	0.0040	0.15	-0.004	8	7	5d ⁶	52858.41(2)	115636.19(3)	pe	
70	216	1593.905	62739.01	1593.9031	0.0030	-0.06	0.002	14	18	5d ⁵ 6s	70298.76(2)	133037.83(3)	pe	
36	40	1594.073	62732.39	1594.0797	0.0040	0.27	-0.007	9	19	5d ⁵ 6s	74545.24(3)	137277.36(4)	pe *	
62	519	1594.498	62715.66	1594.4991	0.0040	0.04	-0.001	8	5	5d ⁵ 6s	65108.69(0)	127824.31(1)	pe	
104	1294	1594.820	62703.02	1594.8264	0.0030	0.27	-0.007	13	23	5d ⁵ 6s	55627.70(2)	118330.45(3)	pe	
137	375	1594.975	62696.92	1594.9782	0.0030	0.14	-0.004	13	19	5d ⁵ 6s	79502.00(4)	142198.78(4)	pe	
442	1962	1595.382	62680.93	1595.3897	0.0031	0.32	-0.008	10	22	5d ⁵ 6s	58041.98(4)	120722.59(4)	pe	
64	558	1595.670	62669.60	1595.6690	0.0030	-0.04	0.001	14	24	5d ⁵ 6s	59232.65(3)	121902.29(3)	pe	
303	1302	1596.752	62627.12	1596.7539	0.0031	0.06	-0.001	10	11	5d ⁵ 6s	75494.15(7)	138121.21(6)	pe	
47	99	1596.938	62619.83	1596.9362	0.0031	-0.08	0.002	10	19	5d ⁵ 6s	68255.33(2)	130875.24(2)	pe	
33	56	1598.837	62545.46	1598.8368	0.0031	-0.01	0.000	19	14	5d ⁵ 6s	82458.31(3)	145003.78(4)	pe	
59	68	1599.067	62536.46	1599.0682	0.0040	0.04	-0.001	12	15	5d ⁵ 6s	75164.22(2)	137700.64(3)	pe	

137	766	1599.293	62527.64	1599.2949	0.0030	0.09	-0.002	17	19	5d ⁵ 6s	73067.88(5)	135595.44(4)	pe	
87	75	1601.214	62452.63	1601.2182	0.0050	0.18	-0.005	11	17	5d ⁵ 6s	87782.64(4)	150235.09(3)	pe	
18	32	1603.007	62382.75	1602.9995	0.0030	-0.30	0.008	14	25	5d ⁵ 6s	66110.16(3)	128493.21(4)	pe *	
60	850	1603.924	62347.09	1603.9316	0.0031	0.29	-0.008	15	21	5d ⁵ 6s	69741.38(3)	132088.18(4)	pe	
28	98	1607.162	62221.46	1607.1703	0.0033	0.30	-0.008	8	26	5d ⁵ 6s	71191.62(4)	133412.78(5)	pe	
92	272	1608.201	62181.30	1608.2023	0.0040	0.07	-0.002	15	13	5d ⁵ 6s	90123.22(5)	152304.45(5)	pe	
29	82	1608.504	62169.58	1608.5045	0.0040	0.03	-0.001	8	18	5d ⁵ 6s	70298.76(2)	132468.31(2)	pe	
120	1780	1608.934	62152.97	1608.9385	0.0030	0.19	-0.005	8	21	5d ⁵ 6s	59206.99(2)	121359.77(1)	pe	
61	259	1609.623	62126.33	1609.6276	0.0031	0.16	-0.004	14	20	5d ⁵ 6s	81605.68(5)	143731.85(5)	pe	
152	1123	1610.700	62084.81	1610.7057	0.0040	0.22	-0.006	10	18	5d ⁵ 6s	80577.63(6)	142662.22(6)	pe	200
21	177	1611.223	62064.65	1611.2182	0.0040	-0.19	0.005	12	15	5d ⁵ 6s	75164.22(2)	137229.06(2)	pe	
17	81	1613.458	61978.69	1613.4640	0.0050	0.24	-0.006	8	15	5d ⁵ 6s	75164.22(2)	137142.67(1)	pe	
56	330	1617.436	61826.23	1617.4456	0.0031	0.35	-0.009	10	22	5d ⁵ 6s	76295.33(5)	138121.21(6)	pe	
244	2074	1619.940	61730.68	1619.9424	0.0040	0.10	-0.002	5	11	5d ⁵ 6s	75494.15(7)	137224.74(7)	pe	
94	768	1620.770	61699.07	1620.7692	0.0050	-0.03	0.001	11	9	5d ⁵ 6s	95628.69(5)	157327.79(6)	pe *	100
196	2019	1621.144	61684.84	1621.1473	0.0030	0.13	-0.003	11	21	5d ⁵ 6s	59206.99(2)	120891.70(2)	pe	
34	400	1621.827	61658.85	1621.8219	0.0030	-0.20	0.005	11	24	5d ⁵ 6s	59232.65(3)	120891.70(2)	pe	
39	212	1624.665	61551.15	1624.6618	0.0030	-0.12	0.003	16	20	5d ⁵ 6s	81605.68(5)	143156.95(4)	pe *	
24	765	1624.750	61547.93	1624.7606	0.0040	0.40	-0.010	8	16	5d ⁶	52259.88(3)	113807.41(2)	pe	
71	1432	1625.691	61512.30	1625.6864	0.0030	-0.18	0.005	10	22	5d ⁵ 6s	59210.11(5)	120722.59(4)	pe	
77	1258	1626.280	61490.04	1626.2823	0.0030	0.11	-0.003	10	24	5d ⁵ 6s	59232.65(3)	120722.59(4)	pe	
40	930	1626.399	61485.54	1626.3876	0.0030	-0.42	0.011	10	19	5d ⁵ 6s	68255.33(2)	129741.29(3)	pe	
110	713	1629.649	61362.89	1629.6550	0.0030	0.21	-0.006	15	21	5d ⁵ 6s	74057.35(4)	135420.03(3)	pe	
124	1566	1630.999	61312.13	1630.9976	0.0030	-0.04	0.001	15	20	5d ⁵ 6s	63912.64(4)	125224.81(4)	pe	
377	1810	1634.673	61174.32	1634.6699	0.0030	-0.11	0.003	8	20	5d ⁵ 6s	72737.30(6)	133911.73(6)	pf	
225	1815	1634.736	61171.96	1634.7327	0.0031	-0.12	0.003	8	23	5d ⁵ 6s	54464.11(3)	115636.19(3)	pf	
86	683	1635.763	61133.56	1635.7547	0.0030	-0.30	0.008	10	21	5d ⁵ 6s	69741.38(3)	130875.24(2)	pf	
86	1360	1637.015	61086.78	1637.0149	0.0030	-0.02	0.001	8	9	5d ⁵ 6s	60272.97(1)	121359.77(1)	pf	
104	1321	1637.641	61063.46	1637.6398	0.0030	-0.03	0.001	15	14	5d ⁵ 6s	91240.96(6)	152304.45(5)	pf	300
18	18	1638.679	61024.77	1638.6748	0.0040	-0.15	0.004	15	19	5d ⁵ 6s	79502.00(4)	140526.92(3)	pf *	
16	162	1640.719	60948.90	1640.7160	0.0040	-0.10	0.003	8	7	5d ⁶	52858.41(2)	113807.41(2)	pf	
59	135	1642.104	60897.50	1642.1032	0.0041	-0.01	0.000	11	13	5d ⁵ 6s	90497.75(4)	151395.26(3)	pf	
79	413	1642.714	60874.87	1642.7161	0.0030	0.08	-0.002	15	19	5d ⁵ 6s	74545.24(3)	135420.03(3)	pf	
82	241	1643.498	60845.84	1643.4923	0.0031	-0.20	0.005	11	19	5d ⁵ 6s	79208.51(3)	140054.55(3)	pf	
139	1365	1643.552	60843.82	1643.5516	0.0031	-0.03	0.001	8	19	5d ⁵ 6s	73067.88(5)	133911.73(6)	pf	
30	98	1645.007	60790.03	1645.0109	0.0030	0.16	-0.004	15	19	5d ⁵ 6s	79208.51(3)	139998.38(4)	pf	
43	81	1645.114	60786.05	1645.1097	0.0041	-0.17	0.005	10	15	5d ⁵ 6s	75164.22(2)	135950.44(1)	pf	
42	139	1645.177	60783.74	1645.1787	0.0041	0.07	-0.002	9	20	5d ⁵ 6s	76493.69(3)	137277.36(4)	pf	
79	184	1647.483	60698.66	1647.4833	0.0030	0.02	0.000	16	14	5d ⁵ 6s	82458.31(3)	143156.95(4)	pf	
302	1876	1648.116	60675.33	1648.1122	0.0032	-0.15	0.004	8	20	5d ⁵ 6s	72737.30(6)	133412.78(5)	pf	
72	1298	1649.658	60618.63	1649.6551	0.0030	-0.10	0.003	11	9	5d ⁵ 6s	60272.97(1)	120891.70(2)	pf	
140	915	1650.355	60593.01	1650.3529	0.0030	-0.09	0.002	13	20	5d ⁵ 6s	81605.68(5)	142198.78(4)	pf	
58	910	1650.611	60583.62	1650.6101	0.0040	-0.04	0.001	8	6	5d ⁵ 6s	71884.65(1)	132468.31(2)	pf	
29	574	1650.820	60575.96	1650.8057	0.0042	-0.52	0.014	10	18	5d ⁵ 6s	70298.76(2)	130875.24(2)	pf *	200, Ir III (400)

232	1733	1657.145	60344.75	1657.1410	0.0032	-0.15	0.004	8	19	5d ⁵ 6s	73067.88(5)	133412.78(5)	pf	400, bl(O III)
88	1123	1658.699	60288.21	1658.6920	0.0030	-0.26	0.007	13	22	5d ⁵ 6s	58041.98(4)	118330.45(3)	pf	
15	19	1659.229	60268.96	1659.2283	0.0040	-0.02	0.001	19	16	5d ⁵ 6s	84734.80(4)	145003.78(4)	pf *	
200	1086	1660.089	60237.72	1660.0869	0.0031	-0.09	0.002	16	19	5d ⁵ 6s	79502.00(4)	139739.81(5)	pf	
83	89	1660.906	60208.09	1660.9005	0.0040	-0.21	0.006	11	13	5d ⁵ 6s	90497.75(4)	150706.05(4)	pf	
82	595	1662.953	60133.99	1662.9538	0.0030	0.03	-0.001	12	22	5d ⁵ 6s	76295.33(5)	136429.29(5)	pf	
29	120	1663.237	60123.71	1663.2343	0.0040	-0.11	0.003	9	14	5d ⁵ 6s	91240.96(6)	151364.78(6)	pf	
34	214	1663.631	60109.47	1663.6339	0.0040	0.09	-0.002	9	9	5d ⁵ 6s	85249.67(3)	145359.05(2)	pf	
103	1406	1666.437	60008.27	1666.4309	0.0031	-0.22	0.006	8	23	5d ⁵ 6s	55627.70(2)	115636.19(3)	pf	
72	1576	1667.552	59968.13	1667.5571	0.0030	0.17	-0.005	16	21	5d ⁵ 6s	74057.35(4)	134025.31(4)	pf	
235	1154	1672.868	59777.58	1672.8660	0.0040	-0.07	0.002	14	16	5d ⁵ 6s	84734.80(4)	144512.45(5)	pf	
24	110	1673.911	59740.32	1673.9071	0.0041	-0.16	0.004	13	14	5d ⁵ 6s	82458.31(3)	142198.78(4)	pf	
11	101	1678.436	59579.26	1678.4359	0.0030	-0.02	0.000	7	21	5d ⁵ 6s	59206.99(2)	118786.27(1)	pf	
67	34	1679.775	59531.80	1679.7711	0.0051	-0.12	0.003	12	9	5d ⁵ 6s	95628.69(5)	155160.61(5)	pf *	
91	606	1681.240	59479.92	1681.2354	0.0031	-0.15	0.004	16	19	5d ⁵ 6s	74545.24(3)	134025.31(4)	pf	
86	910	1682.298	59442.52	1682.2972	0.0031	-0.01	0.000	10	18	5d ⁵ 6s	70298.76(2)	129741.29(3)	pf	
22	40	1683.382	59404.23	1683.3869	0.0040	0.18	-0.005	8	19	5d ⁵ 6s	79208.51(3)	138612.56(2)	pf	
143	1679	1685.114	59343.18	1685.1102	0.0030	-0.12	0.003	8	23	5d ⁵ 6s	54464.11(3)	113807.41(2)	pf	
10	72	1685.751	59320.75	1685.7462	0.0030	-0.16	0.004	9	21	5d ⁵ 6s	59206.99(2)	118527.90(2)	pf	
36	62	1686.340	59300.02	1686.3375	0.0030	-0.09	0.003	17	22	5d ⁵ 6s	76295.33(5)	135595.44(4)	pf	
30	316	1686.642	59289.40	1686.6416	0.0030	-0.02	0.001	13	20	5d ⁵ 6s	63912.64(4)	123202.06(3)	pf	
168	818	1690.564	59151.86	1690.5656	0.0030	0.06	-0.002	16	12	5d ⁵ 6s	84005.15(4)	143156.95(4)	pf	
13	145	1691.379	59123.36	1691.3760	0.0032	-0.10	0.003	13	21	5d ⁵ 6s	59206.99(2)	118330.45(3)	pf	
52	949	1692.108	59097.88	1692.1104	0.0030	0.08	-0.002	13	24	5d ⁵ 6s	59232.65(3)	118330.45(3)	pf	
34	114	1694.331	59020.35	1694.3324	0.0031	0.06	-0.002	15	19	5d ⁵ 6s	73067.88(5)	132088.18(4)	pf	
18	60	1694.998	58997.12	1695.0000	0.0051	0.07	-0.002	14	16	5d ⁵ 6s	84734.80(4)	143731.85(5)	pf *	
34	103	1695.182	58990.71	1695.1856	0.0040	0.12	-0.003	10	6	5d ⁵ 6s	71884.65(1)	130875.24(2)	pf	
35	57	1695.478	58980.40	1695.4762	0.0030	-0.08	0.002	14	21	5d ⁵ 6s	74057.35(4)	133037.83(3)	pf	
35	23	1700.259	58814.57	1700.2610	0.0060	0.07	-0.002	12	13	5d ⁵ 6s	90123.22(5)	148937.72(5)	pf *	
41	170	1702.077	58751.75	1702.0746	0.0030	-0.08	0.002	14	21	5d ⁵ 6s	69741.38(3)	128493.21(4)	pf	
59	94	1703.483	58703.26	1703.4858	0.0041	0.10	-0.003	11	9	5d ⁵ 6s	81351.39(2)	140054.55(3)	pf	
298	565	1704.591	58665.11	1704.5933	0.0040	0.09	-0.003	7	9	5d ⁵ 6s	95628.69(5)	154293.71(6)	pf	
19	21	1704.777	58658.71	1704.7723	0.0050	-0.15	0.004	11	19	5d ⁵ 6s	74545.24(3)	133204.10(2)	pf *	
26	106	1707.951	58549.68	1707.9516	0.0030	0.01	0.000	10	26	5d ⁵ 6s	71191.62(4)	129741.29(3)	pf	
16	285	1709.014	58513.29	1709.0132	0.0040	-0.01	0.000	7	9	5d ⁵ 6s	60272.97(1)	118786.27(1)	pf	
19	54	1711.569	58425.91	1711.5665	0.0040	-0.10	0.003	7	20	5d ⁵ 6s	63912.64(4)	122338.65(5)	pf	
24	41	1711.812	58417.62	1711.8135	0.0030	0.04	-0.001	8	11	5d ⁵ 6s	75494.15(7)	133911.73(6)	pf	
67	1404	1718.815	58179.61	1718.8123	0.0030	-0.10	0.003	8	23	5d ⁵ 6s	55627.70(2)	113807.41(2)	pf	
48	131	1720.159	58134.15	1720.1599	0.0030	0.02	-0.001	16	20	5d ⁵ 6s	81605.68(5)	139739.81(5)	pf	
40	122	1721.993	58072.24	1721.9938	0.0041	0.02	-0.001	9	14	5d ⁵ 6s	91240.96(6)	149313.18(6)	pf	
27	115	1723.224	58030.76	1723.2219	0.0030	-0.07	0.002	15	21	5d ⁵ 6s	74057.35(4)	132088.18(4)	pf	
44	306	1723.532	58020.40	1723.5273	0.0041	-0.15	0.005	12	19	5d ⁵ 6s	79208.51(3)	137229.06(2)	pf	
49	101	1726.902	57907.17	1726.8986	0.0040	-0.11	0.003	16	9	5d ⁵ 6s	85249.67(3)	143156.95(4)	pf	
372	1325	1727.532	57886.06	1727.5266	0.0040	-0.17	0.005	5	18	5d ⁵ 6s	80577.63(6)	138463.86(7)	pf	

20	37	1727.766	57878.20	1727.7615	0.0030	-0.16	0.005	10	26	5d ⁵ 6s	71191.62(4)	129069.98(3)	pf
31	37	1731.260	57761.39	1731.2582	0.0061	-0.07	0.002	11	13	5d ⁵ 6s	90123.22(5)	147884.68(4)	pf *
23	122	1733.208	57696.50	1733.1996	0.0060	-0.26	0.008	12	14	5d ⁵ 6s	91240.96(6)	148937.72(5)	pf *
201	1317	1735.617	57616.39	1735.6169	0.0030	-0.01	0.000	8	22	5d ⁵ 6s	76295.33(5)	133911.73(6)	pf
48	138	1737.823	57543.27	1737.8133	0.0030	-0.31	0.009	10	18	5d ⁵ 6s	80577.63(6)	138121.21(6)	pf
72	276	1738.178	57531.51	1738.1746	0.0030	-0.11	0.003	16	20	5d ⁵ 6s	76493.69(3)	134025.31(4)	pf
34	130	1741.228	57430.75	1741.2302	0.0040	0.09	-0.003	16	10	5d ⁵ 6s	88009.29(3)	145439.95(4)	pf
35	76	1745.077	57304.06	1745.0761	0.0040	-0.03	0.001	8	15	5d ⁵ 6s	75164.22(2)	132468.31(2)	pf
69	826	1745.155	57301.51	1745.1523	0.0030	-0.08	0.002	14	26	5d ⁵ 6s	71191.62(4)	128493.21(4)	pf
52	85	1747.603	57221.23	1747.6059	0.0030	0.09	-0.003	19	17	5d ⁵ 6s	87782.64(4)	145003.78(4)	pf
35	43	1748.914	57178.33	1748.9115	0.0040	-0.09	0.003	10	9	5d ⁵ 6s	81351.39(2)	138529.81(3)	pf
47	386	1751.568	57091.72	1751.5620	0.0030	-0.18	0.006	13	25	5d ⁵ 6s	66110.16(3)	123202.06(3)	pf
35	47	1752.161	57072.38	1752.1570	0.0040	-0.13	0.004	15	17	5d ⁵ 6s	87782.64(4)	144855.15(3)	pf
120	1031	1759.835	56823.51	1759.8303	0.0030	-0.15	0.004	11	23	5d ⁵ 6s	69158.48(5)	125982.14(5)	pf
158	477	1765.313	56647.19	1765.3151	0.0041	0.08	-0.003	5	18	5d ⁵ 6s	80577.63(6)	137224.74(7)	pf
41	91	1766.258	56616.87	1766.2583	0.0040	0.01	0.000	9	10	5d ⁵ 6s	88009.29(3)	144626.15(2)	pf
10	29	1773.462	56386.90	1773.4606	0.0040	-0.03	0.001	17	19	5d ⁵ 6s	79208.51(3)	135595.44(4)	pf *
8	47	1777.743	56251.08	1777.7436	0.0040	0.00	0.000	8	5	5d ⁵ 6s	65108.69(0)	121359.77(1)	pf
20	43	1782.733	56093.63	1782.7397	0.0050	0.19	-0.006	17	19	5d ⁵ 6s	79502.00(4)	135595.44(4)	pf *
40	65	1783.160	56080.23	1783.1605	0.0040	0.03	-0.001	11	20	5d ⁵ 6s	81605.68(5)	137685.88(5)	pf
34	158	1783.598	56066.44	1783.6017	0.0030	0.11	-0.004	15	23	5d ⁵ 6s	69158.48(5)	125224.81(4)	pf
35	35	1784.141	56049.37	1784.1404	0.0040	-0.03	0.001	11	12	5d ⁵ 6s	84005.15(4)	140054.55(3)	pf
17	63	1787.644	55939.54	1787.6404	0.0040	-0.12	0.004	8	6	5d ⁵ 6s	71884.65(1)	127824.31(1)	pf
24	141	1792.367	55792.14	1792.3675	0.0030	0.01	0.000	14	25	5d ⁵ 6s	66110.16(3)	121902.29(3)	pf
18	47	1795.862	55683.57	1795.8499	0.0040	-0.37	0.012	10	21	5d ⁵ 6s	74057.35(4)	129741.29(3)	pf *
12	37	1802.340	55483.44	1802.3399	0.0030	0.01	0.000	15	21	5d ⁵ 6s	69741.38(3)	125224.81(4)	pf
96	314	1813.310	55147.77	1813.3136	0.0040	0.11	-0.004	16	10	5d ⁵ 6s	88009.29(3)	143156.95(4)	pf
32	88	1819.940	54946.86	1819.9445	0.0030	0.13	-0.004	13	19	5d ⁵ 6s	68255.33(2)	123202.06(3)	pf
31	173	1825.135	54790.46	1825.1333	0.0030	-0.06	0.002	11	26	5d ⁵ 6s	71191.62(4)	125982.14(5)	pf
28	145	1825.429	54781.66	1825.4324	0.0031	0.12	-0.004	11	25	5d ⁵ 6s	66110.16(3)	120891.70(2)	pf
45	438	1831.092	54612.21	1831.0850	0.0032	-0.21	0.007	10	25	5d ⁵ 6s	66110.16(3)	120722.59(4)	pf
23	79	1835.164	54491.03	1835.1668	0.0031	0.07	-0.002	9	19	5d ⁵ 6s	68255.33(2)	122746.29(2)	pf
20	124	1837.635	54417.77	1837.6337	0.0030	-0.04	0.001	13	20	5d ⁵ 6s	63912.64(4)	118330.45(3)	pf
21	24	1845.374	54189.54	1845.3763	0.0050	0.05	-0.002	13	10	5d ⁵ 6s	88009.29(3)	142198.78(4)	pf *
46	217	1850.714	54033.20	1850.7143	0.0031	0.01	0.000	15	26	5d ⁵ 6s	71191.62(4)	125224.81(4)	pf
52	50	1851.345	54014.78	1851.3478	0.0040	0.08	-0.003	14	13	5d ⁵ 6s	90497.75(4)	144512.45(5)	pf
8	51	1852.205	53989.69	1852.2031	0.0040	-0.07	0.002	17	20	5d ⁵ 6s	81605.68(5)	135595.44(4)	pf *
44	223	1853.637	53947.98	1853.6379	0.0030	0.01	0.000	14	19	5d ⁵ 6s	74545.24(3)	128493.21(4)	pf
83	300	1854.914	53910.85	1854.9166	0.0052	0.07	-0.002	8	19	5d ⁵ 6s	79502.00(4)	133412.78(5)	pf *
197	1562	1870.812	53452.74	1870.8118	0.0041	0.01	0.000	6	23	5d ⁵ 6s	69158.48(5)	122611.21(6)	pf
26	49	1878.018	53247.64	1878.0189	0.0030	0.04	-0.001	10	20	5d ⁵ 6s	76493.69(3)	129741.29(3)	pf
8	166	1878.109	53245.06	1878.1163	0.0040	0.22	-0.008	11	20	5d ⁵ 6s	72737.30(6)	125982.14(5)	pf *
24	62	1886.618	53004.90	1886.6177	0.0031	-0.01	0.000	9	21	5d ⁵ 6s	69741.38(3)	122746.29(2)	pf
37	52	1892.674	52835.29	1892.6794	0.0040	0.14	-0.005	8	18	5d ⁵ 6s	80577.63(6)	133412.78(5)	pf

19	27	1898.999	52659.31	1899.0034	0.0050	0.11	-0.004	16	13	5d ⁵ 6s	90497.75(4)	143156.95(4)	pf *
23	24	1901.636	52586.29	1901.6403	0.0050	0.11	-0.004	15	19	5d ⁵ 6s	79502.00(4)	132088.18(4)	pf *
30	50	1901.994	52576.40	1901.9980	0.0040	0.11	-0.004	10	20	5d ⁵ 6s	76493.69(3)	129069.98(3)	pf
7	32	1905.080	52491.23	1905.0925	0.0050	0.34	-0.012	14	14	5d ⁵ 6s	91240.96(6)	143731.85(5)	pf *
17	36	1917.156	52160.60	1917.1445	0.0040	-0.31	0.012	14	21	5d ⁵ 6s	69741.38(3)	121902.29(3)	pf *
21	38	1923.095	51999.52	1923.0947	0.0030	0.00	0.000	14	20	5d ⁵ 6s	76493.69(3)	128493.21(4)	pf
29	686	1925.864	51924.75	1925.8624	0.0040	-0.04	0.002	11	21	5d ⁵ 6s	74057.35(4)	125982.14(5)	pf * 150, Ir III
11	22	1928.539	51852.74	1928.5395	0.0070	0.02	-0.001	11	9	5d ⁵ 6s	81351.39(2)	133204.10(2)	pf *
9	25	1939.332	51564.15	1939.3334	0.0040	0.04	-0.002	10	23	5d ⁵ 6s	69158.48(5)	120722.59(4)	pf *
78	1282	1955.140	51147.24	1955.1477	0.0053	0.21	-0.008	7	26	5d ⁵ 6s	71191.62(4)	122338.65(5)	pg * 500, Ir III
24	56	1961.498	50981.44	1961.5070	0.0041	0.23	-0.009	10	21	5d ⁵ 6s	69741.38(3)	120722.59(4)	pg
23	123	1971.971	50710.68	1971.9716	0.0040	0.01	-0.001	14	26	5d ⁵ 6s	71191.62(4)	121902.29(3)	pg
72	1071	1993.801	50155.45	1993.7973	0.0060	-0.10	0.004	4	14	5d ⁵ 6s	50417.92(2)	100573.47(3)	pg
11	26	1999.197	50020.09	1999.1939	0.0050	-0.07	0.003	16	12	5d ⁵ 6s	84005.15(4)	134025.31(4)	pg *
30	22	2028.373a	49284.74	2029.0273	0.0050	0.04	-0.002	14	19	5d ⁵ 6s	79208.51(3)	128493.21(4)	pg *
12	19	2043.102a	48929.49	2043.7577	0.0042	0.01	0.000	15	22	5d ⁵ 6s	76295.33(5)	125224.81(4)	pg *

Table 2Experimental and calculated energy levels (cm^{-1}) in the $5d^6$ and $5d^5 6s$ configurations of Ir IV.

E_{obs}	E_{calc}	Δ	N	N_{opt}	rwmv ₁	rwmv ₂	Unc	Composition
J = 0								
-	115713.99	-						79% 2 (² P) ³ P + 12% 2 (² S) ¹ S
-	98349.07	-						52% 2 (² S) ¹ S + 14% 2 (² P) ³ P + 10% 1 ¹ S2
-	83439.83	-						65% 1 ¹ S1 + 18% 2 (⁴ P) ³ P + 7% 1 ¹ S2
-	77659.60	-						62% 2 (⁴ P) ³ P + 15% 2 (² S) ¹ S + 10% 1 ¹ S1
65108.69	65077.01	31.68	5	4	0.12	0.03	0.17	89% 2 (⁴ D) ⁵ D + 7% 2 (⁴ P) ³ P + 1% 1 ⁵ D
-	49834.79	-						46% 1 ³ P1 + 30% 1 ¹ S2 + 13% 1 ³ P2
-	33580.63	-						72% 1 ³ P2 + 23% 1 ³ P1 + 3% 1 ¹ S1
-	24933.89	-						48% 1 ¹ S2 + 17% 1 ⁵ D + 12% 1 ¹ S1
8687.05	8702.47	-15.42	7	7	0.29	0.24	0.40	75% 1 ⁵ D + 14% 1 ³ P1 + 4% 1 ³ P2
J = 1								
-	124621.60	-						47% 2 (² D1) ³ D + 37% 2 (² P) ¹ P + 9% 2 (² D3) ³ D
-	118068.44	-						47% 2 (² P) ¹ P + 22% 2 (² P) ³ P + 15% 2 (² D1) ³ D
-	112029.29	-						65% 2 (² P) ³ P + 10% 2 (² D1) ³ D + 9% 2 (² P) ¹ P
-	96068.40	-						79% 2 (² D2) ³ D + 8% 2 (⁴ D) ³ D + 4% 2 (² D1) ³ D
-	89804.52	-						71% 2 (² S) ³ S + 11% 2 (⁴ P) ³ P + 5% 2 (² P) ³ P
-	87142.22	-						32% 2 (² D3) ³ D + 19% 2 (⁴ P) ³ P + 13% 2 (⁴ D) ³ D
-	80397.53	-						34% 2 (⁴ D) ³ D + 28% 2 (² D3) ³ D + 13% 2 (⁴ P) ³ P
-	76682.15	-						34% 2 (⁴ P) ³ P + 29% 2 (⁴ D) ³ D + 27% 2 (⁴ F) ⁵ F
71884.65	71872.27	12.38	6	5	0.09	0.07	0.14	35% 2 (⁴ F) ⁵ F + 20% 2 (⁴ D) ⁵ D + 16% 2 (² D3) ³ D
67091.85	67087.33	4.52	6	3	0.22	0.09	0.30	42% 2 (⁴ P) ⁵ P + 28% 2 (⁴ D) ⁵ D + 9% 2 (⁴ F) ⁵ F
60272.97	60254.64	18.34	9	8	0.09	0.04	0.12	46% 2 (⁴ P) ⁵ P + 44% 2 (⁴ D) ⁵ D + 3% 2 (⁴ F) ⁵ F
42519.60	42521.77	-2.17	3	2	0.48	0.43	0.60	77% 1 ³ P1 + 13% 1 ³ P2 + 5% 1 ⁵ D
34466.53	34458.35	8.18	8	6	0.29	0.31	0.40	62% 1 ³ P2 + 18% 1 ³ D + 12% 1 ³ P1
26238.28	26242.10	-3.82	17	15	0.19	0.18	0.30	72% 1 ³ D + 16% 1 ³ P2 + 7% 1 ⁵ D
8526.56	8529.39	-2.83	14	13	0.21	0.14	0.24	81% 1 ⁵ D + 9% 1 ³ P1 + 6% 1 ³ P2
J = 2								
-	128459.24	-						72% 2 (² D1) ¹ D + 14% 2 (² D3) ¹ D + 4% 2 (² P) ³ P
-	122931.30	-						62% 2 (² D1) ³ D + 11% 2 (² D3) ³ D + 7% 2 (² P) ³ P
-	110681.51	-						82% 2 (² P) ³ P + 4% 2 (² D2) ¹ D + 4% 2 (² D1) ³ D
-	105726.68	-						58% 2 (² D2) ¹ D + 9% 2 (² D1) ³ D + 8% 2 (⁴ D) ³ D
-	100939.94	-						36% 2 (² D3) ¹ D + 20% 2 (² F1) ³ F + 14% 2 (⁴ P) ³ P
-	97229.77	-						75% 2 (² D2) ³ D + 7% 2 (² F2) ³ F + 5% 2 (⁴ D) ⁵ D
91225.56	91234.69	-9.13	2	2	0.27	0.32	0.40	63% 2 (⁴ F) ³ F + 19% 2 (² D3) ³ D + 6% 2 (² F1) ³ F
-	88356.70	-						27% 2 (² F2) ³ F + 26% 2 (⁴ P) ³ P + 17% 2 (² F1) ³ F
-	84774.17	-						22% 2 (² D3) ¹ D + 17% 2 (⁴ F) ⁵ F + 14% 2 (² D3) ³ D
81351.39	81363.81	-12.42	9	7	0.09	0.07	0.14	44% 2 (² F2) ³ F + 12% 2 (² F1) ³ F + 11% 2 (⁴ P) ³ P
-	77582.17	-						43% 2 (⁴ D) ³ D + 12% 2 (² D3) ³ D + 11% 2 (⁴ P) ⁵ P
75164.22	75178.51	-14.29	15	13	0.08	0.05	0.12	60% 2 (⁴ F) ⁵ F + 7% 2 (² D3) ¹ D + 6% 2 (⁴ D) ⁵ D
70298.76	70319.04	-20.28	18	12	0.09	0.07	0.12	21% 2 (⁴ D) ⁵ D + 16% 2 (² D3) ³ D + 10% 2 (⁴ P) ⁵ P
68255.33	68230.35	24.98	19	16	0.07	0.05	0.10	34% 2 (⁴ P) ⁵ P + 14% 2 (⁴ D) ³ D + 12% 2 (⁴ D) ⁵ D
-	63577.34	-						69% 1 ¹ D1 + 12% 1 ¹ D2 + 7% 2 (² D2) ¹ D
59206.99	59203.27	3.72	21	18	0.07	0.07	0.10	41% 2 (⁴ D) ⁵ D + 30% 2 (⁴ P) ⁵ P + 10% 2 (⁶ S) ⁵ S
55627.70	55645.13	-17.43	23	21	0.06	0.05	0.10	56% 2 (⁴ G) ⁵ G + 15% 2 (⁶ S) ⁵ S + 15% 2 (² F1) ³ F
52858.41	52873.93	-15.52	7	5	0.12	0.13	0.16	38% 1 ³ P1 + 22% 1 ³ P2 + 9% 2 (⁶ S) ⁵ S
50417.92	50399.27	18.65	14	12	0.09	0.05	0.12	50% 2 (⁶ S) ⁵ S + 13% 2 (⁴ P) ³ P + 8% 1 ³ P1
46564.59	46562.03	2.56	7	6	0.25	0.21	0.30	80% 1 ³ F1 + 6% 1 ³ F2 + 5% 1 ³ D
39120.48	39143.09	-22.61	7	5	0.34	0.37	0.50	52% 1 ¹ D2 + 15% 1 ³ F2 + 13% 1 ³ P2

27670.52	27674.18	-3.66	30	25	0.14	0.15	0.20	62% 1 ³ D	+	16% 1 ³ P1	+	8% 1 ³ P2
22138.98	22109.19	29.80	25	20	0.17	0.13	0.22	69% 1 ³ F2	+	11% 1 ¹ D2	+	10% 1 ³ P2
19128.73	19128.33	0.40	25	21	0.16	0.13	0.21	36% 1 ⁵ D	+	27% 1 ³ P2	+	11% 1 ³ P1
5178.26	5175.30	2.96	30	29	0.15	0.12	0.19	61% 1 ⁵ D	+	14% 1 ³ P2	+	12% 1 ³ P1

J = 3

-	121257.61	-						69% 2 ⁽² D1) ³ D	+	10% 2 ⁽² D3) ³ D		
-	105058.13	-						57% 2 ⁽² G1) ³ G	+	23% 2 ⁽² F2) ¹ F	+	7% 2 ⁽⁴ F) ³ F
-	102258.08	-						18% 2 ⁽² D2) ³ D	+	17% 2 ⁽² G1) ³ G	+	13% 2 ⁽² F1) ¹ F
-	98423.21	-						42% 2 ⁽² D2) ³ D	+	20% 2 ⁽² F1) ¹ F	+	13% 2 ⁽² D3) ³ D
-	94125.65	-						44% 2 ⁽⁴ F) ³ F	+	10% 2 ⁽² G1) ³ G	+	7% 2 ⁽² D2) ³ D
-	90533.25	-						26% 2 ⁽² F1) ¹ F	+	26% 2 ⁽² F1) ³ F	+	13% 2 ⁽⁴ D) ³ D
88009.29	88038.60	-29.31	10	8	0.08	0.06	0.12	39% 2 ⁽² F2) ¹ F	+	18% 2 ⁽² G2) ³ G	+	13% 2 ⁽⁴ F) ³ F
85249.67	85246.43	3.24	9	5	0.10	0.05	0.15	54% 2 ⁽² F2) ³ F	+	12% 2 ⁽⁴ F) ⁵ F	+	9% 2 ⁽² D2) ³ D
82458.31	82459.68	-1.37	14	8	0.10	0.06	0.13	35% 2 ⁽² G2) ³ G	+	14% 2 ⁽⁴ F) ⁵ F	+	12% 2 ⁽⁴ G) ³ G
79208.51	79197.28	11.23	19	15	0.07	0.06	0.10	19% 2 ⁽² G2) ³ G	+	18% 2 ⁽⁴ G) ³ G	+	9% 2 ⁽⁴ F) ³ F
76493.69	76489.38	4.31	20	18	0.05	0.05	0.08	42% 2 ⁽⁴ D) ³ D	+	21% 2 ⁽² F1) ³ F	+	8% 2 ⁽² G2) ³ G
74545.24	74515.75	29.49	19	14	0.07	0.06	0.10	39% 2 ⁽⁴ F) ⁵ F	+	13% 2 ⁽⁴ D) ³ D	+	8% 2 ⁽² F2) ³ F
69741.38	69749.00	-7.62	21	16	0.06	0.05	0.09	41% 2 ⁽⁴ G) ³ G	+	23% 2 ⁽⁴ P) ⁵ P	+	11% 2 ⁽² F1) ¹ F
66110.16	66119.79	-9.64	25	19	0.06	0.06	0.09	36% 2 ⁽⁴ D) ⁵ D	+	14% 2 ⁽² D3) ³ D	+	11% 2 ⁽⁴ G) ³ G
59232.65	59244.73	-12.08	24	22	0.07	0.03	0.09	60% 2 ⁽⁴ G) ⁵ G	+	14% 2 ⁽⁴ P) ⁵ P	+	13% 2 ⁽⁴ D) ⁵ D
54464.11	54448.32	15.79	23	17	0.07	0.05	0.10	21% 2 ⁽⁴ D) ⁵ D	+	18% 2 ⁽⁴ G) ⁵ G	+	15% 2 ⁽⁴ P) ⁵ P
52259.88	52275.11	-15.23	16	11	0.11	0.13	0.16	45% 1 ³ F1	+	21% 1 ¹ F	+	8% 1 ³ D
35440.07	35425.36	14.71	29	19	0.16	0.12	0.20	62% 1 ¹ F	+	27% 1 ³ F1	+	4% 1 ³ F2
31975.85	31998.13	-22.28	10	10	0.11	0.10	0.14	88% 2 ⁽⁶ S) ⁷ S	+	10% 2 ⁽⁴ P) ⁵ P	+	1% 1 ³ D
30693.33	30715.97	-22.65	31	21	0.16	0.11	0.19	53% 1 ³ G	+	34% 1 ³ F2	+	4% 1 ¹ F
28959.73	28961.26	-1.53	43	27	0.13	0.12	0.19	70% 1 ³ D	+	15% 1 ³ F2	+	5% 1 ⁵ D
21190.03	21192.02	-1.99	39	31	0.13	0.11	0.18	35% 1 ³ F2	+	34% 1 ³ G	+	12% 1 ³ F1
5824.11	5806.94	17.17	39	29	0.14	0.10	0.17	91% 1 ⁵ D	+	4% 1 ³ F2	+	3% 1 ³ D

J = 4

-	109222.52	-						85% 2 ⁽² G1) ¹ G	+	4% 2 ⁽² F2) ³ F	+	3% 2 ⁽² G2) ³ G
-	103668.41	-						68% 2 ⁽² G1) ³ G	+	13% 2 ⁽² G2) ¹ G	+	5% 2 ⁽⁴ F) ³ F
-	96369.72	-						45% 2 ⁽⁴ F) ³ F	+	19% 2 ⁽² G1) ³ G	+	18% 2 ⁽² G2) ¹ G
90497.75	90507.86	-10.11	13	11	0.08	0.06	0.12	25% 2 ⁽² F2) ³ F	+	25% 2 ⁽² G2) ¹ G	+	15% 2 ⁽⁴ F) ³ F
87782.64	87808.04	-25.40	17	13	0.08	0.09	0.11	34% 2 ⁽² F1) ³ F	+	24% 2 ⁽² G2) ³ G	+	8% 2 ⁽² H) ³ H
84734.80	84739.47	-4.67	16	9	0.10	0.05	0.13	38% 2 ⁽² H) ³ H	+	22% 2 ⁽² F2) ³ F	+	20% 2 ⁽⁴ F) ³ F
84005.15	83978.60	26.55	12	8	0.09	0.05	0.12	26% 2 ⁽² F1) ³ F	+	22% 2 ⁽² G2) ³ G	+	13% 2 ⁽² G2) ¹ G
79502.00	79541.75	-39.75	19	12	0.09	0.06	0.12	26% 2 ⁽² G2) ³ G	+	23% 2 ⁽² H) ³ H	+	15% 2 ⁽⁴ G) ³ G
74057.35	74031.73	25.62	21	16	0.07	0.04	0.09	32% 2 ⁽⁴ F) ⁵ F	+	23% 2 ⁽⁴ G) ³ G	+	15% 2 ⁽² F2) ³ F
71191.62	71183.12	8.50	26	22	0.05	0.04	0.00	42% 2 ⁽⁴ G) ³ G	+	15% 2 ⁽² G2) ³ G	+	13% 2 ⁽² F1) ³ F
63912.64	63908.40	4.24	20	17	0.07	0.05	0.09	65% 2 ⁽⁴ D) ⁵ D	+	22% 2 ⁽⁴ G) ⁵ G	+	6% 2 ⁽⁴ F) ⁵ F
58041.98	58046.18	-4.20	22	17	0.08	0.06	0.11	68% 2 ⁽⁴ G) ⁵ G	+	12% 2 ⁽⁴ D) ⁵ D	+	10% 2 ⁽⁴ F) ⁵ F
53982.00	53959.82	22.18	10	8	0.23	0.13	0.30	65% 1 ¹ G1	+	16% 1 ¹ G2	+	7% 1 ³ F2
46354.20	46359.31	-5.11	20	11	0.18	0.17	0.24	71% 1 ³ F1	+	7% 1 ³ F2	+	7% 1 ³ G
37387.78	37368.84	18.94	23	15	0.19	0.21	0.30	59% 1 ¹ G2	+	20% 1 ³ F2	+	14% 1 ³ H
27940.65	27948.34	-7.69	36	29	0.14	0.12	0.19	59% 1 ³ G	+	17% 1 ³ F2	+	16% 1 ¹ G1
25969.65	25963.22	6.43	30	26	0.15	0.13	0.20	56% 1 ³ H	+	23% 1 ³ F2	+	10% 1 ³ F1
14546.32	14560.31	-13.99	32	29	0.14	0.11	0.18	24% 1 ³ H	+	24% 1 ³ G	+	15% 1 ¹ G2
0.00	-8.39	8.39	26	23	0.17	0.12	0.18	81% 1 ⁵ D	+	9% 1 ³ F2	+	6% 1 ³ F1

J = 5

-	102116.73	-						87% 2 ⁽² G1) ³ G	+	8% 2 ⁽² G2) ³ G	+	3% 2 ⁽² H) ¹ H
95628.69	95622.29	6.40	9	7	0.11	0.09	0.15	69% 2 ⁽² H) ¹ H	+	10% 2 ⁽² I) ³ I	+	9% 2 ⁽⁴ G) ³ G
90123.22	90101.87	21.35	13	10	0.10	0.06	0.13	46% 2 ⁽² H) ³ H	+	30% 2 ⁽² G2) ³ G	+	8% 2 ⁽⁴ F) ⁵ F
81605.68	81640.80	-35.12	20	15	0.07	0.05	0.10	33% 2 ⁽⁴ F) ⁵ F	+	28% 2 ⁽² H) ³ H	+	22% 2 ⁽² G2) ³ G

76295.33	76305.78	-10.45	22	20	0.06	0.06	0.09	53% 2 (⁴ G) ³ G + 31% 2 (² I) ³ I + 8% 2 (² G2) ³ G
73067.88	73065.90	1.98	19	18	0.07	0.06	0.10	37% 2 (⁴ F) ⁵ F + 26% 2 (² G2) ³ G + 18% 2 (² I) ³ I
69158.48	69155.00	3.48	23	22	0.06	0.05	0.09	35% 2 (² I) ³ I + 32% 2 (⁴ G) ³ G + 13% 2 (² H) ¹ H
59210.11	59220.48	-10.37	22	19	0.08	0.07	0.10	86% 2 (⁴ G) ⁵ G + 6% 2 (⁴ F) ⁵ F + 5% 2 (² H) ³ H
28652.05	28636.53	15.52	32	28	0.14	0.12	0.19	53% 1 ³ H + 46% 1 ³ G + 1% 2 (⁴ G) ³ G
18463.42	18468.02	-4.60	37	32	0.14	0.12	0.18	52% 1 ³ G + 47% 1 ³ H
J = 6								
91240.96	91227.23	13.73	14	12	0.08	0.04	0.11	61% 2 (² H) ³ H + 25% 2 (² I) ¹ I + 9% 2 (² I) ³ I
80577.63	80555.73	21.90	18	18	0.06	0.06	0.10	68% 2 (² I) ¹ I + 19% 2 (² I) ³ I + 11% 2 (² H) ³ H
72737.30	72751.08	-13.78	20	16	0.07	0.06	0.10	71% 2 (² I) ³ I + 16% 2 (² H) ³ H + 8% 2 (⁴ G) ⁵ G
58740.09	58741.58	-1.49	18	13	0.09	0.06	0.12	86% 2 (⁴ G) ⁵ G + 12% 2 (² H) ³ H + 2% 2 (² I) ³ I
33303.67	33300.27	3.40	12	11	0.25	0.15	0.30	84% 1 ¹ I + 16% 1 ³ H
19096.89	19119.97	-23.09	23	22	0.17	0.13	0.23	84% 1 ³ H + 16% 1 ¹ I
J = 7								
75494.15	75483.81	10.34	11	10	0.09	0.04	0.12	100% 2 (² I) ³ I

Table 3Experimental and calculated energy levels (cm⁻¹) in the 5d⁵6p and 5d⁴6s6p configurations of Ir IV.

E _{obs}	E _{calc}	Δ	N	N _{opt}	rwmv ₁	rwmv ₂	Unc	Composition
J = 0								
-	204592.72	-						36% 1 (² D1) ³ P + 13% 2 (³ D ⁴ D) ⁵ D + 8% 1 (² P) ³ P
-	203312.99	-						28% 2 (³ F2 ⁴ F) ⁵ D + 14% 1 (² D1) ³ P + 12% 2 (³ F1 ⁴ F) ⁵ D
-	195852.09	-						29% 2 (³ D ⁴ D) ⁵ D + 14% 2 (⁵ D ⁴ D) ⁵ D + 9% 2 (³ P2 ² P) ³ P
-	195101.06	-						38% 2 (⁵ D ⁶ D) ⁵ D + 19% 2 (⁵ D ⁴ D) ³ P + 15% 2 (⁵ D ⁴ D) ⁵ D
-	183069.96	-						59% 1 (² P) ¹ S + 11% 1 (² P) ³ P + 9% 1 (² D1) ³ P
-	180255.66	-						28% 2 (³ P2 ⁴ P) ⁵ D + 20% 2 (⁵ D ⁴ D) ³ P + 14% 2 (³ P1 ⁴ P) ⁵ D
-	174187.93	-						52% 1 (² P) ³ P + 16% 1 (² P) ¹ S + 8% 1 (² D1) ³ P
-	173197.99	-						66% 1 (² D2) ³ P + 6% 1 (² D1) ³ P + 4% 1 (² P) ¹ S
-	170735.37	-						17% 2 (⁵ D ⁴ D) ³ P + 16% 2 (⁵ D ⁶ D) ⁷ F + 8% 2 (³ P2 ² P) ³ P
-	164573.60	-						51% 1 (² D3) ³ P + 19% 1 (⁴ F) ⁵ D + 14% 1 (⁴ P) ³ P
-	155133.42	-						50% 1 (⁴ F) ⁵ D + 17% 1 (⁴ P) ³ P + 11% 2 (⁵ D ⁶ D) ⁷ F
-	153150.27	-						57% 2 (⁵ D ⁶ D) ⁷ F + 10% 2 (³ P1 ⁴ P) ⁵ D + 7% 1 (⁴ F) ⁵ D
-	150706.04	-						31% 1 (⁴ D) ³ P + 27% 1 (² S) ³ P + 11% 1 (⁴ D) ⁵ D
-	146461.38	-						23% 1 (² D3) ³ P + 22% 1 (² S) ³ P + 19% 1 (⁴ D) ⁵ D
-	142507.44	-						28% 1 (4D) ³ P + 22% 1 (⁴ P) ³ P + 20% 1 (⁴ P) ⁵ D
-	135147.14	-						40% 1 (4D) ⁵ D + 24% 1 (⁴ P) ³ P + 15% 1 (⁴ D) ³ P
-	122586.06	-						57% 1 (4P) ⁵ D + 22% 1 (⁴ D) ⁵ D + 8% 1 (² S) ³ P
J = 1								
-	207252.96	-						17% 1 (² D1) ¹ P + 9% 1 (² P) ¹ P + 7% 2 (³ P2 ² P) ³ D
-	206619.77	-						20% 1 (² D1) ¹ P + 9% 1 (² P) ¹ P + 8% 2 (³ G ⁴ G) ⁵ F
-	205826.71	-						13% 2 (⁵ D ⁴ D) ⁵ P + 10% 2 (⁵ D ⁴ D) ³ D + 8% 2 (³ D ⁴ D) ⁵ P
-	204605.45	-						27% 2 (³ F2 ⁴ F) ⁵ D + 13% 2 (³ F1 ⁴ F) ⁵ D + 8% 2 (³ F2 ⁴ F) ⁵ F
-	204449.85	-						20% 2 (³ D ⁴ D) ⁵ F + 7% 2 (³ P2 ² P) ³ D + 7% 2 (³ D ² D) ³ D
-	202271.81	-						17% 2 (³ D ⁴ D) ⁵ D + 14% 2 (⁵ D ⁶ D) ⁵ F + 13% 2 (³ G ⁴ G) ⁵ F
-	202069.00	-						18% 2 (³ G ⁴ G) ⁵ F + 15% 2 (⁵ D ⁴ D) ⁵ F + 11% 2 (⁵ D ⁶ D) ⁵ F
-	200766.21	-						46% 1 (² D1) ³ P + 9% 1 (² D1) ¹ P + 9% 1 (² D3) ³ P
-	197786.43	-						21% 2 (³ D ⁴ D) ⁵ F + 15% 2 (³ F2 ⁴ F) ⁵ F + 14% 2 (³ D ⁴ D) ⁵ D
-	195418.81	-						23% 2 (⁵ D ⁴ D) ³ P + 13% 2 (⁵ D ⁶ D) ⁵ D + 8% 2 (³ F2 ⁴ F) ⁵ F
-	192858.84	-						22% 1 (² P) ³ S + 17% 1 (² P) ³ P + 6% 2 (³ P2 ⁴ P) ⁵ P
-	192505.74	-						13% 1 (² P) ³ S + 12% 2 (³ P2 ⁴ P) ⁵ P + 7% 1 (² P) ³ P
-	190739.70	-						16% 2 (⁵ D ⁶ D) ⁵ P + 10% 2 (³ P2 ⁴ P) ⁵ P + 7% 2 (³ F2 ⁴ F) ⁵ F
-	190224.20	-						27% 1 (² D1) ³ D + 18% 1 (² P) ¹ P + 16% 1 (² P) ³ S
-	189016.86	-						30% 1 (² P) ¹ P + 14% 1 (² D1) ¹ P + 7% 1 (² D2) ¹ P
-	188380.44	-						11% 1 (² D1) ³ D + 11% 1 (² P) ³ S + 10% 2 (³ F2 ⁴ F) ⁵ F
-	184839.62	-						14% 2 (⁵ D ⁶ D) ⁵ P + 14% 2 (⁵ D ⁴ D) ⁵ D + 11% 2 (⁵ D ⁶ D) ⁷ D
-	181940.10	-						30% 1 (² P) ³ D + 13% 1 (² D2) ¹ P + 13% 1 (² F2) ³ D
-	181052.13	-						20% 2 (³ P2 ⁴ P) ⁵ D + 13% 2 (⁵ D ⁶ D) ⁷ F + 12% 2 (³ P1 ⁴ P) ⁵ D
-	178869.99	-						24% 2 (⁵ D ⁶ D) ⁷ D + 19% 2 (⁵ D ⁴ D) ³ P + 8% 2 (⁵ D ⁴ D) ⁵ D
-	177466.43	-						20% 1 (² F1) ³ D + 18% 1 (² D3) ¹ P + 9% 1 (² P) ³ D
-	176378.82	-						21% 1 (² D2) ³ P + 13% 1 (² P) ³ D + 11% 1 (² D2) ¹ P
-	174151.32	-						23% 2 (⁵ D ⁴ D) ⁵ F + 9% 2 (⁵ D ⁶ D) ⁵ F + 6% 1 (² D2) ³ D
-	173298.45	-						25% 1 (² D2) ³ D + 25% 1 (² D2) ³ P + 6% 1 (² D2) ¹ P
-	170988.34	-						21% 1 (² P) ³ P + 14% 1 (² P) ³ D + 12% 1 (² P) ³ S
-	167018.72	-						33% 1 (² S) ¹ P + 15% 1 (² P) ³ P + 7% 1 (⁴ F) ³ D
-	163869.83	-						22% 1 (² D3) ³ P + 14% 1 (² D3) ³ D + 12% 1 (⁴ F) ⁵ D
163116.70	163105.63	11.07	1	1	0.83	0.83	0.90	38% 1 (² F2) ³ D + 9% 1 (² S) ³ P + 9% 1 (⁴ P) ³ S
161684.04	161699.11	-15.07	5	4	0.27	0.23	0.30	27% 1 (² F1) ³ D + 9% 1 (⁴ F) ³ D + 9% 1 (⁴ P) ³ S
-	160987.60	-						46% 2 (⁵ D ⁶ D) ⁷ D + 16% 2 (⁵ D ⁶ D) ⁵ P + 8% 2 (³ P1 ⁴ P) ⁵ P

-	159538.61	-							35% 1 (⁴ F) ³ D + 14% 1 (² F2) ³ D + 11% 1 (⁴ P) ³ P
-	157688.41	-							30% 1 (² D2) ³ D + 18% 1 (⁴ F) ⁵ D + 9% 1 (² D2) ¹ P
-	155976.10	-							70% 2 (⁵ D ⁶ D) ⁷ F + 9% 2 (³ P1 ⁴ P) ⁵ D + 5% 2 (³ P2 ⁴ P) ⁵ D
-	154222.32	-							20% 1 (⁴ F) ⁵ D + 16% 1 (⁴ P) ³ D + 11% 1 (⁴ D) ³ D
153731.32	153674.47	56.85	2	2	0.31	0.32	0.30		18% 1 (² S) ³ P + 11% 1 (⁴ F) ⁵ D + 7% 1 (⁴ P) ³ P
151872.11	151837.34	34.77	3	3	0.51	0.63	0.70		12% 1 (⁴ F) ⁵ F + 12% 1 (⁴ P) ³ P + 10% 1 (⁴ D) ³ D
150748.58	150774.66	-26.08	2	2	0.30	0.12	0.30		13% 1 (² S) ³ P + 12% 1 (⁴ P) ⁵ P + 11% 1 (⁴ D) ⁵ P
148637.14	148648.53	-11.39	4	4	0.28	0.18	0.30		26% 1 (⁴ D) ⁵ D + 11% 1 (² D3) ³ D + 9% 1 (⁴ P) ⁵ D
-	146450.96	-							25% 1 (² D3) ³ P + 9% 1 (⁴ P) ³ P + 9% 1 (⁴ G) ⁵ F
144347.40	144355.88	-8.48	7	6	0.20	0.16	0.22		43% 1 (⁴ P) ³ D + 9% 1 (⁴ D) ⁵ P + 8% 1 (⁴ F) ³ D
-	143250.63	-							22% 1 (⁴ D) ³ P + 17% 1 (⁴ G) ⁵ F + 8% 1 (² S) ³ P
140678.86	140707.31	-28.45	8	7	0.16	0.11	0.19		41% 1 (⁴ D) ⁵ P + 11% 1 (⁴ P) ³ P + 10% 1 (⁴ P) ⁵ P
137142.67	137151.46	-8.79	8	5	0.17	0.15	0.21		19% 1 (⁴ D) ⁵ D + 14% 1 (⁴ P) ⁵ P + 9% 1 (² D3) ³ D
135950.44	135929.00	21.44	10	8	0.13	0.10	0.17		18% 1 (⁴ P) ⁵ P + 18% 1 (⁴ D) ³ D + 15% 1 (⁴ F) ⁵ F
135484.56	135446.79	37.77	6	6	0.18	0.08	0.20		35% 1 (⁴ G) ⁵ F + 20% 1 (² F1) ³ D + 9% 1 (⁴ P) ³ S
-	131139.72	-							40% 1 (⁴ D) ⁵ F + 27% 1 (⁴ P) ⁵ D + 10% 1 (⁴ F) ⁵ F
127824.31	127783.62	40.69	8	8	0.11	0.08	0.14		15% 1 (⁴ D) ⁵ F + 11% 1 (⁴ D) ⁵ D + 11% 1 (⁴ D) ³ P
121359.77	121362.28	-2.51	8	8	0.10	0.08	0.14		25% 1 (⁴ P) ⁵ D + 19% 1 (⁶ S) ⁵ P + 18% 1 (⁴ D) ⁵ F
118786.27	118810.01	-23.74	7	7	0.10	0.06	0.13		50% 1 (⁶ S) ⁵ P + 14% 1 (⁴ P) ⁵ P + 10% 1 (⁴ P) ⁵ D

J = 2

-	201282.55	-							18% 1 (² D1) ¹ D + 9% 2 (³ H ⁴ H) ⁵ G + 7% 1 (² D1) ³ P
-	200725.29	-							16% 1 (² D1) ¹ D + 9% 2 (³ H ⁴ H) ⁵ G + 9% 1 (² D1) ³ P
-	199762.07	-							15% 1 (² D1) ³ D + 10% 2 (⁵ D ⁴ D) ³ F + 5% 1 (² D1) ³ F
-	199516.60	-							23% 1 (² D1) ³ D + 7% 2 (⁵ D ⁴ D) ³ F + 6% 2 (³ P2 ⁴ P) ⁵ S
-	198751.06	-							9% 2 (³ P2 ⁴ P) ⁵ P + 8% 2 (⁵ D ⁴ D) ³ F + 6% 2 (⁵ D ⁶ D) ⁵ F
-	198523.96	-							17% 2 (³ H ⁴ H) ⁵ G + 8% 2 (⁵ D ⁴ D) ³ F + 7% 2 (⁵ D ⁶ D) ⁵ D
-	197253.90	-							21% 2 (⁵ D ⁴ D) ⁵ F + 9% 2 (³ P2 ⁴ P) ⁵ P + 5% 2 (⁵ D ⁴ D) ⁵ P
-	194950.72	-							13% 2 (⁵ D ⁴ D) ³ P + 13% 2 (³ G ⁴ G) ⁵ F + 13% 2 (³ F2 ⁴ F) ⁵ F
-	193200.37	-							35% 1 (² P) ¹ D + 11% 1 (² D1) ³ P + 9% 1 (² P) ³ P
-	191513.39	-							13% 2 (³ F2 ⁴ F) ⁵ G + 11% 2 (³ G ⁴ G) ⁵ G + 6% 1 (² P) ³ P
-	191133.49	-							17% 1 (² P) ³ P + 9% 2 (³ G ⁴ G) ⁵ G + 8% 1 (² D1) ¹ D
-	190834.77	-							9% 1 (² P) ³ D + 7% 1 (² D1) ³ F + 7% 2 (³ G ⁴ G) ⁵ G
-	189646.22	-							10% 2 (⁵ D ⁴ D) ⁵ D + 6% 2 (³ F2 ⁴ F) ⁵ G + 6% 2 (³ F2 ⁴ F) ⁵ F
-	189157.65	-							21% 1 (² P) ³ D + 13% 1 (² G1) ³ F + 9% 1 (² D1) ¹ D
-	187856.15	-							24% 2 (³ P2 ⁴ P) ⁵ D + 9% 2 (⁵ D ⁴ D) ⁵ F + 7% 2 (⁵ D ⁴ D) ⁵ F
-	185947.45	-							10% 2 (⁵ D ⁶ D) ⁵ D + 9% 2 (⁵ D ⁴ D) ⁵ D + 7% 2 (⁵ D ⁴ D) ³ F
-	184662.88	-							15% 2 (³ F2 ⁴ F) ⁵ G + 10% 2 (⁵ D ⁶ D) ⁵ P + 9% 2 (⁵ D ⁴ D) ⁵ P
-	183254.06	-							10% 2 (⁵ D ⁴ D) ⁵ P + 9% 2 (³ G ⁴ G) ⁵ G + 8% 2 (⁵ D ⁶ D) ⁵ P
-	181256.55	-							19% 1 (² G1) ³ F + 17% 1 (² D1) ³ P + 7% 1 (² P) ¹ D
-	180315.97	-							17% 1 (² D1) ³ F + 16% 1 (² D2) ¹ D + 14% 1 (² G1) ³ F
-	179521.28	-							15% 1 (² P) ³ P + 15% 1 (² D2) ¹ D + 11% 1 (² D2) ³ P
-	177948.38	-							27% 2 (⁵ D ⁴ D) ⁵ F + 13% 2 (⁵ D ⁶ D) ⁵ F + 8% 2 (³ F2 ⁴ F) ⁵ G
-	176492.42	-							23% 1 (² D2) ³ P + 18% 1 (² D2) ³ D + 5% 1 (² D3) ¹ D
-	173587.47	-							19% 1 (² D2) ¹ D + 11% 1 (² D1) ³ F + 7% 1 (² D2) ³ D
-	173035.82	-							61% 2 (⁵ D ⁶ D) ⁷ P + 14% 2 (⁵ D ⁶ D) ⁷ D + 5% 2 (³ P1 ⁴ P) ⁵ P
-	171571.23	-							13% 1 (² P) ³ D + 11% 1 (² P) ¹ D + 11% 1 (² P) ³ P
-	168991.08	-							29% 1 (² S) ³ P + 10% 1 (² P) ³ D + 7% 1 (² F1) ¹ D
-	167497.30	-							14% 1 (² F2) ¹ D + 12% 1 (⁴ F) ³ F + 11% 1 (² D2) ³ D
-	166017.19	-							50% 2 (⁵ D ⁶ D) ⁷ D + 17% 2 (⁵ D ⁶ D) ⁷ P + 14% 2 (⁵ D ⁶ D) ⁵ P
165317.00	165321.62	-4.62	7	5	0.40	0.22	0.40		15% 1 (² G2) ³ F + 12% 1 (² F1) ³ D + 12% 1 (⁴ F) ³ F
164909.90	164909.18	0.72	7	5	0.28	0.29	0.40		18% 1 (⁴ F) ³ F + 14% 1 (² F1) ¹ D + 12% 1 (² S) ³ P
-	163391.40	-							15% 1 (² F1) ³ D + 10% 1 (² D2) ³ D + 9% 1 (⁴ F) ³ D
162134.97	162154.03	-19.06	5	4	0.43	0.46	0.50		24% 1 (² F2) ³ D + 9% 1 (⁴ F) ³ F + 7% 1 (² D2) ¹ D
161662.48	161722.06	-59.58	1	1	0.88	0.88	0.90		25% 1 (⁴ F) ⁵ D + 7% 1 (² D2) ³ P + 7% 1 (⁴ F) ⁵ F
161062.97	161019.63	43.34	9	8	0.29	0.23	0.40		12% 1 (² F1) ¹ D + 12% 1 (² G2) ³ F + 10% 1 (² F2) ³ D

-	159602.82	-							80% 2 ($^5D^6D$) 7F + 5% 2 ($^3P1^4P$) 5D + 3% 2 ($^5D^6D$) 5D
159160.81	159154.12	6.69	8	8	0.24	0.19	0.30	16% 1 (3F2) 3F + 13% 1 (2D2) 3D + 11% 1 (2D2) 3P	
157099.59	157106.39	-6.80	5	4	0.38	0.22	0.40	17% 1 (2D2) 3F + 7% 1 (2F1) 1D + 7% 1 (4D) 3F	
156429.22	156404.28	24.94	11	9	0.18	0.17	0.30	10% 1 (3F2) 3D + 10% 1 (4F) 3D + 7% 1 (2F1) 3F	
154852.06	154849.56	2.50	12	3	0.44	0.78	0.60	19% 1 (4D) 3F + 10% 1 (4P) 3P + 8% 1 (2F2) 1D	
153193.13	153201.83	-8.71	9	7	0.26	0.23	0.30	26% 1 (2D3) 3D + 10% 1 (4F) 5F + 9% 1 (2D1) 3D	
151248.97	151291.58	-42.61	2	2	0.32	0.04	0.30	19% 1 (4P) 3D + 13% 1 (4F) 5F + 12% 1 (4D) 5P	
149264.53	149253.17	11.37	8	7	0.23	0.24	0.30	24% 1 (4D) 3P + 13% 1 (2D3) 3F + 6% 1 (2F2) 3F	
148685.19	148651.71	33.48	6	4	0.30	0.36	0.40	10% 1 (4P) 3P + 8% 1 (4F) 5D + 6% 1 (2F2) 3D	
148135.70	148184.16	-48.46	8	7	0.17	0.13	0.20	11% 1 (4D) 3F + 9% 1 (4D) 5D + 9% 1 (4P) 5P	
146330.41	146329.71	0.70	6	6	0.20	0.28	0.30	20% 1 (2D3) 3F + 12% 1 (4G) 3F + 10% 1 (4F) 5G	
145359.05	145423.97	-64.92	9	6	0.14	0.14	0.17	19% 1 (4G) 3F + 14% 1 (4F) 5G + 10% 1 (2F1) 3F	
144626.15	144640.47	-14.32	9	6	0.13	0.05	0.16	13% 1 (4D) 5P + 8% 1 (4P) 5S + 6% 1 (4D) 3D	
142865.10	142858.21	6.89	13	10	0.17	0.14	0.20	18% 1 (4F) 5F + 13% 1 (4F) 5D + 12% 1 (4D) 3P	
141466.77	141461.79	4.98	5	4	0.23	0.20	0.30	21% 1 (4P) 5P + 12% 1 (4P) 5D + 12% 1 (4D) 3F	
140473.23	140507.45	-34.22	10	7	0.16	0.13	0.20	31% 1 (4G) 5F + 10% 1 (4P) 5S + 7% 1 (4D) 3D	
138612.56	138585.42	27.14	8	8	0.12	0.17	0.18	22% 1 (4D) 5P + 13% 1 (4P) 3D + 8% 1 (4P) 5P	
137229.06	137194.74	34.32	12	11	0.10	0.10	0.14	19% 1 (4G) 5G + 15% 1 (4D) 5D + 11% 1 (2D3) 3F	
134707.64	134715.88	-8.24	13	12	0.13	0.12	0.17	16% 1 (4G) 5F + 9% 1 (4P) 5S + 9% 1 (4F) 5G	
133204.10	133215.89	-11.79	11	8	0.15	0.10	0.18	15% 1 (4F) 5G + 13% 1 (4P) 5D + 13% 1 (4G) 3F	
132468.31	132506.83	-38.52	8	5	0.10	0.04	0.14	16% 1 (4D) 5F + 9% 1 (4D) 3D + 8% 1 (2D3) 3F	
130875.24	130921.74	-46.50	10	7	0.10	0.12	0.15	10% 1 (4P) 5D + 8% 1 (4F) 5F + 6% 1 (4D) 5F	
122746.29	122756.59	-10.30	9	9	0.08	0.05	0.11	24% 1 (4G) 5G + 12% 1 (4P) 5S + 8% 1 (4G) 3F	
120891.70	120909.55	-17.85	11	10	0.09	0.06	0.11	30% 1 (4D) 5F + 18% 1 (4P) 5D + 10% 1 (6S) 5P	
118527.90	118542.40	-14.50	9	8	0.11	0.08	0.15	49% 1 (6S) 5P + 10% 1 (6S) 7P + 7% 1 (4D) 5P	
113807.41	113834.37	-26.96	8	8	0.08	0.09	0.11	14% 1 (4G) 5G + 12% 1 (2F1) 3F + 10% 1 (4G) 3F	
98528.30	98467.84	60.46	2	2	0.25	0.17	0.30	73% 1 (6S) 7P + 10% 1 (6S) 5P + 7% 1 (4P) 5P	

J = 3

-	202593.25	-							39% 1 (2D1) 1F + 15% 1 (2D1) 3F + 7% 1 (2P) 3D
-	202234.15	-							12% 2 ($^3D^4D$) 5D + 8% 1 (2D1) 3D + 6% 2 ($^3G^2G$) 1F
-	201893.50	-							39% 1 (2D1) 3D + 7% 1 (2D1) 3F + 6% 1 (2D3) 3D
-	200274.59	-							12% 2 ($^3H^4H$) 5H + 11% 2 ($^3G^2G$) 1F + 6% 2 ($^3G^2G$) 3G
-	199331.16	-							16% 2 ($^3H^4H$) 5G + 10% 2 ($^3D^4D$) 3F + 9% 2 ($^3D^6D$) 5D
-	198841.27	-							11% 2 ($^3P2^4P$) 5D + 8% 2 ($^3P1^4P$) 5D + 6% 2 ($^3D^4D$) 5P
-	198013.43	-							18% 2 ($^3D^4D$) 5P + 12% 2 ($^3G^4G$) 5F + 9% 2 ($^3P2^4P$) 5D
-	196381.30	-							21% 2 ($^3G^4G$) 5G + 13% 2 ($^3F2^4F$) 5F + 7% 2 ($^3D^4D$) 5D
-	195672.19	-							13% 2 ($^3F2^4F$) 5F + 13% 2 ($^3D^4D$) 3F + 8% 2 ($^3F2^4F$) 5G
-	193128.85	-							13% 2 ($^3D^6D$) 5D + 11% 2 ($^3D^6D$) 5F + 10% 2 ($^3D^4D$) 5D
-	192074.17	-							26% 2 ($^3F2^4F$) 5G + 7% 2 ($^3D^4D$) 5D + 6% 2 ($^3D^4D$) 5P
-	189650.98	-							12% 2 ($^3D^4D$) 5F + 10% 1 (2D1) 3F + 6% 2 ($^3D^6D$) 5D
-	189186.65	-							26% 2 ($^3G^4G$) 5H + 6% 2 ($^3D^4D$) 5P + 6% 2 ($^3G^4G$) 5G
-	188380.44	-							12% 1 (2D1) 3F + 8% 1 (2D1) 1F + 8% 1 (2D1) 3D
-	187284.55	-							51% 1 (2P) 3D + 5% 2 ($^3H^4H$) 5H + 5% 1 (2G1) 1F
-	186646.75	-							10% 2 ($^3D^4D$) 5P + 10% 1 (2P) 3D + 9% 2 ($^3D^6D$) 5P
-	185463.53	-							14% 2 ($^3D^4D$) 5F + 13% 2 ($^3G^4G$) 5H + 8% 2 ($^3D^6D$) 5F
-	184548.35	-							24% 1 (2G1) 1F + 19% 1 (2G1) 3G + 8% 1 (2F2) 1F
-	182952.44	-							22% 2 ($^3H^4H$) 5H + 13% 2 ($^3D^4D$) 5F + 8% 2 ($^3D^6D$) 5F
179941.78	179931.46	10.32	3	3	0.51	0.66	0.70	31% 1 (2G1) 3F + 21% 1 (2G1) 1F + 12% 1 (2D2) 1F	
-	178516.88	-							25% 2 ($^3G^4G$) 5H + 15% 2 ($^3H^4H$) 5H + 10% 2 ($^3D^6D$) 7D
-	177587.44	-							13% 1 (2D2) 3D + 11% 1 (2G1) 3G + 10% 1 (2F2) 3F
-	176850.64	-							34% 2 ($^3D^6D$) 7D + 31% 2 ($^3D^6D$) 7P + 6% 2 ($^3D^6D$) 7F
-	175042.27	-							17% 1 (2D2) 1F + 15% 1 (2G2) 1F + 6% 1 (2F1) 1F
-	173502.98	-							22% 1 (2D2) 3D + 13% 1 (2D2) 3F + 9% 1 (4F) 3D
-	172815.57	-							26% 1 (2D2) 3F + 14% 1 (2G2) 3F + 11% 1 (2H) 3G
169683.24	169641.02	42.22	9	6	0.26	0.12	0.30	12% 1 (2F1) 1F + 11% 1 (2F2) 1F + 8% 1 (2D3) 1F	

-	169118.70	-							46% 2 (⁵ D ⁶ D) ⁷ P + 28% 2 (⁵ D ⁶ D) ⁷ D + 7% 2 (⁵ D ⁶ D) ⁵ P
-	168796.00	-							26% 1 (² G1) ³ G + 9% 1 (² G1) ¹ F + 8% 1 (⁴ F) ³ F
-	167584.91	-							15% 1 (² F2) ¹ F + 14% 1 (² F1) ¹ F + 12% 1 (² G1) ³ F
164689.65	164728.49	-38.84	5	5	0.22	0.31	0.30		27% 1 (⁴ F) ³ G + 9% 1 (² D3) ³ D + 8% 1 (² F1) ³ D
163735.00	163748.28	-13.28	8	3	0.34	0.30	0.40		16% 2 (⁵ D ⁶ D) ⁷ F + 14% 1 (² F2) ¹ F + 10% 1 (² F2) ³ F
-	163529.91	-							53% 2 (⁵ D ⁶ D) ⁷ F + 5% 1 (² F2) ¹ F + 4% 2 (⁵ D ⁶ D) ⁷ D
163205.61	163185.15	20.46	8	7	0.22	0.16	0.30		34% 1 (² H) ³ G + 12% 1 (⁴ F) ³ D + 8% 2 (⁵ D ⁶ D) ⁷ F
162374.44	162374.33	0.11	8	5	0.23	0.30	0.30		20% 1 (² G2) ³ G + 13% 1 (² F2) ³ D + 12% 1 (² G2) ¹ F
161368.69	161341.03	27.66	6	2	0.63	0.69	0.70		16% 1 (² D3) ³ F + 14% 1 (² D2) ³ D + 14% 1 (² F2) ³ G
159629.42	159664.68	-35.26	6	3	0.33	0.54	0.40		19% 1 (² F1) ³ F + 11% 1 (² D2) ³ F + 8% 1 (⁴ P) ³ D
159189.79	159165.29	24.50	2	2	0.27	0.09	0.30		20% 1 (² F1) ³ G + 15% 1 (⁴ F) ⁵ F + 9% 1 (² D3) ³ F
-	156974.70	-							27% 1 (² G2) ³ F + 10% 1 (⁴ F) ³ D + 8% 1 (² H) ³ G
156757.56	156711.63	45.93	11	9	0.15	0.10	0.17		26% 1 (⁴ F) ³ F + 13% 1 (² G2) ¹ F + 10% 1 (² F2) ¹ F
155085.02	155011.24	73.78	13	7	0.22	0.10	0.23		16% 1 (⁴ F) ³ G + 10% 1 (² F1) ³ D + 7% 1 (² F2) ¹ F
154152.55	154184.96	-32.41	13	9	0.18	0.13	0.20		12% 1 (² D3) ³ D + 10% 1 (⁴ P) ⁵ P + 8% 1 (² F1) ³ D
152373.63	152376.24	-2.61	13	9	0.19	0.18	0.23		19% 1 (² F2) ³ F + 11% 1 (⁴ P) ³ D + 10% 1 (⁴ F) ⁵ D
151395.26	151433.97	-38.71	11	5	0.14	0.09	0.16		30% 1 (⁴ F) ⁵ F + 16% 1 (² F1) ³ D + 5% 1 (² F2) ³ D
150235.09	150263.61	-28.52	11	8	0.17	0.21	0.24		14% 1 (⁴ G) ³ G + 14% 1 (⁴ D) ³ D + 7% 1 (² D3) ³ F
148358.78	148333.66	25.12	8	7	0.19	0.13	0.20		10% 1 (² F2) ³ D + 8% 1 (⁴ F) ⁵ G + 8% 1 (⁴ D) ³ F
147341.74	147269.89	71.85	10	8	0.17	0.10	0.20		15% 1 (² G2) ³ G + 13% 1 (⁴ P) ⁵ P + 12% 1 (⁴ D) ⁵ D
146186.18	146243.51	-57.33	17	12	0.14	0.16	0.22		15% 1 (² G2) ³ G + 11% 1 (⁴ F) ⁵ G + 9% 1 (⁴ G) ³ G
145536.69	145547.22	-10.53	7	7	0.16	0.23	0.30		12% 1 (⁴ P) ⁵ D + 12% 1 (² F2) ³ G + 9% 1 (⁴ D) ⁵ F
144855.15	144824.43	30.72	15	9	0.11	0.11	0.14		19% 1 (⁴ G) ³ F + 12% 1 (⁴ D) ³ D + 8% 1 (⁴ G) ⁵ F
141214.36	141218.96	-4.60	14	13	0.14	0.14	0.20		20% 1 (⁴ G) ⁵ F + 19% 1 (⁴ G) ³ G + 10% 1 (² F1) ¹ F
140526.92	140527.31	-0.39	15	12	0.12	0.13	0.17		16% 1 (⁴ D) ³ F + 16% 1 (⁴ F) ⁵ G + 9% 1 (² F1) ³ F
140054.55	140017.45	37.10	11	8	0.09	0.07	0.12		9% 1 (⁴ G) ³ F + 9% 1 (² F2) ³ G + 8% 1 (⁴ G) ⁵ G
138529.81	138518.02	11.79	10	9	0.12	0.12	0.16		19% 1 (⁴ P) ⁵ D + 14% 1 (⁴ D) ⁵ F + 13% 1 (⁴ D) ⁵ D
137700.64	137686.28	14.36	12	10	0.13	0.11	0.17		17% 1 (⁴ G) ³ F + 11% 1 (⁴ G) ⁵ G + 8% 1 (⁴ F) ⁵ G
135420.03	135410.98	9.05	15	10	0.11	0.11	0.14		17% 1 (⁴ D) ⁵ D + 9% 1 (² F1) ³ D + 8% 1 (⁴ G) ⁵ H
133037.83	133034.39	3.44	14	13	0.09	0.05	0.12		20% 1 (⁴ G) ⁵ F + 9% 1 (⁴ D) ⁵ P + 8% 1 (⁴ F) ⁵ F
129741.29	129737.88	3.41	10	8	0.08	0.08	0.09		9% 1 (⁴ D) ⁵ F + 9% 1 (⁴ G) ⁵ H + 8% 1 (² D3) ³ D
129069.98	129131.00	-61.02	10	10	0.09	0.08	0.11		30% 1 (⁴ D) ⁵ P + 15% 1 (⁴ G) ⁵ G + 11% 1 (⁴ D) ³ D
123202.06	123208.94	-6.88	13	11	0.08	0.06	0.10		31% 1 (⁴ G) ⁵ H + 21% 1 (⁴ D) ⁵ F + 9% 1 (⁴ D) ⁵ D
121902.29	121893.49	8.80	14	11	0.09	0.09	0.10		25% 1 (⁴ G) ⁵ G + 21% 1 (⁶ S) ⁵ P + 16% 1 (⁴ G) ³ F
118330.45	118327.97	2.48	13	12	0.07	0.06	0.10		29% 1 (⁶ S) ⁵ P + 15% 1 (⁶ S) ⁷ P + 10% 1 (⁴ G) ⁵ G
115636.19	115643.34	-7.15	8	7	0.10	0.09	0.13		19% 1 (⁶ S) ⁷ P + 15% 1 (⁴ G) ⁵ H + 11% 1 (² F1) ³ G
100573.47	100535.79	37.68	4	4	0.14	0.15	0.17		53% 1 (⁶ S) ⁷ P + 24% 1 (⁶ S) ⁵ P + 6% 1 (⁴ P) ⁵ P

J = 4

-	198291.74	-							55% 1 (² D1) ³ F + 10% 1 (² D3) ³ F + 4% 1 (² G1) ³ F
-	197472.34	-							11% 2 (³ F ² ⁴ F) ⁵ F + 10% 1 (² D1) ³ F + 9% 2 (³ F ² ⁴ F) ⁵ G
-	197186.72	-							24% 2 (³ G ⁴ G) ⁵ G + 12% 2 (³ G ⁴ G) ⁵ H + 8% 2 (³ G ⁴ G) ⁵ F
-	195583.15	-							9% 2 (³ G ² G) ³ H + 8% 2 (³ G ⁴ G) ⁵ H + 7% 2 (⁵ D ⁶ D) ⁵ D
-	195317.45	-							14% 2 (³ F ² ⁴ F) ⁵ G + 8% 2 (³ D ⁴ D) ⁵ F + 8% 2 (³ D ⁴ D) ⁵ D
-	191935.47	-							16% 2 (⁵ D ⁶ D) ⁵ F + 14% 2 (³ H ⁴ H) ⁵ H + 10% 2 (³ G ⁴ G) ⁵ F
-	191481.18	-							14% 2 (³ H ⁴ H) ⁵ H + 11% 2 (³ F ² ⁴ F) ⁵ D + 6% 2 (³ D ⁴ D) ³ F
-	187844.45	-							20% 2 (³ G ⁴ G) ⁵ H + 7% 2 (⁵ D ⁴ D) ³ F + 6% 2 (⁵ D ⁶ D) ⁷ P
-	185979.06	-							33% 2 (³ H ⁴ H) ⁵ I + 9% 2 (⁵ D ⁶ D) ⁷ D + 8% 2 (³ F ² ⁴ F) ⁵ G
-	184419.33	-							19% 2 (³ H ⁴ H) ⁵ H + 7% 2 (³ G ⁴ G) ⁵ F + 7% 2 (³ H ⁴ H) ⁵ G
-	182444.86	-							58% 1 (² G1) ¹ G + 6% 1 (² G1) ³ H + 5% 1 (² G1) ³ F
-	180629.97	-							53% 2 (⁵ D ⁶ D) ⁷ D + 14% 2 (⁵ D ⁶ D) ⁷ F + 9% 2 (⁵ D ⁶ D) ⁷ P
-	180103.44	-							53% 1 (² G1) ³ G + 12% 1 (² G1) ³ F + 10% 1 (² G1) ³ H
-	177363.27	-							25% 1 (² D2) ³ F + 13% 2 (³ H ⁴ H) ⁵ I + 8% 2 (³ G ⁴ G) ⁵ H
-	177330.91	-							22% 1 (² D2) ³ F + 15% 2 (³ H ⁴ H) ⁵ I + 8% 2 (³ G ⁴ G) ⁵ H
175027.06	174985.31	41.75	4	4	0.22	0.05	0.24		21% 1 (² H) ¹ G + 11% 1 (² H) ³ G + 10% 1 (² I) ³ H
-	174275.47	-							11% 1 (² D2) ³ F + 11% 1 (² D3) ³ F + 9% 1 (⁴ F) ³ F

-	170927.43	-							46% 2 ($^5D^6D$) 7P	+	6% 2 ($^5D^6D$) 7F	+	5% 2 ($^5D^6D$) 7D
-	170854.27	-							15% 2 ($^5D^6D$) 7P	+	7% 1 (2G1) 3F	+	6% 1 (2D3) 3F
-	167520.14	-							39% 2 ($^5D^6D$) 7F	+	7% 2 ($^5D^6D$) 7D	+	6% 1 (4F) 5F
167107.33	167063.13	44.20	7	7	0.18	0.22	0.20		12% 1 (2F2) 1G	+	10% 1 (2H) 1G	+	9% 1 (4F) 3G
166876.33	166813.62	62.71	3	3	0.34	0.52	0.50		17% 1 (2G1) 3H	+	14% 2 ($^5D^6D$) 7F	+	8% 1 (2F2) 3F
164743.73	164748.80	-5.07	8	6	0.22	0.31	0.30		17% 1 (2G1) 3F	+	13% 1 (2H) 3G	+	10% 1 (2G1) 1G
163997.14	164033.61	-36.47	8	6	0.19	0.17	0.21		16% 1 (2G1) 3F	+	11% 1 (2F2) 1G	+	10% 1 (2G2) 1G
161902.01	161926.09	-24.08	9	7	0.18	0.26	0.30		16% 1 (2H) 3H	+	15% 1 (2G2) 1G	+	13% 1 (2G2) 3G
160207.91	160183.54	24.37	7	7	0.17	0.13	0.22		20% 1 (4F) 3F	+	19% 1 (2F2) 3G	+	5% 1 (4G) 3G
159791.70	159777.99	13.71	8	4	0.31	0.31	0.40		14% 1 (2F1) 3F	+	10% 1 (4F) 3G	+	10% 1 (2F1) 1G
158188.33	158172.92	15.41	12	10	0.15	0.08	0.16		12% 1 (2F1) 3G	+	11% 1 (4F) 5G	+	10% 1 (2F2) 3F
157167.25	157183.69	-16.44	11	7	0.21	0.09	0.22		15% 1 (4P) 5D	+	12% 1 (2F1) 1G	+	10% 1 (2D3) 3F
155597.91	155632.01	-34.10	10	10	0.15	0.11	0.20		17% 1 (2G2) 3F	+	15% 1 (2H) 3H	+	8% 1 (2G2) 3G
153828.48	153874.80	-46.32	12	11	0.15	0.20	0.30		33% 1 (2I) 3H	+	12% 1 (4G) 3F	+	10% 1 (2H) 3G
153412.13	153404.99	7.14	14	9	0.13	0.09	0.16		24% 1 (2F2) 3F	+	10% 1 (4F) 5G	+	9% 1 (2F1) 3F
152982.27	152980.22	1.98	8	8	0.15	0.09	0.18		18% 1 (2G2) 3G	+	10% 1 (2G2) 1G	+	7% 1 (2I) 3H
150706.05	150717.71	-11.66	11	7	0.13	0.13	0.19		17% 1 (4F) 5G	+	16% 1 (2F1) 3G	+	11% 1 (2G2) 3F
147884.68	147919.32	-34.64	11	9	0.15	0.15	0.17		15% 1 (4D) 3F	+	14% 1 (2I) 3H	+	8% 1 (2H) 3G
147763.22	147762.13	1.09	11	11	0.14	0.14	0.19		11% 1 (2H) 1G	+	11% 1 (4G) 3G	+	11% 1 (4D) 3F
145439.95	145458.47	-18.52	16	10	0.10	0.08	0.12		18% 1 (4F) 5F	+	15% 1 (4D) 5D	+	8% 1 (4G) 5F
145003.78	144965.18	38.60	19	16	0.09	0.06	0.11		31% 1 (4G) 3G	+	12% 1 (2F1) 3F	+	7% 1 (4G) 5H
143156.95	143163.67	-6.72	16	9	0.08	0.05	0.11		26% 1 (2G2) 3H	+	14% 1 (2F2) 3G	+	10% 1 (2G2) 1G
142198.78	142168.70	30.08	13	10	0.10	0.06	0.12		16% 1 (2H) 3H	+	11% 1 (4D) 5D	+	11% 1 (2G2) 3H
141141.16	141171.31	-30.15	15	13	0.12	0.11	0.15		39% 1 (4G) 3F	+	16% 1 (4G) 5G	+	7% 1 (4D) 5D
139998.38	140001.58	-3.20	15	13	0.10	0.09	0.12		40% 1 (4G) 3H	+	17% 1 (4P) 5D	+	7% 1 (4D) 5F
137277.36	137245.26	32.10	9	8	0.13	0.08	0.14		35% 1 (4G) 5F	+	12% 1 (4D) 3F	+	10% 1 (4F) 5F
135595.44	135565.34	30.10	17	12	0.10	0.07	0.11		25% 1 (4G) 5G	+	11% 1 (4D) 5D	+	11% 1 (2G2) 3F
134025.31	134014.35	10.96	16	12	0.08	0.06	0.10		11% 1 (2G2) 3H	+	11% 1 (2F1) 3G	+	10% 1 (4D) 5F
132088.18	132082.67	5.51	15	11	0.09	0.10	0.12		15% 1 (2F1) 1G	+	9% 1 (4G) 3H	+	8% 1 (4D) 3F
128493.21	128473.88	19.33	14	11	0.07	0.06	0.09		25% 1 (4G) 5H	+	19% 1 (4D) 5F	+	10% 1 (4D) 5D
125224.81	125156.82	67.99	15	13	0.07	0.06	0.09		23% 1 (4G) 5F	+	20% 1 (4G) 5G	+	13% 1 (4G) 3F
120722.59	120733.78	-11.19	10	6	0.09	0.10	0.13		34% 1 (4G) 5H	+	20% 1 (4G) 5G	+	8% 1 (4F) 5G
113462.35	113485.10	-22.75	4	4	0.21	0.23	0.30		84% 1 (6S) 7P	+	13% 1 (4P) 5D	+	1% 1 (4D) 5F

J = 5

-	183164.92	-							36% 1 (2G1) 1H	+	19% 1 (2G1) 3H	+	9% 2 ($^5D^6D$) 7D
-	182764.37	-							32% 2 ($^5D^6D$) 7D	+	26% 2 ($^5D^6D$) 7F	+	13% 1 (2G1) 1H
-	181326.21	-							57% 1 (2G1) 3G	+	13% 1 (2G1) 3H	+	8% 1 (2G2) 3G
-	181182.28	-							31% 2 ($^3H^4H$) 5I	+	15% 2 ($^3H^4H$) 5H	+	15% 2 ($^3G^4G$) 5H
-	171674.89	-							43% 2 ($^5D^6D$) 7F	+	16% 2 ($^5D^6D$) 7D	+	8% 2 ($^5D^6D$) 5F
170618.53	170636.68	-18.15	6	6	0.19	0.14	0.23		29% 1 (2H) 1H	+	20% 1 (2H) 3G	+	11% 1 (2H) 3H
169490.49	169473.02	17.47	8	5	0.18	0.11	0.20		22% 1 (2H) 1H	+	19% 1 (2G2) 3G	+	14% 1 (2G1) 3H
166282.72	166258.86	23.86	5	4	0.32	0.04	0.30		38% 1 (2G2) 1H	+	14% 1 (2G1) 3G	+	11% 1 (4F) 3G
165239.60	165294.83	-55.23	6	6	0.18	0.18	0.24		24% 1 (2F2) 3G	+	20% 1 (2G1) 3H	+	19% 1 (4F) 5G
163240.75	163235.56	5.19	7	5	0.19	0.26	0.30		44% 1 (2F1) 3G	+	11% 1 (2G1) 3H	+	8% 1 (4D) 5F
162653.94	162690.06	-36.12	11	11	0.14	0.14	0.20		20% 1 (2F2) 3G	+	20% 1 (2I) 1H	+	12% 1 (2H) 3H
159762.71	159781.25	-18.54	8	5	0.23	0.26	0.30		22% 1 (2G2) 3H	+	20% 1 (4F) 5F	+	10% 1 (2G2) 3G
157481.05	157491.21	-10.16	12	11	0.13	0.09	0.16		18% 1 (2I) 1H	+	14% 1 (4F) 3G	+	11% 1 (2G2) 3H
155160.61	155168.40	-7.79	12	9	0.14	0.09	0.16		27% 1 (2H) 3H	+	24% 1 (2I) 3H	+	18% 1 (2H) 3G
153658.98	153658.98	0.00	12	10	0.13	0.11	0.17		22% 1 (2H) 3I	+	22% 1 (2G2) 3G	+	10% 1 (2I) 3H
152304.45	152289.59	14.86	15	13	0.11	0.08	0.13		14% 1 (4F) 5F	+	14% 1 (2H) 3G	+	13% 1 (2I) 3I
151000.14	151024.33	-24.19	10	8	0.16	0.19	0.30		25% 1 (2I) 3I	+	18% 1 (2I) 1H	+	15% 1 (2G2) 1H
148937.72	148952.96	-15.24	12	9	0.17	0.16	0.22		13% 1 (2F2) 3G	+	12% 1 (4F) 5G	+	11% 1 (2I) 3H
145525.25	145492.13	33.12	17	16	0.11	0.08	0.13		47% 1 (4G) 3G	+	11% 1 (4D) 5F	+	8% 1 (4G) 5H
144512.45	144496.17	16.28	14	10	0.09	0.07	0.12		28% 1 (2H) 3I	+	15% 1 (4F) 3G	+	11% 1 (4D) 5F
143731.85	143726.16	5.69	14	10	0.12	0.06	0.13		32% 1 (4D) 5F	+	27% 1 (4G) 3H	+	8% 1 (4G) 3G

139739.81	139761.77	-21.96	16	15	0.08	0.06	0.10	18% 1 (⁴ G)	⁵ F + 17% 1 (⁴ G)	⁵ G + 13% 1 (² G2)	³ H
137685.88	137697.62	-11.74	11	9	0.10	0.07	0.12	35% 1 (⁴ G)	³ H + 25% 1 (⁴ D)	⁵ F + 11% 1 (⁴ F)	⁵ G
136429.29	136406.26	23.03	12	10	0.11	0.05	0.13	34% 1 (⁴ G)	⁵ H + 27% 1 (⁴ G)	⁵ G + 9% 1 (⁴ F)	⁵ F
133412.78	133429.12	-16.34	8	7	0.09	0.07	0.12	20% 1 (² I)	³ I + 14% 1 (² I)	¹ H + 10% 1 (⁴ G)	⁵ F
125982.14	125979.09	3.05	11	8	0.09	0.10	0.11	40% 1 (⁴ G)	⁵ F + 13% 1 (⁴ G)	³ G + 13% 1 (⁴ G)	⁵ H
122338.65	122347.35	-8.70	7	6	0.12	0.08	0.14	32% 1 (⁴ G)	⁵ G + 25% 1 (⁴ G)	⁵ H + 11% 1 (⁴ G)	³ H

J = 6

-	177859.44	-						87% 1 (² G1)	³ H + 3% 1 (² I)	³ H + 2% 1 (² G2)	³ H
169715.71	169718.84	-3.13	7	7	0.16	0.16	0.30	26% 1 (² H)	¹ I + 24% 1 (² H)	³ H + 21% 1 (² G2)	³ H
165923.23	165917.63	5.60	4	4	0.26	0.15	0.30	28% 1 (² H)	³ H + 25% 1 (² H)	³ I + 17% 1 (² G2)	³ H
159416.27	159444.71	-28.44	4	4	0.18	0.02	0.21	37% 1 (² H)	¹ I + 35% 1 (⁴ F)	⁵ G + 10% 1 (² G2)	³ H
157327.79	157355.17	-27.38	11	7	0.15	0.13	0.17	52% 1 (² I)	¹ I + 21% 1 (² H)	³ I + 15% 1 (² I)	³ H
154293.71	154297.76	-4.05	7	7	0.11	0.06	0.14	19% 1 (² I)	³ I + 17% 1 (² H)	¹ I + 16% 1 (² H)	³ I
151364.78	151398.33	-33.56	9	7	0.13	0.13	0.16	37% 1 (² G2)	³ H + 28% 1 (⁴ F)	⁵ G + 12% 1 (² I)	³ I
149313.18	149324.43	-11.25	9	9	0.11	0.08	0.13	24% 1 (² I)	³ K + 21% 1 (² I)	³ I + 21% 1 (² H)	³ H
142662.22	142699.80	-37.58	10	10	0.12	0.10	0.15	31% 1 (⁴ G)	³ H + 30% 1 (² I)	³ H + 12% 1 (² I)	¹ I
139094.74	139094.77	-0.03	5	5	0.15	0.11	0.18	59% 1 (⁴ G)	⁵ H + 14% 1 (⁴ G)	⁵ G + 7% 1 (² I)	³ H
138121.21	138080.45	40.76	10	10	0.09	0.10	0.15	30% 1 (⁴ G)	⁵ G + 21% 1 (⁴ G)	³ H + 20% 1 (² I)	³ H
133911.73	133903.23	8.50	8	8	0.08	0.07	0.11	53% 1 (² I)	³ K + 12% 1 (⁴ G)	⁵ G + 12% 1 (² I)	³ I
122611.21	122660.05	-48.84	6	3	0.12	0.10	0.14	27% 1 (⁴ G)	⁵ G + 27% 1 (⁴ G)	³ H + 20% 1 (⁴ G)	⁵ H

J = 7

167498.11	167461.81	36.30	3	3	0.26	0.12	0.30	69% 1 (² H)	³ I + 13% 1 (² I)	¹ K + 10% 1 (² I)	³ K
153192.39	153160.92	31.47	6	5	0.20	0.06	0.21	70% 1 (² I)	³ I + 15% 1 (² I)	³ K + 14% 1 (² I)	¹ K
149661.90	149643.60	18.30	5	5	0.20	0.22	0.30	43% 1 (² I)	¹ K + 29% 1 (² I)	³ K + 14% 1 (² H)	³ I
138463.86	138420.16	43.70	5	5	0.12	0.14	0.17	35% 1 (⁴ G)	⁵ H + 25% 1 (² I)	¹ K + 18% 1 (² I)	³ K
137224.74	137272.36	-47.62	5	4	0.13	0.19	0.16	45% 1 (⁴ G)	⁵ H + 27% 1 (² I)	³ K + 12% 1 (² I)	³ I

J = 8

152556.11	152542.70	13.42	1	1	0.42	0.42	0.40	100% 1 (² I)	³ K		
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Table 4Fitted and calculated parameter values (cm⁻¹) in the 5d⁶, 5d⁵6s and 5d⁴6s² configurations of Ir IV.

Parameter	Fitted value		HFR	Fitted/HFR
5d⁶				
E _{av}	30705.4	(4.4)	35693.6	
O ₂	6285.9	(5.0)	7601.1	0.8270
O ₂ '	3949.4	(8.2)	5181.0	0.7623
E _α	77.9	(4.1)		
E _β	24.0	(5.0)		
ζ _d	4306.9	(3.8)	4498.4	0.9574
T ₁	0.32	(0.16)		
T ₂	0.35	(0.17)		
T ₃	0.06	(0.16)		
T ₄	0.05	(0.15)		
A _c	30.2	(3.2)		
A ₃	7.0	(2.8)		
A ₄	5.6	(4.7)		
A ₅	10.2	(4.4)		
A ₆	19.4	(2.6)		
A ₁	-4.0			
A ₂	4.8			
A ₀	-4.0			
5d⁵6s				
E _{av}	82298.7	(6.0)	89683.9	0.9556 ^a
O ₂	6469.4	(5.3)	7806.2	0.8287
O ₂ '	4069.2	(7.6)	5304.7	0.7671
E _α	90.5	(4.5)		
E _β	40.5	(5.8)		
ζ _d	4561.7	(4.1)	4734.3	0.9635
T ₁	-0.15	(0.20)		
T ₂	0.0			
T ₃	0.0			
T ₄	0.0			
A _c	29.8	(3.4)		
A ₃	3.2			
A ₄	6.5			
A ₅	6.3	(3.4)		
A ₆	9.0	(2.1)		
A ₁	-4.0			
A ₂	4.8			
A ₀	-4.0			
C _{ds}	3027.1	(3.6)	3756.1	0.8059
T _{dds}	-9.2	(7.4)		
A _{mso}	55.8	(3.1)		
5d⁴6s²				
E _{av}	149222.0		160775.1	0.9475 ^a
O ₂	6650.0		8001.9	0.8311
O ₂ '	4143.0		5422.5	0.7640
E _α	80.0			
E _β	54.0			
ζ _d	4793.0		4972.7	0.9639

A_c	37.2		
A_3	6.7		
A_4	9.4		
A_5	10.5		
A_6	15.5		
A_1	-4.4		
A_2	5.1		
A_0	-4.4		
$R^2(\text{dd, ds})12^b$	-22308.0	-26636.3	0.8375
$R^2(\text{dd, ss})12$	20073.0	23942.8	0.8384
$R^2(\text{dd, ds})23$	-22302.0	-26629.3	0.8375

Mean Deviation^c = 20 cm⁻¹

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- ^a The energy differences with respect to the ground configuration were used:
 $(E_{av}(\text{conf}) - E_{av}(5d^6))_{LSF} / (E_{av}(\text{conf}) - E_{av}(5d^6))_{HFR}$, where "conf" is either $5d^56s$ or $5d^46s^2$.
- ^b "xy" in the end of the R -parameter names means interaction between configurations x and y, where 1 stands for $5d^6$, 2 stands for $5d^56s$ and 3 stands for $5d^46s^2$.
- ^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.

Table 5Fitted and calculated parameter values (cm^{-1}) in the $5d^56p$, $5d^46s6p$ and $5d^36s^26p$ configurations of Ir IV.

Parameter	Fitted value		HFR	Fitted/HFR
5d⁵6p				
E _{av}	154947.3	(5.9)	159905.7	1.0002 ^a
O ₂	6514.7	(6.8)	7864.5	0.8284
O ₂ '	4072.1	(8.8)	5339.5	0.7626
E _α	96.8	(5.9)		
E _β	67.7	(7.7)		
ζ _d	4665.4	(4.7)	4794.1	0.9732
T ₁	0.83	(0.28)		
T ₂	0.47	(0.55)		
T ₃	-0.63	(0.48)		
T ₄	0.18	(0.31)		
A _c	40.1	(5.8)		
A ₃	3.5			
A ₄	2.4	(5.8)		
A ₅	3.8	(5.3)		
A ₆	15.3	(3.2)		
A ₁	-3.0			
A ₂	3.0			
A ₀	-3.0			
C ₁ (dp)	2558.2	(9.3)	3052.0	0.8382
C ₂ (dp)	2184.2	(7.5)	2898.4	0.7536
C ₃ (dp)	1187.3	(9.1)	1531.1	0.7754
S ₁ (dp)	153.1	(10.0)		
S ₂ (dp)	-92.5	(6.8)		
ζ _p	10047.4	(13.2)	8907.4	1.1280
S _d .L _p	-90.5	(7.4)		
S _p .L _d	-28.2	(10.9)		
Z ² _{pp'}	-36.6	(11.1)		
Z ² _{dd'}	64.1	(9.1)		
Z ¹ _{pp'}	141.6	(7.4)		
Z ¹ _{dd'}	-23.6	(7.3)		
Z ³ _{pp'}	66.9	(7.7)		
Z ³ _{dd'}	-29.6	(7.8)		
SS ₀₂	-15.6	(5.7)		
SS ₂₀	-24.3	(8.4)		
T ₁₆	-50.4	(7.1)		
T ₁₇	7.4	(5.3)		
T ₁₈	-10.7	(8.7)		
T ₁₉	-7.7	(5.2)		
T ₂₀	-33.9	(7.7)		
T ₂₁	-11.2	(4.2)		
T ₂₂	-10.2	(6.6)		
T ₂₃	-15.1	(6.0)		
T ₂₄	-8.1	(5.6)		
T ₂₅	10.1	(5.6)		
T ₂₆	-19.7	(7.5)		
T ₂₇	1.4	(5.7)		
T ₂₈	39.1	(8.2)		
T ₂₉	-24.9	(6.3)		
T ₃₀	14.5	(7.0)		

T ₃₁	-10.2	(7.8)
T ₃₂	8.4	(5.6)
T ₃₃	12.2	(6.9)
T ₃₄	-28.8	(7.3)
T ₃₅	-79.2	(6.0)

5d⁴6s6p

E _{av}	218933.0	225922.7	0.9895 ^a
O ₂	6676.0	8053.0	0.8290
O ₂ '	4177.0	5452.8	0.7660
E _α	75.0		
E _β	63.0		
ζ _d	4892.0	5028.5	0.9729
A _c	23.0		
A ₃	3.5		
A ₄	4.0		
A ₅	4.5		
A ₆	12.5		
A ₁	-3.0		
A ₂	3.0		
A ₀	-3.0		
C _{ds}	3062.0	3749.3	0.8167
T _{dds}	6.0		
A _{mso}	53.0		
A _{ss}	0.0		
C ₁ (dp)	2747.0	3229.3	0.8507
C ₂ (dp)	2268.0	2976.9	0.7619
C ₃ (dp)	1205.0	1552.1	0.7764
S ₁ (dp)	149.0		
S ₂ (dp)	-94.0		
ζ _p	11301.0	10022.9	1.1275
S _d .L _p	-82.7		
S _p .L _d	-8.1		
Z ₂ ^{pp'}	-52.7		
Z ₂ ^{dd'}	59.2		
Z ₁ ^{pp'}	142.9		
Z ₁ ^{dd'}	-1.5		
Z ₃ ^{pp'}	45.2		
Z ₃ ^{dd'}	-12.3		
C _{sp}	11652.0	14039.6	0.8299
A _{mso} (sp)	-500.0		

5d³6s²6p

E _{av}	297503.0	309287.7	0.9752 ^a
O ₂	6824.0	8231.9	0.8290
O ₂	4259.0	5560.1	0.7660
E _α	75.0		
E _β	63.0		
ζ _d	5121.0	5263.7	0.9729
C ₁ (dp)	2900.0	3408.2	0.8509
C ₂ (dp)	2331.0	3060.0	0.7618
C ₃ (dp)	1223.0	1575.5	0.7763
S ₁ (dp)	149.0		
S ₂ (dp)	-94.0		
ζ _p	12661.0	11229.6	1.1275

$R^2(\text{dd, ds})12^b$	-21037.0	-26550.0	0.7924
$R^2(\text{dp, sp})12$	-18440.0	-23421.2	0.7873
$R^1(\text{dp, ps})12$	-16563.0	-21160.6	0.7827
$R^2(\text{dd, ss})13$	19801.0	23856.7	0.8300
$R^2(\text{dd, ds})23$	-22050.0	-26566.7	0.8300
$R^2(\text{dp, sp})23$	-19847.0	-23911.5	0.8300
$R^1(\text{dp, ps})23$	-17831.0	-21483.7	0.8300

Mean Deviation^c = 36 cm⁻¹

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- ^a The energy differences with respect to the ground configuration were used:
 $(E_{\text{av}}(\text{conf}) - E_{\text{av}}(5d^6))_{\text{LSF}} / (E_{\text{av}}(\text{conf}) - E_{\text{av}}(5d^6))_{\text{HFR}}$, where "conf" is either $5d^56p$, $5d^46s6p$ or $5d^36s^26p$.
- ^b "xy" in the end of the *R*-parameter names means interaction between configurations x and y, where 1 stands for $5d^56p$, 2 stands for $5d^46s6p$ and 3 stands for $5d^36s^26p$.
- ^c Mean Deviation = $[(\sum(E_{\text{obs}} - E_{\text{calc}})^2) / (n-m)]^{1/2}$, where n is the number of known levels, m is the number of free parameters.