

## Characterization of the DD-neutron Source for the 80 Degrees Beam Line of the Fusion Neutronics Source (FNS)

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The specification of the d-D neutron source with a titanium deuteride target of the FNS facility was investigated in order to utilize the d-D neutron source for fusion neutronics researchs. The characteristics of neutrons produced by the d-D reaction were described based on the reaction kinematics, and the target assembly of the accelerator was modeled for the MCNP calculation in detail. In order to validate this calculation, the angular distribution of the neutron was measured with the activation foil method. The measured reaction rates were well predicted by the MCNP calculation, and the validity of the present calculation was confirmed. A MCNP source term for analyses calculations of experiments with DD neutrons was prepared from the results of the above calculation.

Keywords: FNS, DD Neutron, MCNP

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## 核融合中性子源 FNS の 80 度ビームラインにおける DD 中性子の発生特性評価

日本原子力研究開発機構  
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FNS 施設において、重水素化チタンターゲットを用いた d-D 中性子源を核融合中性子工学研究に利用するために、d-D 中性子源の中性子発生特性の評価を行った。d-D 反応による中性子の生成を反応の運動学に基づいて記述した。また MCNP 計算のためにターゲットアッセンブリーを詳細にモデル化した。この MCNP 計算の妥当性を確認するために、中性子源からの放出強度の角度分布を放射化法によって測定した。放射化法の反応率は MCNP による計算値と良く一致し、本計算の有効性を確認した。本計算の結果から、DD 中性子を用いた実験の解析を MCNP で行うためのソース項を作成した。

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## 1. Introduction

The Fusion Neutronics Source (FNS) of the Japan Atomic Energy Agency is an accelerator-based neutron source for fusion neutronics experiments. The facility was initially designed as an intense d-T neutron source where accelerated deuterium bombards a tritiated titanium target. Recently the facility has also come to be used as a d-D neutron source with a deuterium target for various studies including fusion neutronics researches.

In an analysis of experiments, the specification of the neutron source such as the intensity, the energy and angular distributions should be well understood. In particular, benchmark studies to verify the accuracy of transport calculations with nuclear data libraries need a detailed description of the neutron source. The anisotropy of emitted neutrons from the d-D reaction is larger than that from the d-T reaction, thus the source characterization is more important. The aim of this study is to evaluate the detailed specification of the d-D neutron source at FNS. The characteristics of produced neutrons by the d-D reactions are described based on the reaction kinematics. A target assembly of the facility is modeled for the transport calculation with the MCNP code [1] so that the influence of the assembly is considered. In order to confirm the accuracy of the calculation, the angular distribution of the neutron strength is measured with the activation foil method. The validity of the calculation is discussed through the comparison of the calculation and experiment.

## 2. Modeling for MCNP calculation

### 2.1 Calculation geometry for MCNP

The FNS facility has an accelerator of 400 kV Cockcroft-Walton type and two beam transport lines in the direction of 0 degree and 80 degrees to the axis of acceleration. A water-cooled fixed target is used at the 80-degree line. Figure 1 shows a target assembly which is used for the water-cooled fixed target at FNS. Figure 2 shows a target substrate which consists of copper and is in a small cup shape. A thin titanium layer of 3- $\mu\text{m}$  thickness is deposited onto the copper substrate using an evaporation process at its manufacturer, and then the substrate was transported to the FNS facility and impregnated with deuterium gas under a controlled temperature and pressure condition. The cooling water with a thickness of 1 mm flows in a sheath pipe which consists of SS304 with a thickness of 0.5 mm in order to cool the target. The target assembly including these components and the drift tube up to 18.8 cm from the target was precisely modeled for the MCNP calculation in the present study. Figures 3-5 show schematic views of the MCNP calculation model.

## 2.2 Energy and angular distribution of emitted neutrons by the d-D reaction

For the source definition of the above MCNP calculation, the energy-angle correlated distribution of emitted neutrons from the D(d,n)<sup>3</sup>He reaction was calculated based on the reaction kinematics. In the case of the T(d, n)<sup>4</sup>He reaction, the associated particle <sup>4</sup>He is detected to determine the absolute yield of produced neutrons with high accuracy directly [2]. In the 80-degree line of the FNS facility, two silicon surface barrier detectors, which are so-called “alpha monitors” and placed in the drift tube at a backward angle, are utilized to detect the associated alpha particle. In the case of the D(d,n)<sup>3</sup>He reaction, however, the associated particle <sup>3</sup>He has too low energy to measure with the detectors. Hence, a competitive reaction, namely the D(d,p)T reaction which has almost the same cross section as the D(d,n)<sup>3</sup>He reaction, is used as a probe to determine the d-D neutron yield. The fusion cross sections of these two reactions are shown in Figure 6, where one can see slight differences in the value and the energy dependence. The angular distributions of emitted particles are also slightly different, thus the correspondence between the two reactions must be comprehended. In this study, the angular distribution of emitted protons from the D(d,p)T reaction was calculated in the same way for neutrons and these correlation was investigated.

The scheme of the present kinematic calculation was the following: transport calculations of 350-keV deuterons were carried out with the SRIM 2008 code [3] for the titanium deuteride (TiD) layers of 23 different thicknesses from 0  $\mu\text{m}$  to 2.2  $\mu\text{m}$  at 0.1- $\mu\text{m}$  interval. In these calculations, the composition of TiD<sub>1.6</sub> and the density of 4.52 g/cm<sup>3</sup> were assumed. The kinetic energy and the velocity vector of transmitted particles were written down to a “TRANSMIT.TXT” file. Then, a post-processing script handled the “TRANSMIT.TXT” file and the energy-angle correlated distribution was made up with a Monte Carlo calculation. An example of inputs and outputs of the SRIM 2008 calculations is shown in Appendix A. The transmitted deuterons were not always parallel to the axis of the incident beam since the deuterons were scattered in the TiD layer. The scattered angle of deuteron  $\theta_d$  was obtained by the velocity vector. In order to deduce the kinetic energy of an emitted projectile in a fusion reaction at an emission angle  $\theta_{lab}$  in the laboratory system, a emission angle of projectile  $\theta_p$  is defined by the following formula;

$$\theta_p = \theta_{lab} - \theta_d . \quad (1)$$

The kinetic energy of projectile  $E_p$  at the emission angle  $\theta_p$  is given by the following formulas;

$$\sqrt{E_p} = v \pm \sqrt{v^2 + w} , \quad (2)$$

$$v = \frac{\sqrt{m_d \cdot m_p \cdot E_d}}{m_p + m_r} \cdot \cos \theta_p , \quad (3)$$

$$w = \frac{m_r \cdot Q + (m_r - m_d) \cdot E_d}{m_p + m_r} , \quad (4)$$

$$Q = (2m_d - m_p - m_r)c^2 , \quad (5)$$

where  $m_d$ ,  $m_p$  and  $m_r$  are the mass of deuteron, projectile and residual nuclei, respectively, and  $E_d$  is the energy of the transmitted deuteron. These kinetic formulas are based on the classical theory, which gives an enough approximation in the energy range of the preset study.  $Q$  is what is called “Q-value” which gives the energy release in the fusion reaction. The emission angle  $\theta_{cm}$  in the center-of-mass system is given by the following formulas;

$$\theta_{cm} = \theta_p + \sin^{-1} \left( \gamma \sqrt{1 - \cos^2 \theta_p} \right) , \quad (6)$$

$$\gamma = \sqrt{\frac{m_p}{m_r} \cdot \frac{E_d}{E_d + 2Q}} . \quad (7)$$

An angular-differential cross section for the projectile at  $\theta_{cm}$ ,  $d\sigma / d\Omega_{cm}$ , is referred to the nuclear data library ENDF/B-VI [4]. The  $d\sigma / d\Omega_{cm}$  is converted into  $d\sigma / d\Omega_{lab}$  in the laboratory system as follows:

$$\frac{d\sigma}{d\Omega_{lab}} = \frac{(1 + \gamma^2 + 2\gamma \cos \theta_{cm})^{3/2}}{|1 + \gamma \cos \theta_{cm}|} \cdot \frac{d\sigma}{d\Omega_{cm}} . \quad (8)$$

In the Monte Carlo calculation, the emission angle  $\theta_{lab}$  was determined by a random number, and the obtained angular-differential cross sections were tallied in respective bins, where the angular bin interval was 0.01 in cosine unit and the energy bin interval was 50 keV. They were processed as histograms, and the “sdef” term for an MCNP input card was created. One of the important features of the present calculation is the accurate treatment of the neutron energy broadening due to deuteron scattering, which is underestimated about doubly if this influence is not considered.

In the present calculation, the distribution of deuterium in the TiD layer was assumed to be uniform. A non-uniform distribution would occur since a lot of deuterium is implanted into the layer during experiments. The influence due to the non-uniform distribution is discussed in the later section. The transportation in the TiD layer was treated in 0.1-μm discrete mesh. This approximation is not crude when the width of the output energy bin is 50 keV, because the energy loss of deuteron is around 18 keV / 0.1 μm.

Figure 7 shows the energy-angular differential thick target yields (TTY) for emitted neutrons at respective angles, and Figure 8 shows the angular-differential thick target yields for emitted neutrons and protons obtained from the present kinematics calculation. The calculated total TTYs are summarized in Table 1. A conversion factor to determine the neutron yields from the yield of protons due to the D(d,p)T reaction was deduced from the above angular-differential TTYs. The silicon detectors to detect protons are set at 179 degrees to the beam axis. Thus, the conversion factor  $f_p$  is given by the following formula;

$$f_p = \frac{\left. \frac{dTTY_{eff}^{proton}}{d\Omega_{lab}} \right|_{\theta_{lab}=179 \text{ deg.}}}{\int \frac{dTTY_{eff}^{neutron}}{d\Omega_{lab}} d\Omega_{lab}} = 1.06 \quad . \quad (9)$$

### 2.3 Neutron yields determination

The neutron yield  $Y_n$  at the target is given by the following relation;

$$Y_n = \frac{4\pi}{\Delta\Omega} \cdot C_p \cdot \frac{1}{f_p} , \quad (10)$$

where  $\Delta\Omega$  is a solid angle of the target subtended by an aperture of the silicon detector,  $C_p$  is a proton count of the silicon detector, and  $f_p$  is the conversion factor obtained by the kinetic calculation in the former section. The present values of  $\Delta\Omega$  are  $3.125 \times 10^{-7}$  sr for the silicon detector #1 (“Alpha-1”) and  $2.756 \times 10^{-7}$  sr for the silicon detector #2 (“Alpha-2”). Therefore, the neutron yields  $Y_n$  can be written in the following form;

$$Y_n = 3.794 \times 10^7 \cdot C_p \quad \text{for the silicon detector #1 (“Alpha-1”),} \quad (11)$$

$$Y_n = 4.302 \times 10^7 \cdot C_p \quad \text{for the silicon detector #2 (“Alpha-2”).} \quad (12)$$

### 2.4 Calculation results

The created MCNP input card is shown in Appendix B. In the present study, the MCNP5 code [1] and the evaluated nuclear data library ENDF/B-VII.0 [5] were used for the transport calculation. The beam spot on the target substrate was assumed to be in the Gaussian distribution with FWHM of 7mm, which was estimated from a result of a beam profile measurement with an imaging plate as shown in Figure 9. The calculated energy distributions at the distance of 30 cm from the target point are shown in Figures 10 and 11. The calculated polar angular distributions at the distance of 30 cm from the target point are shown in Table 2 and Figure 12. The neutron number per DD reaction integrated over  $4\pi$  direction was almost equal to 1 within the calculation statistics. There was no contribution of  $(n,2n)$  reactions and very few contribution of capture reactions. The target assembly is not symmetric with respect to the beam axis. Table 3 and Figure 13 show the polar angular distributions of emitted neutrons, where the flux was averaged over three different ranges of the azimuthal angle. In the vertical direction ( $82 < \phi < 98$ ), an influence of the water tube of the assembly appears and is larger at backward polar angles. The azimuthal distribution of emitted neutrons is summarized in Table 4 and shown in Figure 14, where the flux is averaged over the whole polar angle of  $\pi$ . The influence is around 6% at maximum.

### 3. Experimental validation

#### 3.1 Method and apparatus

In order to verify the MCNP calculation mentioned in Chapter 2, reaction rates of the  $^{115}\text{In}(\text{n},\text{n}')^{115m}\text{In}$  and  $^{58}\text{Ni}(\text{n},\text{p})^{58m+g}\text{Co}$  reactions around the target assembly were measured with the activation foil method, and the measured values were compared with the calculation. Figure 15 shows the cross sections of these two reactions in JENDL/D-99 [6] and the ratio of these cross sections. The cross section of the  $^{58}\text{Ni}(\text{n},\text{p})^{58m+g}\text{Co}$  reaction has an energy dependence to rise in the d-D neutron energy range, while that of the  $^{115}\text{In}(\text{n},\text{n}')^{115m}\text{In}$  reaction has almost no energy dependency. Hence, the calculated energy distribution can be confirmed by examining the reaction rate ratio with these two reactions.

The sample foils were fixed at the distance of 10 cm from the target point with a jig of polystyrene foam. The picture of the experimental arrangement is shown in Figure 16. The details of the sample foils used in the present experiment are summarized in Table 5. The measured angles in the present experiment are summarized in Table 6. The irradiation time was two or three hours for In and six hours for Ni. After the irradiations, gamma-rays emitted from the produced activities were measured with two Ge detectors, and reaction rates were derived. To avoid the influence of the  $^{115}\text{In}(\text{n},\gamma)^{116m}\text{In}$  reaction induced with thermal neutrons, the In foils were cooled several hours after the irradiation. In the case of the  $^{58}\text{Ni}(\text{n},\text{p})^{58m+g}\text{Co}$  reaction, generated  $^{58m}\text{Co}$  decays to  $^{58g}\text{Co}$  with a half life of 9.15 hours. Thus, all of the Ni foils were measured after more than 90 hours from the end of the irradiation for enough (more than 99.9%) decay. The statistical errors of the measurement were less than 1.0% for In and less than 2.4% for Ni. The systematic error in the measurement was estimated as 2%, where its dominant source was in the efficiency of the Ge detectors.

Because the beam line is usually used as a d-T neutron source, the beam component near the target assembly can be contaminated with tritium. When it is contaminated, 14-MeV neutrons would be produced and strongly affect to the result of the present experiment. Thus, the inside of the beam drift tube was cleaned to reduce the contamination before the experiment, and we monitored that the contribution of 14-MeV neutrons was negligibly small by an NE213 detector during the present experiment.

The measured reaction rates were normalized per source DD neutron. The neutron yields during the experiment were determined by the equation (12) in Section 2.3, where the proton counts  $C_p$  were obtained from the charged-particle spectra measured with the silicon detector #2. Figure 17 shows a typical charged-particle spectrum measured with the silicon detector #2 during the present experiment. In the spectrum, a large peak due to the D(d,p)T reaction is clearly identified and the proton count  $C_p$  can be derived by summing counts inside the discrimination window indicated.

### 3.2 Analysis

The transport calculation was carried out with MCNP-5 and ENDF/B-VII.0, and the reaction cross section data of  $^{115}\text{In}(\text{n},\text{n}')^{115\text{m}}\text{In}$  and  $^{58}\text{Ni}(\text{n},\text{p})^{58\text{m+g}}\text{Co}$  were taken from JENDL/D-99. For calculated reaction rates, uncertainty of the dosimetry cross sections used in the reaction rate calculation (3% for the  $^{115}\text{In}(\text{n},\text{n}')^{115\text{m}}\text{In}$  reaction and 2% for the  $^{58}\text{Ni}(\text{n},\text{p})^{58\text{m+g}}\text{Co}$  reaction) should be considered. The statistical errors of MCNP calculations were less than 0.5%.

### 3.3 Results and discussions

#### 3.3.1 Reaction rates of the $^{115}\text{In}(\text{n},\text{n}')^{115\text{m}}\text{In}$ reaction on the horizontal plane

Figure 18 shows the measured and calculated reaction rates of the  $^{115}\text{In}(\text{n},\text{n}')^{115\text{m}}\text{In}$  reaction on the horizontal plane around the target assembly. The numerical data are summarized in Table 7, where the described errors are the statistical error of the measurement. The calculation and experiment agree within 4% except at 90 degrees where the influence of the target structure is large. This result suggests that the present calculation for the source term is reasonable.

#### 3.3.2 Reaction rates of the $^{115}\text{In}(\text{n},\text{n}')^{115\text{m}}\text{In}$ reaction on the vertical plane

Figure 19 shows the measured and calculated reaction rates of the  $^{115}\text{In}(\text{n},\text{n}')^{115\text{m}}\text{In}$  reaction on the vertical plane where most of the influence of the coolant pipe appears. The numerical data are summarized in Table 7. The calculation and experiment agree within 6% except at 90 degrees. Regarding the C/E value shown in the figure, the values for the vertical direction are a little larger than those for the horizontal direction. The influence of the water pipe might be underestimated a little.

#### 3.3.3 Reaction rates of the $^{58}\text{Ni}(\text{n},\text{p})^{58\text{m+g}}\text{Co}$ reaction on the horizontal plane

Figure 20 shows the measured and calculated reaction rates of the  $^{58}\text{Ni}(\text{n},\text{p})^{58\text{m+g}}\text{Co}$  reaction on the horizontal plane around the target assembly. The numerical data are summarized in Table 8. The calculation and experiment agree within 6%. The calculation tends to overestimate at forward angles and to underestimate at backward angles, which suggests the possibility that the high energy contribution is overestimated.

#### 3.3.4 Ratio of the reaction rates of $^{115}\text{In}(\text{n},\text{n}')^{115\text{m}}\text{In}$ to those of $^{58}\text{Ni}(\text{n},\text{p})^{58\text{m+g}}\text{Co}$

Figure 21 shows the ratio of the  $^{115}\text{In}(\text{n},\text{n}')^{115\text{m}}\text{In}$  reaction rate ( $\text{RR}_{\text{In}}$ ) to the  $^{58}\text{Ni}(\text{n},\text{p})^{58\text{m+g}}\text{Co}$  reaction rate ( $\text{RR}_{\text{Ni}}$ ) in the calculation and experiment, and the ratios of the calculation to the experiment for the ratios ( $\text{RR}_{\text{Ni}} / \text{RR}_{\text{In}}$ ). The calculation overestimates the experimental one in forward angles and underestimates in backward angles. This result suggests that d-D neutrons caused by higher energy deuterons are overestimated in the calculation. Since such a reaction by higher energy deuteron are generated in the vicinity of the surface of the TiD layer of the target, the uniform distribution of deuterium in the layer assumed in the calculation may be not accurate.

In order to investigate the effect of deuterium distributions in the TiD layer, another calculation was performed assuming a non-uniform distribution of deuterium. Figure 22 shows the deuterium distribution assumed in the present calculation. Figure 23 compares the calculated ratio of the two reactions assuming the non-uniform distribution of deuterium with the experiment. The agreement in far forward and backward angles between calculation and experiment is improved. It is noted that the distribution is a mere assumption and more deliberation is necessary for using the source term based on the present calculation for experimental analyses.

#### **4. Source term in MCNP calculations for experiments with DD neutron source**

The present calculation model mentioned in Section 3 is so complicated that it is impractical to be incorporated into usual analysis calculations of experiments with DD neutrons. Hence, a source term for such a calculation was prepared based on the present model with the uniform deuterium distribution in the TiD layer. The source term is shown in Appendix C. In the source term, the polar distribution of emitted neutrons is divided into 36 groups of every 5-deg. step. The azimuthal distribution cannot be represented in the SDEF card and is treated as uniform in  $2\pi$  direction. The source term was obtained by integrating the azimuthal distribution over  $2\pi$  direction. In forward angles, this treatment is proper because there is no obvious difference of the polar distribution over the whole azimuthal angle as shown in Table 3 and Figure 13. However, it is noted that the averaged flux slightly underestimates the flux of the non-vertical direction in backward angles as shown in the table and figure. Therefore, it is recommended to use the SSW and SSR (surface source read and write) functions of MCNP for such an analysis of an experimental arrangement surrounding the target assembly entirely.

#### **5. Summary**

The specification of the d-D neutron source with a titanium deuteride target at the FNS facility was investigated. The characteristic of neutrons produced by the d-D reaction was described based on the reaction kinematics, and the target assembly of the facility was modeled for the MCNP calculation in detail. The angular distribution of the neutron was measured with the activation foil method. The measured reaction rates were well predicted by the MCNP calculation, and the validity of the present calculation was confirmed. The uncertainty due to a deuterium distribution in the TiD layer was pointed out. Based on the present calculation model, a MCNP source term was prepared for usual analysis calculations of experiments with DD neutrons.

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**Table 1 Calculated total thick target yields**

Reaction	Thick target yield
D(d,n) <sup>3</sup> He	$3.077 \times 10^9$ neutron/mC
D(d,p)T	$2.711 \times 10^9$ proton/mC

**Table 2 Polar angular distributions of emitted neutrons obtained in the present MCNP calculation, which were averaged over the whole azimuthal angle of  $2\pi$** 

Polar angle $\theta$		Yield [n/sr/d-D reaction]		Ratio (>1.8 MeV /Total)
Min.	Max.	Total	> 1.8 MeV	
0	5	2.036	1.968	0.966
5	10	2.017	1.947	0.966
10	15	1.966	1.896	0.964
15	20	1.896	1.825	0.963
20	25	1.810	1.738	0.960
25	30	1.704	1.632	0.957
30	35	1.591	1.518	0.954
35	40	1.476	1.402	0.950
40	45	1.360	1.285	0.945
45	50	1.249	1.175	0.941
50	55	1.142	1.068	0.935
55	60	1.045	0.971	0.930
60	65	0.958	0.885	0.924
65	70	0.877	0.804	0.917
70	75	0.802	0.731	0.911
75	80	0.720	0.650	0.903
80	85	0.605	0.538	0.890
85	90	0.507	0.446	0.880
90	95	0.799	0.734	0.919
95	100	0.832	0.762	0.915
100	105	0.863	0.790	0.915
105	110	0.897	0.822	0.916
110	115	0.930	0.853	0.918
115	120	0.923	0.847	0.917
120	125	0.886	0.811	0.915
125	130	0.874	0.801	0.916
130	135	0.857	0.785	0.916
135	140	0.836	0.765	0.916
140	145	0.841	0.771	0.917
145	150	0.956	0.886	0.927
150	155	1.129	1.058	0.937
155	160	1.252	1.180	0.942
160	165	1.294	1.223	0.945
165	170	1.156	1.089	0.942
170	175	0.972	0.911	0.937
175	180	1.444	1.379	0.955

**Table 3 Polar angular distributions of emitted neutrons obtained in the present MCNP calculation, where the flux was averaged over two different ranges of azimuthal angle**

Polar angle $\theta$		Yield [n/sr/d-D reaction]				
Min.	Max.	Average ( $0 \leq \phi < 360$ )	Vertical ( $82 < \phi < 98$ )	Ratio to average	Non-vertical ( $98 < \phi < 262$ )	Ratio to average
0	5	2.035	2.034	1.00	2.035	1.00
5	10	2.019	2.023	1.00	2.019	1.00
10	15	1.965	1.967	1.00	1.965	1.00
15	20	1.895	1.896	1.00	1.894	1.00
20	25	1.809	1.808	1.00	1.809	1.00
25	30	1.703	1.702	1.00	1.704	1.00
30	35	1.591	1.594	1.00	1.591	1.00
35	40	1.475	1.473	1.00	1.476	1.00
40	45	1.360	1.358	1.00	1.360	1.00
45	50	1.249	1.247	1.00	1.249	1.00
50	55	1.143	1.146	1.00	1.143	1.00
55	60	1.045	1.045	1.00	1.045	1.00
60	65	0.958	0.957	1.00	0.958	1.00
65	70	0.877	0.878	1.00	0.877	1.00
70	75	0.802	0.802	1.00	0.802	1.00
75	80	0.720	0.719	1.00	0.720	1.00
80	85	0.605	0.597	0.99	0.606	1.00
85	90	0.507	0.383	0.75	0.519	1.02
90	95	0.798	0.734	0.92	0.805	1.01
95	100	0.832	0.793	0.95	0.836	1.00
100	105	0.863	0.833	0.96	0.867	1.00
105	110	0.897	0.867	0.97	0.900	1.00
110	115	0.929	0.889	0.96	0.933	1.00
115	120	0.923	0.872	0.94	0.928	1.00
120	125	0.886	0.824	0.93	0.893	1.01
125	130	0.874	0.797	0.91	0.882	1.01
130	135	0.857	0.763	0.89	0.867	1.01
135	140	0.835	0.722	0.87	0.846	1.01
140	145	0.841	0.701	0.83	0.855	1.02
145	150	0.956	0.764	0.80	0.975	1.02
150	155	1.129	0.871	0.77	1.154	1.02
155	160	1.252	1.035	0.83	1.273	1.02
160	165	1.294	1.294	1.00	1.295	1.00
165	170	1.155	1.174	1.02	1.153	1.00
170	175	0.972	0.994	1.02	0.970	1.00
175	180	1.445	1.447	1.00	1.445	1.00

**Table 4 Azimuthal angular distributions of emitted neutrons obtained from the present MCNP calculation, which was averaged over whole polar angle of  $\pi$**

Azimuthal angle $\phi$		Yield [n/sr/d-D reaction]
Min.	Max.	
0	5	1.005
5	10	1.005
10	15	1.006
15	20	1.006
20	25	1.005
25	30	1.007
30	35	1.006
35	40	1.006
40	45	1.005
45	50	1.005
50	55	1.005
55	60	1.005
60	65	1.005
65	70	1.004
70	75	1.003
75	80	0.999
80	85	0.981
85	90	0.945
90	95	0.945
95	100	0.981
100	105	1.000
105	110	1.003
110	115	1.005
115	120	1.005
120	125	1.006
125	130	1.006
130	135	1.005
135	140	1.006
140	145	1.006
145	150	1.006
150	155	1.006
155	160	1.006
160	165	1.006
165	170	1.005
170	175	1.005
175	180	1.005

**Table 5 Details of the sample foils used in the present experiment**

Material	Shape	Thickness	Purity
In	10 mm × 10 mm	1 mm	99.99%
Ni	10 mm-φ	1 mm	99.98%

**Table 6 Irradiated angles in the present experiment**

Material	Polar angle θ [deg.]	Azimuthal angle φ [deg.]
In, Ni	0	0
In	15	0
In, Ni	30	0
In, Ni	45	0
In, Ni	60	0
In, Ni	75	0
In	90	0
In, Ni	105	0
In, Ni	120	0
In	135	0
In, Ni	150	0
In	165	0
In	30	90
In	75	90
In	90	90
In	105	90
In	120	90
In	30	180
Ni	45	180
In	60	180
In	90	180

$\phi=0$  is on the horizontal plane and  $\phi=90$  is on the vertical plane.  $\phi=180$  is on the horizontal plane but symmetrical to the beam axis.

**Table 7 Summary of reaction rates of the  $^{115}\text{In}(\text{n},\text{n}')^{115\text{m}}\text{In}$  reaction**

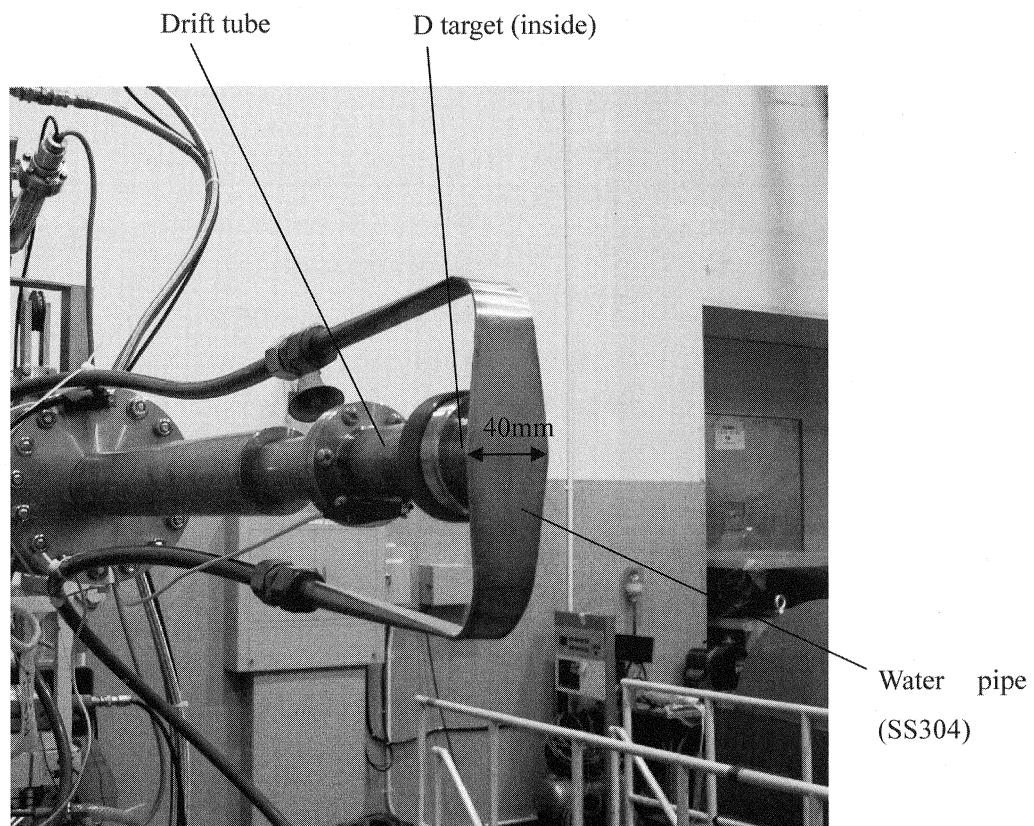
$\theta$ [deg.]	$\phi$ [deg.]	Experiment		Calculation	C/E
		Reaction rate	Error	Reaction rate	
0	0	5.50E-28	0.005	5.39E-28	0.98
15	0	5.16E-28	0.007	5.14E-28	1.00
30	0	4.37E-28	0.007	4.34E-28	0.99
45	0	3.41E-28	0.007	3.38E-28	0.99
60	0	2.57E-28	0.009	2.58E-28	1.01
75	0	1.87E-28	0.009	1.94E-28	1.04
90	0	1.59E-28	0.01	1.73E-28	1.09
105	0	2.16E-28	0.01	2.17E-28	1.00
120	0	2.13E-28	0.01	2.21E-28	1.04
135	0	2.04E-28	0.01	1.99E-28	0.97
150	0	2.44E-28	0.01	2.42E-28	0.99
165	0	2.86E-28	0.01	2.81E-28	0.98
30	90	4.33E-28	0.007	4.31E-28	1.00
75	90	1.84E-28	0.01	1.94E-28	1.06
90	90	1.13E-28	0.008	1.34E-28	1.19
105	90	2.04E-28	0.009	2.14E-28	1.05
120	90	2.05E-28	0.008	2.09E-28	1.02
30	180	4.34E-28	0.007	4.34E-28	1.00
60	180	2.55E-28	0.01	2.58E-28	1.01
90	180	1.60E-28	0.01	1.73E-28	1.08

$\phi=0$  is on the horizontal plane and  $\phi=90$  is on the vertical plane.  $\phi=180$  is on the horizontal plane but symmetrical to the beam axis.

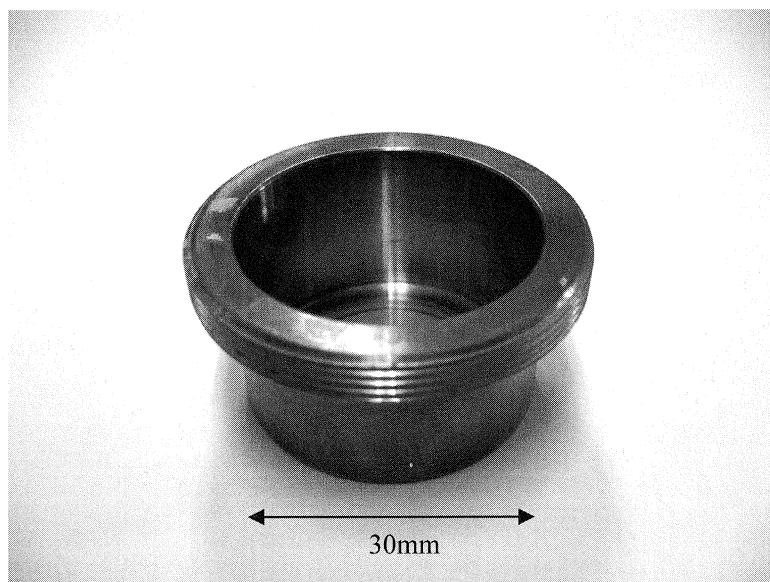
**Table 8 Summary of reaction rates of the  $^{58}\text{Ni}(\text{n},\text{p})^{58\text{m+g}}\text{Co}$  reaction**

$\theta$ [deg.]	$\phi$ [deg.]	Experiment		Calculation	C/E
		Reaction rate	Error	Reaction rate	
0	0	3.04E-28	0.012	3.17E-28	1.04
30	0	2.20E-28	0.013	2.35E-28	1.06
45	0	1.63E-28	0.011	1.66E-28	1.01
60	0	1.07E-28	0.014	1.10E-28	1.02
75	0	6.55E-29	0.014	6.83E-29	1.04
105	0	5.76E-29	0.015	5.42E-29	0.94
120	0	4.65E-29	0.022	4.71E-29	1.01
150	0	4.19E-29	0.024	4.13E-29	0.98
45	180	1.69E-28	0.007	1.66E-28	0.98

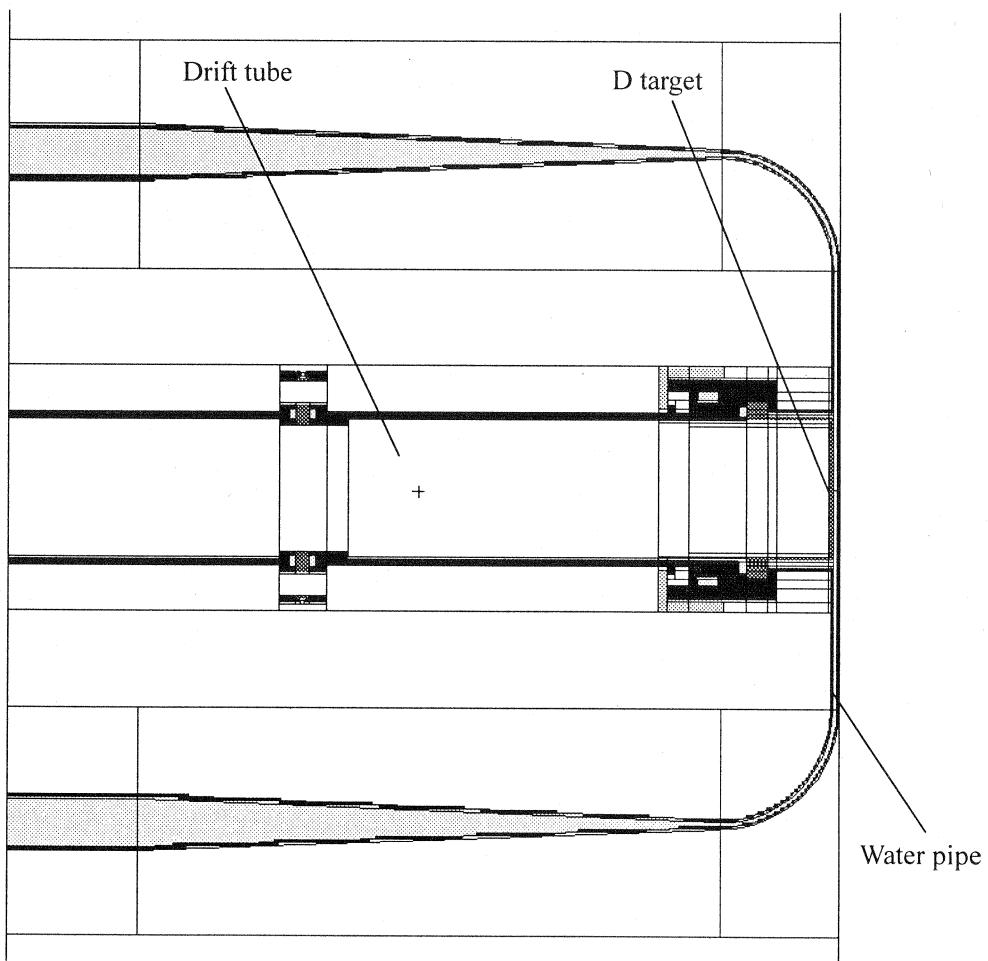
$\phi=0$  is on the horizontal plane.  $\phi=180$  is on the horizontal plane but symmetrical to the beam axis.



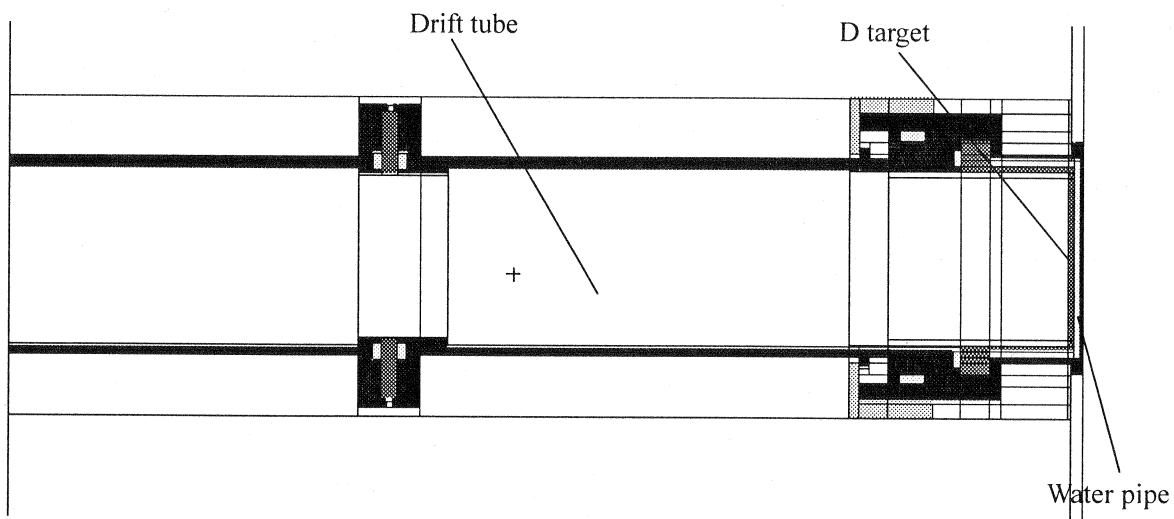
**Figure 1** Picture of the target assembly of the 80-degree beam line.



**Figure 2** Picture of the cup-shaped target substrate.



**Figure 3** Vertical cross-sectional view of the MCNP calculation model.



**Figure 4** Horizontal cross-sectional view of the MCNP calculation model.

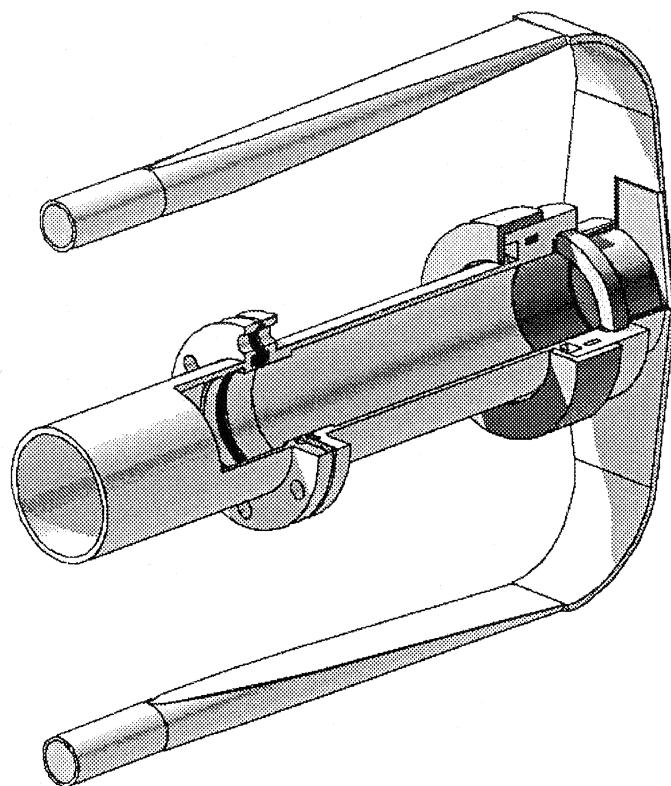


Figure 5 3D view of the MCNP calculation model.

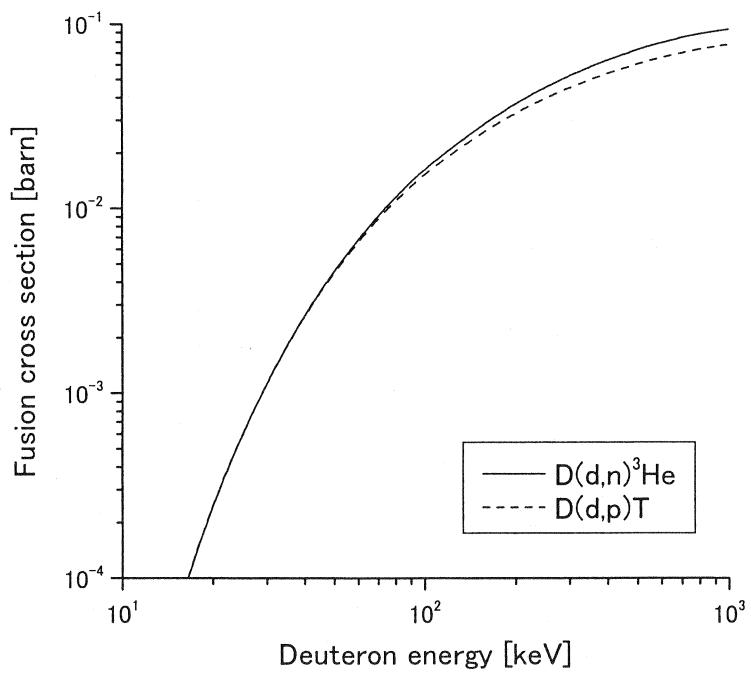
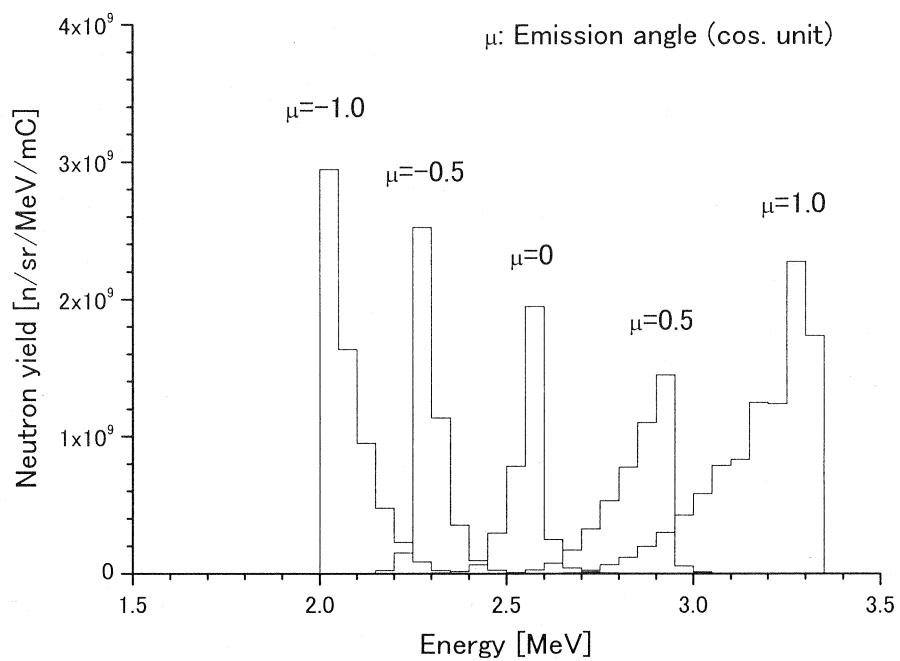
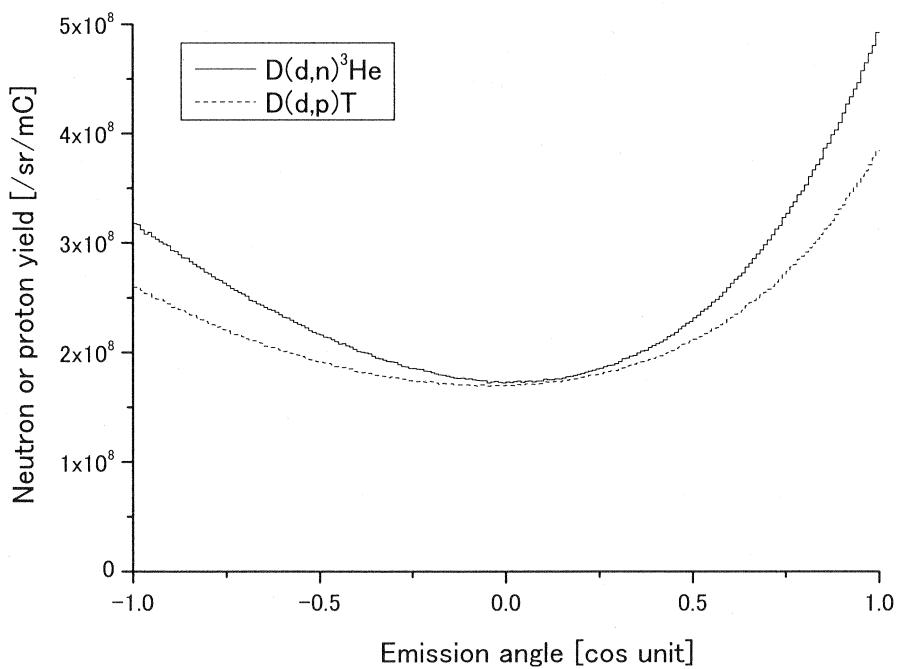


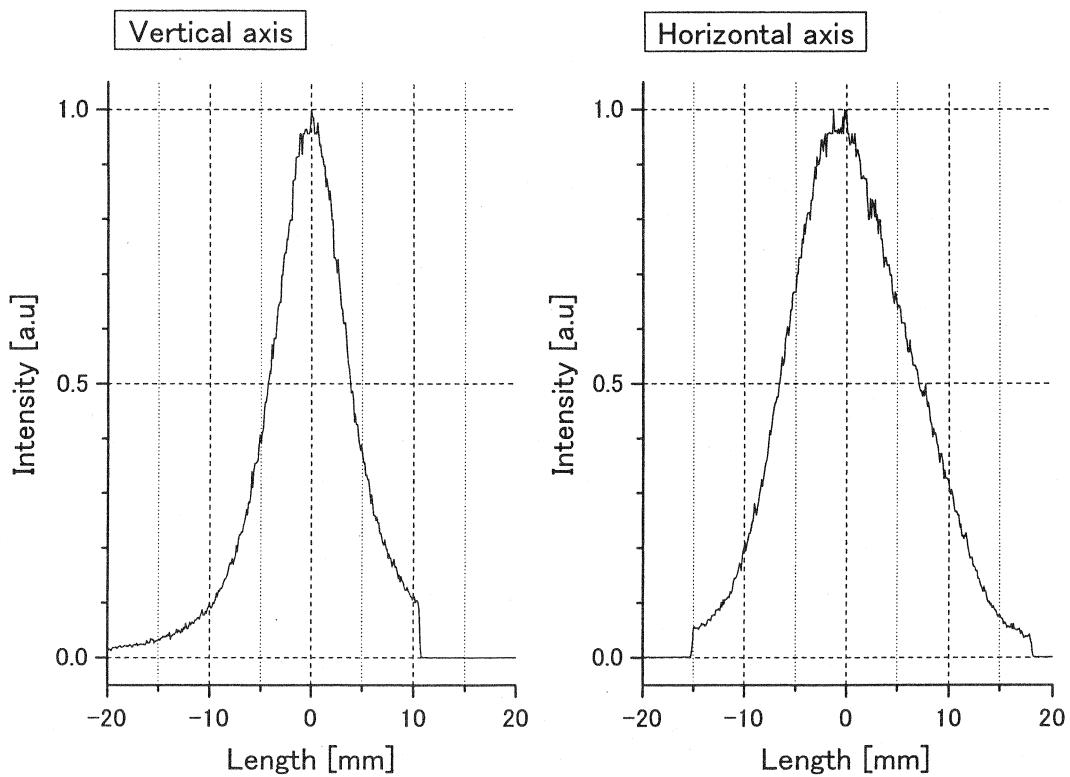
Figure 6 Cross sections for d-D reactions evaluated in ENDF/B-VI.



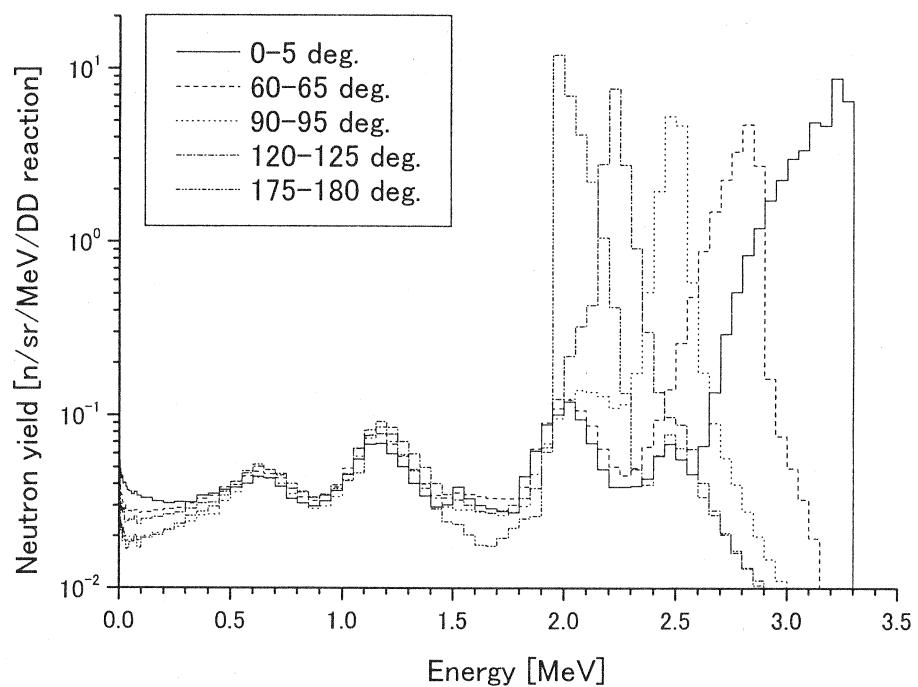
**Figure 7 Energy-angular differential thick target yields for emitted neutrons at respective angles obtained from the present kinematics calculation.**



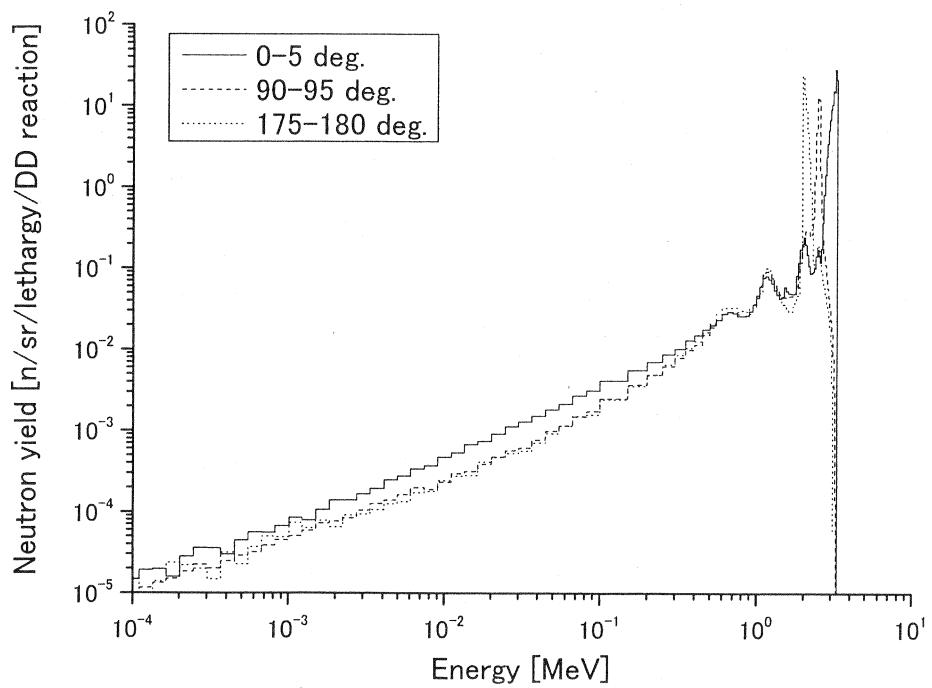
**Figure 8 Angular-differential thick target yields for emitted neutrons and protons obtained from the present kinematics calculations.**



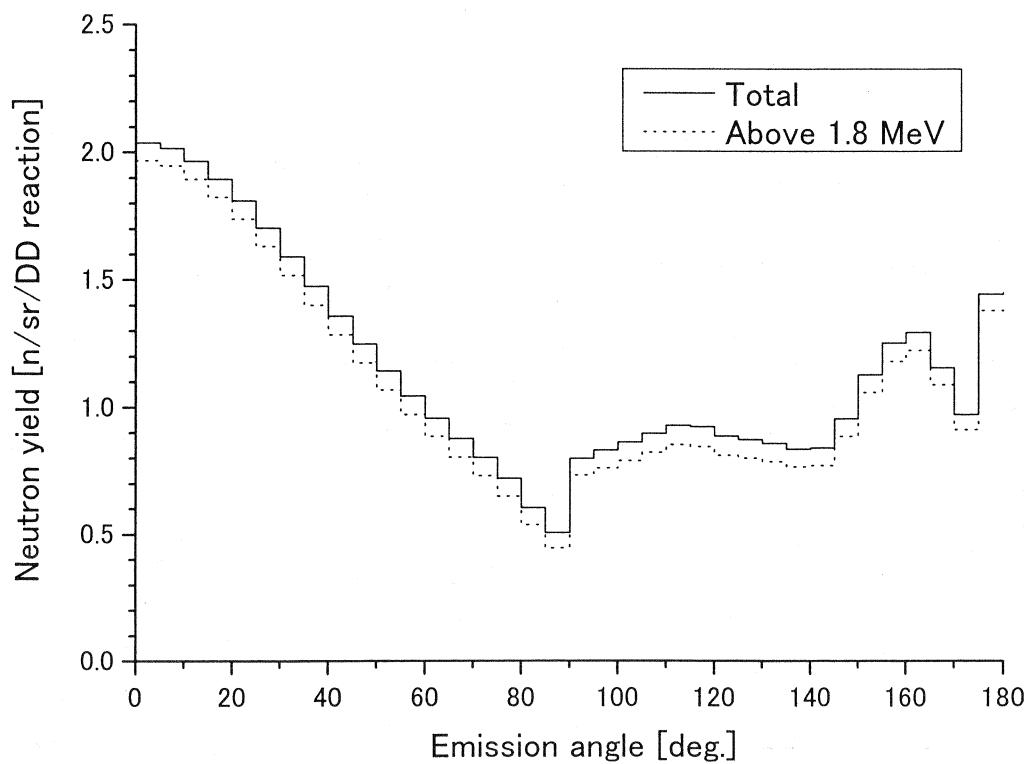
**Figure 9** Typical cross sectional profile of beam intensity on the target substrate measured with an imaging plate.



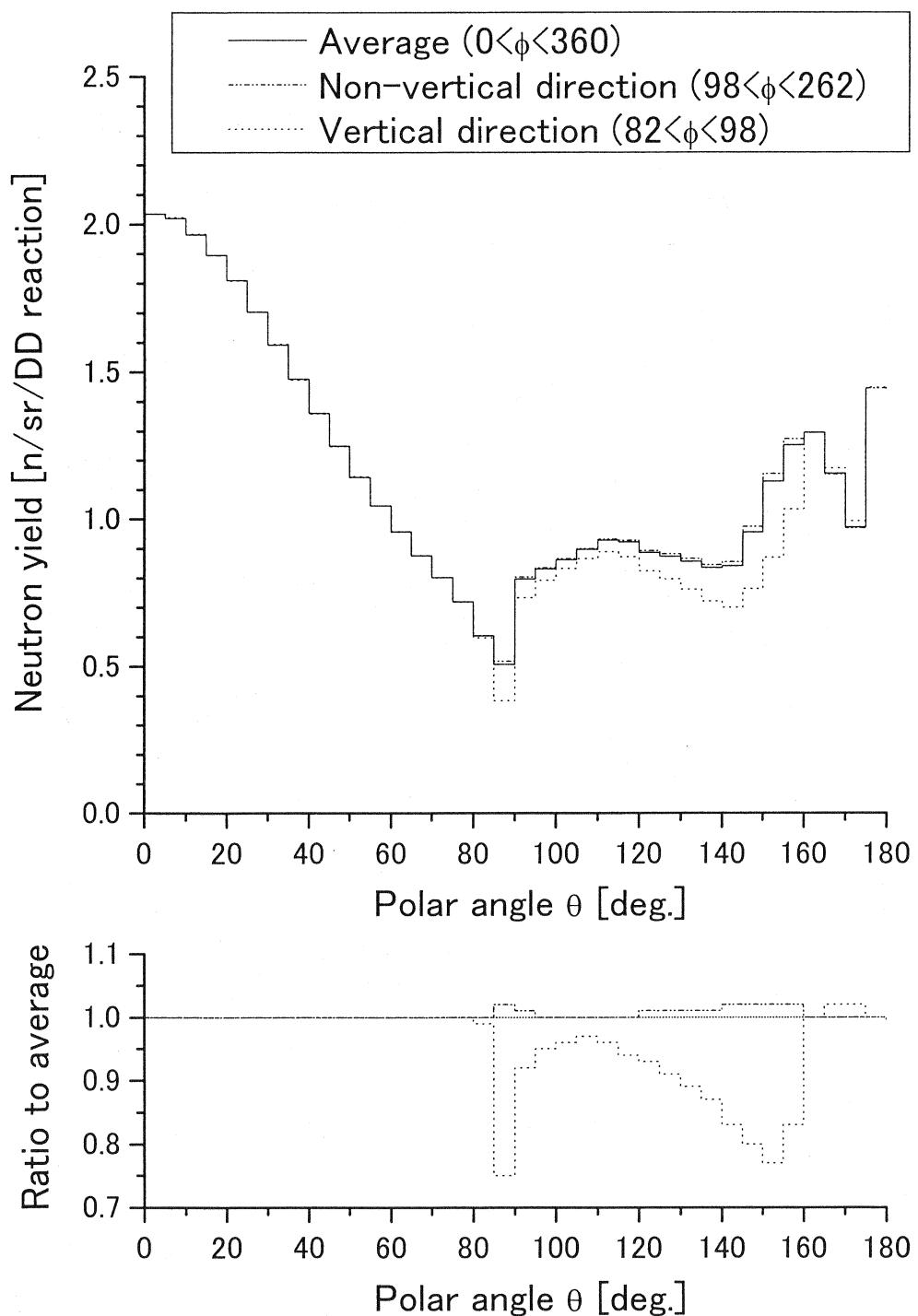
**Figure 10** Energy distributions of emitted neutrons at respective angles obtained in the present MCNP calculation.



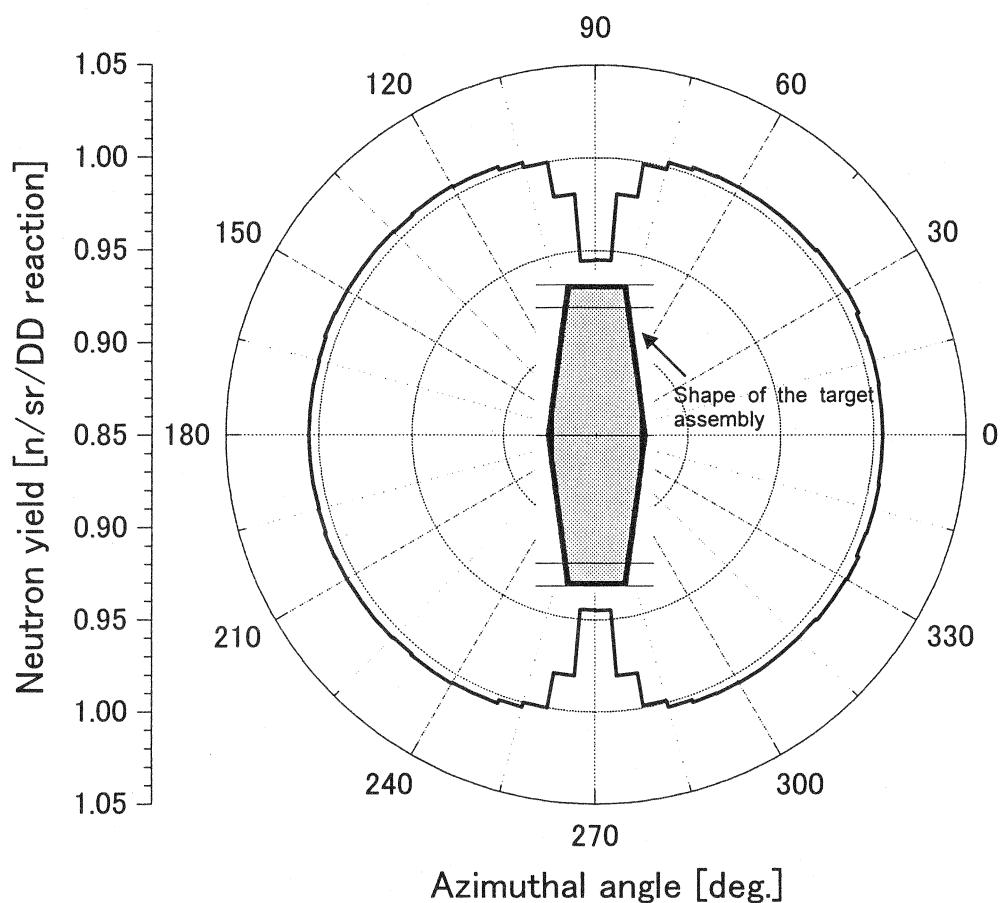
**Figure 11** Energy distributions in lethargy unit of emitted neutrons at respective angles obtained in the present MCNP calculation.



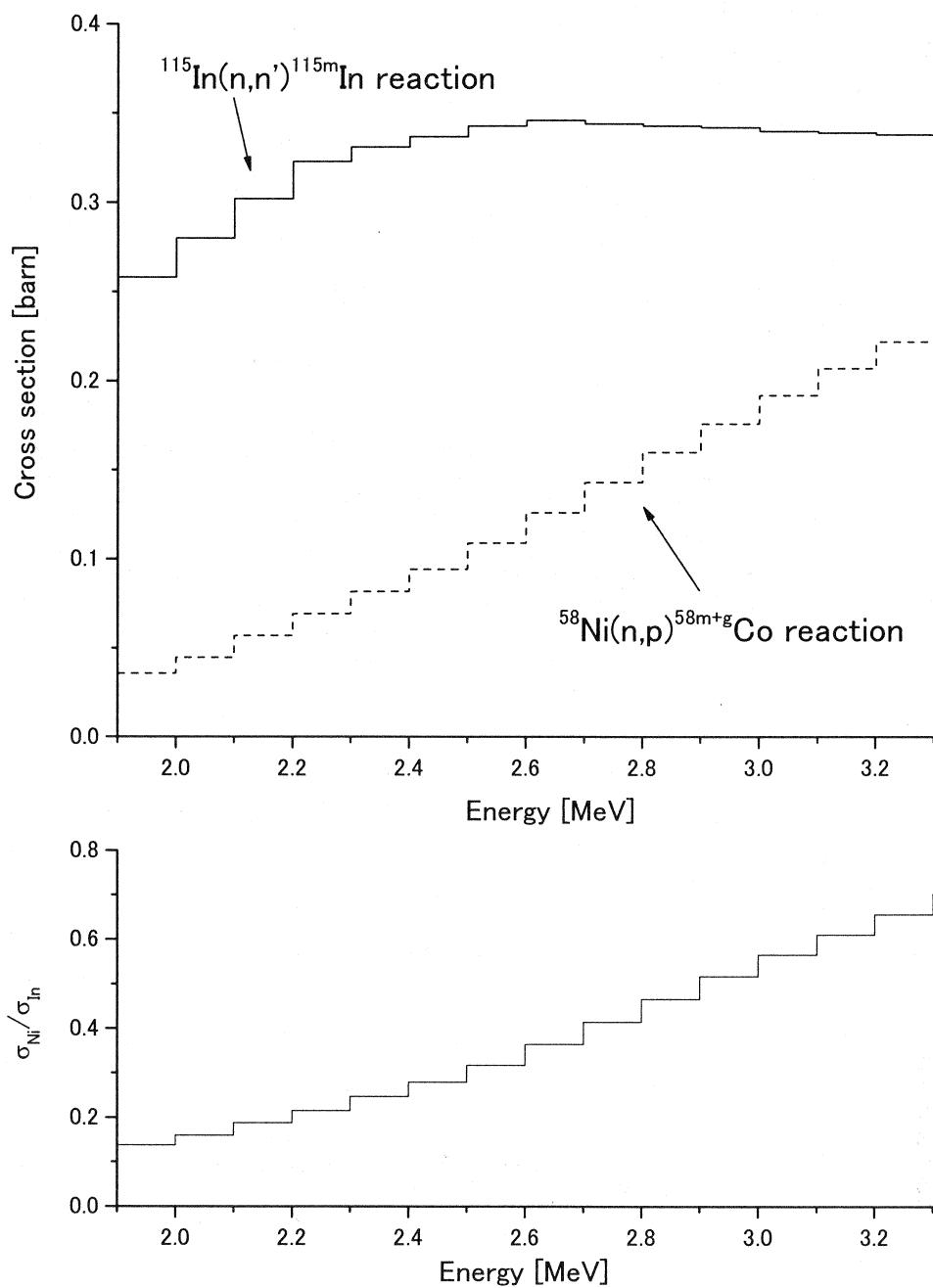
**Figure 12** Angular distributions of emitted neutrons obtained in the present MCNP calculation, which were averaged over the whole azimuthal angle of  $2\pi$ .



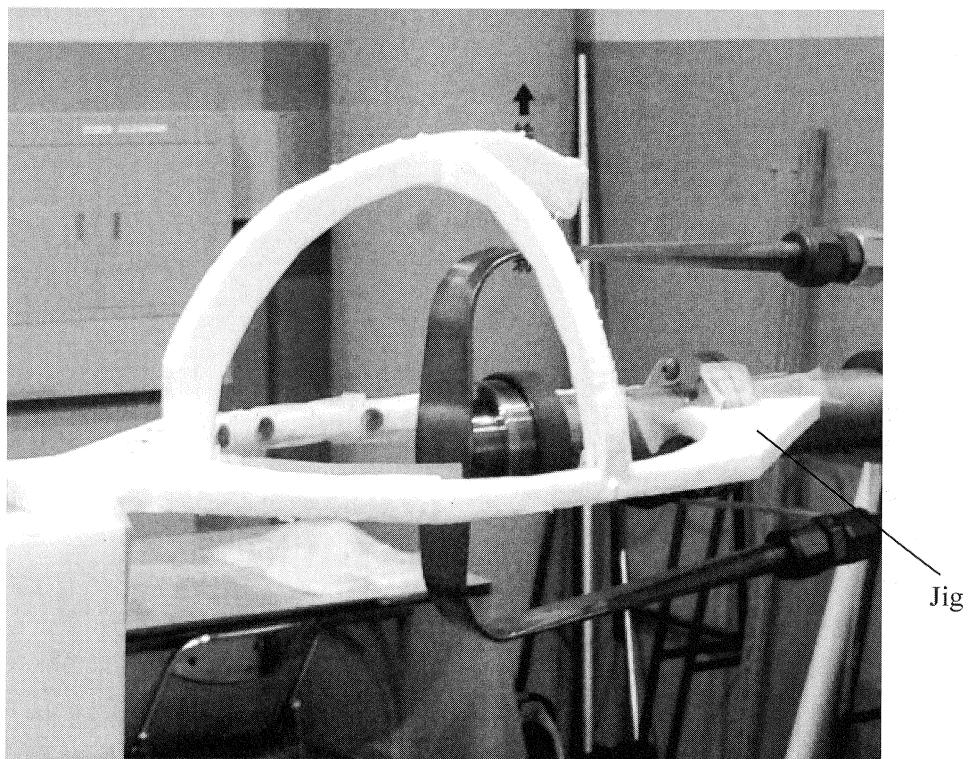
**Figure 13** Angular distributions of emitted neutrons obtained in the present MCNP calculation, where the flux was averaged over two different ranges of the azimuthal angle to estimate the influence of the target assembly.



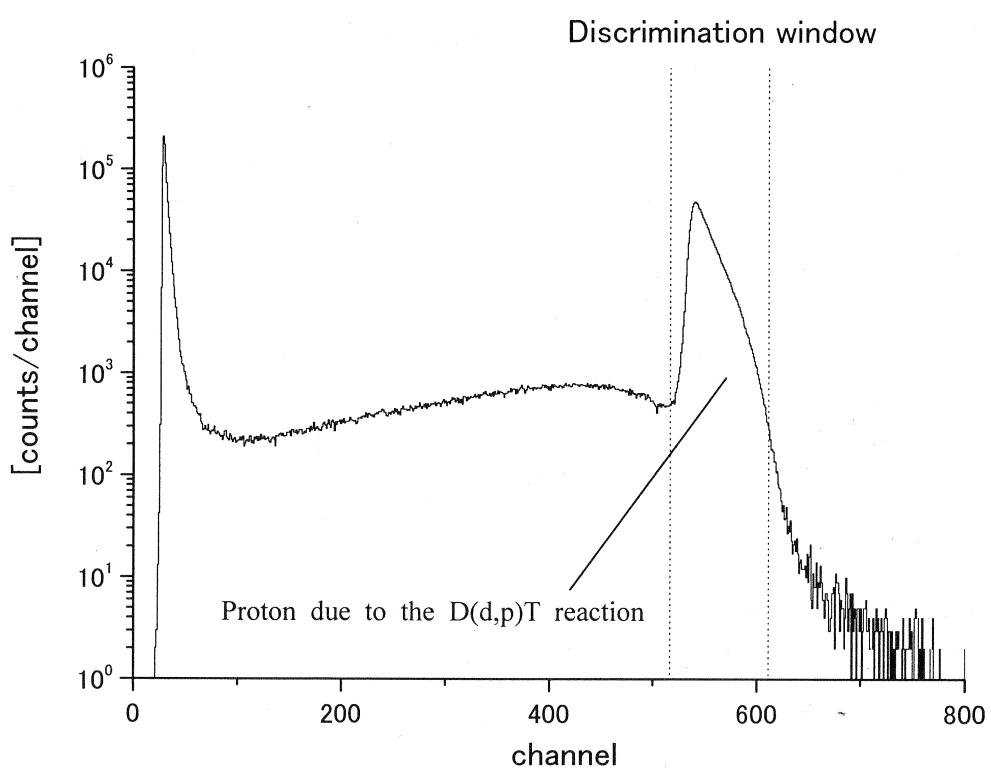
**Figure 14** Azimuthal angular distributions of emitted neutrons obtained in the present MCNP calculation.



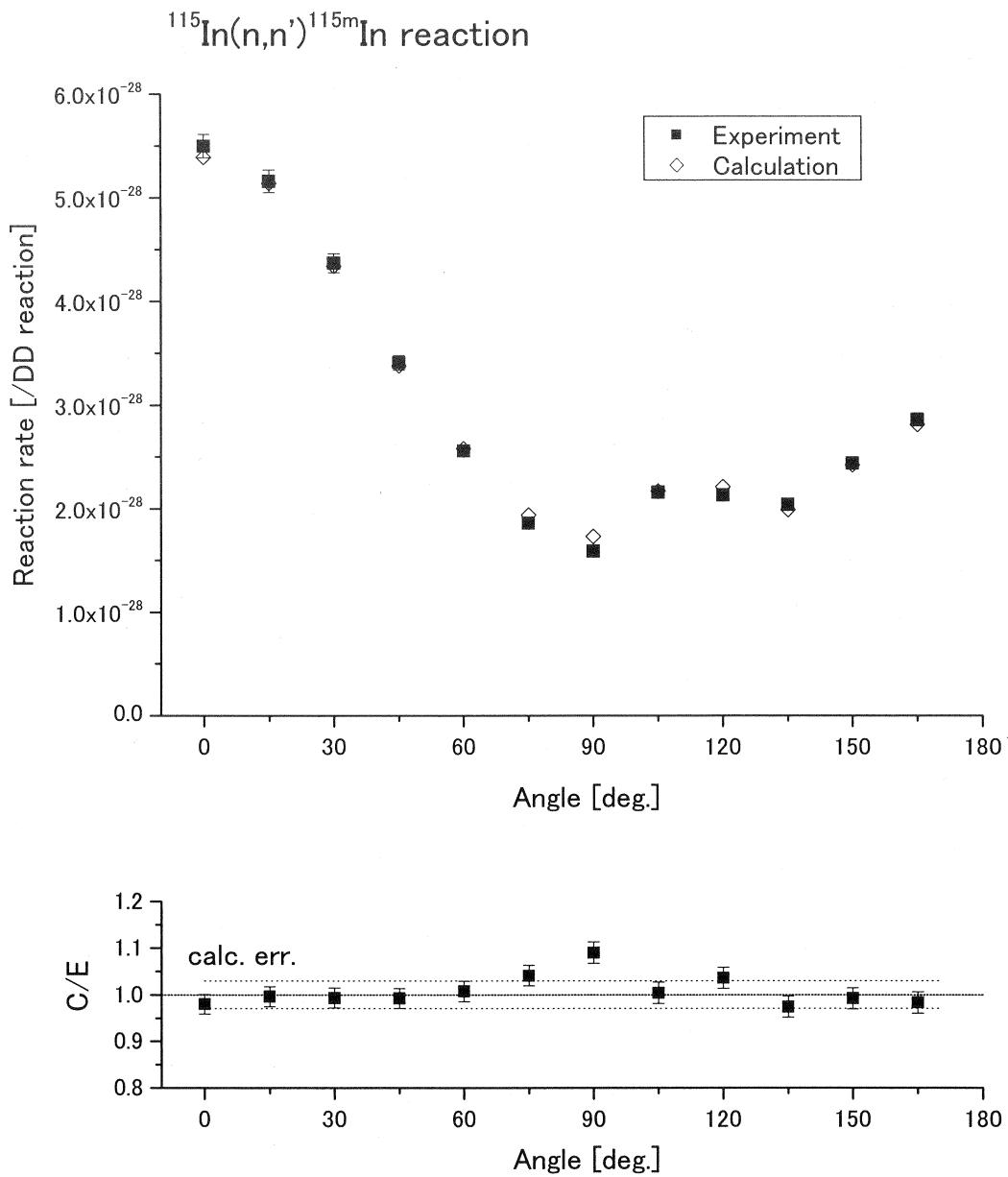
**Figure 15** Cross sections of the  $^{115}\text{In}(n,n')$  $^{115\text{m}}\text{In}$  and  $^{58}\text{Ni}(n,p)$  $^{58\text{m+g}}\text{Co}$  reactions in JENDL/D-99. The ratio of these two cross sections is also shown.



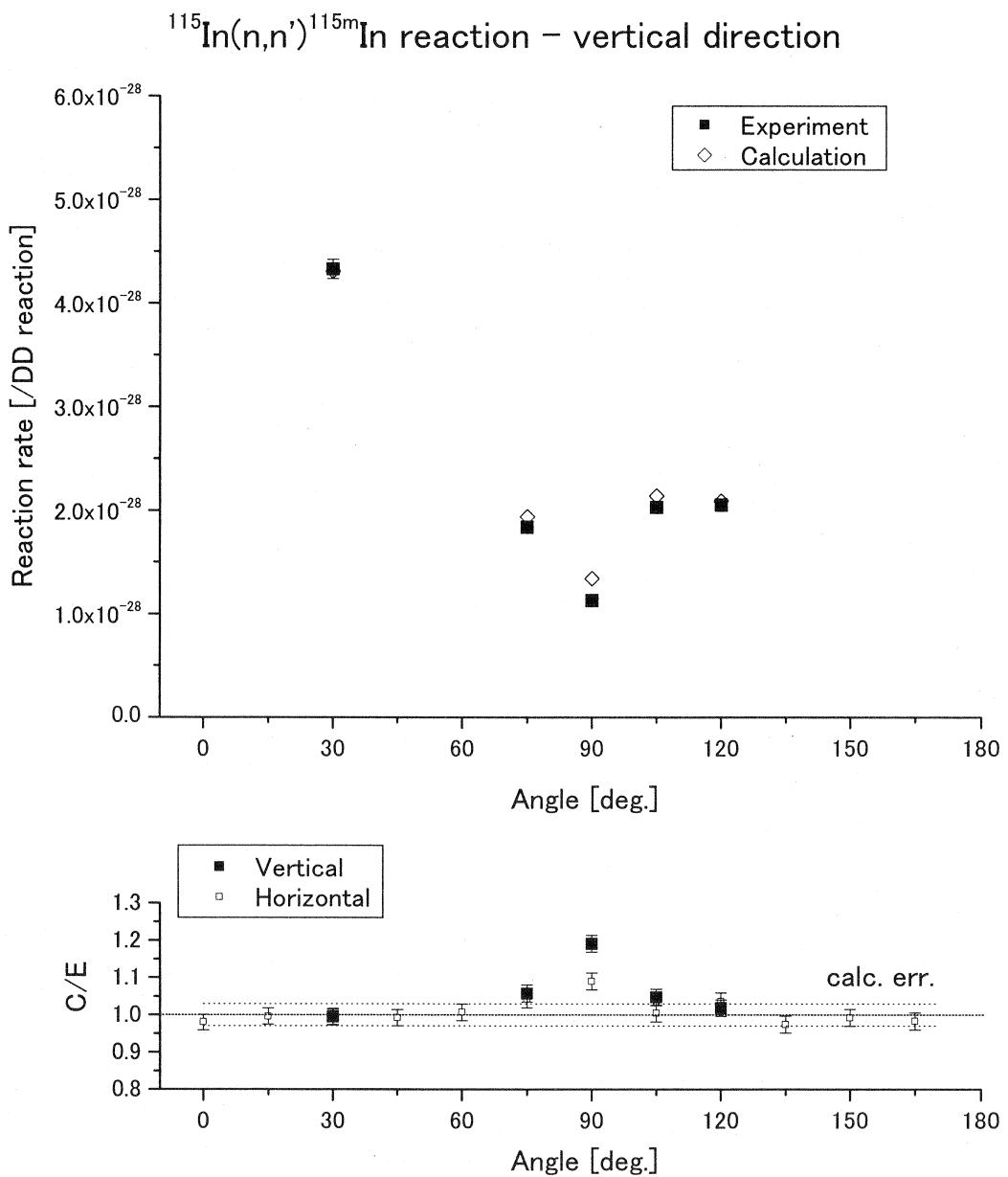
**Figure 16 Picture of experimental arrangement.**



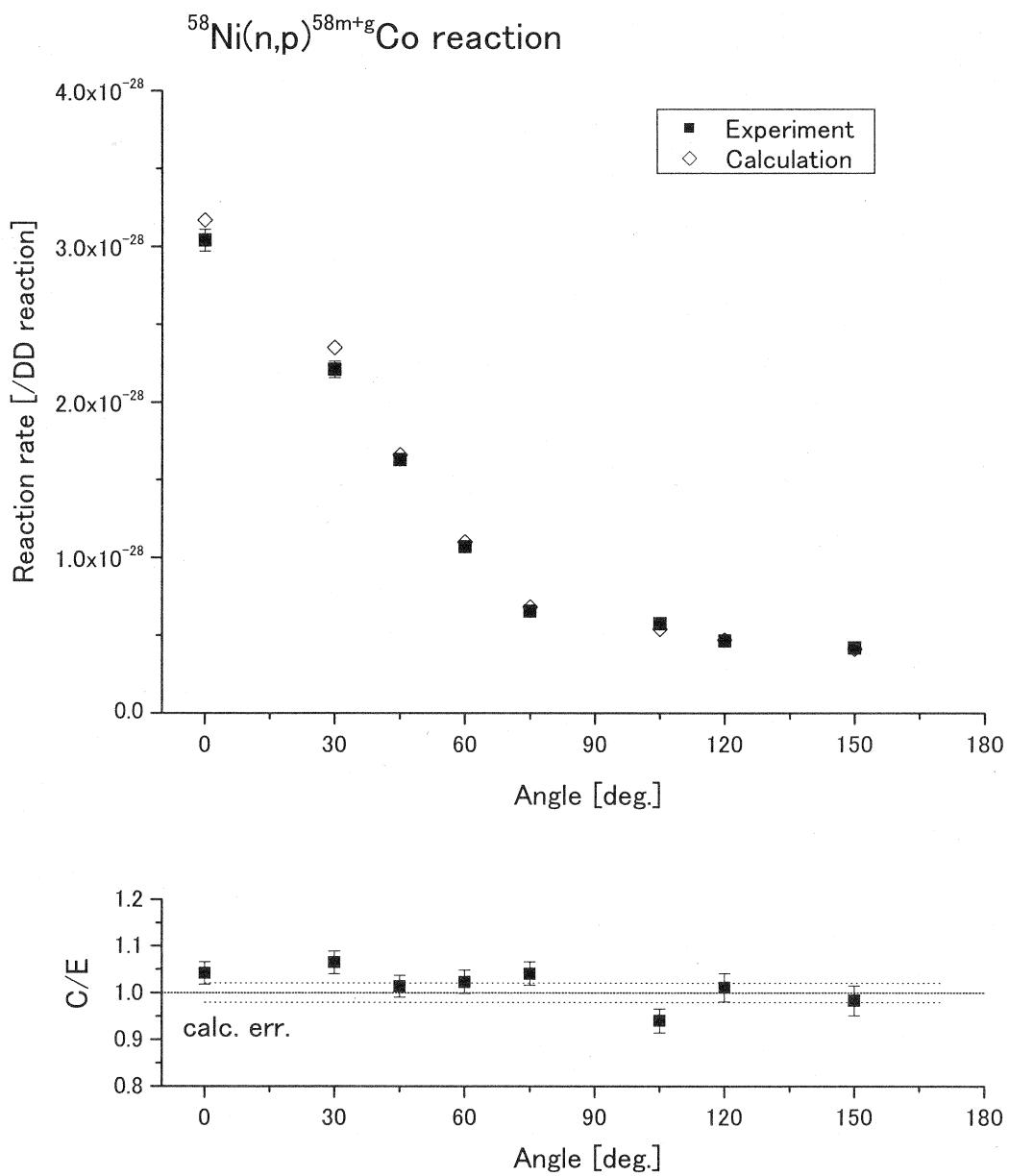
**Figure 17 Typical d-D proton spectrum measured with the silicon detector #2.**



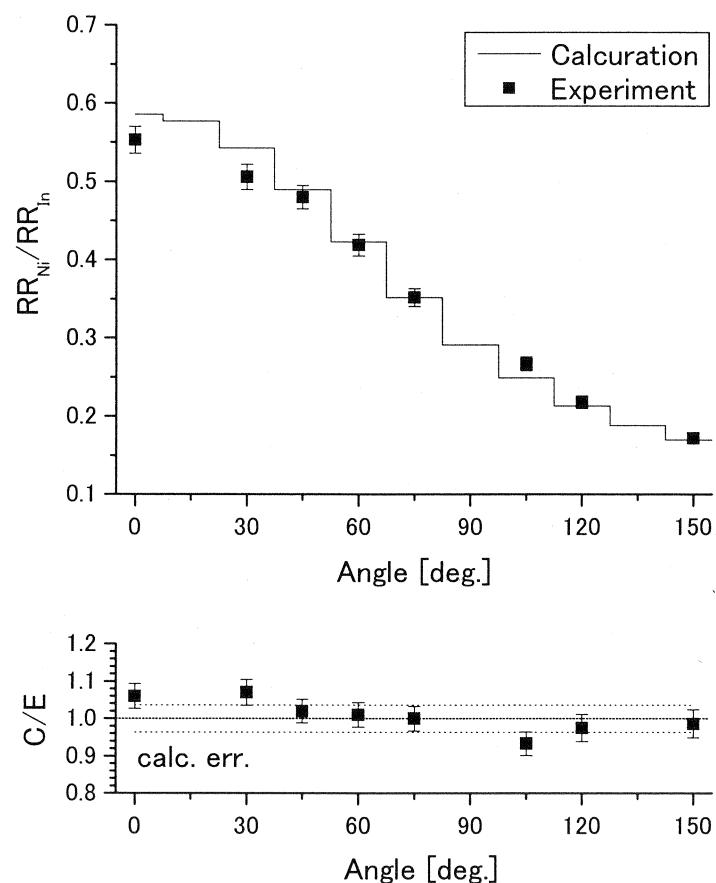
**Figure 18 Comparison between experiment and calculation of angular distribution of the  $^{115}\text{In}(n,n')^{115\text{m}}\text{In}$  reaction rate on the horizontal plane.**



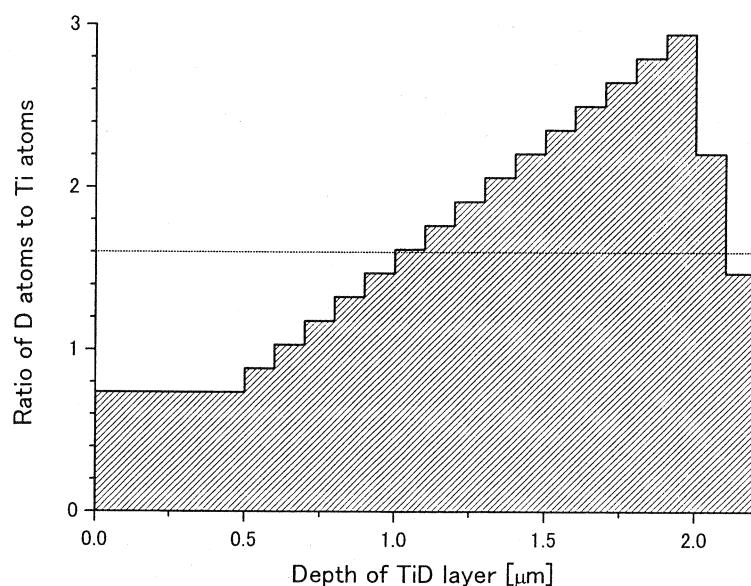
**Figure 19 Comparison between experiment and calculation of angular distribution of the  $^{115}\text{In}(n,n')^{115\text{m}}\text{In}$  reaction rate on the vertical plane.**



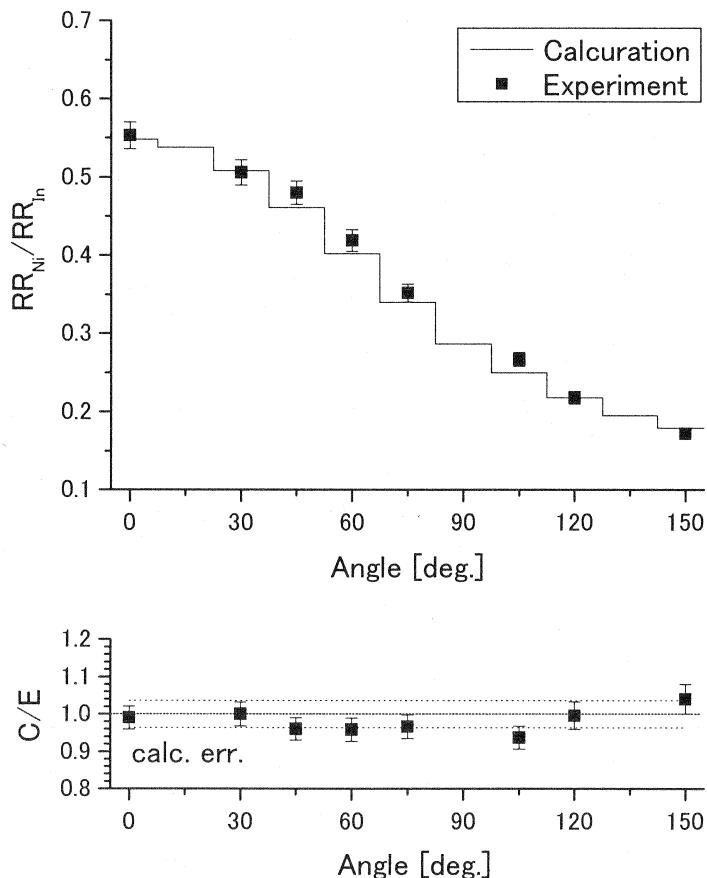
**Figure 20 Comparison between experiment and calculation of angular distribution of the  $^{58}\text{Ni}(\text{n},\text{p})^{58\text{m+g}}\text{Co}$  reaction rate on the vertical plane.**



**Figure 21 Comparison between experiment and calculation of the ratio of the reaction rate of  $^{58}\text{Ni}(\text{n},\text{p})^{58\text{m}+\text{g}}\text{Co}$  to those of  $^{115}\text{In}(\text{n},\text{n}')^{115\text{m}}\text{In}$ .**



**Figure 22 Deuterium distribution in the TiD layer assumed in the present calculation.**



**Figure 23 Comparison between experiment and calculation of the reaction rate ratio of the  $^{58}\text{Ni}(\text{n},\text{p})^{58\text{m}+\text{g}}\text{Co}$  to the  $^{115}\text{In}(\text{n},\text{n}')^{115\text{m}}\text{In}$  when a non-uniform distribution of deuterium in the TiD layer was assumed.**

**Appendix A Example of inputs and outputs of SRIM 2008 calculations****TRIM.IN**

```
=> SRIM-2008.03 This file controls TRIM Calculations.
Ion: Z1 , M1, Energy (keV), Angle, Number, Bragg Corr, AutoSave Number.
      1   2.014      350      0    77777      0    10000
Cascades (1=No;2=Full;3=Sputt;4-5=Ions;6-7=Neutrons), Random Number Seed, Reminders
      1                   0      0
Diskfiles (0=no, 1=yes) : Ranges, Backscatt, Transmit, Sputtered, Recoils (0=none;1=Some;2=All Details;>10=XYZ
Output)
      0      0      1      0      0      0
Target material : Number of Elements & Layers
"D (350keV) into TiD1.6"           2           1
PlotType (0-5) : Plot Depths: Xmin, Xmax(Ang.) [=0 0 for Viewing Full Target]
      5           0           0
Target Elements: Z Mass(amu)
Atom 1 = Ti =      22     47.9
Atom 2 = H =       1     2.014
Layer Layer Name / Width Density Ti (22)
Numb. Description (Ang) (g/cm3) Stoich
 1 "Layer 1"      21000  4.5189   .384615 .615385
0 Target layer phases (0=Solid, 1=Gas)
0
Target Compound Corrections (Bragg)
1
Individual target atom displacement energies (eV)
  25      10
Individual target atom lattice binding energies (eV)
  3      3
Individual target atom surface binding energies (eV)
  4.89      2
Stopping Power Version (1=2008, 0=2008)
0
```

**TRIMAUTO**

1

TRIMAUTO allows the running of TRIM in batch mode (without any keyboard inputs).

This feature is controlled by the number in line #1 (above).

0 = Normal TRIM - New Calculation based on TRIM.IN made by setup program.

1 = Auto TRIM - TRIM based on TRIM.IN. No inputs required. Terminates after all ions.

2 = RESUME - Resume old TRIM calculation based on files: SRIM Restore\*.SAV.

## TRANSMIT.TXT

SRIM-2008.03

## TRANSMIT.txt : File of Transmitted Ions

- = This file tabulates the kinetics of ions or atoms leaving the target. =
- = Column #1: S= Sputtered Atom, B= Backscattered Ion, T= Transmitted Ion. =
- = Col. #2: Ion Number, Col.#3: Z of atom leaving, Col.#4: Atom energy (eV). =
- = Col. #5-7: Last location: X= Depth into target, Y, Z= Transverse axes. =
- = Col. #8-10: Cosines of final trajectory. =
- = \*\*\* This data file is in the same format as TRIM.DAT (see manual for uses). =

===== TRIM Calc. = H(350 keV) =&gt; Layer 1( 1 um) =====

Ion Numb	Atom Numb	Energy (eV)	Depth X(A)	Lateral-Position			Atom Direction		
				Y(A)	Z(A)	Cos(X)	Cos(Y)	Cos(Z)	
T 1	1	1.494865E+06	1000047E-02	- .3152E+03	.6818E+02	.9971031	- .0730912	.0210487	
T 2	1	1.1595423E+06	1000011E-02	- .1287E+03	.2041E+03	.9965839	- .0485962	.0667755	
T 3	1	1.1403222E+06	1000168E-02	.2742E+03	- .6250E+02	.9955315	.0847284	- .0416920	
T 4	1	1.1553361E+06	1000184E-02	- .1149E+03	.1673E+02	.9976233	.0681763	.0099903	
T 5	1	1.1586445E+06	1000165E-02	.2564E+03	- .5951E+03	.9520363	.1415683	- .2712661	
T 6	1	1.1571475E+06	1000035E-02	- .1476E+03	- .1466E+03	.9986146	- .0496158	.0175275	
T 7	1	1.1622193E+06	1000129E-02	.7766E+02	.6102E+02	.9992032	.0250137	.0311025	
T 8	1	1.1401269E+06	1000183E-02	.3515E+03	- .2922E+03	.9881290	- .1112048	- .1059933	
T 9	1	1.1476272E+06	1000076E-02	.5408E+02	- .5657E+03	.9921841	.0004647	- .1247817	
T 10	1	1.1403973E+06	1000059E-02	- .6450E+03	- .1354E+04	.8475683	- .1959357	- .4931908	
T 11	1	1.1476412E+06	1000002E-02	- .1711E+03	.1084E+03	.9983544	.0557645	- .0133693	
T 12	1	1.1490498E+06	1000093E-02	.6948E+02	- .9042E+02	.9998721	.0073111	.0142256	
T 13	1	1.1563560E+06	1000043E-02	- .1095E+04	.5052E+03	.9835667	- .1454846	.1069149	
T 14	1	1.1571999E+06	1000177E-02	- .4708E+03	- .1181E+03	.9952336	- .0886260	- .0406882	
T 15	1	1.1638854E+06	1000100E-02	- .3762E+03	.2615E+03	.9955458	- .0874986	.0351090	
T 16	1	1.1599048E+06	1000008E-02	- .6585E+02	.2416E+02	.9998960	.0140293	.0033410	
T 17	1	1.1575683E+06	1000163E-02	- .1084E+03	.1383E+03	.9967404	- .0694053	.0411286	
T 18	1	1.1518625E+06	1000050E-02	- .2548E+03	.1293E+03	.9975450	- .0685609	.0142594	
T 19	1	1.1526619E+06	1000168E-02	.4408E+02	.3780E+02	.9999945	.0031960	.0008873	
T 20	1	1.1520950E+06	1000026E-02	- .8023E+02	.2540E+02	.9969660	- .0629423	.0457939	
T 21	1	1.1487863E+06	1000131E-02	- .2547E+03	.2867E+03	.9979374	- .0332205	.0549299	
T 22	1	1.1532297E+06	1000171E-02	.7952E+02	.6857E+02	.9992201	.0172723	- .0355081	
T 23	1	1.1612177E+06	1000145E-02	- .3104E+03	- .1544E+03	.9972346	- .0646325	.0366855	
T 24	1	1.1457876E+06	1000114E-02	- .1929E+03	- .1804E+03	.9979458	- .0629838	- .0117102	
T 25	1	1.1501731E+06	1000167E-02	- .2336E+03	- .2695E+03	.9992227	.0003969	.0394200	
T 26	1	1.1470522E+06	1000041E-02	.3860E+03	- .1757E+03	.9877974	.1506644	- .0394539	
T 27	1	1.1524970E+06	1000000E-02	.6710E+02	.3110E+01	.9991338	- .0395774	.0128533	
T 28	1	1.1564564E+06	1000154E-02	.1466E+03	- .1140E+03	.9990718	- .0426084	- .0063306	
T 29	1	1.1442959E+06	1000135E-02	- .3870E+03	- .2103E+03	.9859009	- .1425463	- .0876359	
T 30	1	1.1410688E+06	1000005E-02	- .2787E+02	.2088E+03	.9996611	- .0040165	.0257209	
T 31	1	1.1436595E+06	1000146E-02	- .2425E+03	.1191E+03	.9972783	- .0641471	.0363464	
T 32	1	1.1636284E+06	1000029E-02	.3667E+03	- .5270E+02	.9923559	.1183659	- .0349190	
T 33	1	1.1674204E+06	1000011E-02	- .3376E+03	- .2163E+03	.9993372	- .0058638	- .0359275	
T 34	1	1.1584100E+06	1000042E-02	- .3041E+03	.4468E+03	.9977259	- .0291204	.0607872	
T 35	1	1.1449869E+06	1000174E-02	.3173E+03	- .3043E+03	.9878803	.1364170	- .0740468	
T 36	1	1.1390346E+06	1000167E-02	.2294E+03	.6090E+03	.9954368	.0208799	.0931103	
T 37	1	1.1575218E+06	1000031E-02	- .1816E+03	- .4527E+02	.9995369	- .0302374	- .0034266	
T 38	1	1.1546643E+06	1000023E-02	- .5176E+03	.2576E+03	.9949324	- .0796757	.0613298	
T 39	1	1.1437914E+06	1000129E-02	.1945E+03	.2219E+03	.9968894	.0287463	.0733834	
T 40	1	1.1458978E+06	1000125E-02	- .1251E+02	.6346E+03	.9923101	- .0453566	.1151670	

(The following is omitted.)

## Appendix B Input data for MCNP calculation

FNS 80 degrees beam line - fixed target assembly , DD reaction  
c uniform distribution of D

40	4	-8.43	18	-20	33	-31		\$brass cap
41	4	-8.43	18	-20	31	-32		
42	4	-8.43	13	-20	34	-33		
c								
50	2	-7.92	84	-85	81	-80		
51	2	-7.92	84	-85	83	-82		
c								
80	5	-4.507	800	-1	-9			\$titanium
c								
90	2	-7.92	100	-106	102	103	-68	-67
91	2	-7.92	107	-101	102	103	-68	-67
92	3	-1.00	106	-107	102	103	-68	-67
93	2	-7.92	110	-116	102	-113	69	70
94	2	-7.92	117	-111	102	-113	69	70
95	3	-1.00	116	-117	102	-113	69	70
c								
101	2	-7.92	-120	121	85	-102	-125	
102	2	-7.92	-122	123	85	-102	-125	
103	2	-7.92	-125	126	-121	-123	85	-102
104	2	-7.92	-130	131	85	-102	-135	
105	2	-7.92	-132	133	85	-102	-135	
106	2	-7.92	-135	136	-131	-133	85	-102
c								
110	3	-1.00	-126	-121	-123	85	-102	
111	3	-1.00	-136	-131	-133	85	-102	
120	3	-1.00	84	-85	-81			
121	3	-1.00	84	-85	-83			
c								
200	0		31	-7	-9			\$beam line (void)
212	0		31	-7	10	-19		
210	0		7	-6	-9			
211	0		6	-8	-9			
221	0		8	-800	-9			
201	0		31	-7	9	-10		
202	0		7	-6	9	-10		
203	0		6	-8	9	-10		
204	0		8	-800	9	-10		
205	0		800	-1	9	-10		
206	0		34	-31	-10			
226	0		34	-31	-19	10		
207	0		38	-34	-19			
208	0		21	-19	34	-35		
209	0		46	-39	-9			
213	0		39	-38	-9			
214	0		84	-46	-19			
c								
600	7	-1.5	15	-16	29	-28		\$O-ring
601	7	-1.5	11	-22	24	-7		
602	7	-1.5	42	-41	10	-23		
603	7	-1.5	45	-44	10	-23		
611	2	-7.92	39	-38	9	-19		
612	2	-7.92	43	-42	18	-17		
613	2	-7.92	44	-47	18	-17		
614	2	-7.92	42	-39	9	-17	#602	203
615	2	-7.92	42	-39	9	-17	#602	204
616	2	-7.92	42	-39	9	-17	#602	205
617	2	-7.92	42	-39	9	-17	#602	202
618	2	-7.92	42	-39	9	-17	#602	201
619	2	-7.92	42	-39	9	-17	#602	200
620	8	-3.9	44	-42	9	-18	203	-211
621	8	-3.9	44	-42	9	-18	204	211
622	8	-3.9	44	-42	9	-18	205	210
623	8	-3.9	44	-42	9	-18	202	-210
624	8	-3.9	44	-42	9	-18	201	-211
625	8	-3.9	44	-42	9	-18	200	211
634	2	-7.92	46	-44	9	-17	#603	203
635	2	-7.92	46	-44	9	-17	#603	204
636	2	-7.92	46	-44	9	-17	#603	205
637	2	-7.92	46	-44	9	-17	#603	202
638	2	-7.92	46	-44	9	-17	#603	201
639	2	-7.92	46	-44	9	-17	#603	200
640	2	-7.92	19	-12	84	-46	60	211
c								
300	6	5.4678e-5	12	-13	34	-33		\$Air
301	6	5.4678e-5	16	-18	8	-1		

800	6	5.4678e-5	13	-15	8	-1			
799	6	5.4678e-5	15	-16	8	-1			
901	6	5.4678e-5	13	-15	1	-222			
900	6	5.4678e-5	15	-16	1	-222			
899	6	5.4678e-5	16	-18	1	-222			
302	6	5.4678e-5	18	-20	32	-7			
902	6	5.4678e-5	18	-20	7	-6			
903	6	5.4678e-5	18	-20	6	-8			
904	6	5.4678e-5	18	-20	8	-1			
905	6	5.4678e-5	18	-20	1	-222			
303	6	5.4678e-5	12	-20	39	-34			
304	6	5.4678e-5	84	-46	-20	12			
305	6	5.4678e-5	20	-103	113	84	-222	-86	-999
306	6	5.4678e-5	-999	86	84	-5			
307	6	5.4678e-5	222	-5	-86	61	60	-103	
308	6	5.4678e-5	222	-5	-86	-64	-60	113	
309	6	5.4678e-5	222	-5	-86	62	60	-103	
310	6	5.4678e-5	222	-5	-86	-63	-60	113	
320	6	5.4678e-5	84	-85	103	-86	80		
321	6	5.4678e-5	84	-85	-113	-86	82		
341	6	5.4678e-5	85	-102	130	-86	103		
342	6	5.4678e-5	85	-102	-130	-132	-86	135	
343	6	5.4678e-5	85	-102	132	-86			
351	6	5.4678e-5	85	-102	120	-86	-113		
352	6	5.4678e-5	85	-102	-120	-122	-86	125	
353	6	5.4678e-5	85	-102	122	-86			
361	6	5.4678e-5	102	-5	101	-86	103		
362	6	5.4678e-5	102	-5	-101	100	-86	103	61
364	6	5.4678e-5	102	-5	111	-86	-113		
363	6	5.4678e-5	102	-5	-111	110	-86	-113	-64
365	6	5.4678e-5	102	-5	-101	100	-86	103	62
366	6	5.4678e-5	102	-5	-111	110	-86	-113	-63
370	6	5.4678e-5	102	-5	-100	-86	103		
373	6	5.4678e-5	102	-5	-110	-86	-113		
380	6	5.4678e-5	46	-39	17	-20			
390	6	5.4678e-5	46	-39	-200				
391	6	5.4678e-5	46	-39	-201				
392	6	5.4678e-5	46	-39	-202				
393	6	5.4678e-5	46	-39	-203				
394	6	5.4678e-5	46	-39	-204				
395	6	5.4678e-5	46	-39	-205				
396	6	5.4678e-5	47	-43	18	-17			
400	6	5.4678e-5	-999	-84					
401	6	5.4678e-5	-999	5					

c  
999 0 999

\$outer world

1	px	0
2	px	0.1
222	px	0.05
3	px	0.10
4	px	0.2
5	px	0.25
6	px	-1.4
7	px	-1.9
8	px	-1.2
9	cx	1.4
10	cx	1.5
11	cx	1.6
12	cx	1.7
13	cx	1.8
14	cx	1.9
15	cx	2.0
16	cx	2.2
17	cx	2.6
18	cx	2.5
19	cx	1.535
20	cx	2.75
21	cx	1.525
22	cx	1.87
23	cx	1.77
24	px	-2.05
25	px	-2.3
28	px	-2.55
29	px	-3.0

```

30 px -3.1
31 px -3.2
32 px -2.4
33 px -3.7
34 px -3.9
35 px -4.3
36 px -3.525
38 px -11.0
39 px -11.5
41 px -11.75
42 px -11.9
43 px -12.0
44 px -12.2
45 px -12.35
46 px -12.6
47 px -12.1
50 py -4
51 py 4
52 pz -1.7
53 pz 1.7
60 py 0
61 p 0 1 -7.4 14.8
62 p 0 1 7.4 14.8
63 p 0 1 -7.4 -14.8
64 p 0 1 7.4 -14.8
65 py -7.4
66 py 7.4
67 p 0 1 -7.4 13.32
68 p 0 1 7.4 13.32
69 p 0 1 -7.4 -13.32
70 p 0 1 7.4 -13.32
c
80 c/x 7.5 0 0.635
81 c/x 7.5 0 0.535
82 c/x -7.5 0 0.635
83 c/x -7.5 0 0.535
84 px -18.8
85 px -15.8
86 cx 10
c
c
100 c/z -2.45 4.9 2.5
101 c/z -2.45 4.9 2.7
102 px -2.45
103 py 4.9
104 pz -0.2
105 pz 0.2
106 c/z -2.45 4.9 2.55
107 c/z -2.45 4.9 2.65
110 c/z -2.45 -4.9 2.5
111 c/z -2.45 -4.9 2.7
113 py -4.9
116 c/z -2.45 -4.9 2.55
117 c/z -2.45 -4.9 2.65
c
120 p 1 25.04673 0 -187.7458
121 p 1 27.52577 0 -207.4670
122 p 1 -25.04673 0 187.9551
123 p 1 -27.52577 0 205.3696
125 k/x -39.11233 -7.5 0 7.4195249e-4 1
126 k/x -42.85283 -7.5 0 3.9109488e-4 1
130 p 1 -25.04673 0 -187.7458
131 p 1 -27.52577 0 -207.4670
132 p 1 25.04673 0 187.9551
133 p 1 27.52577 0 205.3696
135 k/x -39.11233 7.5 0 7.4195249e-4 1
136 k/x -42.85283 7.5 0 3.9109488e-4 1
c
200 c/x 1.075 1.861954618 0.24
201 c/x 2.15 0 0.24
202 c/x 1.075 -1.861954618 0.24
203 c/x -1.075 -1.861954618 0.24
204 c/x -2.15 0 0.24
205 c/x -1.075 1.861954618 0.24
210 p 0 0.5 0.866025404 0

```

211	p	0	-0.5	0.866025404	0
c				\$ for tally	
500	px	29.88584094			
501	px	29.54423259			
502	px	28.97777479			
503	px	28.19077862			
504	px	27.18923361			
505	px	25.98076211			
506	px	24.57456133			
507	px	22.98133329			
508	px	21.21320344			
509	px	19.28362829			
510	px	17.20729309			
511	px	15			
512	px	12.67854785			
513	px	10.2606043			
514	px	7.764571353			
515	px	5.20944533			
516	px	2.614672282			
517	px	0			
518	px	-2.614672282			
519	px	-5.20944533			
520	px	-7.764571353			
521	px	-10.2606043			
522	px	-12.67854785			
523	px	-15			
524	px	-17.20729309			
525	px	-19.28362829			
526	px	-21.21320344			
527	px	-22.98133329			
528	px	-24.57456133			
529	px	-25.98076211			
530	px	-27.18923361			
531	px	-28.19077862			
532	px	-28.97777479			
533	px	-29.54423259			
534	px	-29.88584094			
c					
540	p	0	0.140540835	-1	0
541	p	0	-0.140540835	-1	0
c					
550	py	0			
551	p	0	11.43005230	1	0
552	p	0	5.671281820	1	0
553	p	0	3.732050808	1	0
554	p	0	2.747477419	1	0
555	p	0	2.144506921	1	0
556	p	0	1.732050808	1	0
557	p	0	1.428148007	1	0
558	p	0	1.191753593	1	0
559	p	0	1 1 0		
560	p	0	0.839099631	1	0
561	p	0	0.700207538	1	0
562	p	0	0.577350269	1	0
563	p	0	0.466307658	1	0
564	p	0	0.363970234	1	0
565	p	0	0.267949192	1	0
566	p	0	0.176326981	1	0
567	p	0	0.087488664	1	0
568	pz	0			
569	p	0	-0.087488664	1	0
570	p	0	-0.176326981	1	0
571	p	0	-0.267949192	1	0
572	p	0	-0.363970234	1	0
573	p	0	-0.466307658	1	0
574	p	0	-0.577350269	1	0
575	p	0	-0.700207538	1	0
576	p	0	-0.839099631	1	0
577	p	0	-1 1 0		
578	p	0	-1.191753593	1	0
579	p	0	-1.428148007	1	0
580	p	0	-1.732050808	1	0
581	p	0	-2.144506921	1	0
582	p	0	-2.747477419	1	0
583	p	0	-3.732050808	1	0

584 p 0 -5.671281820 1 0  
 585 p 0 -11.43005230 1 0  
 c  
 800 px -0.00030  
 801 px -0.00015  
 c  
 999 so 30

m1	29063.70c	0.6917	\$ Cu
	29065.70c	0.3083	
c	— SS304(7.92g/cc)		
m2	6000.70c	-0.05	\$ C
	14028.70c	-0.24	\$ Si
	25055.70c	-1.72	\$ Mn
	15031.70c	-0.31	\$ P
	16032.70c	-0.18	\$ S
	28058.70c	-5.4938E+00	\$ Ni-58
	28060.70c	-2.1162E+00	\$ -60
	28061.70c	-9.1998E-02	\$ -61
	28062.70c	-2.9326E-01	\$ -62
	28064.70c	-7.4728E-02	\$ -64
	24050.70c	-7.9557E-01	\$ Cr-50
	24052.70c	-1.5342E+01	\$ -52
	24053.70c	-1.7396E+00	\$ -53
	24054.70c	-4.3303E-01	\$ -54
	26054.70c	-4.157	\$ Fe-54
	26056.70c	-65.255	\$ -56
	26057.70c	-1.507	\$ -57
	26058.70c	-2.006	\$ -58
c	— water		
m3	1001.70c	2	
	8016.70c	1	
c	— brass		
m4	29063.70c	0.449605	
	29065.70c	0.200395	
	30000.70c	0.35	
c	— Titanium		
m5	22046.70c	0.0825	
	22047.70c	0.0744	
	22048.70c	0.7372	
	22049.70c	0.0541	
	22050.70c	0.0518	
c	— air w/vapor (50% at 25deg, 11.5g/L), 5.4678e-5[barn/cc]		
m6	7014.70c	4.1989-5	
	8016.70c	1.1669-5	
	1001.70c	7.6961-7	
	18040.70c	2.5006-7	
c	— polychloroprene (Neoprene) 1.5g/cc		
m7	1001.70c	0.5	
	6000.70c	0.4	
	17035.70c	0.07577	
	17037.70c	0.02423	
c	— Al2O3 (3.9g/cc)		
m8	8016.70c	0.6	
	13027.70c	0.4	
c	mode n		
imp:n	1 176R 0		
c	beam spot on target, gaussian distribution		
sdef	sur=801 axs=1 0 0 vec=1 0 0 dir=d2 erg=fdir d3 rad=d1		
c	gaussian distribution FWHM=7mm		
si1	H 0 191 1		
sp1	D 0 7.853982E-03 2.323099E-02 3.710958E-02		
	4.840572E-02 5.636855E-02 6.065908E-02 6.135760E-02		
	5.890486E-02 5.399540E-02 4.744850E-02 4.008319E-02		
	3.261805E-02 2.560768E-02 1.941813E-02 1.423534E-02		
	1.009650E-02 6.932273E-03 4.609940E-03 2.970349E-03		
	1.855078E-03		
sb1	0 1 19R		
c	— DDspect output Source term for MCNP input card —		
c	angular and energy distribution		

c taken from ENDF/B-VI MF=6, MT=50, Ed=10-350keV, P0-P6.

si2	H	-1	1991	1	
sp2	D	0.000000E+00	2.233044E-04	2.221105E-04	2.199629E-04
		2.170205E-04	2.174808E-04	2.144014E-04	2.129705E-04
		2.126286E-04	2.111330E-04	2.082045E-04	2.058102E-04
		2.051173E-04	2.034810E-04	2.022329E-04	2.006898E-04
		1.984329E-04	1.977885E-04	1.955871E-04	1.936382E-04
		1.927735E-04	1.904873E-04	1.892991E-04	1.869569E-04
		1.872892E-04	1.842571E-04	1.834733E-04	1.811673E-04
		1.799648E-04	1.789425E-04	1.776107E-04	1.761045E-04
		1.745719E-04	1.739039E-04	1.722510E-04	1.715429E-04
		1.686409E-04	1.678452E-04	1.670916E-04	1.660627E-04
		1.641946E-04	1.630602E-04	1.627780E-04	1.610253E-04
		1.597523E-04	1.589311E-04	1.575700E-04	1.563527E-04
		1.543509E-04	1.534067E-04	1.522601E-04	1.519669E-04
		1.505338E-04	1.502119E-04	1.490603E-04	1.471458E-04
		1.462958E-04	1.458495E-04	1.446685E-04	1.439786E-04
		1.422057E-04	1.411787E-04	1.405774E-04	1.404670E-04
		1.393620E-04	1.377169E-04	1.371606E-04	1.362892E-04
		1.357572E-04	1.346937E-04	1.346905E-04	1.339049E-04
		1.332834E-04	1.321700E-04	1.316176E-04	1.305225E-04
		1.300849E-04	1.295570E-04	1.294099E-04	1.282389E-04
		1.283706E-04	1.278201E-04	1.270858E-04	1.258003E-04
		1.260110E-04	1.254992E-04	1.252231E-04	1.246041E-04
		1.239210E-04	1.237799E-04	1.235411E-04	1.233639E-04
		1.228217E-04	1.225514E-04	1.231020E-04	1.225204E-04
		1.216656E-04	1.217868E-04	1.217999E-04	1.217239E-04
		1.214141E-04	1.216181E-04	1.214055E-04	1.213141E-04
		1.220017E-04	1.213431E-04	1.220670E-04	1.220337E-04
		1.218114E-04	1.218365E-04	1.221043E-04	1.231936E-04
		1.232092E-04	1.232581E-04	1.237397E-04	1.234696E-04
		1.244048E-04	1.246007E-04	1.253807E-04	1.255812E-04
		1.259537E-04	1.270942E-04	1.275573E-04	1.284776E-04
		1.287646E-04	1.296076E-04	1.302090E-04	1.313462E-04
		1.318735E-04	1.328749E-04	1.331523E-04	1.346705E-04
		1.357110E-04	1.365906E-04	1.377684E-04	1.386667E-04
		1.402100E-04	1.410607E-04	1.420805E-04	1.433380E-04
		1.443807E-04	1.457213E-04	1.470644E-04	1.489540E-04
		1.502564E-04	1.518608E-04	1.539460E-04	1.555122E-04
		1.579786E-04	1.590532E-04	1.614053E-04	1.628244E-04
		1.649504E-04	1.660026E-04	1.685822E-04	1.707466E-04
		1.729550E-04	1.745515E-04	1.772395E-04	1.790242E-04
		1.824521E-04	1.846508E-04	1.871261E-04	1.894620E-04
		1.916233E-04	1.957865E-04	1.987361E-04	2.008360E-04
		2.034759E-04	2.071344E-04	2.094488E-04	2.122931E-04
		2.151763E-04	2.190554E-04	2.223388E-04	2.268589E-04
		2.296587E-04	2.337526E-04	2.367872E-04	2.415814E-04
		2.443297E-04	2.484075E-04	2.523850E-04	2.569553E-04
		2.607638E-04	2.652946E-04	2.705363E-04	2.743092E-04
		2.787842E-04	2.843373E-04	2.893272E-04	2.937631E-04
		2.999979E-04	3.047425E-04	3.100777E-04	3.146370E-04
		3.205817E-04	3.259075E-04	3.317103E-04	3.376847E-04
		3.448917E-04			
sb2		0	8.10961	3.36873	2.59153
		1.93467	1.75357	1.61674	1.50873
		1.34728	1.28482	1.23088	1.18372
		1.10491	1.07155	1.04138	1.01394
		0.96583	0.94459	0.92494	0.90669
		0.87382	0.85896	0.84502	0.83191
		0.80791	0.79690	0.78647	0.77658
		0.75827	0.74978	0.74170	0.73399
		0.71961	0.71289	0.70647	0.70032
		0.68878	0.68337	0.67818	0.67320
		0.66383	0.65942	0.65518	0.65111
		0.64342	0.63980	0.63632	0.63297
		0.62666	0.62368	0.62082	0.61807
		0.61288	0.61044	0.60810	0.60585
		0.60163	0.59965	0.59775	0.59594
		0.59255	0.59097	0.58947	0.58804
		0.58539	0.58417	0.58302	0.58194
		0.57997	0.57908	0.57825	0.57749
		0.57615	0.57556	0.57504	0.57458
		0.57383	0.57354	0.57331	0.57314
		0.57297	0.57297	0.57302	0.57314
		0.57354	0.57383	0.57417	0.57458

		0.57556	0.57615	0.57679	0.57749	0.57825
		0.57908	0.57997	0.58092	0.58194	0.58302
		0.58417	0.58539	0.58668	0.58804	0.58947
		0.59097	0.59255	0.59420	0.59594	0.59775
		0.59965	0.60163	0.60369	0.60585	0.60810
		0.61044	0.61288	0.61542	0.61807	0.62082
		0.62368	0.62666	0.62975	0.63297	0.63632
		0.63980	0.64342	0.64719	0.65111	0.65518
		0.65942	0.66383	0.66842	0.67320	0.67818
		0.68337	0.68878	0.69443	0.70032	0.70647
		0.71289	0.71961	0.72663	0.73399	0.74170
		0.74978	0.75827	0.76719	0.77658	0.78647
		0.79690	0.80791	0.81957	0.83191	0.84502
		0.85896	0.87382	0.88969	0.90669	0.92494
		0.94459	0.96583	0.98886	1.01394	1.04138
		1.07155	1.10491	1.14206	1.18372	1.23088
		1.28482	1.34728	1.42073	1.50873	1.61674
		1.75357	1.93467	2.19034	2.59153	3.36873
		8.10961				
ds3	S	4	1981	203		
	c	energy distribution				
sc4		174. 3deg.				
si4	H	1.950000E+00	2.000000E+00	2.050000E+00	2.100000E+00	
		2.150000E+00	2.200000E+00	2.250000E+00	2.300000E+00	
		2.350000E+00	2.400000E+00	2.450000E+00	2.500000E+00	
		2.550000E+00	2.600000E+00			
sp4	D	0.000000E+00	1.880889E-03	1.046000E-03	5.995760E-04	
		3.097438E-04	1.433821E-04	5.391034E-05	1.382514E-05	
		2.438073E-06	4.361711E-07	1.174925E-07	4.584365E-08	
		4.578088E-08	0.000000E+00			
sc5		170. 1deg.				
si5	H	1.950000E+00	2.000000E+00	2.050000E+00	2.100000E+00	
		2.150000E+00	2.200000E+00	2.250000E+00	2.300000E+00	
		2.350000E+00	2.400000E+00	2.450000E+00	2.500000E+00	
		2.550000E+00				
sp5	D	0.000000E+00	1.721019E-03	1.126759E-03	6.291294E-04	
		3.211684E-04	1.551193E-04	5.642753E-05	1.595673E-05	
		2.546310E-06	4.098206E-07	1.582567E-07	5.968078E-08	
		0.000000E+00				
sc6		167. 2deg.				
si6	H	1.950000E+00	2.000000E+00	2.050000E+00	2.100000E+00	
		2.150000E+00	2.200000E+00	2.250000E+00	2.300000E+00	
		2.350000E+00	2.400000E+00	2.450000E+00	2.500000E+00	
		2.550000E+00	2.600000E+00			
sp6	D	0.000000E+00	1.587737E-03	1.167811E-03	6.576674E-04	
		3.358183E-04	1.599833E-04	6.070929E-05	1.646549E-05	
		2.937885E-06	4.267507E-07	1.764069E-07	8.475681E-09	
		5.892130E-08	0.000000E+00			
sc7		164. 8deg.				
si7	H	1.950000E+00	2.000000E+00	2.050000E+00	2.100000E+00	
		2.150000E+00	2.200000E+00	2.250000E+00	2.300000E+00	
		2.350000E+00	2.400000E+00	2.450000E+00	2.500000E+00	
		2.550000E+00	2.600000E+00	2.650000E+00		
sp7	D	0.000000E+00	1.407241E-03	1.237865E-03	6.782157E-04	
		3.565371E-04	1.684185E-04	6.505108E-05	1.849271E-05	
		3.532635E-06	7.807308E-07	1.338673E-07	9.674951E-08	
		2.032092E-08	4.245386E-08	0.000000E+00		
sc8		162. 7deg.				
si8	H	1.950000E+00	2.000000E+00	2.050000E+00	2.100000E+00	
		2.150000E+00	2.200000E+00	2.250000E+00	2.300000E+00	
		2.350000E+00	2.400000E+00	2.450000E+00	2.500000E+00	
		2.550000E+00	2.600000E+00			
sp8	D	0.000000E+00	1.236362E-03	1.344035E-03	7.279331E-04	
		3.635431E-04	1.802028E-04	6.819723E-05	1.967464E-05	
		3.578479E-06	8.322469E-07	2.429168E-07	1.382732E-07	
		3.874369E-08	0.000000E+00			
sc9		160. 9deg.				
si9	H	1.950000E+00	2.000000E+00	2.050000E+00	2.100000E+00	
		2.150000E+00	2.200000E+00	2.250000E+00	2.300000E+00	
		2.350000E+00	2.400000E+00	2.450000E+00	2.500000E+00	
		2.550000E+00	2.600000E+00	2.650000E+00	2.700000E+00	
sp9	D	0.000000E+00	1.018826E-03	1.430846E-03	7.541876E-04	
		3.941997E-04	1.887729E-04	7.463865E-05	2.151443E-05	
		4.081782E-06	9.648393E-07	5.213464E-07	1.879166E-07	
		9.470181E-08	4.284943E-08	4.316156E-08	0.000000E+00	

sc10	159.	2deg.						
si10	H	1. 950000E+00	2. 000000E+00	2. 050000E+00	2. 100000E+00			
		2. 150000E+00	2. 200000E+00	2. 250000E+00	2. 300000E+00			
		2. 350000E+00	2. 400000E+00	2. 450000E+00	2. 500000E+00			
		2. 550000E+00	2. 600000E+00					
sp10	D	0. 000000E+00	7. 813130E-04	1. 567474E-03	7. 952191E-04			
		4. 131224E-04	1. 979333E-04	7. 828685E-05	2. 295993E-05			
		5. 061537E-06	1. 157488E-06	2. 963843E-07	1. 065654E-07			
		3. 723943E-08	0. 000000E+00					
sc11	157.	7deg.						
si11	H	1. 950000E+00	2. 000000E+00	2. 050000E+00	2. 100000E+00			
		2. 150000E+00	2. 200000E+00	2. 250000E+00	2. 300000E+00			
		2. 350000E+00	2. 400000E+00	2. 450000E+00	2. 500000E+00			
		2. 550000E+00	2. 600000E+00					
sp11	D	0. 000000E+00	5. 286906E-04	1. 721374E-03	8. 424384E-04			
		4. 405791E-04	2. 097225E-04	8. 292200E-05	2. 442068E-05			
		4. 889212E-06	1. 040032E-06	3. 863265E-07	1. 880730E-07			
		1. 139361E-07	0. 000000E+00					
sc12	156.	2deg.						
si12	H	1. 950000E+00	2. 000000E+00	2. 050000E+00	2. 100000E+00			
		2. 150000E+00	2. 200000E+00	2. 250000E+00	2. 300000E+00			
		2. 350000E+00	2. 400000E+00	2. 450000E+00	2. 500000E+00			
		2. 550000E+00	2. 600000E+00	2. 650000E+00	2. 700000E+00			
		2. 750000E+00						
sp12	D	0. 000000E+00	4. 266513E-04	1. 710738E-03	8. 937237E-04			
		4. 570569E-04	2. 183138E-04	8. 957165E-05	2. 584698E-05			
		5. 548643E-06	1. 362511E-06	4. 902446E-07	2. 226487E-07			
		6. 748438E-08	0. 000000E+00	0. 000000E+00	4. 524090E-08			
		0. 000000E+00						
sc13	154.	8deg.						
si13	H	1. 950000E+00	2. 000000E+00	2. 050000E+00	2. 100000E+00			
		2. 150000E+00	2. 200000E+00	2. 250000E+00	2. 300000E+00			
		2. 350000E+00	2. 400000E+00	2. 450000E+00	2. 500000E+00			
		2. 550000E+00	2. 600000E+00	2. 650000E+00				
sp13	D	0. 000000E+00	1. 790855E-04	1. 804014E-03	9. 362197E-04			
		4. 892738E-04	2. 352067E-04	9. 467143E-05	2. 950263E-05			
		6. 167450E-06	1. 404158E-06	4. 987930E-07	3. 278839E-07			
		1. 044284E-07	4. 412486E-08	0. 000000E+00				
sc14	153.	5deg.						
si14	H	1. 950000E+00	2. 000000E+00	2. 050000E+00	2. 100000E+00			
		2. 150000E+00	2. 200000E+00	2. 250000E+00	2. 300000E+00			
		2. 350000E+00	2. 400000E+00	2. 450000E+00	2. 500000E+00			
		2. 550000E+00	2. 600000E+00	2. 650000E+00	2. 700000E+00			
sp14	D	0. 000000E+00	9. 173157E-06	1. 836636E-03	9. 835995E-04			
		5. 131037E-04	2. 469202E-04	1. 029347E-04	3. 106435E-05			
		7. 087454E-06	1. 523143E-06	6. 967831E-07	2. 349428E-07			
		6. 673550E-08	2. 735816E-08	2. 288909E-08	0. 000000E+00			
sc15	152.	3deg.						
si15	H	1. 950000E+00	2. 000000E+00	2. 050000E+00	2. 100000E+00			
		2. 150000E+00	2. 200000E+00	2. 250000E+00	2. 300000E+00			
		2. 350000E+00	2. 400000E+00	2. 450000E+00	2. 500000E+00			
		2. 550000E+00	2. 600000E+00	2. 650000E+00	2. 700000E+00			
		2. 750000E+00						
sp15	D	0. 000000E+00	7. 025578E-06	1. 703097E-03	1. 056346E-03			
		5. 390295E-04	2. 617954E-04	1. 091304E-04	3. 330667E-05			
		7. 875899E-06	1. 894016E-06	5. 072893E-07	2. 737352E-07			
		1. 252396E-07	2. 853079E-08	4. 431797E-08	4. 395910E-08			
		0. 000000E+00						
sc16	151.	0deg.						
si16	H	1. 950000E+00	2. 000000E+00	2. 050000E+00	2. 100000E+00			
		2. 150000E+00	2. 200000E+00	2. 250000E+00	2. 300000E+00			
		2. 350000E+00	2. 400000E+00	2. 450000E+00	2. 500000E+00			
		2. 550000E+00	2. 600000E+00	2. 650000E+00				
sp16	D	0. 000000E+00	5. 378959E-06	1. 564714E-03	1. 112179E-03			
		5. 774859E-04	2. 719979E-04	1. 123389E-04	3. 543143E-05			
		7. 921096E-06	2. 149873E-06	5. 911654E-07	4. 083258E-07			
		1. 241709E-07	1. 220179E-07	0. 000000E+00				
sc17	149.	9deg.						
si17	H	1. 950000E+00	2. 000000E+00	2. 050000E+00	2. 100000E+00			
		2. 150000E+00	2. 200000E+00	2. 250000E+00	2. 300000E+00			
		2. 350000E+00	2. 400000E+00	2. 450000E+00	2. 500000E+00			
		2. 550000E+00	2. 600000E+00	2. 650000E+00	2. 700000E+00			
sp17	D	0. 000000E+00	4. 589556E-06	1. 407676E-03	1. 185292E-03			
		6. 123306E-04	2. 863932E-04	1. 212923E-04	3. 784825E-05			
		9. 150995E-06	2. 443142E-06	6. 205004E-07	2. 162560E-07			

		1. 790635E-07 1. 245782E-07 4. 834930E-08 0. 000000E+00
sc18	148. 8deg.	
si18	H	1. 950000E+00 2. 000000E+00 2. 050000E+00 2. 100000E+00 2. 150000E+00 2. 200000E+00 2. 250000E+00 2. 300000E+00 2. 350000E+00 2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00 2. 800000E+00 2. 850000E+00 2. 900000E+00
sp18	D	0. 000000E+00 3. 330794E-06 1. 228057E-03 1. 266569E-03 6. 444397E-04 3. 146071E-04 1. 282292E-04 4. 144896E-05 9. 876965E-06 2. 269370E-06 5. 757009E-07 3. 588827E-07 2. 126798E-07 5. 253121E-08 7. 848067E-08 4. 671423E-08 0. 000000E+00 0. 000000E+00 5. 973724E-08 0. 000000E+00
sc19	147. 7deg.	
si19	H	1. 950000E+00 2. 000000E+00 2. 050000E+00 2. 100000E+00 2. 150000E+00 2. 200000E+00 2. 250000E+00 2. 300000E+00 2. 350000E+00 2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00
sp19	D	0. 000000E+00 3. 074646E-06 1. 006922E-03 1. 385361E-03 6. 764380E-04 3. 318854E-04 1. 346193E-04 4. 579810E-05 1. 122275E-05 2. 456062E-06 6. 449735E-07 3. 644436E-07 3. 361618E-07 8. 449579E-08 0. 000000E+00 6. 966653E-08 0. 000000E+00
sc20	146. 6deg.	
si20	H	1. 950000E+00 2. 000000E+00 2. 050000E+00 2. 100000E+00 2. 150000E+00 2. 200000E+00 2. 250000E+00 2. 300000E+00 2. 350000E+00 2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00 2. 800000E+00
sp20	D	0. 000000E+00 2. 976447E-06 7. 960260E-04 1. 501736E-03 7. 265071E-04 3. 485237E-04 1. 472263E-04 4. 806695E-05 1. 169911E-05 3. 210865E-06 1. 008495E-06 2. 551612E-07 1. 889021E-07 9. 834686E-08 1. 921515E-08 0. 000000E+00 4. 715893E-08 0. 000000E+00
sc21	145. 6deg.	
si21	H	1. 950000E+00 2. 000000E+00 2. 050000E+00 2. 100000E+00 2. 150000E+00 2. 200000E+00 2. 250000E+00 2. 300000E+00 2. 350000E+00 2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00 2. 800000E+00
sp21	D	0. 000000E+00 1. 648021E-06 5. 263091E-04 1. 653545E-03 7. 723349E-04 3. 649364E-04 1. 580815E-04 5. 210768E-05 1. 361218E-05 2. 949779E-06 1. 269921E-06 4. 140790E-07 2. 915851E-07 4. 202433E-08 6. 685942E-08 0. 000000E+00 4. 928106E-08 0. 000000E+00
sc22	144. 6deg.	
si22	H	1. 950000E+00 2. 000000E+00 2. 050000E+00 2. 100000E+00 2. 150000E+00 2. 200000E+00 2. 250000E+00 2. 300000E+00 2. 350000E+00 2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00
sp22	D	0. 000000E+00 6. 695709E-07 3. 733831E-04 1. 684816E-03 8. 195685E-04 3. 912465E-04 1. 666938E-04 5. 587414E-05 1. 467207E-05 3. 313302E-06 1. 116407E-06 4. 233694E-07 2. 978341E-07 1. 750125E-07 5. 878127E-08 0. 000000E+00
sc23	143. 6deg.	
si23	H	1. 950000E+00 2. 000000E+00 2. 050000E+00 2. 100000E+00 2. 150000E+00 2. 200000E+00 2. 250000E+00 2. 300000E+00 2. 350000E+00 2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00
sp23	D	0. 000000E+00 1. 263140E-06 4. 305219E-05 1. 900896E-03 8. 800124E-04 4. 129205E-04 1. 756345E-04 6. 184412E-05 1. 532027E-05 3. 498839E-06 1. 170547E-06 4. 927712E-07 2. 706866E-07 1. 195695E-07 1. 043864E-07 2. 412398E-08 0. 000000E+00
sc24	142. 7deg.	
si24	H	1. 950000E+00 2. 000000E+00 2. 050000E+00 2. 100000E+00 2. 150000E+00 2. 200000E+00 2. 250000E+00 2. 300000E+00 2. 350000E+00 2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00 2. 800000E+00 2. 850000E+00 2. 900000E+00 2. 950000E+00
sp24	D	0. 000000E+00 1. 624510E-06 2. 816278E-05 1. 782678E-03 9. 230832E-04 4. 432989E-04 1. 892662E-04 6. 329744E-05 1. 726103E-05 3. 936599E-06 1. 051078E-06 7. 257606E-07

		2. 499642E-07	2. 417208E-07	1. 036830E-07	5. 648271E-08
		0. 000000E+00	5. 162170E-08	0. 000000E+00	6. 681806E-08
		0. 000000E+00			
sc25	141. 7deg.				
si25	H	1. 950000E+00	2. 000000E+00	2. 050000E+00	2. 100000E+00
		2. 150000E+00	2. 200000E+00	2. 250000E+00	2. 300000E+00
		2. 350000E+00	2. 400000E+00	2. 450000E+00	2. 500000E+00
		2. 550000E+00	2. 600000E+00	2. 650000E+00	2. 700000E+00
		2. 750000E+00	2. 800000E+00	2. 850000E+00	
sp25	D	0. 000000E+00	1. 550118E-06	2. 236363E-05	1. 653592E-03
		9. 932929E-04	4. 661129E-04	2. 010351E-04	6. 899661E-05
		1. 898827E-05	4. 445339E-06	1. 387239E-06	8. 593014E-07
		4. 209709E-07	2. 667764E-07	1. 364592E-07	6. 312524E-08
		4. 555161E-08	4. 738957E-08	0. 000000E+00	
sc26	140. 8deg.				
si26	H	1. 950000E+00	2. 000000E+00	2. 050000E+00	2. 100000E+00
		2. 150000E+00	2. 200000E+00	2. 250000E+00	2. 300000E+00
		2. 350000E+00	2. 400000E+00	2. 450000E+00	2. 500000E+00
		2. 550000E+00	2. 600000E+00	2. 650000E+00	2. 700000E+00
		2. 750000E+00			
sp26	D	0. 000000E+00	1. 345689E-06	1. 780390E-05	1. 499535E-03
		1. 055025E-03	4. 978584E-04	2. 157113E-04	7. 488389E-05
		2. 063631E-05	5. 395332E-06	1. 266187E-06	7. 442536E-07
		3. 943452E-07	2. 900283E-07	2. 034207E-07	2. 515149E-08
		0. 000000E+00			
sc27	139. 9deg.				
si27	H	1. 950000E+00	2. 000000E+00	2. 050000E+00	2. 100000E+00
		2. 150000E+00	2. 200000E+00	2. 250000E+00	2. 300000E+00
		2. 350000E+00	2. 400000E+00	2. 450000E+00	2. 500000E+00
		2. 550000E+00	2. 600000E+00	2. 650000E+00	2. 700000E+00
		2. 750000E+00			
sp27	D	0. 000000E+00	8. 642908E-07	1. 542286E-05	1. 360953E-03
		1. 141767E-03	5. 347877E-04	2. 316969E-04	8. 120292E-05
		2. 202332E-05	5. 521783E-06	1. 531009E-06	6. 433960E-07
		3. 672210E-07	2. 356461E-07	1. 000286E-07	2. 926517E-08
		0. 000000E+00			
sc28	139. 0deg.				
si28	H	1. 950000E+00	2. 000000E+00	2. 050000E+00	2. 100000E+00
		2. 150000E+00	2. 200000E+00	2. 250000E+00	2. 300000E+00
		2. 350000E+00	2. 400000E+00	2. 450000E+00	2. 500000E+00
		2. 550000E+00	2. 600000E+00	2. 650000E+00	2. 700000E+00
		2. 750000E+00			
sp28	D	0. 000000E+00	9. 584610E-07	1. 414973E-05	1. 155135E-03
		1. 237099E-03	5. 660712E-04	2. 481737E-04	8. 764230E-05
		2. 415830E-05	5. 770080E-06	1. 806589E-06	4. 933329E-07
		2. 328021E-07	1. 868790E-07	1. 795894E-07	9. 275746E-08
		0. 000000E+00			
sc29	138. 2deg.				
si29	H	1. 950000E+00	2. 000000E+00	2. 050000E+00	2. 100000E+00
		2. 150000E+00	2. 200000E+00	2. 250000E+00	2. 300000E+00
		2. 350000E+00	2. 400000E+00	2. 450000E+00	2. 500000E+00
		2. 550000E+00	2. 600000E+00	2. 650000E+00	2. 700000E+00
		2. 750000E+00	2. 800000E+00		
sp29	D	0. 000000E+00	9. 648312E-07	1. 070100E-05	9. 705767E-04
		1. 340429E-03	6. 084489E-04	2. 646395E-04	9. 482996E-05
		2. 715647E-05	6. 640050E-06	1. 940177E-06	8. 974049E-07
		2. 716353E-07	3. 145904E-07	3. 784645E-08	3. 239364E-08
		5. 192840E-08	0. 000000E+00		
sc30	137. 3deg.				
si30	H	1. 950000E+00	2. 000000E+00	2. 050000E+00	2. 100000E+00
		2. 150000E+00	2. 200000E+00	2. 250000E+00	2. 300000E+00
		2. 350000E+00	2. 400000E+00	2. 450000E+00	2. 500000E+00
		2. 550000E+00	2. 600000E+00	2. 650000E+00	2. 700000E+00
		2. 750000E+00	2. 800000E+00		
sp30	D	0. 000000E+00	1. 426706E-06	9. 680320E-06	6. 881474E-04
		1. 513238E-03	6. 500642E-04	2. 817602E-04	1. 020442E-04
		2. 875540E-05	7. 243385E-06	1. 937567E-06	9. 400817E-07
		3. 688979E-07	3. 006754E-07	1. 170930E-07	0. 000000E+00
		8. 082774E-08	0. 000000E+00		
sc31	136. 5deg.				
si31	H	1. 950000E+00	2. 000000E+00	2. 050000E+00	2. 100000E+00
		2. 150000E+00	2. 200000E+00	2. 250000E+00	2. 300000E+00
		2. 350000E+00	2. 400000E+00	2. 450000E+00	2. 500000E+00
		2. 550000E+00	2. 600000E+00	2. 650000E+00	2. 700000E+00
		2. 750000E+00	2. 800000E+00		

sp31	D	0.00000E+00	8.689872E-07	8.007145E-06	4.915844E-04
		1.609845E-03	7.049262E-04	2.929873E-04	1.118744E-04
		3.139615E-05	8.394833E-06	2.287990E-06	9.155520E-07
		7.327355E-07	1.763100E-07	8.703330E-08	1.568352E-07
		5.312438E-08	0.000000E+00		
sc32	135. 6deg.				
si32	H	1.950000E+00	2.000000E+00	2.050000E+00	2.100000E+00
		2.150000E+00	2.200000E+00	2.250000E+00	2.300000E+00
		2.350000E+00	2.400000E+00	2.450000E+00	2.500000E+00
		2.550000E+00	2.600000E+00	2.650000E+00	2.700000E+00
		2.750000E+00			
sp32	D	0.000000E+00	3.817885E-07	7.148278E-06	1.134945E-04
		1.871652E-03	7.635546E-04	3.244475E-04	1.167629E-04
		3.503620E-05	8.852078E-06	2.350667E-06	9.561084E-07
		5.418600E-07	3.810488E-07	1.320373E-07	5.973386E-08
		0.000000E+00			
sc33	134. 8deg.				
si33	H	1.950000E+00	2.000000E+00	2.050000E+00	2.100000E+00
		2.150000E+00	2.200000E+00	2.250000E+00	2.300000E+00
		2.350000E+00	2.400000E+00	2.450000E+00	2.500000E+00
		2.550000E+00	2.600000E+00	2.650000E+00	2.700000E+00
		2.750000E+00	2.800000E+00		
sp33	D	0.000000E+00	1.886821E-07	5.815646E-06	6.184878E-05
		1.811550E-03	8.128353E-04	3.485668E-04	1.283464E-04
		3.774897E-05	9.738143E-06	2.592786E-06	1.182967E-06
		5.738509E-07	2.536035E-07	1.278443E-07	1.682910E-07
		5.468564E-08	0.000000E+00		
sc34	134. 0deg.				
si34	H	1.950000E+00	2.000000E+00	2.050000E+00	2.100000E+00
		2.150000E+00	2.200000E+00	2.250000E+00	2.300000E+00
		2.350000E+00	2.400000E+00	2.450000E+00	2.500000E+00
		2.550000E+00	2.600000E+00	2.650000E+00	2.700000E+00
		2.750000E+00	2.800000E+00	2.850000E+00	
sp34	D	0.000000E+00	7.654302E-07	4.819527E-06	4.675496E-05
		1.700818E-03	8.767617E-04	3.699394E-04	1.351746E-04
		4.246927E-05	1.099016E-05	3.463629E-06	1.005877E-06
		3.941113E-07	2.516818E-07	2.844875E-07	1.433478E-07
		1.787946E-07	5.762195E-08	0.000000E+00	
sc35	133. 2deg.				
si35	H	1.950000E+00	2.000000E+00	2.050000E+00	2.100000E+00
		2.150000E+00	2.200000E+00	2.250000E+00	2.300000E+00
		2.350000E+00	2.400000E+00	2.450000E+00	2.500000E+00
		2.550000E+00	2.600000E+00	2.650000E+00	2.700000E+00
		2.750000E+00	2.800000E+00	2.850000E+00	2.900000E+00
sp35	D	0.000000E+00	2.832653E-07	5.012643E-06	3.361239E-05
		1.573318E-03	9.452114E-04	3.998910E-04	1.478653E-04
		4.438832E-05	1.107103E-05	3.121588E-06	1.093037E-06
		7.215368E-07	3.468809E-07	2.109872E-07	7.105412E-08
		1.542326E-07	4.254369E-08	5.998310E-08	0.000000E+00
sc36	132. 5deg.				
si36	H	1.950000E+00	2.000000E+00	2.050000E+00	2.100000E+00
		2.150000E+00	2.200000E+00	2.250000E+00	2.300000E+00
		2.350000E+00	2.400000E+00	2.450000E+00	2.500000E+00
		2.550000E+00	2.600000E+00	2.650000E+00	2.700000E+00
		2.750000E+00			
sp36	D	0.000000E+00	2.858044E-07	5.408292E-06	2.762958E-05
		1.437577E-03	1.024680E-03	4.318950E-04	1.595970E-04
		4.862488E-05	1.241413E-05	3.677654E-06	1.066038E-06
		8.375672E-07	2.784864E-07	2.169224E-07	1.697738E-07
		0.000000E+00			
sc37	131. 7deg.				
si37	H	1.950000E+00	2.000000E+00	2.050000E+00	2.100000E+00
		2.150000E+00	2.200000E+00	2.250000E+00	2.300000E+00
		2.350000E+00	2.400000E+00	2.450000E+00	2.500000E+00
		2.550000E+00	2.600000E+00	2.650000E+00	2.700000E+00
		2.750000E+00	2.800000E+00	2.850000E+00	2.900000E+00
		2.950000E+00			
sp37	D	0.000000E+00	7.726944E-07	4.067351E-06	2.360115E-05
		1.279192E-03	1.103501E-03	4.638534E-04	1.752793E-04
		5.295094E-05	1.387916E-05	3.901502E-06	1.607828E-06
		6.908708E-07	4.121849E-07	3.369934E-07	1.726692E-07
		4.862369E-08	4.013384E-08	0.000000E+00	6.817041E-08
		0.000000E+00			
sc38	130. 9deg.				
si38	H	1.950000E+00	2.000000E+00	2.050000E+00	2.100000E+00

		2. 150000E+00	2. 200000E+00	2. 250000E+00	2. 300000E+00
		2. 350000E+00	2. 400000E+00	2. 450000E+00	2. 500000E+00
		2. 550000E+00	2. 600000E+00	2. 650000E+00	2. 700000E+00
		2. 750000E+00	2. 800000E+00	2. 850000E+00	2. 900000E+00
		2. 950000E+00			
sp38	D	0. 000000E+00	9. 562610E-08	3. 029907E-06	1. 865614E-05
		1. 090662E-03	1. 230381E-03	5. 022511E-04	1. 856160E-04
		5. 752396E-05	1. 510884E-05	4. 269781E-06	1. 536883E-06
		8. 324031E-07	5. 595913E-07	4. 152509E-07	2. 342854E-07
		1. 883804E-07	1. 063189E-07	0. 000000E+00	6. 460533E-08
sc39	130. 2deg.	0. 000000E+00			
si39	H	1. 950000E+00	2. 000000E+00	2. 050000E+00	2. 100000E+00
		2. 150000E+00	2. 200000E+00	2. 250000E+00	2. 300000E+00
		2. 350000E+00	2. 400000E+00	2. 450000E+00	2. 500000E+00
		2. 550000E+00	2. 600000E+00	2. 650000E+00	2. 700000E+00
		2. 750000E+00	2. 800000E+00	2. 850000E+00	2. 900000E+00
sp39	D	0. 000000E+00	9. 437107E-08	3. 674948E-06	1. 574132E-05
		8. 400160E-04	1. 357194E-03	5. 514387E-04	2. 010749E-04
		6. 319751E-05	1. 754075E-05	4. 825724E-06	1. 878412E-06
		8. 802395E-07	4. 794855E-07	3. 186224E-07	2. 755985E-07
		9. 337566E-08	5. 211736E-08	1. 193003E-07	0. 000000E+00
sc40	129. 4deg.				
si40	H	1. 950000E+00	2. 000000E+00	2. 050000E+00	2. 100000E+00
		2. 150000E+00	2. 200000E+00	2. 250000E+00	2. 300000E+00
		2. 350000E+00	2. 400000E+00	2. 450000E+00	2. 500000E+00
		2. 550000E+00	2. 600000E+00	2. 650000E+00	2. 700000E+00
		2. 750000E+00	2. 800000E+00	2. 850000E+00	2. 900000E+00
sp40	D	0. 000000E+00	3. 810698E-07	3. 190403E-06	1. 307955E-05
		5. 735659E-04	1. 547688E-03	5. 988744E-04	2. 142313E-04
		6. 790238E-05	1. 710370E-05	4. 915273E-06	1. 818653E-06
		6. 111314E-07	3. 262846E-07	3. 694682E-07	2. 105269E-07
		1. 011004E-07	2. 944650E-08	6. 351555E-08	0. 000000E+00
sc41	128. 7deg.				
si41	H	1. 950000E+00	2. 000000E+00	2. 050000E+00	2. 100000E+00
		2. 150000E+00	2. 200000E+00	2. 250000E+00	2. 300000E+00
		2. 350000E+00	2. 400000E+00	2. 450000E+00	2. 500000E+00
		2. 550000E+00	2. 600000E+00	2. 650000E+00	2. 700000E+00
		2. 750000E+00	2. 800000E+00	2. 850000E+00	
sp41	D	0. 000000E+00	9. 449049E-08	3. 115634E-06	1. 274912E-05
		1. 818029E-04	1. 841750E-03	6. 445790E-04	2. 426602E-04
		7. 437713E-05	2. 021782E-05	5. 313607E-06	1. 873450E-06
		8. 889048E-07	6. 989190E-07	4. 060018E-07	1. 619950E-07
		5. 085012E-08	5. 208655E-08	0. 000000E+00	
sc42	128. 0deg.				
si42	H	1. 950000E+00	2. 000000E+00	2. 050000E+00	2. 100000E+00
		2. 150000E+00	2. 200000E+00	2. 250000E+00	2. 300000E+00
		2. 350000E+00	2. 400000E+00	2. 450000E+00	2. 500000E+00
		2. 550000E+00	2. 600000E+00	2. 650000E+00	2. 700000E+00
		2. 750000E+00	2. 800000E+00	2. 850000E+00	2. 900000E+00
		2. 950000E+00			
sp42	D	0. 000000E+00	1. 941711E-07	2. 778876E-06	1. 175416E-05
		1. 146832E-04	1. 809741E-03	7. 010857E-04	2. 599451E-04
		8. 034848E-05	2. 205933E-05	5. 609212E-06	1. 923163E-06
		6. 904904E-07	6. 254320E-07	3. 212250E-07	1. 448120E-07
		1. 023359E-07	0. 000000E+00	5. 864670E-08	6. 530364E-08
		0. 000000E+00			
sc43	127. 2deg.				
si43	H	1. 950000E+00	2. 000000E+00	2. 050000E+00	2. 100000E+00
		2. 150000E+00	2. 200000E+00	2. 250000E+00	2. 300000E+00
		2. 350000E+00	2. 400000E+00	2. 450000E+00	2. 500000E+00
		2. 550000E+00	2. 600000E+00	2. 650000E+00	2. 700000E+00
		2. 750000E+00	2. 800000E+00	2. 850000E+00	
sp43	D	0. 000000E+00	9. 445317E-08	1. 804604E-06	1. 026211E-05
		8. 059861E-05	1. 717867E-03	7. 582830E-04	2. 885140E-04
		8. 624610E-05	2. 378549E-05	6. 675920E-06	1. 972933E-06
		9. 877200E-07	5. 708824E-07	3. 573524E-07	1. 831554E-07
		0. 000000E+00	4. 340628E-08	0. 000000E+00	
sc44	126. 5deg.				
si44	H	1. 950000E+00	2. 000000E+00	2. 050000E+00	2. 100000E+00
		2. 150000E+00	2. 200000E+00	2. 250000E+00	2. 300000E+00
		2. 350000E+00	2. 400000E+00	2. 450000E+00	2. 500000E+00
		2. 550000E+00	2. 600000E+00	2. 650000E+00	2. 700000E+00
		2. 750000E+00	2. 800000E+00	2. 850000E+00	2. 900000E+00
		2. 950000E+00			

sp44	D	0.00000E+00	1.886526E-07	2.118095E-06	1.051221E-05
		5.979509E-05	1.611203E-03	8.313856E-04	3.064239E-04
		9.771684E-05	2.646819E-05	7.403932E-06	2.162985E-06
		1.064673E-06	1.843477E-07	4.521484E-07	3.060891E-07
		2.214596E-07	0.000000E+00	0.000000E+00	6.117609E-08
		0.000000E+00			
sc45	125. 8deg.				
si45	H	1.950000E+00	2.000000E+00	2.050000E+00	2.100000E+00
		2.150000E+00	2.200000E+00	2.250000E+00	2.300000E+00
		2.350000E+00	2.400000E+00	2.450000E+00	2.500000E+00
		2.550000E+00	2.600000E+00	2.650000E+00	2.700000E+00
		2.750000E+00	2.800000E+00	2.850000E+00	2.900000E+00
		2.950000E+00			
sp45	D	0.000000E+00	1.896825E-07	2.070448E-06	9.551008E-06
		4.740710E-05	1.486309E-03	9.222873E-04	3.360224E-04
		1.048674E-04	3.008650E-05	7.563564E-06	2.811088E-06
		1.469014E-06	6.162875E-07	4.372598E-07	2.663010E-07
		2.778407E-07	1.185063E-07	0.000000E+00	2.003043E-07
		0.000000E+00			
sc46	125. 1deg.				
si46	H	1.950000E+00	2.000000E+00	2.050000E+00	2.100000E+00
		2.150000E+00	2.200000E+00	2.250000E+00	2.300000E+00
		2.350000E+00	2.400000E+00	2.450000E+00	2.500000E+00
		2.550000E+00	2.600000E+00	2.650000E+00	2.700000E+00
		2.750000E+00	2.800000E+00	2.850000E+00	
sp46	D	0.000000E+00	1.949977E-07	1.523743E-06	7.845149E-06
		3.410985E-05	1.335073E-03	1.008744E-03	3.700838E-04
		1.178144E-04	3.102596E-05	8.690579E-06	2.796063E-06
		1.224956E-06	6.446641E-07	4.282080E-07	3.141678E-07
		1.428080E-07	1.040192E-07	0.000000E+00	
sc47	124. 4deg.				
si47	H	1.950000E+00	2.000000E+00	2.050000E+00	2.100000E+00
		2.150000E+00	2.200000E+00	2.250000E+00	2.300000E+00
		2.350000E+00	2.400000E+00	2.450000E+00	2.500000E+00
		2.550000E+00	2.600000E+00	2.650000E+00	2.700000E+00
		2.750000E+00	2.800000E+00	2.850000E+00	
sp47	D	0.000000E+00	2.726704E-07	1.380892E-06	6.888222E-06
		3.13804E-05	1.165916E-03	1.109180E-03	4.061949E-04
		1.259298E-04	3.451245E-05	1.028148E-05	2.782418E-06
		1.381460E-06	7.088768E-07	4.422890E-07	4.540805E-08
		4.241424E-08	3.208346E-07	0.000000E+00	
sc48	123. 7deg.				
si48	H	1.950000E+00	2.000000E+00	2.050000E+00	2.100000E+00
		2.150000E+00	2.200000E+00	2.250000E+00	2.300000E+00
		2.350000E+00	2.400000E+00	2.450000E+00	2.500000E+00
		2.550000E+00	2.600000E+00	2.650000E+00	2.700000E+00
		2.750000E+00	2.800000E+00	2.850000E+00	2.900000E+00
		2.950000E+00	3.000000E+00		
sp48	D	0.000000E+00	2.828153E-07	1.565779E-06	6.370763E-06
		2.575571E-05	9.499927E-04	1.262957E-03	4.422127E-04
		1.402697E-04	3.636287E-05	1.046462E-05	3.288645E-06
		1.289489E-06	6.388125E-07	5.853790E-07	1.558126E-07
		2.688413E-07	1.099669E-07	6.085083E-08	6.979225E-08
		7.129502E-08	0.000000E+00		
sc49	123. 0deg.				
si49	H	1.950000E+00	2.000000E+00	2.050000E+00	2.100000E+00
		2.150000E+00	2.200000E+00	2.250000E+00	2.300000E+00
		2.350000E+00	2.400000E+00	2.450000E+00	2.500000E+00
		2.550000E+00	2.600000E+00	2.650000E+00	2.700000E+00
		2.750000E+00	2.800000E+00	2.850000E+00	2.900000E+00
		2.950000E+00			
sp49	D	0.000000E+00	9.378380E-08	1.522909E-06	5.292359E-06
		2.407994E-05	5.990575E-04	1.526034E-03	4.870475E-04
		1.555972E-04	4.173232E-05	1.086008E-05	3.538844E-06
		1.415898E-06	5.095703E-07	3.899710E-07	3.805432E-07
		1.733358E-07	1.697372E-07	1.236049E-07	6.506331E-08
		0.000000E+00			
sc50	122. 3deg.				
si50	H	1.950000E+00	2.000000E+00	2.050000E+00	2.100000E+00
		2.150000E+00	2.200000E+00	2.250000E+00	2.300000E+00
		2.350000E+00	2.400000E+00	2.450000E+00	2.500000E+00
		2.550000E+00	2.600000E+00	2.650000E+00	2.700000E+00
		2.750000E+00	2.800000E+00	2.850000E+00	2.900000E+00
		2.950000E+00			
sp50	D	0.000000E+00	9.796221E-08	1.723018E-06	4.886203E-06

			2. 114307E-05	2. 463447E-04	1. 798629E-03	5. 274657E-04
			1. 689590E-04	4. 708379E-05	1. 180294E-05	4. 174793E-06
			1. 730296E-06	6. 651709E-07	5. 879526E-07	1. 444001E-07
			1. 003069E-07	2. 097244E-07	1. 855206E-07	7. 140466E-08
			0. 000000E+00			
sc51	121.	7deg.				
si51	H		1. 950000E+00	2. 000000E+00	2. 050000E+00	2. 100000E+00
			2. 150000E+00	2. 200000E+00	2. 250000E+00	2. 300000E+00
			2. 350000E+00	2. 400000E+00	2. 450000E+00	2. 500000E+00
			2. 550000E+00	2. 600000E+00	2. 650000E+00	2. 700000E+00
			2. 750000E+00	2. 800000E+00	2. 850000E+00	
sp51	D		0. 000000E+00	2. 817995E-07	1. 435793E-06	3. 900075E-06
			1. 614851E-05	1. 712434E-04	1. 765032E-03	5. 817833E-04
			1. 883211E-04	5. 078273E-05	1. 335189E-05	4. 116443E-06
			1. 206176E-06	6. 471435E-07	5. 522166E-07	4. 147064E-07
			3. 080378E-07	1. 690503E-07	0. 000000E+00	
sc52	121.	0deg.				
si52	H		2. 000000E+00	2. 050000E+00	2. 100000E+00	2. 150000E+00
			2. 200000E+00	2. 250000E+00	2. 300000E+00	2. 350000E+00
			2. 400000E+00	2. 450000E+00	2. 500000E+00	2. 550000E+00
			2. 600000E+00	2. 650000E+00	2. 700000E+00	2. 750000E+00
			2. 800000E+00	2. 850000E+00	2. 900000E+00	2. 950000E+00
sp52	D		0. 000000E+00	1. 059618E-06	5. 280907E-06	1. 510701E-05
			1. 231023E-04	1. 710638E-03	6. 428379E-04	2. 045735E-04
			5. 669959E-05	1. 485713E-05	4. 224799E-06	1. 843020E-06
			9. 721702E-07	4. 408794E-07	2. 894570E-07	8. 804151E-08
			2. 614228E-07	1. 224200E-07	6. 902939E-08	0. 000000E+00
			0. 000000E+00	1. 016285E-07	0. 000000E+00	
sc53	120.	3deg.				
si53	H		2. 000000E+00	2. 050000E+00	2. 100000E+00	2. 150000E+00
			2. 200000E+00	2. 250000E+00	2. 300000E+00	2. 350000E+00
			2. 400000E+00	2. 450000E+00	2. 500000E+00	2. 550000E+00
			2. 600000E+00	2. 650000E+00	2. 700000E+00	2. 750000E+00
			2. 800000E+00	2. 850000E+00	2. 900000E+00	2. 950000E+00
sp53	D		0. 000000E+00	1. 249256E-06	3. 547925E-06	1. 269516E-05
			9. 574443E-05	1. 608844E-03	7. 209728E-04	2. 291296E-04
			6. 466070E-05	1. 560893E-05	4. 740508E-06	2. 130037E-06
			1. 063147E-06	4. 376922E-07	3. 126862E-07	1. 999320E-07
			1. 425613E-07	2. 287315E-07	6. 281741E-08	0. 000000E+00
sc54	119.	7deg.				
si54	H		1. 950000E+00	2. 000000E+00	2. 050000E+00	2. 100000E+00
			2. 150000E+00	2. 200000E+00	2. 250000E+00	2. 300000E+00
			2. 350000E+00	2. 400000E+00	2. 450000E+00	2. 500000E+00
			2. 550000E+00	2. 600000E+00	2. 650000E+00	2. 700000E+00
			2. 750000E+00	2. 800000E+00	2. 850000E+00	2. 900000E+00
			2. 950000E+00			
sp54	D		0. 000000E+00	1. 884079E-07	9. 312846E-07	2. 711677E-06
			1. 332910E-05	7. 487820E-05	1. 514178E-03	7. 996521E-04
			2. 553197E-04	6. 812868E-05	1. 737678E-05	4. 915452E-06
			2. 407375E-06	8. 900454E-07	8. 225374E-07	3. 262947E-07
			2. 166222E-07	4. 605239E-08	6. 298192E-08	7. 154129E-08
			0. 000000E+00			
sc55	119.	0deg.				
si55	H		2. 000000E+00	2. 050000E+00	2. 100000E+00	2. 150000E+00
			2. 200000E+00	2. 250000E+00	2. 300000E+00	2. 350000E+00
			2. 400000E+00	2. 450000E+00	2. 500000E+00	2. 550000E+00
			2. 600000E+00	2. 650000E+00	2. 700000E+00	2. 750000E+00
			2. 800000E+00	2. 850000E+00	2. 900000E+00	2. 950000E+00
			3. 000000E+00			
sp55	D		0. 000000E+00	6. 975397E-07	3. 487273E-06	1. 149695E-05
			5. 666501E-05	1. 372255E-03	8. 949647E-04	2. 841472E-04
			7. 661744E-05	1. 898802E-05	5. 907519E-06	2. 545511E-06
			8. 983364E-07	5. 857031E-07	4. 379225E-07	1. 699168E-07
			3. 206988E-07	1. 245848E-07	0. 000000E+00	1. 494359E-07
			0. 000000E+00			
sc56	118.	4deg.				
si56	H		1. 950000E+00	2. 000000E+00	2. 050000E+00	2. 100000E+00
			2. 150000E+00	2. 200000E+00	2. 250000E+00	2. 300000E+00
			2. 350000E+00	2. 400000E+00	2. 450000E+00	2. 500000E+00
			2. 550000E+00	2. 600000E+00	2. 650000E+00	2. 700000E+00
			2. 750000E+00	2. 800000E+00	2. 850000E+00	2. 900000E+00
sp56	D		0. 000000E+00	9. 595022E-08	8. 009531E-07	3. 197057E-06
			1. 083084E-05	4. 647774E-05	1. 232027E-03	1. 000527E-03
			3. 113010E-04	8. 674128E-05	2. 163933E-05	5. 731208E-06

			2. 578827E-06	1. 106138E-06	5. 861296E-07	3. 877076E-07
			2. 935840E-07	2. 388411E-07	5. 870089E-08	0. 000000E+00
sc57	117.	7deg.				
si57	H		1. 950000E+00	2. 000000E+00	2. 050000E+00	2. 100000E+00
			2. 150000E+00	2. 200000E+00	2. 250000E+00	2. 300000E+00
			2. 350000E+00	2. 400000E+00	2. 450000E+00	2. 500000E+00
			2. 550000E+00	2. 600000E+00	2. 650000E+00	2. 700000E+00
			2. 750000E+00	2. 800000E+00	2. 850000E+00	2. 900000E+00
sp57	D		0. 000000E+00	9. 868876E-08	5. 613459E-07	2. 710883E-06
			8. 914102E-06	4. 034525E-05	1. 005654E-03	1. 171333E-03
			3. 428943E-04	9. 433141E-05	2. 419194E-05	6. 759265E-06
			2. 681316E-06	1. 277078E-06	6. 724825E-07	5. 809959E-07
			3. 045604E-07	2. 733629E-07	1. 465201E-07	0. 000000E+00
sc58	117.	1deg.				
si58	H		2. 000000E+00	2. 050000E+00	2. 100000E+00	2. 150000E+00
			2. 200000E+00	2. 250000E+00	2. 300000E+00	2. 350000E+00
			2. 400000E+00	2. 450000E+00	2. 500000E+00	2. 550000E+00
			2. 600000E+00	2. 650000E+00	2. 700000E+00	2. 750000E+00
			2. 800000E+00	2. 850000E+00	2. 900000E+00	2. 950000E+00
sp58	D		0. 000000E+00	1. 140591E-06	2. 482455E-06	7. 864256E-06
			3. 293699E-05	5. 643834E-04	1. 529285E-03	3. 830570E-04
			1. 094149E-04	2. 499869E-05	7. 239044E-06	3. 125709E-06
			1. 153187E-06	7. 463747E-07	5. 772447E-07	2. 539755E-07
			1. 343935E-07	5. 747594E-08	0. 000000E+00	7. 239630E-08
			8. 168120E-08	0. 000000E+00		
sc59	116.	4deg.				
si59	H		2. 000000E+00	2. 050000E+00	2. 100000E+00	2. 150000E+00
			2. 200000E+00	2. 250000E+00	2. 300000E+00	2. 350000E+00
			2. 400000E+00	2. 450000E+00	2. 500000E+00	2. 550000E+00
			2. 600000E+00	2. 650000E+00	2. 700000E+00	2. 750000E+00
			2. 800000E+00	2. 850000E+00	2. 900000E+00	2. 950000E+00
			3. 000000E+00			
sp59	D		0. 000000E+00	4. 860620E-07	2. 699977E-06	8. 744297E-06
			3. 127964E-05	3. 196996E-04	1. 700334E-03	4. 312365E-04
			1. 171988E-04	2. 761821E-05	8. 262284E-06	2. 965768E-06
			1. 152799E-06	5. 739308E-07	6. 056786E-07	3. 291105E-07
			2. 640218E-07	6. 112862E-08	0. 000000E+00	7. 710838E-08
			0. 000000E+00			
sc60	115.	8deg.				
si60	H		2. 000000E+00	2. 050000E+00	2. 100000E+00	2. 150000E+00
			2. 200000E+00	2. 250000E+00	2. 300000E+00	2. 350000E+00
			2. 400000E+00	2. 450000E+00	2. 500000E+00	2. 550000E+00
			2. 600000E+00	2. 650000E+00	2. 700000E+00	2. 750000E+00
			2. 800000E+00	2. 850000E+00	2. 900000E+00	2. 950000E+00
sp60	D		0. 000000E+00	7. 638421E-07	2. 844151E-06	7. 563131E-06
			2. 604451E-05	2. 371714E-04	1. 709926E-03	4. 823195E-04
			1. 315987E-04	3. 176966E-05	8. 649197E-06	2. 998338E-06
			1. 512865E-06	9. 532287E-07	5. 865603E-07	2. 081604E-07
			2. 932201E-07	1. 588105E-07	1. 306632E-07	0. 000000E+00
sc61	115.	2deg.				
si61	H		1. 950000E+00	2. 000000E+00	2. 050000E+00	2. 100000E+00
			2. 150000E+00	2. 200000E+00	2. 250000E+00	2. 300000E+00
			2. 350000E+00	2. 400000E+00	2. 450000E+00	2. 500000E+00
			2. 550000E+00	2. 600000E+00	2. 650000E+00	2. 700000E+00
			2. 750000E+00	2. 800000E+00	2. 850000E+00	2. 900000E+00
			2. 950000E+00	3. 000000E+00		
sp61	D		0. 000000E+00	1. 886470E-07	7. 741721E-07	2. 391935E-06
			6. 132756E-06	2. 334661E-05	1. 739331E-04	1. 665540E-03
			5. 458136E-04	1. 512402E-04	3. 717752E-05	1. 022384E-05
			3. 461923E-06	1. 473029E-06	8. 623679E-07	3. 197049E-07
			5. 588051E-07	4. 954327E-07	5. 885650E-08	0. 000000E+00
			7. 907025E-08	0. 000000E+00		
sc62	114.	5deg.				
si62	H		1. 950000E+00	2. 000000E+00	2. 050000E+00	2. 100000E+00
			2. 150000E+00	2. 200000E+00	2. 250000E+00	2. 300000E+00
			2. 350000E+00	2. 400000E+00	2. 450000E+00	2. 500000E+00
			2. 550000E+00	2. 600000E+00	2. 650000E+00	2. 700000E+00
			2. 750000E+00	2. 800000E+00	2. 850000E+00	2. 900000E+00
			2. 950000E+00	3. 000000E+00	3. 050000E+00	3. 100000E+00
sp62	D		0. 000000E+00	9. 579850E-08	4. 923697E-07	1. 653697E-06
			5. 632591E-06	1. 901345E-05	1. 359266E-04	1. 594283E-03
			6. 259175E-04	1. 704506E-04	4. 061521E-05	1. 018506E-05
			3. 225417E-06	1. 600443E-06	8. 313361E-07	6. 886019E-07
			2. 403040E-07	3. 311343E-07	0. 000000E+00	2. 818647E-07

			0. 000000E+00	0. 000000E+00	9. 211577E-08	0. 000000E+00	
sc63		113. 9deg.	H	2. 000000E+00	2. 050000E+00	2. 100000E+00	2. 150000E+00
si63				2. 200000E+00	2. 250000E+00	2. 300000E+00	2. 350000E+00
				2. 400000E+00	2. 450000E+00	2. 500000E+00	2. 550000E+00
				2. 600000E+00	2. 650000E+00	2. 700000E+00	2. 750000E+00
				2. 800000E+00	2. 850000E+00	2. 900000E+00	2. 950000E+00
				3. 000000E+00			
sp63	D		0. 000000E+00	4. 155958E-07	1. 857540E-06	6. 507156E-06	
			1. 680523E-05	1. 087359E-04	1. 495309E-03	6. 940928E-04	
			1. 923594E-04	4. 215722E-05	1. 213260E-05	4. 537588E-06	
			1. 764279E-06	9. 256931E-07	5. 461527E-07	3. 937870E-07	
			2. 582352E-07	3. 315137E-07	1. 887965E-07	8. 125844E-08	
			0. 000000E+00				
sc64		113. 3deg.	H	2. 000000E+00	2. 050000E+00	2. 100000E+00	2. 150000E+00
si64				2. 200000E+00	2. 250000E+00	2. 300000E+00	2. 350000E+00
				2. 400000E+00	2. 450000E+00	2. 500000E+00	2. 550000E+00
				2. 600000E+00	2. 650000E+00	2. 700000E+00	2. 750000E+00
				2. 800000E+00	2. 850000E+00	2. 900000E+00	2. 950000E+00
				3. 000000E+00	3. 050000E+00	3. 100000E+00	3. 150000E+00
sp64	D		0. 000000E+00	6. 607507E-07	1. 635466E-06	5. 737807E-06	
			1. 665331E-05	8. 271496E-05	1. 388376E-03	7. 860871E-04	
			2. 075477E-04	4. 933158E-05	1. 276062E-05	4. 751710E-06	
			1. 944913E-06	7. 628263E-07	5. 172625E-07	4. 128801E-07	
			4. 706262E-07	1. 536323E-07	6. 014441E-08	7. 790934E-08	
			0. 000000E+00	0. 000000E+00	1. 146068E-07	0. 000000E+00	
sc65		112. 6deg.	H	2. 000000E+00	2. 050000E+00	2. 100000E+00	2. 150000E+00
si65				2. 200000E+00	2. 250000E+00	2. 300000E+00	2. 350000E+00
				2. 400000E+00	2. 450000E+00	2. 500000E+00	2. 550000E+00
				2. 600000E+00	2. 650000E+00	2. 700000E+00	2. 750000E+00
				2. 800000E+00	2. 850000E+00	2. 900000E+00	2. 950000E+00
				3. 000000E+00			
sp65	D		0. 000000E+00	8. 309133E-07	1. 317971E-06	5. 551988E-06	
			1. 464079E-05	7. 153480E-05	1. 249295E-03	8. 816601E-04	
			2. 454677E-04	5. 642143E-05	1. 379188E-05	4. 609976E-06	
			2. 505832E-06	7. 007234E-07	5. 287957E-07	5. 204048E-07	
			2. 466309E-07	1. 669235E-07	0. 000000E+00	7. 388402E-08	
			0. 000000E+00				
sc66		112. 0deg.	H	1. 950000E+00	2. 000000E+00	2. 050000E+00	2. 100000E+00
si66				2. 150000E+00	2. 200000E+00	2. 250000E+00	2. 300000E+00
				2. 350000E+00	2. 400000E+00	2. 450000E+00	2. 500000E+00
				2. 550000E+00	2. 600000E+00	2. 650000E+00	2. 700000E+00
				2. 750000E+00	2. 800000E+00	2. 850000E+00	2. 900000E+00
				2. 950000E+00	3. 000000E+00		
sp66	D		0. 000000E+00	1. 852324E-07	7. 354807E-07	2. 071753E-06	
			5. 200562E-06	1. 374590E-05	6. 017194E-05	9. 478046E-04	
			1. 155758E-03	2. 737282E-04	6. 257979E-05	1. 522295E-05	
			4. 849409E-06	2. 532356E-06	1. 122072E-06	8. 353022E-07	
			5. 384488E-07	4. 297513E-07	2. 146136E-07	6. 181513E-08	
			7. 422590E-08	0. 000000E+00			
sc67		111. 4deg.	H	2. 000000E+00	2. 050000E+00	2. 100000E+00	2. 150000E+00
si67				2. 200000E+00	2. 250000E+00	2. 300000E+00	2. 350000E+00
				2. 400000E+00	2. 450000E+00	2. 500000E+00	2. 550000E+00
				2. 600000E+00	2. 650000E+00	2. 700000E+00	2. 750000E+00
				2. 800000E+00	2. 850000E+00	2. 900000E+00	2. 950000E+00
				3. 000000E+00	3. 050000E+00		
sp67	D		0. 000000E+00	3. 877168E-07	1. 316251E-06	4. 410403E-06	
			1. 223364E-05	5. 149304E-05	5. 602114E-04	1. 490647E-03	
			3. 090265E-04	6. 985083E-05	1. 725226E-05	5. 418869E-06	
			2. 507834E-06	1. 217834E-06	1. 029517E-06	3. 347427E-07	
			2. 198775E-07	1. 177676E-07	6. 851018E-08	0. 000000E+00	
			7. 548766E-08	0. 000000E+00			
sc68		110. 8deg.	H	1. 950000E+00	2. 000000E+00	2. 050000E+00	2. 100000E+00
si68				2. 150000E+00	2. 200000E+00	2. 250000E+00	2. 300000E+00
				2. 350000E+00	2. 400000E+00	2. 450000E+00	2. 500000E+00
				2. 550000E+00	2. 600000E+00	2. 650000E+00	2. 700000E+00
				2. 750000E+00	2. 800000E+00	2. 850000E+00	2. 900000E+00
				2. 950000E+00	3. 000000E+00	3. 050000E+00	
sp68	D		0. 000000E+00	9. 258107E-08	3. 208146E-07	1. 361705E-06	
			3. 390993E-06	1. 064727E-05	4. 115105E-05	4. 092450E-04	

			1. 553712E-03	3. 617724E-04	8. 516998E-05	1. 841480E-05
			6. 396671E-06	2. 854462E-06	1. 469573E-06	8. 326690E-07
			3. 469811E-07	2. 357862E-07	1. 529924E-07	0. 000000E+00
			1. 510627E-07	2. 601587E-07	0. 000000E+00	
sc69	110. 2deg.	H	2. 000000E+00	2. 050000E+00	2. 100000E+00	2. 150000E+00
si69			2. 200000E+00	2. 250000E+00	2. 300000E+00	2. 350000E+00
			2. 400000E+00	2. 450000E+00	2. 500000E+00	2. 550000E+00
			2. 600000E+00	2. 650000E+00	2. 700000E+00	2. 750000E+00
			2. 800000E+00	2. 850000E+00	2. 900000E+00	2. 950000E+00
			3. 000000E+00	3. 050000E+00	3. 100000E+00	
sp69	D		0. 000000E+00	3. 183583E-07	1. 272314E-06	4. 071092E-06
			8. 092616E-06	3. 791629E-05	3. 096115E-04	1. 590214E-03
			4. 123596E-04	9. 113593E-05	2. 019347E-05	6. 339927E-06
			2. 920487E-06	1. 377355E-06	7. 659928E-07	4. 084508E-07
			2. 966578E-07	3. 665900E-07	1. 359816E-07	0. 000000E+00
			0. 000000E+00	9. 141640E-08	0. 000000E+00	
sc70	109. 6deg.	H	2. 000000E+00	2. 050000E+00	2. 100000E+00	2. 150000E+00
si70			2. 200000E+00	2. 250000E+00	2. 300000E+00	2. 350000E+00
			2. 400000E+00	2. 450000E+00	2. 500000E+00	2. 550000E+00
			2. 600000E+00	2. 650000E+00	2. 700000E+00	2. 750000E+00
			2. 800000E+00	2. 850000E+00	2. 900000E+00	2. 950000E+00
			3. 000000E+00	3. 050000E+00	3. 100000E+00	
sp70	D		0. 000000E+00	6. 792241E-07	1. 134018E-06	3. 745037E-06
			8. 333881E-06	3. 006933E-05	2. 351665E-04	1. 569537E-03
			4. 800831E-04	1. 063424E-04	2. 369010E-05	6. 998818E-06
			2. 652742E-06	1. 598956E-06	8. 642613E-07	4. 420281E-07
			3. 670866E-07	1. 484548E-07	1. 347337E-07	0. 000000E+00
			0. 000000E+00	9. 556420E-08	0. 000000E+00	
sc71	109. 0deg.	H	2. 000000E+00	2. 050000E+00	2. 100000E+00	2. 150000E+00
si71			2. 200000E+00	2. 250000E+00	2. 300000E+00	2. 350000E+00
			2. 400000E+00	2. 450000E+00	2. 500000E+00	2. 550000E+00
			2. 600000E+00	2. 650000E+00	2. 700000E+00	2. 750000E+00
			2. 800000E+00	2. 850000E+00	2. 900000E+00	2. 950000E+00
			3. 000000E+00	3. 050000E+00	3. 100000E+00	
sp71	D		0. 000000E+00	7. 411917E-07	1. 128321E-06	2. 738181E-06
			9. 378870E-06	2. 619192E-05	1. 844369E-04	1. 521999E-03
			5. 541587E-04	1. 206519E-04	2. 582431E-05	8. 070121E-06
			3. 278564E-06	1. 588855E-06	7. 657781E-07	5. 205471E-07
			3. 083500E-07	2. 981144E-07	1. 068891E-07	1. 528540E-07
			0. 000000E+00	9. 452155E-08	0. 000000E+00	
sc72	108. 4deg.	H	2. 000000E+00	2. 050000E+00	2. 100000E+00	2. 150000E+00
si72			2. 200000E+00	2. 250000E+00	2. 300000E+00	2. 350000E+00
			2. 400000E+00	2. 450000E+00	2. 500000E+00	2. 550000E+00
			2. 600000E+00	2. 650000E+00	2. 700000E+00	2. 750000E+00
			2. 800000E+00	2. 850000E+00	2. 900000E+00	2. 950000E+00
			3. 000000E+00			
sp72	D		0. 000000E+00	4. 172225E-07	6. 513867E-07	2. 825540E-06
			6. 811483E-06	2. 393787E-05	1. 487011E-04	1. 444645E-03
			6. 280158E-04	1. 404378E-04	2. 989422E-05	8. 756065E-06
			3. 444846E-06	2. 044580E-06	7. 928984E-07	5. 184357E-07
			5. 548789E-07	2. 227640E-07	3. 926826E-07	7. 859680E-08
			0. 000000E+00			
sc73	107. 8deg.	H	2. 000000E+00	2. 050000E+00	2. 100000E+00	2. 150000E+00
si73			2. 200000E+00	2. 250000E+00	2. 300000E+00	2. 350000E+00
			2. 400000E+00	2. 450000E+00	2. 500000E+00	2. 550000E+00
			2. 600000E+00	2. 650000E+00	2. 700000E+00	2. 750000E+00
			2. 800000E+00	2. 850000E+00	2. 900000E+00	2. 950000E+00
			3. 000000E+00	3. 050000E+00	3. 100000E+00	
sp73	D		0. 000000E+00	3. 370320E-07	1. 253811E-06	3. 097183E-06
			6. 386346E-06	2. 004682E-05	1. 249835E-04	1. 359605E-03
			7. 165152E-04	1. 590532E-04	3. 270165E-05	9. 768629E-06
			4. 380287E-06	2. 071209E-06	9. 012067E-07	7. 435338E-07
			2. 975572E-07	2. 985244E-07	3. 214659E-07	1. 337513E-07
			0. 000000E+00	1. 899678E-07	0. 000000E+00	
sc74	107. 2deg.	H	2. 000000E+00	2. 050000E+00	2. 100000E+00	2. 150000E+00
si74			2. 200000E+00	2. 250000E+00	2. 300000E+00	2. 350000E+00
			2. 400000E+00	2. 450000E+00	2. 500000E+00	2. 550000E+00
			2. 600000E+00	2. 650000E+00	2. 700000E+00	2. 750000E+00
			2. 800000E+00	2. 850000E+00	2. 900000E+00	2. 950000E+00

			3. 000000E+00 3. 050000E+00 3. 100000E+00
sp74	D	0. 000000E+00 3. 509894E-07 7. 689468E-07 1. 740281E-06	
		5. 785852E-06 1. 956529E-05 1. 008904E-04 1. 217582E-03	
		8. 374972E-04 1. 873719E-04 3. 743884E-05 1. 036529E-05	
		3. 964160E-06 2. 074377E-06 1. 320094E-06 6. 497041E-07	
		6. 365214E-07 2. 140977E-07 3. 633629E-07 1. 547196E-07	
		0. 000000E+00 1. 024174E-07 0. 000000E+00	
sc75	106. 6deg.		
si75	H	2. 000000E+00 2. 050000E+00 2. 100000E+00 2. 150000E+00	
		2. 200000E+00 2. 250000E+00 2. 300000E+00 2. 350000E+00	
		2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00	
		2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00	
		2. 800000E+00 2. 850000E+00 2. 900000E+00 2. 950000E+00	
		3. 000000E+00 3. 050000E+00 3. 100000E+00 3. 150000E+00	
		3. 200000E+00	
sp75	D	0. 000000E+00 3. 188990E-07 8. 347413E-07 2. 225909E-06	
		5. 248421E-06 1. 765692E-05 8. 473994E-05 7. 508189E-04	
		1. 280924E-03 2. 111453E-04 4. 299543E-05 1. 080428E-05	
		4. 466825E-06 1. 960895E-06 1. 149158E-06 8. 470543E-07	
		3. 604948E-07 2. 972840E-07 3. 040475E-07 7. 410646E-08	
		1. 658094E-07 1. 007667E-07 0. 000000E+00 1. 238303E-07	
		0. 000000E+00	
sc76	106. 0deg.		
si76	H	2. 000000E+00 2. 050000E+00 2. 100000E+00 2. 150000E+00	
		2. 200000E+00 2. 250000E+00 2. 300000E+00 2. 350000E+00	
		2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00	
		2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00	
		2. 800000E+00 2. 850000E+00 2. 900000E+00 2. 950000E+00	
sp76	D	0. 000000E+00 6. 441428E-07 7. 415477E-07 2. 644290E-06	
		4. 998061E-06 1. 763112E-05 6. 952247E-05 6. 167243E-04	
		1. 360034E-03 2. 539304E-04 4. 919940E-05 1. 197805E-05	
		3. 851654E-06 2. 423878E-06 1. 092039E-06 7. 617077E-07	
		5. 265211E-07 4. 710359E-07 1. 921285E-07 0. 000000E+00	
sc77	105. 4deg.		
si77	H	2. 000000E+00 2. 050000E+00 2. 100000E+00 2. 150000E+00	
		2. 200000E+00 2. 250000E+00 2. 300000E+00 2. 350000E+00	
		2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00	
		2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00	
		2. 800000E+00 2. 850000E+00 2. 900000E+00 2. 950000E+00	
		3. 000000E+00 3. 050000E+00 3. 100000E+00	
sp77	D	0. 000000E+00 3. 159342E-07 6. 621411E-07 1. 943149E-06	
		4. 222147E-06 1. 508281E-05 5. 825032E-05 4. 982852E-04	
		1. 426253E-03 3. 018373E-04 5. 416311E-05 1. 485940E-05	
		4. 933782E-06 2. 349716E-06 1. 482240E-06 8. 192468E-07	
		4. 902917E-07 3. 971529E-07 3. 970229E-07 4. 228344E-07	
		8. 506602E-08 9. 465428E-08 0. 000000E+00	
sc78	104. 8deg.		
si78	H	2. 000000E+00 2. 050000E+00 2. 100000E+00 2. 150000E+00	
		2. 200000E+00 2. 250000E+00 2. 300000E+00 2. 350000E+00	
		2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00	
		2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00	
		2. 800000E+00 2. 850000E+00 2. 900000E+00 2. 950000E+00	
		3. 000000E+00 3. 050000E+00	
sp78	D	0. 000000E+00 1. 583433E-07 6. 491835E-07 1. 940689E-06	
		4. 179416E-06 1. 198509E-05 5. 188319E-05 3. 841507E-04	
		1. 461069E-03 3. 593660E-04 6. 471793E-05 1. 570581E-05	
		5. 390345E-06 2. 599827E-06 1. 514178E-06 4. 664122E-07	
		4. 634159E-07 3. 923992E-07 4. 487263E-07 3. 149536E-07	
		8. 778537E-08 0. 000000E+00	
sc79	104. 2deg.		
si79	H	2. 000000E+00 2. 050000E+00 2. 100000E+00 2. 150000E+00	
		2. 200000E+00 2. 250000E+00 2. 300000E+00 2. 350000E+00	
		2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00	
		2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00	
		2. 800000E+00 2. 850000E+00 2. 900000E+00 2. 950000E+00	
		3. 000000E+00 3. 050000E+00 3. 100000E+00	
sp79	D	0. 000000E+00 4. 029274E-07 8. 852197E-07 2. 036224E-06	
		4. 987367E-06 1. 169468E-05 4. 263227E-05 3. 091704E-04	
		1. 457932E-03 4. 257681E-04 7. 359929E-05 1. 703763E-05	
		5. 792057E-06 2. 934736E-06 1. 988926E-06 7. 716647E-07	
		4. 940091E-07 5. 160654E-07 3. 261289E-07 2. 971694E-07	
		8. 739787E-08 1. 914260E-07 0. 000000E+00	
sc80	103. 6deg.		
si80	H	2. 000000E+00 2. 050000E+00 2. 100000E+00 2. 150000E+00	
		2. 200000E+00 2. 250000E+00 2. 300000E+00 2. 350000E+00	

			2. 400000E+00	2. 450000E+00	2. 500000E+00	2. 550000E+00
			2. 600000E+00	2. 650000E+00	2. 700000E+00	2. 750000E+00
			2. 800000E+00	2. 850000E+00	2. 900000E+00	2. 950000E+00
			3. 000000E+00	3. 050000E+00	3. 100000E+00	
sp80	D		0. 000000E+00	2. 727935E-07	6. 301841E-07	1. 439827E-06
			3. 797663E-06	9. 367107E-06	3. 752855E-05	2. 487859E-04
			1. 417742E-03	5. 145387E-04	8. 393600E-05	1. 938951E-05
			6. 506822E-06	2. 611680E-06	1. 095405E-06	9. 561043E-07
			3. 814999E-07	5. 798711E-07	3. 158417E-07	0. 000000E+00
sc81		103. 0deg.				
si81	H		2. 000000E+00	2. 050000E+00	2. 100000E+00	2. 150000E+00
			2. 200000E+00	2. 250000E+00	2. 300000E+00	2. 350000E+00
			2. 400000E+00	2. 450000E+00	2. 500000E+00	2. 550000E+00
			2. 600000E+00	2. 650000E+00	2. 700000E+00	2. 750000E+00
			2. 800000E+00	2. 850000E+00	2. 900000E+00	2. 950000E+00
sp81	D		0. 000000E+00	2. 534089E-07	3. 523415E-07	1. 282873E-06
			4. 489189E-06	1. 013433E-05	3. 350709E-05	2. 045425E-04
			1. 340630E-03	6. 161497E-04	1. 004990E-04	2. 129866E-05
			7. 481092E-06	2. 713982E-06	1. 979963E-06	1. 093136E-06
			4. 319416E-07	3. 236598E-07	1. 392837E-07	0. 000000E+00
sc82		102. 4deg.				
si82	H		2. 000000E+00	2. 050000E+00	2. 100000E+00	2. 150000E+00
			2. 200000E+00	2. 250000E+00	2. 300000E+00	2. 350000E+00
			2. 400000E+00	2. 450000E+00	2. 500000E+00	2. 550000E+00
			2. 600000E+00	2. 650000E+00	2. 700000E+00	2. 750000E+00
			2. 800000E+00	2. 850000E+00	2. 900000E+00	2. 950000E+00
			3. 000000E+00			
sp82	D		0. 000000E+00	7. 945628E-08	4. 606137E-07	1. 605051E-06
			4. 266871E-06	9. 818910E-06	3. 040564E-05	1. 654064E-04
			1. 233170E-03	7. 223718E-04	1. 172246E-04	2. 516446E-05
			8. 766572E-06	3. 539401E-06	1. 315562E-06	9. 756290E-07
			5. 019879E-07	6. 524199E-07	1. 848937E-07	1. 526969E-07
			0. 000000E+00			
sc83		101. 8deg.				
si83	H		2. 000000E+00	2. 050000E+00	2. 100000E+00	2. 150000E+00
			2. 200000E+00	2. 250000E+00	2. 300000E+00	2. 350000E+00
			2. 400000E+00	2. 450000E+00	2. 500000E+00	2. 550000E+00
			2. 600000E+00	2. 650000E+00	2. 700000E+00	2. 750000E+00
			2. 800000E+00	2. 850000E+00	2. 900000E+00	2. 950000E+00
			3. 000000E+00			
sp83	D		0. 000000E+00	8. 660694E-08	6. 795601E-07	1. 289270E-06
			3. 390764E-06	9. 783655E-06	2. 655814E-05	1. 376292E-04
			8. 298569E-04	1. 137404E-03	1. 363136E-04	2. 720575E-05
			8. 361814E-06	4. 384018E-06	2. 479274E-06	1. 564890E-06
			5. 064654E-07	3. 055188E-07	4. 416720E-07	2. 112492E-07
			0. 000000E+00			
sc84		101. 2deg.				
si84	H		2. 000000E+00	2. 050000E+00	2. 100000E+00	2. 150000E+00
			2. 200000E+00	2. 250000E+00	2. 300000E+00	2. 350000E+00
			2. 400000E+00	2. 450000E+00	2. 500000E+00	2. 550000E+00
			2. 600000E+00	2. 650000E+00	2. 700000E+00	2. 750000E+00
			2. 800000E+00	2. 850000E+00	2. 900000E+00	2. 950000E+00
			3. 000000E+00	3. 050000E+00	3. 100000E+00	3. 150000E+00
sp84	D		0. 000000E+00	2. 584287E-07	4. 062117E-07	1. 454025E-06
			3. 142038E-06	6. 702669E-06	2. 214976E-05	1. 208459E-04
			7. 255762E-04	1. 219501E-03	1. 673707E-04	3. 162953E-05
			9. 913036E-06	3. 766973E-06	2. 667470E-06	1. 331867E-06
			9. 215872E-07	1. 480737E-07	1. 824143E-07	2. 055402E-07
			7. 952417E-08	1. 014930E-07	1. 120907E-07	0. 000000E+00
sc85		100. 7deg.				
si85	H		1. 950000E+00	2. 000000E+00	2. 050000E+00	2. 100000E+00
			2. 150000E+00	2. 200000E+00	2. 250000E+00	2. 300000E+00
			2. 350000E+00	2. 400000E+00	2. 450000E+00	2. 500000E+00
			2. 550000E+00	2. 600000E+00	2. 650000E+00	2. 700000E+00
			2. 750000E+00	2. 800000E+00	2. 850000E+00	2. 900000E+00
			2. 950000E+00	3. 000000E+00	3. 050000E+00	3. 100000E+00
sp85	D		0. 000000E+00	9. 614850E-08	2. 568551E-07	3. 499294E-07
			8. 766152E-07	2. 822105E-06	7. 031288E-06	2. 057719E-05
			1. 007837E-04	6. 405843E-04	1. 277374E-03	1. 972453E-04
			3. 734000E-05	1. 079425E-05	3. 872918E-06	2. 475107E-06
			1. 202220E-06	4. 187579E-07	3. 778591E-07	1. 853765E-07
			1. 378679E-07	2. 518858E-07	9. 374398E-08	0. 000000E+00
sc86		100. 1deg.				
si86	H		2. 000000E+00	2. 050000E+00	2. 100000E+00	2. 150000E+00

		2. 200000E+00	2. 250000E+00	2. 300000E+00	2. 350000E+00
		2. 400000E+00	2. 450000E+00	2. 500000E+00	2. 550000E+00
		2. 600000E+00	2. 650000E+00	2. 700000E+00	2. 750000E+00
		2. 800000E+00	2. 850000E+00	2. 900000E+00	2. 950000E+00
		3. 000000E+00	3. 050000E+00		
sp86	D	0. 000000E+00	1. 752892E-07	1. 449860E-07	1. 078239E-06
		3. 333170E-06	6. 323823E-06	1. 930419E-05	8. 184913E-05
		5. 329985E-04	1. 323522E-03	2. 507458E-04	4. 014459E-05
		1. 147720E-05	5. 247565E-06	1. 184860E-06	1. 256898E-06
		9. 020508E-07	5. 590425E-07	1. 093078E-07	2. 171291E-07
		2. 572728E-07	0. 000000E+00		
sc87	99. 5deg.				
si87	H	2. 000000E+00	2. 050000E+00	2. 100000E+00	2. 150000E+00
		2. 200000E+00	2. 250000E+00	2. 300000E+00	2. 350000E+00
		2. 400000E+00	2. 450000E+00	2. 500000E+00	2. 550000E+00
		2. 600000E+00	2. 650000E+00	2. 700000E+00	2. 750000E+00
		2. 800000E+00	2. 850000E+00	2. 900000E+00	2. 950000E+00
		3. 000000E+00	3. 050000E+00		
sp87	D	0. 000000E+00	1. 719956E-07	4. 965606E-07	9. 201051E-07
		3. 508682E-06	5. 791814E-06	1. 684191E-05	7. 249745E-05
		4. 560738E-04	1. 354590E-03	3. 030515E-04	4. 703508E-05
		1. 284258E-05	5. 275579E-06	2. 869255E-06	1. 397233E-06
		1. 193773E-06	4. 299815E-07	1. 915567E-07	3. 814715E-07
		9. 109826E-08	0. 000000E+00		
sc88	98. 9deg.				
si88	H	2. 000000E+00	2. 050000E+00	2. 100000E+00	2. 150000E+00
		2. 200000E+00	2. 250000E+00	2. 300000E+00	2. 350000E+00
		2. 400000E+00	2. 450000E+00	2. 500000E+00	2. 550000E+00
		2. 600000E+00	2. 650000E+00	2. 700000E+00	2. 750000E+00
		2. 800000E+00	2. 850000E+00	2. 900000E+00	2. 950000E+00
		3. 000000E+00	3. 050000E+00		
sp88	D	0. 000000E+00	1. 571176E-07	6. 146032E-07	9. 434127E-07
		2. 612739E-06	5. 292756E-06	1. 529926E-05	6. 485407E-05
		3. 820384E-04	1. 338763E-03	3. 847613E-04	5. 633753E-05
		1. 384072E-05	4. 873843E-06	2. 394580E-06	1. 685606E-06
		8. 366059E-07	4. 817775E-07	2. 584680E-07	2. 371884E-07
		8. 583306E-08	0. 000000E+00		
sc89	98. 3deg.				
si89	H	2. 000000E+00	2. 050000E+00	2. 100000E+00	2. 150000E+00
		2. 200000E+00	2. 250000E+00	2. 300000E+00	2. 350000E+00
		2. 400000E+00	2. 450000E+00	2. 500000E+00	2. 550000E+00
		2. 600000E+00	2. 650000E+00	2. 700000E+00	2. 750000E+00
		2. 800000E+00	2. 850000E+00	2. 900000E+00	2. 950000E+00
		3. 000000E+00	3. 050000E+00		
sp89	D	0. 000000E+00	3. 399352E-07	4. 886499E-07	1. 180294E-06
		2. 316882E-06	5. 590606E-06	1. 334301E-05	5. 714362E-05
		3. 174771E-04	1. 301923E-03	4. 807489E-04	6. 364647E-05
		1. 427786E-05	6. 201547E-06	2. 930864E-06	1. 463293E-06
		6. 724103E-07	3. 688363E-07	3. 538258E-07	5. 385673E-07
		2. 464930E-07	0. 000000E+00	1. 083797E-07	0. 000000E+00
sc90	97. 8deg.				
si90	H	2. 000000E+00	2. 050000E+00	2. 100000E+00	2. 150000E+00
		2. 200000E+00	2. 250000E+00	2. 300000E+00	2. 350000E+00
		2. 400000E+00	2. 450000E+00	2. 500000E+00	2. 550000E+00
		2. 600000E+00	2. 650000E+00	2. 700000E+00	2. 750000E+00
		2. 800000E+00	2. 850000E+00	2. 900000E+00	2. 950000E+00
		3. 000000E+00	3. 050000E+00		
sp90	D	0. 000000E+00	1. 603128E-07	4. 961501E-07	9. 195575E-07
		2. 532956E-06	4. 767195E-06	1. 278896E-05	4. 819280E-05
		2. 686859E-04	1. 163139E-03	6. 481750E-04	7. 901049E-05
		1. 786917E-05	6. 194610E-06	2. 650087E-06	1. 756740E-06
		1. 162257E-06	4. 618852E-07	4. 468357E-07	3. 633520E-07
		1. 628105E-07	1. 966162E-07	0. 000000E+00	
sc91	97. 2deg.				
si91	H	2. 000000E+00	2. 050000E+00	2. 100000E+00	2. 150000E+00
		2. 200000E+00	2. 250000E+00	2. 300000E+00	2. 350000E+00
		2. 400000E+00	2. 450000E+00	2. 500000E+00	2. 550000E+00
		2. 600000E+00	2. 650000E+00	2. 700000E+00	2. 750000E+00
		2. 800000E+00	2. 850000E+00	2. 900000E+00	2. 950000E+00
		3. 000000E+00			
sp91	D	0. 000000E+00	9. 488733E-08	7. 409315E-08	1. 134287E-06
		2. 195873E-06	4. 550026E-06	1. 193723E-05	4. 195578E-05
		2. 277443E-04	8. 000323E-04	1. 033360E-03	9. 043035E-05
		2. 017727E-05	6. 599065E-06	3. 856362E-06	1. 641497E-06
		7. 043723E-07	1. 216380E-07	6. 090108E-07	5. 231289E-07

		0. 000000E+00			
sc92	96. 6deg.	H	2. 050000E+00 2. 100000E+00 2. 150000E+00 2. 200000E+00 2. 250000E+00 2. 300000E+00 2. 350000E+00 2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00 2. 800000E+00 2. 850000E+00 2. 900000E+00 2. 950000E+00 3. 000000E+00 3. 050000E+00 3. 100000E+00 3. 150000E+00		
si92		D	0. 000000E+00 2. 266185E-07 9. 275498E-07 2. 036795E-06 3. 945676E-06 1. 092968E-05 3. 839007E-05 1. 973039E-04 6. 972738E-04 1. 145380E-03 1. 096681E-04 2. 346114E-05 6. 959165E-06 3. 817807E-06 2. 324625E-06 9. 183765E-07 3. 009376E-07 5. 184008E-07 4. 297316E-07 2. 524006E-07 0. 000000E+00 1. 174365E-07 0. 000000E+00		
sp92					
sc93	96. 0deg.	H	2. 050000E+00 2. 100000E+00 2. 150000E+00 2. 200000E+00 2. 250000E+00 2. 300000E+00 2. 350000E+00 2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00 2. 800000E+00 2. 850000E+00 2. 900000E+00 2. 950000E+00 3. 000000E+00 3. 050000E+00		
si93		D	0. 000000E+00 5. 878971E-08 1. 097500E-06 1. 908937E-06 3. 808146E-06 9. 083131E-06 3. 405198E-05 1. 677008E-04 6. 236311E-04 1. 219020E-03 1. 368209E-04 2. 684664E-05 8. 764495E-06 3. 079614E-06 2. 196212E-06 1. 401567E-06 6. 313732E-07 4. 527993E-07 1. 283579E-07 1. 689240E-07 0. 000000E+00		
sp93					
sc94	95. 5deg.	H	2. 050000E+00 2. 100000E+00 2. 150000E+00 2. 200000E+00 2. 250000E+00 2. 300000E+00 2. 350000E+00 2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00 2. 800000E+00 2. 850000E+00 2. 900000E+00 2. 950000E+00 3. 000000E+00 3. 050000E+00 3. 100000E+00 3. 150000E+00		
si94		D	0. 000000E+00 6. 583350E-07 8. 278865E-07 2. 443179E-06 3. 593966E-06 9. 554522E-06 3. 018500E-05 1. 419853E-04 5. 606232E-04 1. 268434E-03 1. 689352E-04 3. 074036E-05 9. 044694E-06 4. 412595E-06 2. 172733E-06 1. 662247E-06 1. 107276E-06 2. 410123E-07 4. 548006E-07 2. 551525E-07 1. 931898E-07 1. 118233E-07 0. 000000E+00		
sp94					
sc95	94. 9deg.	H	2. 000000E+00 2. 050000E+00 2. 100000E+00 2. 150000E+00 2. 200000E+00 2. 250000E+00 2. 300000E+00 2. 350000E+00 2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00 2. 800000E+00 2. 850000E+00 2. 900000E+00 2. 950000E+00 3. 000000E+00 3. 050000E+00 3. 100000E+00		
si95		D	0. 000000E+00 2. 447912E-07 5. 380915E-07 7. 390996E-07 1. 798677E-06 3. 459578E-06 9. 231266E-06 2. 603646E-05 1. 229252E-04 5. 044921E-04 1. 287946E-03 2. 137300E-04 3. 348718E-05 1. 141934E-05 4. 937001E-06 2. 860019E-06 1. 626074E-06 1. 000755E-06 5. 059478E-07 2. 887126E-07 4. 316103E-07 1. 040429E-07 0. 000000E+00		
sp95					
sc96	94. 3deg.	H	2. 000000E+00 2. 050000E+00 2. 100000E+00 2. 150000E+00 2. 200000E+00 2. 250000E+00 2. 300000E+00 2. 350000E+00 2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00 2. 800000E+00 2. 850000E+00 2. 900000E+00 2. 950000E+00 3. 000000E+00 3. 050000E+00 3. 100000E+00 3. 150000E+00		
si96		D	0. 000000E+00 8. 475388E-08 4. 277603E-07 1. 075306E-06 1. 094092E-06 3. 662599E-06 8. 220771E-06 2. 326214E-05 1. 059864E-04 4. 496938E-04 1. 289580E-03 2. 766943E-04 4. 028927E-05 1. 084529E-05 5. 109538E-06 2. 691318E-06 1. 804831E-06 7. 180880E-07 4. 998630E-07 3. 416635E-07 5. 058017E-07 9. 558141E-08 2. 155282E-07 0. 000000E+00		
sp96					
sc97	93. 7deg.	H	2. 000000E+00 2. 050000E+00 2. 100000E+00 2. 150000E+00 2. 200000E+00 2. 250000E+00 2. 300000E+00 2. 350000E+00 2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00 2. 800000E+00 2. 850000E+00 2. 900000E+00 2. 950000E+00 3. 000000E+00 3. 050000E+00 3. 100000E+00 3. 150000E+00		
si97		D	0. 000000E+00 8. 710279E-08 5. 541229E-07 7. 920072E-07 1. 600880E-06 3. 128409E-06 6. 689009E-06 2. 084297E-05		
sp97					

		9. 459034E-05	4. 009229E-04	1. 271823E-03	3. 594464E-04
		4. 748924E-05	1. 359931E-05	4. 601166E-06	2. 527620E-06
		1. 550757E-06	8. 732052E-07	4. 349148E-07	2. 134181E-07
		6. 836821E-07	9. 571390E-08	3. 406776E-07	0. 000000E+00
sc98	93. 2deg.				
si98	H	2. 050000E+00	2. 100000E+00	2. 150000E+00	2. 200000E+00
		2. 250000E+00	2. 300000E+00	2. 350000E+00	2. 400000E+00
		2. 450000E+00	2. 500000E+00	2. 550000E+00	2. 600000E+00
		2. 650000E+00	2. 700000E+00	2. 750000E+00	2. 800000E+00
		2. 850000E+00	2. 900000E+00	2. 950000E+00	3. 000000E+00
		3. 050000E+00	3. 100000E+00	3. 150000E+00	
sp98	D	0. 000000E+00	2. 017511E-07	7. 000690E-07	1. 430956E-06
		2. 940403E-06	6. 472384E-06	1. 938919E-05	7. 975810E-05
		3. 551729E-04	1. 079168E-03	5. 936899E-04	5. 628932E-05
		1. 486633E-05	5. 584906E-06	2. 486966E-06	1. 552843E-06
		1. 320997E-06	5. 934680E-07	4. 392424E-07	1. 652927E-07
		0. 000000E+00	1. 134508E-07	0. 000000E+00	
sc99	92. 6deg.				
si99	H	2. 000000E+00	2. 050000E+00	2. 100000E+00	2. 150000E+00
		2. 200000E+00	2. 250000E+00	2. 300000E+00	2. 350000E+00
		2. 400000E+00	2. 450000E+00	2. 500000E+00	2. 550000E+00
		2. 600000E+00	2. 650000E+00	2. 700000E+00	2. 750000E+00
		2. 800000E+00	2. 850000E+00	2. 900000E+00	2. 950000E+00
		3. 000000E+00	3. 050000E+00	3. 100000E+00	3. 150000E+00
sp99	D	0. 000000E+00	1. 591215E-07	3. 764831E-07	4. 705651E-07
		1. 442466E-06	2. 716077E-06	6. 139710E-06	1. 729934E-05
		7. 044816E-05	3. 091041E-04	8. 083975E-04	8. 981531E-04
		6. 411416E-05	1. 490486E-05	5. 606235E-06	3. 249969E-06
		1. 778312E-06	7. 234866E-07	8. 676177E-07	1. 476341E-07
		3. 199765E-07	1. 955236E-07	2. 188747E-07	0. 000000E+00
sc100	92. 0deg.				
si100	H	2. 000000E+00	2. 050000E+00	2. 100000E+00	2. 150000E+00
		2. 200000E+00	2. 250000E+00	2. 300000E+00	2. 350000E+00
		2. 400000E+00	2. 450000E+00	2. 500000E+00	2. 550000E+00
		2. 600000E+00	2. 650000E+00	2. 700000E+00	2. 750000E+00
		2. 800000E+00	2. 850000E+00	2. 900000E+00	2. 950000E+00
		3. 000000E+00	3. 050000E+00	3. 100000E+00	
sp100	D	0. 000000E+00	2. 317954E-07	7. 706413E-08	5. 753315E-07
		1. 455143E-06	2. 384510E-06	5. 924548E-06	1. 546016E-05
		6. 207777E-05	2. 752199E-04	7. 068008E-04	1. 026779E-03
		8. 018458E-05	1. 719059E-05	6. 543938E-06	3. 021915E-06
		2. 038218E-06	9. 507278E-07	7. 760238E-07	8. 136936E-07
		4. 239181E-07	1. 009793E-07	0. 000000E+00	
sc101	91. 4deg.				
si101	H	2. 050000E+00	2. 100000E+00	2. 150000E+00	2. 200000E+00
		2. 250000E+00	2. 300000E+00	2. 350000E+00	2. 400000E+00
		2. 450000E+00	2. 500000E+00	2. 550000E+00	2. 600000E+00
		2. 650000E+00	2. 700000E+00	2. 750000E+00	2. 800000E+00
		2. 850000E+00	2. 900000E+00	2. 950000E+00	3. 000000E+00
		3. 050000E+00	3. 100000E+00	3. 150000E+00	
sp101	D	0. 000000E+00	2. 671297E-07	4. 822460E-07	1. 373486E-06
		2. 336803E-06	5. 163545E-06	1. 529558E-05	5. 447683E-05
		2. 415923E-04	6. 319577E-04	1. 124402E-03	9. 628947E-05
		2. 006427E-05	7. 192072E-06	3. 250009E-06	2. 145429E-06
		1. 322486E-06	3. 212041E-07	3. 688416E-07	2. 659260E-07
		5. 833798E-07	1. 173529E-07	0. 000000E+00	
sc102	90. 9deg.				
si102	H	2. 050000E+00	2. 100000E+00	2. 150000E+00	2. 200000E+00
		2. 250000E+00	2. 300000E+00	2. 350000E+00	2. 400000E+00
		2. 450000E+00	2. 500000E+00	2. 550000E+00	2. 600000E+00
		2. 650000E+00	2. 700000E+00	2. 750000E+00	2. 800000E+00
		2. 850000E+00	2. 900000E+00	2. 950000E+00	3. 000000E+00
		3. 050000E+00	3. 100000E+00		
sp102	D	0. 000000E+00	5. 069853E-07	7. 099094E-07	1. 176075E-06
		2. 320631E-06	5. 143236E-06	1. 308940E-05	4. 818379E-05
		2. 122677E-04	5. 617184E-04	1. 200275E-03	1. 234007E-04
		2. 274736E-05	7. 838173E-06	2. 908011E-06	2. 149016E-06
		9. 604803E-07	9. 946916E-07	9. 558901E-07	3. 504586E-07
		1. 936863E-07	0. 000000E+00		
sc103	90. 3deg.				
si103	H	2. 050000E+00	2. 100000E+00	2. 150000E+00	2. 200000E+00
		2. 250000E+00	2. 300000E+00	2. 350000E+00	2. 400000E+00
		2. 450000E+00	2. 500000E+00	2. 550000E+00	2. 600000E+00
		2. 650000E+00	2. 700000E+00	2. 750000E+00	2. 800000E+00
		2. 850000E+00	2. 900000E+00	2. 950000E+00	3. 000000E+00

			3. 050000E+00 3. 100000E+00
sp103	D	0. 000000E+00 2. 027884E-07 5. 167877E-07 1. 311866E-06	
		1. 874175E-06 4. 640864E-06 1. 248753E-05 4. 203934E-05	
		1. 852595E-04 5. 048581E-04 1. 244988E-03 1. 611978E-04	
		2. 559804E-05 8. 428632E-06 4. 275287E-06 2. 048692E-06	
		1. 142228E-06 4. 390235E-07 4. 221039E-07 2. 513460E-07	
		2. 877990E-07 0. 000000E+00	
sc104	89. 7deg.		
si104	H	2. 000000E+00 2. 050000E+00 2. 100000E+00 2. 150000E+00	
		2. 200000E+00 2. 250000E+00 2. 300000E+00 2. 350000E+00	
		2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00	
		2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00	
		2. 800000E+00 2. 850000E+00 2. 900000E+00 2. 950000E+00	
		3. 000000E+00 3. 050000E+00 3. 100000E+00 3. 150000E+00	
		3. 200000E+00	
sp104	D	0. 000000E+00 7. 310082E-08 2. 900867E-07 5. 516289E-07	
		6. 786244E-07 2. 105550E-06 4. 872526E-06 1. 084231E-05	
		3. 751430E-05 1. 661061E-04 4. 597010E-04 1. 257001E-03	
		2. 139288E-04 3. 156453E-05 9. 629043E-06 4. 998143E-06	
		2. 618191E-06 1. 377818E-06 7. 455798E-07 3. 033616E-07	
		3. 282920E-07 3. 801381E-07 2. 316679E-07 1. 296109E-07	
		0. 000000E+00	
sc105	89. 1deg.		
si105	H	2. 000000E+00 2. 050000E+00 2. 100000E+00 2. 150000E+00	
		2. 200000E+00 2. 250000E+00 2. 300000E+00 2. 350000E+00	
		2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00	
		2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00	
		2. 800000E+00 2. 850000E+00 2. 900000E+00 2. 950000E+00	
		3. 000000E+00 3. 050000E+00 3. 100000E+00 3. 150000E+00	
sp105	D	0. 000000E+00 9. 113674E-08 3. 332821E-07 4. 622809E-07	
		6. 363980E-07 2. 097601E-06 3. 987594E-06 8. 599145E-06	
		3. 528584E-05 1. 456398E-04 4. 155596E-04 1. 243725E-03	
		2. 896600E-04 3. 585745E-05 9. 606748E-06 4. 131436E-06	
		2. 684493E-06 1. 553263E-06 9. 032332E-07 4. 319281E-07	
		3. 372713E-07 3. 060604E-07 2. 247061E-07 0. 000000E+00	
sc106	88. 6deg.		
si106	H	2. 050000E+00 2. 100000E+00 2. 150000E+00 2. 200000E+00	
		2. 250000E+00 2. 300000E+00 2. 350000E+00 2. 400000E+00	
		2. 450000E+00 2. 500000E+00 2. 550000E+00 2. 600000E+00	
		2. 650000E+00 2. 700000E+00 2. 750000E+00 2. 800000E+00	
		2. 850000E+00 2. 900000E+00 2. 950000E+00 3. 000000E+00	
		3. 050000E+00 3. 100000E+00	
sp106	D	0. 000000E+00 2. 596491E-07 2. 939772E-07 1. 199432E-06	
		1. 628621E-06 3. 835683E-06 8. 605572E-06 2. 946655E-05	
		1. 278904E-04 3. 745632E-04 9. 812057E-04 6. 059366E-04	
		4. 297509E-05 1. 116677E-05 5. 638424E-06 2. 275669E-06	
		1. 071498E-06 1. 376402E-06 5. 047463E-07 7. 788026E-08	
		4. 852152E-07 0. 000000E+00	
sc107	88. 0deg.		
si107	H	2. 000000E+00 2. 050000E+00 2. 100000E+00 2. 150000E+00	
		2. 200000E+00 2. 250000E+00 2. 300000E+00 2. 350000E+00	
		2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00	
		2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00	
		2. 800000E+00 2. 850000E+00 2. 900000E+00 2. 950000E+00	
		3. 000000E+00 3. 050000E+00 3. 100000E+00 3. 150000E+00	
		3. 200000E+00	
sp107	D	0. 000000E+00 7. 266366E-08 1. 490619E-07 3. 158218E-07	
		8. 391762E-07 1. 922079E-06 3. 705938E-06 7. 400918E-06	
		2. 894405E-05 1. 159194E-04 3. 434896E-04 8. 173224E-04	
		8. 112396E-04 5. 395465E-05 1. 472305E-05 6. 281752E-06	
		2. 944401E-06 1. 640497E-06 9. 286068E-07 6. 376549E-07	
		1. 700403E-07 1. 991366E-07 0. 000000E+00 1. 286795E-07	
		0. 000000E+00	
sc108	87. 4deg.		
si108	H	2. 000000E+00 2. 050000E+00 2. 100000E+00 2. 150000E+00	
		2. 200000E+00 2. 250000E+00 2. 300000E+00 2. 350000E+00	
		2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00	
		2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00	
		2. 800000E+00 2. 850000E+00 2. 900000E+00 2. 950000E+00	
		3. 000000E+00 3. 050000E+00 3. 100000E+00 3. 150000E+00	
sp108	D	0. 000000E+00 7. 675324E-08 1. 370799E-07 2. 482278E-07	
		6. 198945E-07 1. 597386E-06 3. 651726E-06 8. 022171E-06	
		2. 578256E-05 1. 025506E-04 3. 019034E-04 7. 192357E-04	
		9. 424467E-04 6. 508601E-05 1. 506366E-05 5. 949510E-06	
		4. 097021E-06 1. 717977E-06 1. 204740E-06 4. 440662E-07	

sc109		8. 353292E-07 9. 575163E-08 2. 166844E-07 0. 000000E+00
si109	8deg.	
	H	2. 000000E+00 2. 050000E+00 2. 100000E+00 2. 150000E+00 2. 200000E+00 2. 250000E+00 2. 300000E+00 2. 350000E+00 2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00 2. 800000E+00 2. 850000E+00 2. 900000E+00 2. 950000E+00 3. 000000E+00 3. 050000E+00 3. 100000E+00 3. 150000E+00 3. 200000E+00
sp109	D	0. 000000E+00 2. 508693E-07 2. 289797E-07 1. 435545E-07 6. 909727E-07 1. 153392E-06 2. 666088E-06 7. 087072E-06 2. 306012E-05 9. 205448E-05 2. 790268E-04 6. 506675E-04 1. 044789E-03 8. 055168E-05 1. 783575E-05 6. 208536E-06 2. 974823E-06 1. 833861E-06 1. 053763E-06 8. 572740E-07 2. 423389E-07 3. 914672E-07 2. 251299E-07 1. 203413E-07 0. 000000E+00
sc110	86. 3deg.	
si110	H	2. 050000E+00 2. 100000E+00 2. 150000E+00 2. 200000E+00 2. 250000E+00 2. 300000E+00 2. 350000E+00 2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00 2. 800000E+00 2. 850000E+00 2. 900000E+00 2. 950000E+00 3. 000000E+00 3. 050000E+00 3. 100000E+00 3. 150000E+00 3. 200000E+00
sp110	D	0. 000000E+00 6. 737448E-08 2. 758392E-07 7. 124970E-07 1. 837402E-06 2. 948122E-06 7. 179319E-06 2. 092551E-05 7. 859980E-05 2. 584568E-04 5. 864628E-04 1. 118178E-03 1. 034241E-04 1. 899851E-05 7. 400500E-06 3. 302507E-06 1. 816237E-06 1. 375436E-06 4. 973826E-07 6. 024200E-07 1. 951768E-07 0. 000000E+00 2. 532257E-07 0. 000000E+00
sc111	85. 7deg.	
si111	H	2. 050000E+00 2. 100000E+00 2. 150000E+00 2. 200000E+00 2. 250000E+00 2. 300000E+00 2. 350000E+00 2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00 2. 800000E+00 2. 850000E+00 2. 900000E+00 2. 950000E+00 3. 000000E+00 3. 050000E+00 3. 100000E+00 3. 150000E+00 3. 200000E+00
sp111	D	0. 000000E+00 3. 495946E-07 1. 144965E-07 6. 434036E-07 1. 456682E-06 2. 636532E-06 6. 561857E-06 1. 973770E-05 7. 392051E-05 2. 305672E-04 5. 260381E-04 1. 177456E-03 1. 315056E-04 2. 283832E-05 7. 656371E-06 3. 835436E-06 1. 709324E-06 1. 335027E-06 5. 454615E-07 2. 524159E-07 9. 109710E-08 1. 065883E-07 1. 201486E-07 0. 000000E+00
sc112	85. 1deg.	
si112	H	2. 000000E+00 2. 050000E+00 2. 100000E+00 2. 150000E+00 2. 200000E+00 2. 250000E+00 2. 300000E+00 2. 350000E+00 2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00 2. 800000E+00 2. 850000E+00 2. 900000E+00 2. 950000E+00 3. 000000E+00 3. 050000E+00 3. 100000E+00 3. 150000E+00
sp112	D	0. 000000E+00 9. 079357E-08 1. 522918E-07 3. 841462E-07 5. 765798E-07 1. 312214E-06 3. 208231E-06 6. 007190E-06 1. 667118E-05 6. 323269E-05 2. 131433E-04 4. 787828E-04 1. 207728E-03 1. 744047E-04 2. 749626E-05 8. 518089E-06 3. 873863E-06 1. 869994E-06 1. 173909E-06 4. 856781E-07 4. 126820E-07 9. 001534E-08 3. 181756E-07 0. 000000E+00
sc113	84. 5deg.	
si113	H	2. 000000E+00 2. 050000E+00 2. 100000E+00 2. 150000E+00 2. 200000E+00 2. 250000E+00 2. 300000E+00 2. 350000E+00 2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00 2. 800000E+00 2. 850000E+00 2. 900000E+00 2. 950000E+00 3. 000000E+00 3. 050000E+00 3. 100000E+00 3. 150000E+00 3. 200000E+00
sp113	D	0. 000000E+00 8. 186501E-08 5. 440722E-08 3. 162291E-07 5. 330676E-07 1. 285291E-06 2. 546177E-06 5. 529389E-06 1. 522289E-05 5. 782574E-05 1. 888763E-04 4. 401643E-04 1. 063293E-03 3. 906347E-04 2. 947281E-05 9. 768673E-06 3. 476535E-06 2. 231494E-06 1. 292427E-06 9. 394096E-07 5. 930891E-07 4. 050348E-07 0. 000000E+00 2. 478611E-07 0. 000000E+00
sc114	84. 0deg.	
si114	H	2. 000000E+00 2. 050000E+00 2. 100000E+00 2. 150000E+00 2. 200000E+00 2. 250000E+00 2. 300000E+00 2. 350000E+00 2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00

		2. 800000E+00	2. 850000E+00	2. 900000E+00	2. 950000E+00
		3. 000000E+00	3. 050000E+00	3. 100000E+00	3. 150000E+00
		3. 200000E+00	3. 250000E+00		
sp114	D	0. 000000E+00	8. 796318E-08	0. 000000E+00	7. 762051E-07
		3. 955567E-07	1. 251895E-06	1. 986860E-06	5. 509373E-06
		1. 500280E-05	5. 366841E-05	1. 680895E-04	4. 044735E-04
		9. 106049E-04	6. 098148E-04	4. 015749E-05	1. 162339E-05
		4. 167739E-06	2. 482377E-06	1. 657326E-06	9. 518602E-07
		3. 441412E-07	7. 029404E-07	5. 355126E-07	1. 206229E-07
		1. 430692E-07	0. 000000E+00		
sc115	83. 4deg.				
si115	H	2. 000000E+00	2. 050000E+00	2. 100000E+00	2. 150000E+00
		2. 200000E+00	2. 250000E+00	2. 300000E+00	2. 350000E+00
		2. 400000E+00	2. 450000E+00	2. 500000E+00	2. 550000E+00
		2. 600000E+00	2. 650000E+00	2. 700000E+00	2. 750000E+00
		2. 800000E+00	2. 850000E+00	2. 900000E+00	2. 950000E+00
		3. 000000E+00	3. 050000E+00	3. 100000E+00	3. 150000E+00
sp115	D	0. 000000E+00	8. 131572E-08	2. 911593E-07	1. 326314E-07
		5. 822255E-07	1. 312185E-06	2. 186669E-06	4. 458373E-06
		1. 242842E-05	4. 530288E-05	1. 584733E-04	3. 663066E-04
		7. 926061E-04	7. 792281E-04	4. 668624E-05	1. 266463E-05
		4. 318448E-06	3. 234126E-06	1. 741300E-06	1. 148604E-06
		9. 260479E-07	3. 843859E-07	2. 125619E-07	1. 259303E-07
		0. 000000E+00			
sc116	82. 8deg.				
si116	H	2. 000000E+00	2. 050000E+00	2. 100000E+00	2. 150000E+00
		2. 200000E+00	2. 250000E+00	2. 300000E+00	2. 350000E+00
		2. 400000E+00	2. 450000E+00	2. 500000E+00	2. 550000E+00
		2. 600000E+00	2. 650000E+00	2. 700000E+00	2. 750000E+00
		2. 800000E+00	2. 850000E+00	2. 900000E+00	2. 950000E+00
		3. 000000E+00	3. 050000E+00	3. 100000E+00	3. 150000E+00
sp116	D	0. 000000E+00	1. 564603E-07	0. 000000E+00	1. 722406E-07
		5. 720149E-07	8. 369738E-07	2. 399090E-06	4. 299366E-06
		1. 201961E-05	4. 044489E-05	1. 432388E-04	3. 383734E-04
		7. 220268E-04	8. 913023E-04	5. 466383E-05	1. 296342E-05
		5. 608843E-06	2. 844699E-06	1. 860640E-06	9. 557400E-07
		5. 739977E-07	2. 919851E-07	1. 136211E-07	0. 000000E+00
sc117	82. 2deg.				
si117	H	2. 050000E+00	2. 100000E+00	2. 150000E+00	2. 200000E+00
		2. 250000E+00	2. 300000E+00	2. 350000E+00	2. 400000E+00
		2. 450000E+00	2. 500000E+00	2. 550000E+00	2. 600000E+00
		2. 650000E+00	2. 700000E+00	2. 750000E+00	2. 800000E+00
		2. 850000E+00	2. 900000E+00	2. 950000E+00	3. 000000E+00
		3. 050000E+00	3. 100000E+00	3. 150000E+00	3. 200000E+00
sp117	D	0. 000000E+00	6. 971134E-08	3. 911432E-07	9. 821407E-07
		9. 532192E-07	2. 073223E-06	3. 602843E-06	1. 178809E-05
		3. 885320E-05	1. 304804E-04	3. 147134E-04	6. 491044E-04
		9. 890926E-04	7. 214868E-05	1. 612885E-05	6. 169057E-06
		2. 920090E-06	2. 131448E-06	1. 252088E-06	4. 973533E-07
		7. 609650E-07	2. 123264E-07	1. 281847E-07	0. 000000E+00
sc118	81. 7deg.				
si118	H	2. 050000E+00	2. 100000E+00	2. 150000E+00	2. 200000E+00
		2. 250000E+00	2. 300000E+00	2. 350000E+00	2. 400000E+00
		2. 450000E+00	2. 500000E+00	2. 550000E+00	2. 600000E+00
		2. 650000E+00	2. 700000E+00	2. 750000E+00	2. 800000E+00
		2. 850000E+00	2. 900000E+00	2. 950000E+00	3. 000000E+00
		3. 050000E+00	3. 100000E+00	3. 150000E+00	3. 200000E+00
sp118	D	0. 000000E+00	3. 009978E-07	1. 697603E-07	3. 735859E-07
		1. 188531E-06	1. 634073E-06	3. 841456E-06	1. 044318E-05
		3. 516117E-05	1. 164679E-04	2. 834144E-04	6. 025799E-04
		1. 058037E-03	9. 364654E-05	1. 738110E-05	6. 864854E-06
		2. 938056E-06	2. 564514E-06	1. 087514E-06	4. 159752E-07
		5. 819183E-07	3. 351562E-07	1. 265338E-07	0. 000000E+00
sc119	81. 1deg.				
si119	H	2. 000000E+00	2. 050000E+00	2. 100000E+00	2. 150000E+00
		2. 200000E+00	2. 250000E+00	2. 300000E+00	2. 350000E+00
		2. 400000E+00	2. 450000E+00	2. 500000E+00	2. 550000E+00
		2. 600000E+00	2. 650000E+00	2. 700000E+00	2. 750000E+00
		2. 800000E+00	2. 850000E+00	2. 900000E+00	2. 950000E+00
		3. 000000E+00	3. 050000E+00	3. 100000E+00	3. 150000E+00
		3. 200000E+00	3. 250000E+00		
sp119	D	0. 000000E+00	8. 367058E-08	7. 841498E-08	1. 856679E-07
		3. 159083E-07	8. 182058E-07	1. 640370E-06	3. 491283E-06
		9. 210120E-06	3. 129376E-05	1. 068191E-04	2. 617249E-04

			5. 504576E-04	1. 126198E-03	1. 295331E-04	2. 001802E-05
			6. 875705E-06	3. 472263E-06	2. 141317E-06	1. 306882E-06
			2. 624258E-07	1. 028523E-07	2. 163038E-07	1. 320010E-07
			1. 401405E-07	0. 000000E+00		
sc120	80. 5deg.	H	2. 050000E+00	2. 100000E+00	2. 150000E+00	2. 200000E+00
si120			2. 250000E+00	2. 300000E+00	2. 350000E+00	2. 400000E+00
			2. 450000E+00	2. 500000E+00	2. 550000E+00	2. 600000E+00
			2. 650000E+00	2. 700000E+00	2. 750000E+00	2. 800000E+00
			2. 850000E+00	2. 900000E+00	2. 950000E+00	3. 000000E+00
			3. 050000E+00	3. 100000E+00	3. 150000E+00	
sp120	D		0. 000000E+00	6. 465861E-08	1. 276757E-07	4. 784719E-07
			1. 070489E-06	1. 663663E-06	3. 343595E-06	8. 071596E-06
			2. 788137E-05	9. 771336E-05	2. 386176E-04	5. 072756E-04
			1. 064555E-03	2. 654359E-04	2. 580606E-05	8. 901827E-06
			3. 776301E-06	2. 035113E-06	1. 191134E-06	7. 605813E-07
			1. 070482E-06	2. 302846E-07	0. 000000E+00	
sc121	79. 9deg.	H	2. 100000E+00	2. 150000E+00	2. 200000E+00	2. 250000E+00
si121			2. 300000E+00	2. 350000E+00	2. 400000E+00	2. 450000E+00
			2. 500000E+00	2. 550000E+00	2. 600000E+00	2. 650000E+00
			2. 700000E+00	2. 750000E+00	2. 800000E+00	2. 850000E+00
			2. 900000E+00	2. 950000E+00	3. 000000E+00	3. 050000E+00
			3. 100000E+00	3. 150000E+00	3. 200000E+00	3. 250000E+00
sp121	D		0. 000000E+00	3. 681038E-07	2. 273869E-07	6. 554798E-07
			1. 664113E-06	3. 191517E-06	8. 456940E-06	2. 558641E-05
			8. 835859E-05	2. 224484E-04	4. 691684E-04	9. 293883E-04
			4. 766904E-04	3. 069055E-05	8. 278802E-06	4. 795245E-06
			2. 237256E-06	5. 749005E-07	5. 104493E-07	1. 935925E-07
			3. 325966E-07	2. 655818E-07	1. 360331E-07	0. 000000E+00
sc122	79. 3deg.	H	2. 050000E+00	2. 100000E+00	2. 150000E+00	2. 200000E+00
si122			2. 250000E+00	2. 300000E+00	2. 350000E+00	2. 400000E+00
			2. 450000E+00	2. 500000E+00	2. 550000E+00	2. 600000E+00
			2. 650000E+00	2. 700000E+00	2. 750000E+00	2. 800000E+00
			2. 850000E+00	2. 900000E+00	2. 950000E+00	3. 000000E+00
			3. 050000E+00	3. 100000E+00	3. 150000E+00	3. 200000E+00
sp122	D		0. 000000E+00	1. 360007E-07	2. 994326E-07	4. 711670E-07
			1. 063242E-06	1. 131224E-06	2. 641878E-06	7. 428201E-06
			2. 260053E-05	7. 793361E-05	2. 041697E-04	4. 323201E-04
			8. 239552E-04	6. 463311E-04	3. 791022E-05	9. 445832E-06
			4. 061294E-06	2. 610100E-06	1. 496521E-06	1. 079763E-06
			3. 901955E-07	2. 316711E-07	0. 000000E+00	1. 482966E-07
			0. 000000E+00			
sc123	78. 8deg.	H	2. 050000E+00	2. 100000E+00	2. 150000E+00	2. 200000E+00
si123			2. 250000E+00	2. 300000E+00	2. 350000E+00	2. 400000E+00
			2. 450000E+00	2. 500000E+00	2. 550000E+00	2. 600000E+00
			2. 650000E+00	2. 700000E+00	2. 750000E+00	2. 800000E+00
			2. 850000E+00	2. 900000E+00	2. 950000E+00	3. 000000E+00
			3. 050000E+00	3. 100000E+00	3. 150000E+00	3. 200000E+00
sp123	D		0. 000000E+00	1. 535200E-07	0. 000000E+00	3. 714232E-07
			8. 998777E-07	1. 252523E-06	2. 798608E-06	7. 036168E-06
			2. 163402E-05	7. 250940E-05	1. 851853E-04	4. 016377E-04
			7. 408250E-04	7. 853163E-04	4. 278307E-05	1. 136726E-05
			5. 072265E-06	2. 756463E-06	1. 281149E-06	6. 654925E-07
			3. 698797E-07	4. 472401E-07	2. 492962E-07	0. 000000E+00
sc124	78. 2deg.	H	2. 050000E+00	2. 100000E+00	2. 150000E+00	2. 200000E+00
si124			2. 250000E+00	2. 300000E+00	2. 350000E+00	2. 400000E+00
			2. 450000E+00	2. 500000E+00	2. 550000E+00	2. 600000E+00
			2. 650000E+00	2. 700000E+00	2. 750000E+00	2. 800000E+00
			2. 850000E+00	2. 900000E+00	2. 950000E+00	3. 000000E+00
			3. 050000E+00	3. 100000E+00	3. 150000E+00	3. 200000E+00
sp124	D		0. 000000E+00	1. 258754E-07	2. 262489E-07	7. 161230E-07
			8. 013436E-07	1. 481874E-06	2. 607239E-06	6. 889921E-06
			2. 013321E-05	6. 829278E-05	1. 732810E-04	3. 751034E-04
			6. 812207E-04	8. 936980E-04	5. 564829E-05	1. 286794E-05
			5. 612071E-06	2. 937475E-06	1. 380136E-06	1. 011643E-06
			6. 682870E-07	2. 295246E-07	3. 658926E-07	0. 000000E+00
sc125	77. 6deg.	H	2. 150000E+00	2. 200000E+00	2. 250000E+00	2. 300000E+00
si125			2. 350000E+00	2. 400000E+00	2. 450000E+00	2. 500000E+00
			2. 550000E+00	2. 600000E+00	2. 650000E+00	2. 700000E+00

		2. 750000E+00	2. 800000E+00	2. 850000E+00	2. 900000E+00
		2. 950000E+00	3. 000000E+00	3. 050000E+00	3. 100000E+00
		3. 150000E+00	3. 200000E+00		
sp125	D	0. 000000E+00	3. 682583E-07	7. 026793E-07	1. 320029E-06
		2. 762190E-06	5. 310927E-06	1. 833406E-05	6. 270233E-05
		1. 624259E-04	3. 459641E-04	6. 402808E-04	9. 807098E-04
		6. 622208E-05	1. 485436E-05	5. 701636E-06	2. 479671E-06
		1. 534435E-06	1. 111065E-06	6. 797619E-07	1. 118056E-07
		1. 227393E-07	0. 000000E+00		
sc126	77. 0deg.				
si126	H	2. 100000E+00	2. 150000E+00	2. 200000E+00	2. 250000E+00
		2. 300000E+00	2. 350000E+00	2. 400000E+00	2. 450000E+00
		2. 500000E+00	2. 550000E+00	2. 600000E+00	2. 650000E+00
		2. 700000E+00	2. 750000E+00	2. 800000E+00	2. 850000E+00
		2. 900000E+00	2. 950000E+00	3. 000000E+00	3. 050000E+00
		3. 100000E+00	3. 150000E+00	3. 200000E+00	3. 250000E+00
sp126	D	0. 000000E+00	1. 883105E-07	3. 152183E-07	7. 833927E-07
		6. 896797E-07	2. 791890E-06	5. 520344E-06	1. 674808E-05
		5. 351599E-05	1. 488449E-04	3. 198404E-04	5. 924116E-04
		1. 068730E-03	9. 019182E-05	1. 729394E-05	5. 832506E-06
		2. 762463E-06	1. 927967E-06	1. 044681E-06	4. 858267E-07
		2. 094313E-07	1. 201520E-07	1. 441481E-07	0. 000000E+00
sc127	76. 4deg.				
si127	H	2. 050000E+00	2. 100000E+00	2. 150000E+00	2. 200000E+00
		2. 250000E+00	2. 300000E+00	2. 350000E+00	2. 400000E+00
		2. 450000E+00	2. 500000E+00	2. 550000E+00	2. 600000E+00
		2. 650000E+00	2. 700000E+00	2. 750000E+00	2. 800000E+00
		2. 850000E+00	2. 900000E+00	2. 950000E+00	3. 000000E+00
		3. 050000E+00	3. 100000E+00	3. 150000E+00	3. 200000E+00
		3. 250000E+00			
sp127	D	0. 000000E+00	6. 888482E-08	1. 801696E-07	4. 077380E-07
		3. 105989E-07	1. 120152E-06	1. 852975E-06	5. 631051E-06
		1. 566183E-05	5. 277894E-05	1. 372661E-04	2. 956241E-04
		5. 492116E-04	1. 044684E-03	1. 955616E-04	2. 016003E-05
		8. 432013E-06	2. 807957E-06	1. 729855E-06	9. 309768E-07
		2. 974523E-07	2. 123949E-07	3. 953700E-07	2. 732252E-07
		0. 000000E+00			
sc128	75. 8deg.				
si128	H	2. 050000E+00	2. 100000E+00	2. 150000E+00	2. 200000E+00
		2. 250000E+00	2. 300000E+00	2. 350000E+00	2. 400000E+00
		2. 450000E+00	2. 500000E+00	2. 550000E+00	2. 600000E+00
		2. 650000E+00	2. 700000E+00	2. 750000E+00	2. 800000E+00
		2. 850000E+00	2. 900000E+00	2. 950000E+00	3. 000000E+00
		3. 050000E+00	3. 100000E+00	3. 150000E+00	3. 200000E+00
		3. 250000E+00			
sp128	D	0. 000000E+00	7. 524167E-08	1. 867312E-07	5. 378964E-07
		8. 869629E-07	1. 487386E-06	2. 603565E-06	4. 713264E-06
		1. 335847E-05	4. 568589E-05	1. 251157E-04	2. 722393E-04
		5. 184590E-04	9. 188066E-04	4. 068515E-04	2. 459846E-05
		7. 807246E-06	3. 697785E-06	2. 201638E-06	7. 535167E-07
		4. 681294E-07	1. 118626E-07	2. 430935E-07	0. 000000E+00
sc129	75. 2deg.				
si129	H	2. 100000E+00	2. 150000E+00	2. 200000E+00	2. 250000E+00
		2. 300000E+00	2. 350000E+00	2. 400000E+00	2. 450000E+00
		2. 500000E+00	2. 550000E+00	2. 600000E+00	2. 650000E+00
		2. 700000E+00	2. 750000E+00	2. 800000E+00	2. 850000E+00
		2. 900000E+00	2. 950000E+00	3. 000000E+00	3. 050000E+00
		3. 100000E+00	3. 150000E+00	3. 200000E+00	
sp129	D	0. 000000E+00	1. 088444E-07	3. 913682E-07	7. 458098E-07
		1. 233353E-06	1. 840325E-06	4. 834436E-06	1. 312592E-05
		4. 411559E-05	1. 142313E-04	2. 603865E-04	4. 821264E-04
		8. 398370E-04	5. 527381E-04	2. 758338E-05	9. 756165E-06
		3. 371826E-06	2. 692979E-06	1. 349078E-06	3. 738914E-07
		5. 732197E-07	3. 822145E-07	0. 000000E+00	
sc130	74. 6deg.				
si130	H	2. 050000E+00	2. 100000E+00	2. 150000E+00	2. 200000E+00
		2. 250000E+00	2. 300000E+00	2. 350000E+00	2. 400000E+00
		2. 450000E+00	2. 500000E+00	2. 550000E+00	2. 600000E+00
		2. 650000E+00	2. 700000E+00	2. 750000E+00	2. 800000E+00
		2. 850000E+00	2. 900000E+00	2. 950000E+00	3. 000000E+00
		3. 050000E+00	3. 100000E+00	3. 150000E+00	3. 200000E+00
sp130	D	0. 000000E+00	1. 513601E-07	4. 306061E-08	1. 722152E-07
		6. 575348E-07	8. 591387E-07	2. 167655E-06	3. 838155E-06
		1. 110826E-05	3. 891290E-05	1. 069742E-04	2. 406384E-04
		4. 520492E-04	7. 515341E-04	7. 177422E-04	3. 526206E-05
		1. 040559E-05	4. 122341E-06	2. 797167E-06	1. 361280E-06

		6. 742155E-07	4. 541902E-07	4. 988151E-07	0. 000000E+00
sc131	74. 0deg.	H	2. 150000E+00	2. 200000E+00	2. 250000E+00
si131			2. 350000E+00	2. 400000E+00	2. 450000E+00
			2. 550000E+00	2. 600000E+00	2. 650000E+00
			2. 750000E+00	2. 800000E+00	2. 850000E+00
			2. 950000E+00	3. 000000E+00	3. 050000E+00
			3. 150000E+00	3. 200000E+00	3. 250000E+00
sp131	D		0. 000000E+00	2. 093535E-07	5. 245021E-07
			1. 764420E-06	3. 591338E-06	1. 103323E-05
			1. 017509E-04	2. 193116E-04	4. 281412E-04
			8. 242122E-04	4. 206868E-05	1. 117410E-05
			2. 673264E-06	9. 974147E-07	1. 514957E-06
			5. 054872E-07	2. 856715E-07	0. 000000E+00
sc132	73. 4deg.	H	2. 100000E+00	2. 150000E+00	2. 200000E+00
si132			2. 300000E+00	2. 350000E+00	2. 400000E+00
			2. 500000E+00	2. 550000E+00	2. 600000E+00
			2. 700000E+00	2. 750000E+00	2. 800000E+00
			2. 900000E+00	2. 950000E+00	3. 000000E+00
			3. 100000E+00	3. 150000E+00	3. 200000E+00
sp132	D		0. 000000E+00	6. 374152E-08	2. 176866E-07
			6. 893389E-07	1. 259389E-06	3. 475448E-06
			3. 205367E-05	9. 193150E-05	2. 086344E-04
			6. 501219E-04	9. 366067E-04	5. 208289E-05
			5. 420824E-06	2. 716429E-06	1. 506252E-06
			0. 000000E+00	5. 054274E-07	0. 000000E+00
sc133	72. 8deg.	H	2. 050000E+00	2. 100000E+00	2. 150000E+00
si133			2. 250000E+00	2. 300000E+00	2. 350000E+00
			2. 450000E+00	2. 500000E+00	2. 550000E+00
			2. 650000E+00	2. 700000E+00	2. 750000E+00
			2. 850000E+00	2. 900000E+00	2. 950000E+00
			3. 050000E+00	3. 100000E+00	3. 150000E+00
sp133	D		0. 000000E+00	1. 521605E-07	1. 792792E-07
			3. 807261E-07	9. 363120E-07	1. 356502E-06
			8. 796857E-06	2. 915025E-05	8. 373438E-05
			3. 762107E-04	6. 186995E-04	1. 003618E-03
			1. 464042E-05	6. 129619E-06	3. 087135E-06
			8. 800243E-07	2. 256446E-07	1. 278745E-07
sc134	72. 2deg.	H	2. 100000E+00	2. 150000E+00	2. 200000E+00
si134			2. 300000E+00	2. 350000E+00	2. 400000E+00
			2. 500000E+00	2. 550000E+00	2. 600000E+00
			2. 700000E+00	2. 750000E+00	2. 800000E+00
			2. 900000E+00	2. 950000E+00	3. 000000E+00
			3. 100000E+00	3. 150000E+00	3. 200000E+00
sp134	D		0. 000000E+00	3. 736866E-07	3. 640037E-07
			1. 016887E-06	1. 786075E-06	3. 156003E-06
			2. 628111E-05	7. 678596E-05	1. 797613E-04
			5. 855944E-04	1. 003107E-03	1. 766520E-04
			6. 127116E-06	3. 127646E-06	2. 438299E-06
			2. 267201E-07	2. 551830E-07	0. 000000E+00
sc135	71. 6deg.	H	2. 000000E+00	2. 050000E+00	2. 100000E+00
si135			2. 200000E+00	2. 250000E+00	2. 300000E+00
			2. 400000E+00	2. 450000E+00	2. 500000E+00
			2. 600000E+00	2. 650000E+00	2. 700000E+00
			2. 800000E+00	2. 850000E+00	2. 900000E+00
			3. 000000E+00	3. 050000E+00	3. 100000E+00
			3. 200000E+00	3. 250000E+00	3. 300000E+00
sp135	D		0. 000000E+00	8. 475743E-08	7. 066920E-08
			1. 387942E-07	4. 131156E-07	8. 628599E-07
			2. 717863E-06	7. 458158E-06	2. 442571E-05
			1. 703564E-04	3. 279691E-04	5. 567052E-04
			3. 817513E-04	1. 891272E-05	7. 453580E-06
			2. 109538E-06	8. 634195E-07	2. 258587E-07
			1. 352172E-07	1. 545074E-07	0. 000000E+00
sc136	71. 0deg.	H	2. 050000E+00	2. 100000E+00	2. 150000E+00
si136			2. 200000E+00	2. 300000E+00	2. 350000E+00
			2. 450000E+00	2. 500000E+00	2. 550000E+00
			2. 650000E+00	2. 700000E+00	2. 750000E+00
			2. 850000E+00	2. 900000E+00	2. 950000E+00
			3. 050000E+00	3. 100000E+00	3. 150000E+00

		3. 250000E+00				
sp136	D	0. 000000E+00	6. 897982E-08	6. 396695E-08	2. 426849E-07	
		3. 627164E-07	8. 961263E-07	1. 721682E-06	2. 716375E-06	
		6. 284122E-06	2. 364519E-05	6. 725725E-05	1. 561292E-04	
		3. 094032E-04	5. 191055E-04	8. 476414E-04	5. 020979E-04	
		2. 504335E-05	8. 327647E-06	3. 107052E-06	1. 757492E-06	
		8. 535888E-07	4. 330008E-07	2. 518450E-07	1. 399281E-07	
		0. 000000E+00				
sc137	70. 4deg.					
si137	H	2. 100000E+00	2. 150000E+00	2. 200000E+00	2. 250000E+00	
		2. 300000E+00	2. 350000E+00	2. 400000E+00	2. 450000E+00	
		2. 500000E+00	2. 550000E+00	2. 600000E+00	2. 650000E+00	
		2. 700000E+00	2. 750000E+00	2. 800000E+00	2. 850000E+00	
		2. 900000E+00	2. 950000E+00	3. 000000E+00	3. 050000E+00	
		3. 100000E+00	3. 150000E+00	3. 200000E+00		
sp137	D	0. 000000E+00	1. 786339E-07	1. 720091E-07	4. 704340E-07	
		6. 623234E-07	1. 398227E-06	2. 563284E-06	7. 118418E-06	
		2. 083749E-05	6. 280211E-05	1. 482971E-04	2. 929108E-04	
		4. 841891E-04	7. 604770E-04	6. 714076E-04	2. 934263E-05	
		8. 050574E-06	4. 200045E-06	1. 516734E-06	1. 248624E-06	
		5. 559806E-07	5. 137763E-07	0. 000000E+00		
sc138	69. 8deg.					
si138	H	2. 150000E+00	2. 200000E+00	2. 250000E+00	2. 300000E+00	
		2. 350000E+00	2. 400000E+00	2. 450000E+00	2. 500000E+00	
		2. 550000E+00	2. 600000E+00	2. 650000E+00	2. 700000E+00	
		2. 750000E+00	2. 800000E+00	2. 850000E+00	2. 900000E+00	
		2. 950000E+00	3. 000000E+00	3. 050000E+00	3. 100000E+00	
		3. 150000E+00	3. 200000E+00	3. 250000E+00		
sp138	D	0. 000000E+00	2. 409123E-07	3. 301681E-07	7. 703556E-07	
		1. 018451E-06	2. 407415E-06	6. 192415E-06	2. 001207E-05	
		5. 887846E-05	1. 373754E-04	2. 709842E-04	4. 605293E-04	
		7. 090720E-04	7. 932614E-04	3. 514288E-05	8. 694564E-06	
		4. 863368E-06	2. 133840E-06	1. 956680E-06	3. 177583E-07	
		6. 149446E-07	4. 117683E-07	0. 000000E+00		
sc139	69. 2deg.					
si139	H	2. 150000E+00	2. 200000E+00	2. 250000E+00	2. 300000E+00	
		2. 350000E+00	2. 400000E+00	2. 450000E+00	2. 500000E+00	
		2. 550000E+00	2. 600000E+00	2. 650000E+00	2. 700000E+00	
		2. 750000E+00	2. 800000E+00	2. 850000E+00	2. 900000E+00	
		2. 950000E+00	3. 000000E+00	3. 050000E+00	3. 100000E+00	
		3. 150000E+00	3. 200000E+00	3. 250000E+00		
sp139	D	0. 000000E+00	1. 954708E-07	3. 225192E-07	7. 279188E-07	
		1. 123780E-06	2. 408595E-06	5. 989924E-06	1. 786509E-05	
		5. 218750E-05	1. 280099E-04	2. 559537E-04	4. 394013E-04	
		6. 715413E-04	8. 986819E-04	4. 741505E-05	1. 113066E-05	
		4. 670768E-06	3. 233622E-06	1. 614706E-06	3. 372186E-07	
		2. 446194E-07	1. 451765E-07	0. 000000E+00		
sc140	68. 6deg.					
si140	H	2. 050000E+00	2. 100000E+00	2. 150000E+00	2. 200000E+00	
		2. 250000E+00	2. 300000E+00	2. 350000E+00	2. 400000E+00	
		2. 450000E+00	2. 500000E+00	2. 550000E+00	2. 600000E+00	
		2. 650000E+00	2. 700000E+00	2. 750000E+00	2. 800000E+00	
		2. 850000E+00	2. 900000E+00	2. 950000E+00	3. 000000E+00	
		3. 050000E+00	3. 100000E+00	3. 150000E+00	3. 200000E+00	
		3. 250000E+00				
sp140	D	0. 000000E+00	8. 316785E-08	1. 352031E-07	1. 807469E-07	
		2. 020203E-07	6. 539026E-07	1. 407811E-06	2. 600862E-06	
		5. 309783E-06	1. 631635E-05	4. 887998E-05	1. 186800E-04	
		2. 422985E-04	4. 159741E-04	6. 220869E-04	1. 001344E-03	
		6. 092237E-05	1. 119890E-05	5. 461682E-06	2. 675313E-06	
		1. 170431E-06	7. 806080E-07	1. 287808E-07	1. 405318E-07	
		0. 000000E+00				
sc141	68. 0deg.					
si141	H	2. 100000E+00	2. 150000E+00	2. 200000E+00	2. 250000E+00	
		2. 300000E+00	2. 350000E+00	2. 400000E+00	2. 450000E+00	
		2. 500000E+00	2. 550000E+00	2. 600000E+00	2. 650000E+00	
		2. 700000E+00	2. 750000E+00	2. 800000E+00	2. 850000E+00	
		2. 900000E+00	2. 950000E+00	3. 000000E+00	3. 050000E+00	
		3. 100000E+00	3. 150000E+00	3. 200000E+00	3. 250000E+00	
sp141	D	0. 000000E+00	6. 409012E-08	1. 324406E-07	4. 197943E-07	
		4. 975737E-07	1. 244635E-06	2. 075199E-06	4. 867960E-06	
		1. 521893E-05	4. 557906E-05	1. 122489E-04	2. 268265E-04	
		3. 923538E-04	6. 014557E-04	9. 527158E-04	1. 971104E-04	
		1. 357790E-05	5. 643435E-06	2. 179045E-06	1. 071052E-06	
		7. 582279E-07	5. 189568E-07	5. 698095E-07	0. 000000E+00	

sc142 si142	67. 4deg.	H	2. 100000E+00 2. 150000E+00 2. 200000E+00 2. 250000E+00 2. 300000E+00 2. 350000E+00 2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00 2. 800000E+00 2. 850000E+00 2. 900000E+00 2. 950000E+00 3. 000000E+00 3. 050000E+00 3. 100000E+00 3. 150000E+00 3. 200000E+00 3. 250000E+00 3. 300000E+00
sp142	D	0. 000000E+00 4. 660265E-08 1. 609630E-07 1. 988011E-07 5. 945502E-07 1. 339444E-06 1. 335500E-06 5. 187732E-06 1. 447393E-05 4. 110240E-05 1. 044794E-04 2. 147021E-04 3. 684111E-04 5. 659241E-04 8. 695565E-04 3. 822587E-04 1. 798357E-05 6. 253576E-06 2. 987737E-06 2. 329716E-06 3. 214600E-07 0. 000000E+00 1. 365078E-07 1. 531519E-07 0. 000000E+00	
sc143 si143	66. 7deg.	H	2. 100000E+00 2. 150000E+00 2. 200000E+00 2. 250000E+00 2. 300000E+00 2. 350000E+00 2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00 2. 800000E+00 2. 850000E+00 2. 900000E+00 2. 950000E+00 3. 000000E+00 3. 050000E+00 3. 100000E+00 3. 150000E+00 3. 200000E+00 3. 250000E+00 3. 300000E+00
sp143	D	0. 000000E+00 6. 918779E-08 3. 664147E-07 2. 209668E-07 4. 002555E-07 1. 040942E-06 1. 957745E-06 4. 434534E-06 1. 274494E-05 4. 021545E-05 9. 712717E-05 2. 068102E-04 3. 486072E-04 5. 387160E-04 8. 494320E-04 4. 853893E-04 1. 745088E-05 6. 538828E-06 3. 102692E-06 2. 252019E-06 1. 308622E-06 3. 782982E-07 1. 357606E-07 1. 512527E-07 0. 000000E+00	
sc144 si144	66. 1deg.	H	2. 150000E+00 2. 200000E+00 2. 250000E+00 2. 300000E+00 2. 350000E+00 2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00 2. 800000E+00 2. 850000E+00 2. 900000E+00 2. 950000E+00 3. 000000E+00 3. 050000E+00 3. 100000E+00 3. 150000E+00 3. 200000E+00 3. 250000E+00
sp144	D	0. 000000E+00 1. 237889E-07 2. 655913E-07 3. 492969E-07 7. 530072E-07 1. 402282E-06 4. 165367E-06 1. 242948E-05 3. 784373E-05 9. 018675E-05 1. 889084E-04 3. 283768E-04 5. 167229E-04 7. 659278E-04 6. 532726E-04 2. 664915E-05 8. 449827E-06 3. 395043E-06 1. 723711E-06 1. 448690E-06 4. 912446E-07 2. 826108E-07 0. 000000E+00	
sc145 si145	65. 5deg.	H	2. 100000E+00 2. 150000E+00 2. 200000E+00 2. 250000E+00 2. 300000E+00 2. 350000E+00 2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00 2. 800000E+00 2. 850000E+00 2. 900000E+00 2. 950000E+00 3. 000000E+00 3. 050000E+00 3. 100000E+00 3. 150000E+00 3. 200000E+00 3. 250000E+00
sp145	D	0. 000000E+00 1. 870825E-07 6. 802784E-08 3. 014070E-07 3. 248838E-07 8. 611187E-07 1. 778113E-06 3. 372293E-06 1. 004398E-05 3. 455305E-05 8. 390980E-05 1. 795590E-04 3. 141229E-04 4. 890232E-04 7. 117494E-04 7. 889012E-04 3. 221876E-05 8. 799711E-06 3. 130426E-06 2. 039767E-06 1. 689213E-06 7. 569491E-07 1. 390021E-07 0. 000000E+00	
sc146 si146	64. 8deg.	H	2. 150000E+00 2. 200000E+00 2. 250000E+00 2. 300000E+00 2. 350000E+00 2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00 2. 800000E+00 2. 850000E+00 2. 900000E+00 2. 950000E+00 3. 000000E+00 3. 050000E+00 3. 100000E+00 3. 150000E+00 3. 200000E+00 3. 250000E+00 3. 300000E+00
sp146	D	0. 000000E+00 8. 773401E-08 2. 557255E-07 2. 813656E-07 1. 011290E-06 1. 605994E-06 3. 485703E-06 1. 002663E-05 3. 073763E-05 7. 834275E-05 1. 675555E-04 2. 989237E-04 4. 685084E-04 6. 733753E-04 9. 093244E-04 3. 983999E-05 9. 979122E-06 3. 955927E-06 2. 213064E-06 7. 722162E-07 3. 673007E-07 8. 477074E-07 3. 056627E-07 0. 000000E+00	
sc147 si147	64. 2deg.	H	2. 150000E+00 2. 200000E+00 2. 250000E+00 2. 300000E+00 2. 350000E+00 2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00 2. 800000E+00 2. 850000E+00 2. 900000E+00 2. 950000E+00 3. 000000E+00 3. 050000E+00 3. 100000E+00

		3. 150000E+00 3. 200000E+00 3. 250000E+00 3. 300000E+00
sp147	D	0. 000000E+00 1. 628542E-07 1. 308541E-07 2. 211177E-07
		8. 604881E-07 1. 447202E-06 3. 033534E-06 9. 238213E-06
		2. 929476E-05 7. 513154E-05 1. 613243E-04 2. 819181E-04
		4. 449468E-04 6. 490118E-04 9. 948979E-04 5. 242517E-05
		1. 036035E-05 5. 994980E-06 2. 810618E-06 8. 956855E-07
		8. 705508E-07 2. 943378E-07 1. 557204E-07 0. 000000E+00
sc148	63. 6deg.	
si148	H	2. 150000E+00 2. 200000E+00 2. 250000E+00 2. 300000E+00
		2. 350000E+00 2. 400000E+00 2. 450000E+00 2. 500000E+00
		2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00
		2. 750000E+00 2. 800000E+00 2. 850000E+00 2. 900000E+00
		2. 950000E+00 3. 000000E+00 3. 050000E+00 3. 100000E+00
		3. 150000E+00 3. 200000E+00 3. 250000E+00 3. 300000E+00
sp148	D	0. 000000E+00 4. 675139E-08 1. 004745E-07 4. 671149E-07
		7. 649076E-07 1. 368693E-06 3. 035296E-06 8. 160137E-06
		2. 676502E-05 6. 948624E-05 1. 518286E-04 2. 700388E-04
		4. 241711E-04 6. 174344E-04 8. 876224E-04 2. 722827E-04
		1. 218341E-05 4. 494934E-06 2. 653392E-06 6. 746867E-07
		4. 963563E-07 2. 963802E-07 1. 564798E-07 0. 000000E+00
sc149	62. 9deg.	
si149	H	2. 100000E+00 2. 150000E+00 2. 200000E+00 2. 250000E+00
		2. 300000E+00 2. 350000E+00 2. 400000E+00 2. 450000E+00
		2. 500000E+00 2. 550000E+00 2. 600000E+00 2. 650000E+00
		2. 700000E+00 2. 750000E+00 2. 800000E+00 2. 850000E+00
		2. 900000E+00 2. 950000E+00 3. 000000E+00 3. 050000E+00
		3. 100000E+00 3. 150000E+00 3. 200000E+00 3. 250000E+00
sp149	D	0. 000000E+00 5. 496211E-08 5. 926586E-08 3. 559434E-07
		3. 240089E-07 8. 654871E-07 1. 223940E-06 2. 737494E-06
		8. 169804E-06 2. 477810E-05 6. 511967E-05 1. 438422E-04
		2. 505075E-04 4. 045705E-04 5. 840438E-04 8. 807432E-04
		3. 962955E-04 1. 741649E-05 5. 558898E-06 2. 539101E-06
		1. 673652E-06 7. 502616E-07 7. 221462E-07 0. 000000E+00
sc150	62. 3deg.	
si150	H	2. 150000E+00 2. 200000E+00 2. 250000E+00 2. 300000E+00
		2. 350000E+00 2. 400000E+00 2. 450000E+00 2. 500000E+00
		2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00
		2. 750000E+00 2. 800000E+00 2. 850000E+00 2. 900000E+00
		2. 950000E+00 3. 000000E+00 3. 050000E+00 3. 100000E+00
		3. 150000E+00 3. 200000E+00 3. 250000E+00
sp150	D	0. 000000E+00 9. 959191E-08 2. 062323E-07 3. 284043E-07
		4. 766513E-07 1. 629761E-06 2. 700599E-06 6. 696978E-06
		2. 341383E-05 5. 949943E-05 1. 355998E-04 2. 477001E-04
		3. 801568E-04 5. 598736E-04 8. 638366E-04 5. 084986E-04
		1. 977702E-05 4. 962646E-06 3. 241386E-06 1. 661947E-06
		1. 299382E-07 2. 698540E-07 0. 000000E+00
sc151	61. 6deg.	
si151	H	2. 150000E+00 2. 200000E+00 2. 250000E+00 2. 300000E+00
		2. 350000E+00 2. 400000E+00 2. 450000E+00 2. 500000E+00
		2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00
		2. 750000E+00 2. 800000E+00 2. 850000E+00 2. 900000E+00
		2. 950000E+00 3. 000000E+00 3. 050000E+00 3. 100000E+00
		3. 150000E+00 3. 200000E+00 3. 250000E+00
sp151	D	0. 000000E+00 1. 957204E-07 2. 207235E-07 3. 166017E-07
		7. 455688E-07 1. 114763E-06 2. 181996E-06 6. 076814E-06
		2. 183085E-05 5. 815935E-05 1. 259050E-04 2. 341212E-04
		3. 711070E-04 5. 467196E-04 7. 739170E-04 6. 897521E-04
		2. 106139E-05 7. 667633E-06 2. 759953E-06 8. 701939E-07
		6. 236858E-07 1. 486126E-07 0. 000000E+00
sc152	61. 0deg.	
si152	H	2. 150000E+00 2. 200000E+00 2. 250000E+00 2. 300000E+00
		2. 350000E+00 2. 400000E+00 2. 450000E+00 2. 500000E+00
		2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00
		2. 750000E+00 2. 800000E+00 2. 850000E+00 2. 900000E+00
		2. 950000E+00 3. 000000E+00 3. 050000E+00 3. 100000E+00
		3. 150000E+00 3. 200000E+00 3. 250000E+00 3. 300000E+00
sp152	D	0. 000000E+00 6. 447385E-08 1. 087442E-07 2. 751906E-07
		4. 818560E-07 1. 050782E-06 2. 585752E-06 5. 991859E-06
		1. 979972E-05 5. 459808E-05 1. 191806E-04 2. 203957E-04
		3. 538323E-04 5. 247375E-04 7. 412066E-04 7. 976518E-04
		2. 749159E-05 8. 520588E-06 3. 125609E-06 2. 328683E-06
		1. 121466E-06 2. 848961E-07 1. 540456E-07 0. 000000E+00
sc153	60. 3deg.	
si153	H	2. 100000E+00 2. 150000E+00 2. 200000E+00 2. 250000E+00
		2. 300000E+00 2. 350000E+00 2. 400000E+00 2. 450000E+00

		2. 500000E+00 2. 550000E+00 2. 600000E+00 2. 650000E+00
		2. 700000E+00 2. 750000E+00 2. 800000E+00 2. 850000E+00
		2. 900000E+00 2. 950000E+00 3. 000000E+00 3. 050000E+00
		3. 100000E+00 3. 150000E+00 3. 200000E+00 3. 250000E+00
sp153	D	0. 000000E+00 6. 098937E-08 5. 609430E-08 2. 658796E-07
		5. 300162E-07 4. 109756E-07 1. 102676E-06 1. 917365E-06
		6. 059206E-06 1. 783077E-05 4. 828772E-05 1. 156626E-04
		2. 085851E-04 3. 363559E-04 4. 916799E-04 6. 929408E-04
		9. 552118E-04 3. 246886E-05 1. 011792E-05 4. 098467E-06
		2. 319564E-06 9. 976926E-07 6. 917190E-07 0. 000000E+00
sc154	59. 7deg.	
si154	H	2. 150000E+00 2. 200000E+00 2. 250000E+00 2. 300000E+00
		2. 350000E+00 2. 400000E+00 2. 450000E+00 2. 500000E+00
		2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00
		2. 750000E+00 2. 800000E+00 2. 850000E+00 2. 900000E+00
		2. 950000E+00 3. 000000E+00 3. 050000E+00 3. 100000E+00
		3. 150000E+00 3. 200000E+00 3. 250000E+00
sp154	D	0. 000000E+00 5. 893934E-08 1. 966280E-07 4. 029661E-07
		5. 975121E-07 1. 078476E-06 2. 255073E-06 5. 564229E-06
		1. 711907E-05 4. 554130E-05 1. 054495E-04 1. 968588E-04
		3. 258351E-04 4. 749231E-04 6. 656998E-04 1. 011813E-03
		8. 172261E-05 1. 050328E-05 3. 894627E-06 2. 546740E-06
sc155	59. 0deg.	
si155	H	2. 150000E+00 2. 200000E+00 2. 250000E+00 2. 300000E+00
		2. 350000E+00 2. 400000E+00 2. 450000E+00 2. 500000E+00
		2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00
		2. 750000E+00 2. 800000E+00 2. 850000E+00 2. 900000E+00
		2. 950000E+00 3. 000000E+00 3. 050000E+00 3. 100000E+00
		3. 150000E+00 3. 200000E+00 3. 250000E+00 3. 300000E+00
sp155	D	0. 000000E+00 6. 200077E-08 1. 053229E-07 4. 579029E-07
		4. 935277E-07 8. 523072E-07 1. 815265E-06 4. 713187E-06
		1. 537118E-05 4. 397556E-05 1. 031633E-04 1. 911008E-04
		3. 095741E-04 4. 515388E-04 6. 363379E-04 8. 316897E-04
		3. 793303E-04 1. 300946E-05 4. 540740E-06 1. 996337E-06
		1. 253263E-06 4. 167379E-07 1. 563152E-07 0. 000000E+00
sc156	58. 3deg.	
si156	H	2. 150000E+00 2. 200000E+00 2. 250000E+00 2. 300000E+00
		2. 350000E+00 2. 400000E+00 2. 450000E+00 2. 500000E+00
		2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00
		2. 750000E+00 2. 800000E+00 2. 850000E+00 2. 900000E+00
		2. 950000E+00 3. 000000E+00 3. 050000E+00 3. 100000E+00
		3. 150000E+00 3. 200000E+00
sp156	D	0. 000000E+00 5. 481348E-08 6. 204295E-08 5. 400582E-07
		5. 634073E-07 9. 872798E-07 1. 766502E-06 4. 632388E-06
		1. 595408E-05 4. 129671E-05 9. 623749E-05 1. 826025E-04
		2. 967662E-04 4. 318088E-04 6. 025549E-04 9. 024858E-04
		4. 108532E-04 1. 437617E-05 4. 388149E-06 2. 354280E-06
		7. 549309E-07 0. 000000E+00
sc157	57. 7deg.	
si157	H	2. 150000E+00 2. 200000E+00 2. 250000E+00 2. 300000E+00
		2. 350000E+00 2. 400000E+00 2. 450000E+00 2. 500000E+00
		2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00
		2. 750000E+00 2. 800000E+00 2. 850000E+00 2. 900000E+00
		2. 950000E+00 3. 000000E+00 3. 050000E+00 3. 100000E+00
		3. 150000E+00 3. 200000E+00 3. 250000E+00 3. 300000E+00
sp157	D	0. 000000E+00 6. 834892E-08 9. 478328E-08 2. 267364E-07
		4. 354471E-07 1. 009637E-06 1. 714584E-06 4. 269829E-06
		1. 392592E-05 3. 950041E-05 8. 917352E-05 1. 763319E-04
		2. 881824E-04 4. 181568E-04 5. 780873E-04 8. 645403E-04
		5. 535384E-04 1. 774760E-05 6. 974432E-06 2. 474893E-06
		6. 277423E-07 5. 847640E-07 1. 644556E-07 0. 000000E+00
sc158	57. 0deg.	
si158	H	2. 150000E+00 2. 200000E+00 2. 250000E+00 2. 300000E+00
		2. 350000E+00 2. 400000E+00 2. 450000E+00 2. 500000E+00
		2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00
		2. 750000E+00 2. 800000E+00 2. 850000E+00 2. 900000E+00
		2. 950000E+00 3. 000000E+00 3. 050000E+00 3. 100000E+00
		3. 150000E+00 3. 200000E+00 3. 250000E+00
sp158	D	0. 000000E+00 1. 428477E-07 6. 648438E-08 2. 565707E-07
		2. 088511E-07 6. 738910E-07 1. 461608E-06 3. 927548E-06
		1. 162050E-05 3. 660383E-05 8. 568009E-05 1. 630543E-04
		2. 713861E-04 3. 997850E-04 5. 668320E-04 7. 944655E-04
		7. 283012E-04 2. 195121E-05 5. 848053E-06 2. 876805E-06
		1. 250140E-06 6. 957300E-07 0. 000000E+00

		56. 3deg.	
sc159	si159	H	2. 150000E+00 2. 200000E+00 2. 250000E+00 2. 300000E+00 2. 350000E+00 2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00 2. 800000E+00 2. 850000E+00 2. 900000E+00 2. 950000E+00 3. 000000E+00 3. 050000E+00 3. 100000E+00 3. 150000E+00 3. 200000E+00 3. 250000E+00 3. 300000E+00
sp159		D	0. 000000E+00 6. 469370E-08 5. 405194E-08 1. 297031E-07 3. 556878E-07 8. 275677E-07 1. 399134E-06 3. 899816E-06 1. 252615E-05 3. 246557E-05 7. 832952E-05 1. 563715E-04 2. 631251E-04 3. 894127E-04 5. 468299E-04 7. 506057E-04 8. 602635E-04 2. 802779E-05 7. 364802E-06 2. 993080E-06 1. 516174E-06 4. 263386E-07 1. 583866E-07 0. 000000E+00
sc160	sc160	55. 6deg.	
sp160	sp160	H	2. 200000E+00 2. 250000E+00 2. 300000E+00 2. 350000E+00 2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00 2. 800000E+00 2. 850000E+00 2. 900000E+00 2. 950000E+00 3. 000000E+00 3. 050000E+00 3. 100000E+00 3. 150000E+00 3. 200000E+00 3. 250000E+00 3. 300000E+00
sc161	sc161	D	0. 000000E+00 5. 555591E-08 2. 331739E-07 4. 268140E-07 5. 949785E-07 1. 271201E-06 3. 460366E-06 1. 069783E-05 3. 255838E-05 7. 680081E-05 1. 498315E-04 2. 527050E-04 3. 669538E-04 5. 238316E-04 6. 996092E-04 1. 000649E-03 3. 353977E-05 8. 168475E-06 2. 858400E-06 1. 272245E-06 4. 302630E-07 1. 557271E-07 0. 000000E+00
sc161	sc161	54. 9deg.	
sp161	sp161	H	2. 200000E+00 2. 250000E+00 2. 300000E+00 2. 350000E+00 2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00 2. 800000E+00 2. 850000E+00 2. 900000E+00 2. 950000E+00 3. 000000E+00 3. 050000E+00 3. 100000E+00 3. 150000E+00 3. 200000E+00 3. 250000E+00 3. 300000E+00
sc162	sc162	D	0. 000000E+00 6. 118033E-08 3. 377055E-07 4. 565552E-07 5. 511245E-07 1. 276787E-06 3. 293239E-06 1. 016738E-05 2. 958812E-05 6. 962912E-05 1. 391898E-04 2. 338724E-04 3. 584104E-04 5. 093794E-04 6. 817892E-04 9. 205945E-04 2. 395107E-04 1. 067308E-05 3. 451457E-06 1. 631188E-06 8. 429619E-07 1. 538228E-07 0. 000000E+00
sc162	sc162	54. 2deg.	
sp162	sp162	H	2. 200000E+00 2. 250000E+00 2. 300000E+00 2. 350000E+00 2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00 2. 800000E+00 2. 850000E+00 2. 900000E+00 2. 950000E+00 3. 000000E+00 3. 050000E+00 3. 100000E+00 3. 150000E+00 3. 200000E+00 3. 250000E+00
sc162	sc162	D	0. 000000E+00 9. 176465E-08 2. 441415E-07 2. 745454E-07 4. 353670E-07 1. 239651E-06 2. 665954E-06 9. 698346E-06 2. 662811E-05 6. 594799E-05 1. 369801E-04 2. 220911E-04 3. 479290E-04 4. 873406E-04 6. 490751E-04 8. 741806E-04 4. 030775E-04 1. 173253E-05 5. 033558E-06 2. 009900E-06 5. 571537E-07 0. 000000E+00
sc163	sc163	53. 5deg.	
sp163	sp163	H	2. 150000E+00 2. 200000E+00 2. 250000E+00 2. 300000E+00 2. 350000E+00 2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00 2. 800000E+00 2. 850000E+00 2. 900000E+00 2. 950000E+00 3. 000000E+00 3. 050000E+00 3. 100000E+00 3. 150000E+00 3. 200000E+00 3. 250000E+00 3. 300000E+00
sc163	sc163	D	0. 000000E+00 6. 524644E-08 0. 000000E+00 1. 212872E-07 2. 679009E-07 7. 697370E-07 8. 509431E-07 2. 590733E-06 8. 506630E-06 2. 680592E-05 6. 296299E-05 1. 274466E-04 2. 206771E-04 3. 346042E-04 4. 711756E-04 6. 223132E-04 9. 449103E-04 4. 660404E-04 1. 259682E-05 4. 136666E-06 1. 263288E-06 1. 145060E-06 1. 592475E-07 0. 000000E+00
sc164	sc164	52. 8deg.	
sp164	sp164	H	2. 200000E+00 2. 250000E+00 2. 300000E+00 2. 350000E+00 2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00 2. 800000E+00 2. 850000E+00 2. 900000E+00 2. 950000E+00 3. 000000E+00 3. 050000E+00 3. 100000E+00 3. 150000E+00 3. 200000E+00 3. 250000E+00
sc164	sc164	D	0. 000000E+00 5. 925439E-08 2. 357464E-07 1. 005906E-07 4. 074001E-07 9. 508712E-07 2. 258558E-06 8. 245144E-06 2. 380700E-05 5. 918454E-05 1. 228544E-04 2. 164655E-04

		3. 256361E-04 4. 555664E-04 6. 098793E-04 8. 794283E-04
		6. 196084E-04 1. 702150E-05 4. 898734E-06 2. 131518E-06
		5. 504895E-07 0. 000000E+00
sc165	52. 0deg.	
si165	H	2. 150000E+00 2. 200000E+00 2. 250000E+00 2. 300000E+00 2. 350000E+00 2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00 2. 800000E+00 2. 850000E+00 2. 900000E+00 2. 950000E+00 3. 000000E+00 3. 050000E+00 3. 100000E+00 3. 150000E+00 3. 200000E+00 3. 250000E+00
sp165	D	0. 000000E+00 1. 134946E-07 1. 779498E-07 1. 091604E-07 2. 728333E-07 7. 087155E-07 1. 160775E-06 2. 646478E-06 7. 245261E-06 2. 265753E-05 5. 585976E-05 1. 180472E-04 1. 996747E-04 3. 102710E-04 4. 428868E-04 5. 910334E-04 8. 096382E-04 8. 022642E-04 2. 224876E-05 4. 865104E-06 1. 606334E-06 7. 012865E-07 0. 000000E+00
sc166	51. 3deg.	
si166	H	2. 200000E+00 2. 250000E+00 2. 300000E+00 2. 350000E+00 2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00 2. 800000E+00 2. 850000E+00 2. 900000E+00 2. 950000E+00 3. 000000E+00 3. 050000E+00 3. 100000E+00 3. 150000E+00 3. 200000E+00 3. 250000E+00
sp166	D	0. 000000E+00 3. 661761E-08 1. 545646E-08 3. 400192E-07 4. 975971E-07 8. 862808E-07 2. 083358E-06 7. 237685E-06 2. 072291E-05 5. 459988E-05 1. 089741E-04 1. 951103E-04 2. 963722E-04 4. 222155E-04 5. 593694E-04 7. 814856E-04 9. 541316E-04 2. 293187E-05 6. 548521E-06 2. 287055E-06 7. 120506E-07 0. 000000E+00
sc167	50. 6deg.	
si167	H	2. 150000E+00 2. 200000E+00 2. 250000E+00 2. 300000E+00 2. 350000E+00 2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00 2. 800000E+00 2. 850000E+00 2. 900000E+00 2. 950000E+00 3. 000000E+00 3. 050000E+00 3. 100000E+00 3. 150000E+00 3. 200000E+00 3. 250000E+00 3. 300000E+00
sp167	D	0. 000000E+00 5. 266102E-08 0. 000000E+00 8. 249249E-08 3. 831260E-07 5. 351860E-07 1. 043769E-06 2. 179520E-06 6. 105990E-06 1. 946810E-05 4. 957193E-05 1. 062803E-04 1. 886028E-04 2. 854320E-04 4. 082456E-04 5. 541602E-04 7. 204879E-04 1. 024543E-03 9. 841389E-05 6. 913017E-06 2. 509482E-06 4. 357183E-07 3. 139802E-07 0. 000000E+00
sc168	49. 8deg.	
si168	H	2. 200000E+00 2. 250000E+00 2. 300000E+00 2. 350000E+00 2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00 2. 800000E+00 2. 850000E+00 2. 900000E+00 2. 950000E+00 3. 000000E+00 3. 050000E+00 3. 100000E+00 3. 150000E+00 3. 200000E+00 3. 250000E+00 3. 300000E+00
sp168	D	0. 000000E+00 5. 197203E-08 1. 475185E-07 3. 950473E-07 3. 362890E-07 9. 443652E-07 2. 328108E-06 6. 071626E-06 1. 849390E-05 4. 763380E-05 1. 001214E-04 1. 760308E-04 2. 773223E-04 3. 940805E-04 5. 379024E-04 6. 894160E-04 8. 738939E-04 4. 141349E-04 7. 667921E-06 3. 290772E-06 8. 477726E-07 1. 639912E-07 0. 000000E+00
sc169	49. 1deg.	
si169	H	2. 150000E+00 2. 200000E+00 2. 250000E+00 2. 300000E+00 2. 350000E+00 2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00 2. 800000E+00 2. 850000E+00 2. 900000E+00 2. 950000E+00 3. 000000E+00 3. 050000E+00 3. 100000E+00 3. 150000E+00 3. 200000E+00 3. 250000E+00 3. 300000E+00
sp169	D	0. 000000E+00 5. 186472E-08 5. 992020E-08 1. 143427E-07 1. 895702E-07 5. 045877E-07 8. 806139E-07 1. 684460E-06 5. 465753E-06 1. 706276E-05 4. 415326E-05 9. 669437E-05 1. 724471E-04 2. 658523E-04 3. 846244E-04 5. 176450E-04 6. 760053E-04 9. 515178E-04 4. 572357E-04 7. 580170E-06 4. 265649E-06 4. 208299E-07 3. 205437E-07 0. 000000E+00
sc170	48. 3deg.	
si170	H	2. 200000E+00 2. 250000E+00 2. 300000E+00 2. 350000E+00 2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00 2. 800000E+00 2. 850000E+00 2. 900000E+00 2. 950000E+00 3. 000000E+00 3. 050000E+00 3. 100000E+00 3. 150000E+00 3. 200000E+00 3. 250000E+00 3. 300000E+00

sp170	D	0. 000000E+00	4. 817940E-08	6. 436516E-08	1. 258704E-07
		2. 925913E-07	8. 236550E-07	1. 750326E-06	5. 244401E-06
		1. 580158E-05	4. 236360E-05	9. 070786E-05	1. 638909E-04
		2. 505961E-04	3. 731609E-04	5. 018250E-04	6. 581320E-04
		9. 792492E-04	5. 452947E-04	1. 069654E-05	2. 365054E-06
		2. 711297E-07	1. 611850E-07	0. 000000E+00	
sc171	47. 5deg.				
si171	H	2. 150000E+00	2. 200000E+00	2. 250000E+00	2. 300000E+00
		2. 350000E+00	2. 400000E+00	2. 450000E+00	2. 500000E+00
		2. 550000E+00	2. 600000E+00	2. 650000E+00	2. 700000E+00
		2. 750000E+00	2. 800000E+00	2. 850000E+00	2. 900000E+00
		2. 950000E+00	3. 000000E+00	3. 050000E+00	3. 100000E+00
		3. 150000E+00	3. 200000E+00	3. 250000E+00	3. 300000E+00
sp171	D	0. 000000E+00	5. 128608E-08	0. 000000E+00	1. 087187E-07
		1. 120109E-07	5. 285610E-07	6. 810171E-07	1. 627371E-06
		4. 752116E-06	1. 459895E-05	3. 960864E-05	8. 638928E-05
		1. 546060E-04	2. 517032E-04	3. 613631E-04	4. 877206E-04
		6. 314134E-04	9. 004825E-04	7. 358246E-04	1. 548900E-05
		2. 501203E-06	7. 136398E-07	4. 747270E-07	0. 000000E+00
sc172	46. 8deg.				
si172	H	2. 150000E+00	2. 200000E+00	2. 250000E+00	2. 300000E+00
		2. 350000E+00	2. 400000E+00	2. 450000E+00	2. 500000E+00
		2. 550000E+00	2. 600000E+00	2. 650000E+00	2. 700000E+00
		2. 750000E+00	2. 800000E+00	2. 850000E+00	2. 900000E+00
		2. 950000E+00	3. 000000E+00	3. 050000E+00	3. 100000E+00
		3. 150000E+00	3. 200000E+00	3. 250000E+00	3. 300000E+00
sp172	D	0. 000000E+00	8. 679581E-08	3. 277777E-08	8. 308814E-08
		1. 405097E-07	2. 347110E-07	6. 374704E-07	1. 487510E-06
		4. 130199E-06	1. 431899E-05	3. 641109E-05	8. 527863E-05
		1. 495554E-04	2. 423431E-04	3. 483402E-04	4. 728570E-04
		6. 058402E-04	8. 511482E-04	9. 212206E-04	1. 690756E-05
		4. 465154E-06	1. 430168E-06	1. 601375E-07	0. 000000E+00
sc173	46. 0deg.				
si173	H	2. 200000E+00	2. 250000E+00	2. 300000E+00	2. 350000E+00
		2. 400000E+00	2. 450000E+00	2. 500000E+00	2. 550000E+00
		2. 600000E+00	2. 650000E+00	2. 700000E+00	2. 750000E+00
		2. 800000E+00	2. 850000E+00	2. 900000E+00	2. 950000E+00
		3. 000000E+00	3. 050000E+00	3. 100000E+00	3. 150000E+00
sp173	D	0. 000000E+00	5. 117187E-08	5. 377952E-08	8. 614668E-08
		1. 783661E-07	7. 834883E-07	1. 417162E-06	3. 980166E-06
		1. 336727E-05	3. 625534E-05	8. 002920E-05	1. 425706E-04
		2. 291867E-04	3. 327406E-04	4. 544154E-04	5. 953345E-04
		8. 064302E-04	1. 071171E-03	2. 380626E-05	5. 238224E-06
		1. 142530E-06	3. 098452E-07	0. 000000E+00	
sc174	45. 2deg.				
si174	H	2. 200000E+00	2. 250000E+00	2. 300000E+00	2. 350000E+00
		2. 400000E+00	2. 450000E+00	2. 500000E+00	2. 550000E+00
		2. 600000E+00	2. 650000E+00	2. 700000E+00	2. 750000E+00
		2. 800000E+00	2. 850000E+00	2. 900000E+00	2. 950000E+00
		3. 000000E+00	3. 050000E+00	3. 100000E+00	3. 150000E+00
sp174	D	0. 000000E+00	8. 085275E-08	1. 488905E-07	5. 636070E-08
		2. 837302E-07	6. 545002E-07	1. 352910E-06	3. 634366E-06
		1. 230905E-05	3. 373392E-05	7. 561881E-05	1. 375754E-04
		2. 227755E-04	3. 191189E-04	4. 442214E-04	5. 799519E-04
		7. 478474E-04	8. 734906E-04	3. 903045E-04	5. 604865E-06
		1. 601454E-06	3. 152020E-07	0. 000000E+00	
sc175	44. 4deg.				
si175	H	2. 250000E+00	2. 300000E+00	2. 350000E+00	2. 400000E+00
		2. 450000E+00	2. 500000E+00	2. 550000E+00	2. 600000E+00
		2. 650000E+00	2. 700000E+00	2. 750000E+00	2. 800000E+00
		2. 850000E+00	2. 900000E+00	2. 950000E+00	3. 000000E+00
		3. 050000E+00	3. 100000E+00	3. 150000E+00	3. 200000E+00
sp175	D	0. 000000E+00	8. 189381E-08	4. 970814E-08	3. 654040E-07
		6. 145243E-07	9. 094632E-07	3. 347005E-06	1. 147304E-05
		3. 144592E-05	7. 153086E-05	1. 337675E-04	2. 127695E-04
		3. 119279E-04	4. 350302E-04	5. 639190E-04	7. 234365E-04
		9. 397283E-04	4. 532908E-04	7. 439725E-06	1. 695746E-06
		1. 538375E-07	0. 000000E+00		
sc176	43. 5deg.				
si176	H	2. 250000E+00	2. 300000E+00	2. 350000E+00	2. 400000E+00
		2. 450000E+00	2. 500000E+00	2. 550000E+00	2. 600000E+00
		2. 650000E+00	2. 700000E+00	2. 750000E+00	2. 800000E+00

			2. 850000E+00	2. 900000E+00	2. 950000E+00	3. 000000E+00
			3. 050000E+00	3. 100000E+00	3. 150000E+00	3. 200000E+00
			3. 250000E+00	3. 300000E+00		
sp176	D		0. 000000E+00	6. 202506E-08	1. 503092E-07	3. 596351E-07
			4. 128896E-07	1. 151303E-06	3. 246227E-06	1. 088884E-05
			2. 983605E-05	6. 784023E-05	1. 281490E-04	2. 110270E-04
			3. 002350E-04	4. 187912E-04	5. 523674E-04	7. 019019E-04
			1. 027720E-03	5. 093094E-04	8. 316237E-06	1. 265876E-06
			3. 078390E-07	0. 000000E+00		
sc177	42. 7deg.					
si177	H		2. 250000E+00	2. 300000E+00	2. 350000E+00	2. 400000E+00
			2. 450000E+00	2. 500000E+00	2. 550000E+00	2. 600000E+00
			2. 650000E+00	2. 700000E+00	2. 750000E+00	2. 800000E+00
			2. 850000E+00	2. 900000E+00	2. 950000E+00	3. 000000E+00
			3. 050000E+00	3. 100000E+00	3. 150000E+00	3. 200000E+00
			3. 250000E+00	3. 300000E+00		
sp177	D		0. 000000E+00	8. 100006E-08	8. 454220E-08	2. 946338E-07
			3. 335494E-07	8. 570047E-07	2. 678134E-06	1. 040176E-05
			2. 876283E-05	6. 500530E-05	1. 198606E-04	1. 977320E-04
			3. 005586E-04	3. 926034E-04	5. 391550E-04	6. 744866E-04
			1. 002585E-03	6. 862895E-04	8. 615665E-06	1. 725296E-06
			7. 847418E-07	0. 000000E+00		
sc178	41. 8deg.					
si178	H		2. 200000E+00	2. 250000E+00	2. 300000E+00	2. 350000E+00
			2. 400000E+00	2. 450000E+00	2. 500000E+00	2. 550000E+00
			2. 600000E+00	2. 650000E+00	2. 700000E+00	2. 750000E+00
			2. 800000E+00	2. 850000E+00	2. 900000E+00	2. 950000E+00
			3. 000000E+00	3. 050000E+00	3. 100000E+00	3. 150000E+00
			3. 200000E+00	3. 250000E+00	3. 300000E+00	
sp178	D		0. 000000E+00	1. 055227E-07	1. 297189E-08	4. 046234E-08
			2. 925959E-07	5. 315856E-07	8. 745273E-07	2. 531608E-06
			9. 548219E-06	2. 726737E-05	6. 047744E-05	1. 193781E-04
			1. 913418E-04	2. 871368E-04	3. 955264E-04	5. 261542E-04
			6. 605625E-04	9. 365926E-04	8. 807958E-04	1. 274295E-05
			2. 815299E-06	1. 530758E-07	0. 000000E+00	
sc179	41. 0deg.					
si179	H		2. 250000E+00	2. 300000E+00	2. 350000E+00	2. 400000E+00
			2. 450000E+00	2. 500000E+00	2. 550000E+00	2. 600000E+00
			2. 650000E+00	2. 700000E+00	2. 750000E+00	2. 800000E+00
			2. 850000E+00	2. 900000E+00	2. 950000E+00	3. 000000E+00
			3. 050000E+00	3. 100000E+00	3. 150000E+00	3. 200000E+00
			3. 250000E+00	3. 300000E+00		
sp179	D		0. 000000E+00	5. 686129E-08	5. 904160E-08	1. 730601E-07
			3. 169938E-07	9. 507395E-07	2. 630126E-06	8. 639023E-06
			2. 541614E-05	5. 829042E-05	1. 115031E-04	1. 839768E-04
			2. 775854E-04	3. 782509E-04	5. 125052E-04	6. 480545E-04
			8. 691837E-04	1. 070818E-03	1. 436386E-05	2. 260094E-06
			6. 328540E-07	0. 000000E+00		
sc180	40. 1deg.					
si180	H		2. 300000E+00	2. 350000E+00	2. 400000E+00	2. 450000E+00
			2. 500000E+00	2. 550000E+00	2. 600000E+00	2. 650000E+00
			2. 700000E+00	2. 750000E+00	2. 800000E+00	2. 850000E+00
			2. 900000E+00	2. 950000E+00	3. 000000E+00	3. 050000E+00
			3. 100000E+00	3. 150000E+00	3. 200000E+00	3. 250000E+00
			3. 300000E+00			
sp180	D		0. 000000E+00	4. 962920E-08	2. 199562E-07	5. 134325E-07
			7. 329445E-07	1. 989403E-06	8. 003834E-06	2. 357516E-05
			5. 727881E-05	1. 086400E-04	1. 792952E-04	2. 628071E-04
			3. 800770E-04	4. 990038E-04	6. 238073E-04	8. 279198E-04
			9. 340168E-04	3. 282563E-04	2. 932514E-06	8. 058116E-07
			0. 000000E+00			
sc181	39. 2deg.					
si181	H		2. 300000E+00	2. 350000E+00	2. 400000E+00	2. 450000E+00
			2. 500000E+00	2. 550000E+00	2. 600000E+00	2. 650000E+00
			2. 700000E+00	2. 750000E+00	2. 800000E+00	2. 850000E+00
			2. 900000E+00	2. 950000E+00	3. 000000E+00	3. 050000E+00
			3. 100000E+00	3. 150000E+00	3. 200000E+00	3. 250000E+00
			3. 300000E+00			
sp181	D		0. 000000E+00	2. 220610E-07	1. 566343E-07	2. 916814E-07
			8. 032291E-07	2. 168054E-06	6. 949556E-06	2. 255698E-05
			5. 463649E-05	1. 026678E-04	1. 695869E-04	2. 554709E-04
			3. 633542E-04	4. 772688E-04	6. 231072E-04	7. 663571E-04
			9. 474293E-04	4. 972254E-04	4. 247671E-06	4. 669194E-07
			0. 000000E+00			
sc182	38. 3deg.					

si182	H	2.250000E+00	2.300000E+00	2.350000E+00	2.400000E+00
		2.450000E+00	2.500000E+00	2.550000E+00	2.600000E+00
		2.650000E+00	2.700000E+00	2.750000E+00	2.800000E+00
		2.850000E+00	2.900000E+00	2.950000E+00	3.000000E+00
		3.050000E+00	3.100000E+00	3.150000E+00	3.200000E+00
		3.250000E+00	3.300000E+00		
sp182	D	0.000000E+00	2.067843E-08	0.000000E+00	1.399341E-07
		3.178751E-07	7.605769E-07	1.897464E-06	6.694710E-06
		2.050098E-05	5.105451E-05	9.993976E-05	1.678510E-04
		2.479609E-04	3.433275E-04	4.625999E-04	6.066760E-04
		7.659790E-04	1.080116E-03	5.190951E-04	6.038430E-06
		9.575787E-07	0.000000E+00		
sc183	37. 3deg.				
si183	H	2.300000E+00	2.350000E+00	2.400000E+00	2.450000E+00
		2.500000E+00	2.550000E+00	2.600000E+00	2.650000E+00
		2.700000E+00	2.750000E+00	2.800000E+00	2.850000E+00
		2.900000E+00	2.950000E+00	3.000000E+00	3.050000E+00
		3.100000E+00	3.150000E+00	3.200000E+00	3.250000E+00
		3.300000E+00			
sp183	D	0.000000E+00	8.882154E-08	1.363652E-07	3.566970E-07
		7.311159E-07	1.710634E-06	6.185966E-06	2.040779E-05
		4.861683E-05	9.595914E-05	1.588646E-04	2.478900E-04
		3.273534E-04	4.553432E-04	5.809440E-04	7.438363E-04
		1.093726E-03	6.424027E-04	6.754131E-06	4.694572E-07
		0.000000E+00			
sc184	36. 4deg.				
si184	H	2.300000E+00	2.350000E+00	2.400000E+00	2.450000E+00
		2.500000E+00	2.550000E+00	2.600000E+00	2.650000E+00
		2.700000E+00	2.750000E+00	2.800000E+00	2.850000E+00
		2.900000E+00	2.950000E+00	3.000000E+00	3.050000E+00
		3.100000E+00	3.150000E+00	3.200000E+00	3.250000E+00
		3.300000E+00			
sp184	D	0.000000E+00	1.012296E-08	1.388213E-07	2.886975E-07
		8.017363E-07	1.597647E-06	5.794210E-06	1.840515E-05
		4.580280E-05	9.382465E-05	1.541745E-04	2.305972E-04
		3.317755E-04	4.382801E-04	5.746237E-04	7.127861E-04
		1.029575E-03	8.593198E-04	7.007617E-06	9.398276E-07
		0.000000E+00			
sc185	35. 4deg.				
si185	H	2.300000E+00	2.350000E+00	2.400000E+00	2.450000E+00
		2.500000E+00	2.550000E+00	2.600000E+00	2.650000E+00
		2.700000E+00	2.750000E+00	2.800000E+00	2.850000E+00
		2.900000E+00	2.950000E+00	3.000000E+00	3.050000E+00
		3.100000E+00	3.150000E+00	3.200000E+00	3.250000E+00
		3.300000E+00			
sp185	D	0.000000E+00	2.492906E-08	1.388194E-07	2.226574E-07
		5.625669E-07	1.397296E-06	5.572041E-06	1.844635E-05
		4.328828E-05	8.772295E-05	1.481993E-04	2.332036E-04
		3.198408E-04	4.322269E-04	5.497440E-04	6.965308E-04
		9.774003E-04	1.054053E-03	8.373313E-06	9.396268E-07
		0.000000E+00			
sc186	34. 4deg.				
si186	H	2.300000E+00	2.350000E+00	2.400000E+00	2.450000E+00
		2.500000E+00	2.550000E+00	2.600000E+00	2.650000E+00
		2.700000E+00	2.750000E+00	2.800000E+00	2.850000E+00
		2.900000E+00	2.950000E+00	3.000000E+00	3.050000E+00
		3.100000E+00	3.150000E+00	3.200000E+00	3.250000E+00
		3.300000E+00			
sp186	D	0.000000E+00	6.757288E-08	7.418260E-08	1.997323E-07
		4.424460E-07	1.701216E-06	5.004857E-06	1.674497E-05
		4.143610E-05	8.221836E-05	1.455120E-04	2.169720E-04
		3.147037E-04	4.293538E-04	5.408859E-04	6.842517E-04
		9.036978E-04	9.911328E-04	2.843452E-04	2.041819E-06
		0.000000E+00			
sc187	33. 4deg.				
si187	H	2.300000E+00	2.350000E+00	2.400000E+00	2.450000E+00
		2.500000E+00	2.550000E+00	2.600000E+00	2.650000E+00
		2.700000E+00	2.750000E+00	2.800000E+00	2.850000E+00
		2.900000E+00	2.950000E+00	3.000000E+00	3.050000E+00
		3.100000E+00	3.150000E+00	3.200000E+00	3.250000E+00
		3.300000E+00			
sp187	D	0.000000E+00	6.322582E-08	1.197762E-07	2.005341E-07
		4.651752E-07	1.259029E-06	4.352058E-06	1.534533E-05
		3.939306E-05	8.233699E-05	1.411349E-04	2.118684E-04
		3.053809E-04	4.106651E-04	5.292300E-04	6.716109E-04

			8. 364116E-04 9. 383907E-04 5. 395953E-04 2. 043124E-06 0. 000000E+00
sc188	32.	3deg.	
si188	H		2. 300000E+00 2. 350000E+00 2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00 2. 800000E+00 2. 850000E+00 2. 900000E+00 2. 950000E+00 3. 000000E+00 3. 050000E+00 3. 100000E+00 3. 150000E+00 3. 200000E+00 3. 250000E+00 3. 300000E+00 3. 350000E+00
sp188	D		0. 000000E+00 6. 824702E-08 3. 274362E-08 1. 121637E-07 3. 379739E-07 1. 104516E-06 4. 022090E-06 1. 439601E-05 3. 767331E-05 7. 812490E-05 1. 300114E-04 2. 080786E-04 3. 044074E-04 3. 956463E-04 5. 068520E-04 6. 563149E-04 8. 073879E-04 1. 109827E-03 5. 556178E-04 1. 862525E-06 1. 711399E-07 0. 000000E+00
sc189	31.	2deg.	
si189	H		2. 300000E+00 2. 350000E+00 2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00 2. 800000E+00 2. 850000E+00 2. 900000E+00 2. 950000E+00 3. 000000E+00 3. 050000E+00 3. 100000E+00 3. 150000E+00 3. 200000E+00 3. 250000E+00 3. 300000E+00
sp189	D		0. 000000E+00 1. 941982E-08 2. 493151E-08 7. 854474E-08 4. 771863E-07 9. 641520E-07 3. 708289E-06 1. 332263E-05 3. 583212E-05 7. 452587E-05 1. 307394E-04 2. 023933E-04 2. 912157E-04 3. 936042E-04 5. 000540E-04 6. 380307E-04 8. 073207E-04 1. 173256E-03 6. 388963E-04 2. 661218E-06 0. 000000E+00
sc190	30.	1deg.	
si190	H		2. 350000E+00 2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00 2. 800000E+00 2. 850000E+00 2. 900000E+00 2. 950000E+00 3. 000000E+00 3. 050000E+00 3. 100000E+00 3. 150000E+00 3. 200000E+00 3. 250000E+00 3. 300000E+00
sp190	D		0. 000000E+00 6. 236116E-08 1. 376939E-07 3. 141661E-07 1. 257420E-06 3. 761137E-06 1. 223560E-05 3. 340728E-05 7. 274001E-05 1. 252540E-04 1. 920492E-04 2. 834995E-04 3. 830453E-04 4. 871158E-04 6. 296679E-04 7. 653743E-04 1. 142661E-03 8. 395275E-04 3. 449932E-06 0. 000000E+00
sc191	29.	0deg.	
si191	H		2. 300000E+00 2. 350000E+00 2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00 2. 800000E+00 2. 850000E+00 2. 900000E+00 2. 950000E+00 3. 000000E+00 3. 050000E+00 3. 100000E+00 3. 150000E+00 3. 200000E+00 3. 250000E+00 3. 300000E+00
sp191	D		0. 000000E+00 2. 224802E-08 6. 727636E-11 1. 097160E-07 2. 272302E-07 9. 250835E-07 3. 262771E-06 1. 129785E-05 3. 161960E-05 6. 777396E-05 1. 226950E-04 1. 871137E-04 2. 685832E-04 3. 696899E-04 4. 857181E-04 6. 186762E-04 7. 534282E-04 1. 087697E-03 1. 045993E-03 1. 906849E-06 0. 000000E+00
sc192	27.	7deg.	
si192	H		2. 300000E+00 2. 350000E+00 2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00 2. 800000E+00 2. 850000E+00 2. 900000E+00 2. 950000E+00 3. 000000E+00 3. 050000E+00 3. 100000E+00 3. 150000E+00 3. 200000E+00 3. 250000E+00 3. 300000E+00
sp192	D		0. 000000E+00 5. 428756E-08 6. 148413E-08 8. 322379E-08 4. 111913E-07 6. 497418E-07 3. 045082E-06 1. 136969E-05 3. 117566E-05 6. 547056E-05 1. 135046E-04 1. 832181E-04 2. 640532E-04 3. 528616E-04 4. 718698E-04 5. 892518E-04 7. 461286E-04 9. 985957E-04 1. 012755E-03 3. 128957E-04 0. 000000E+00
sc193	26.	5deg.	
si193	H		2. 350000E+00 2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00 2. 800000E+00 2. 850000E+00 2. 900000E+00 2. 950000E+00 3. 000000E+00 3. 050000E+00 3. 100000E+00 3. 150000E+00 3. 200000E+00 3. 250000E+00 3. 300000E+00
sp193	D		0. 000000E+00 1. 697098E-09 1. 927231E-07 4. 106931E-07 8. 312101E-07 2. 569712E-06 1. 016209E-05 2. 936865E-05 6. 248241E-05 1. 087101E-04 1. 768417E-04 2. 623338E-04 3. 436271E-04 4. 601117E-04 5. 786398E-04 7. 347642E-04

		9. 333713E-04 9. 450288E-04 5. 985177E-04 0. 000000E+00
sc194	25. 2deg.	
si194	H	2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00 2. 800000E+00 2. 850000E+00 2. 900000E+00 2. 950000E+00 3. 000000E+00 3. 050000E+00 3. 100000E+00 3. 150000E+00 3. 200000E+00 3. 250000E+00 3. 300000E+00
sp194	D	0. 000000E+00 5. 132696E-08 2. 434983E-07 7. 457691E-07 2. 393028E-06 9. 594579E-06 2. 728358E-05 6. 110747E-05 1. 086207E-04 1. 698059E-04 2. 503440E-04 3. 425229E-04 4. 428254E-04 5. 636669E-04 7. 144752E-04 8. 850558E-04 1. 147144E-03 6. 025452E-04 0. 000000E+00
sc195	23. 8deg.	
si195	H	2. 300000E+00 2. 350000E+00 2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00 2. 800000E+00 2. 850000E+00 2. 900000E+00 2. 950000E+00 3. 000000E+00 3. 050000E+00 3. 100000E+00 3. 150000E+00 3. 200000E+00 3. 250000E+00 3. 300000E+00
sp195	D	0. 000000E+00 4. 007340E-08 6. 214638E-08 7. 514239E-08 2. 754747E-07 4. 718708E-07 2. 062608E-06 8. 851774E-06 2. 643231E-05 5. 695407E-05 1. 011672E-04 1. 674412E-04 2. 453314E-04 3. 273263E-04 4. 224198E-04 5. 733171E-04 6. 877424E-04 8. 772122E-04 1. 266483E-03 6. 778499E-04 0. 000000E+00
sc196	22. 3deg.	
si196	H	2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00 2. 800000E+00 2. 850000E+00 2. 900000E+00 2. 950000E+00 3. 000000E+00 3. 050000E+00 3. 100000E+00 3. 150000E+00 3. 200000E+00 3. 250000E+00 3. 300000E+00 3. 350000E+00
sp196	D	0. 000000E+00 5. 263956E-08 1. 519722E-07 6. 019641E-07 2. 016100E-06 8. 676628E-06 2. 451237E-05 5. 528853E-05 1. 007476E-04 1. 562891E-04 2. 381484E-04 3. 259362E-04 4. 274298E-04 5. 432650E-04 6. 805393E-04 8. 418420E-04 1. 258936E-03 8. 629712E-04 1. 713579E-07 0. 000000E+00
sc197	20. 8deg.	
si197	H	2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00 2. 800000E+00 2. 850000E+00 2. 900000E+00 2. 950000E+00 3. 000000E+00 3. 050000E+00 3. 100000E+00 3. 150000E+00 3. 200000E+00 3. 250000E+00 3. 300000E+00
sp197	D	0. 000000E+00 6. 342589E-08 2. 964673E-07 4. 254216E-07 1. 711058E-06 7. 745068E-06 2. 418150E-05 5. 344780E-05 9. 833419E-05 1. 527224E-04 2. 304271E-04 3. 205852E-04 4. 106797E-04 5. 276672E-04 6. 664877E-04 8. 212172E-04 1. 219500E-03 1. 088858E-03 0. 000000E+00
sc198	19. 1deg.	
si198	H	2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00 2. 800000E+00 2. 850000E+00 2. 900000E+00 2. 950000E+00 3. 000000E+00 3. 050000E+00 3. 100000E+00 3. 150000E+00 3. 200000E+00 3. 250000E+00 3. 300000E+00 3. 350000E+00
sp198	D	0. 000000E+00 4. 136105E-08 8. 793868E-08 4. 110525E-07 1. 800791E-06 7. 428900E-06 2. 318209E-05 5. 131603E-05 9. 351361E-05 1. 491119E-04 2. 203467E-04 3. 011456E-04 4. 081960E-04 5. 148827E-04 6. 575225E-04 8. 039996E-04 1. 121527E-03 9. 666444E-04 3. 858892E-04 0. 000000E+00
sc199	17. 3deg.	
si199	H	2. 350000E+00 2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00 2. 800000E+00 2. 850000E+00 2. 900000E+00 2. 950000E+00 3. 000000E+00 3. 050000E+00 3. 100000E+00 3. 150000E+00 3. 200000E+00 3. 250000E+00 3. 300000E+00 3. 350000E+00
sp199	D	0. 000000E+00 8. 001555E-09 6. 120525E-08 1. 283460E-07 3. 333239E-07 1. 457672E-06 6. 649354E-06 2. 141922E-05 4. 708970E-05 9. 090707E-05 1. 438692E-04 2. 183732E-04 3. 032879E-04 4. 016983E-04 5. 039923E-04 6. 538201E-04 7. 946472E-04 1. 015928E-03 9. 506039E-04 6. 606010E-04 0. 000000E+00
sc200	15. 2deg.	
si200	H	2. 400000E+00 2. 450000E+00 2. 500000E+00 2. 550000E+00 2. 600000E+00 2. 650000E+00 2. 700000E+00 2. 750000E+00 2. 800000E+00 2. 850000E+00 2. 900000E+00 2. 950000E+00

		3. 000000E+00	3. 050000E+00	3. 100000E+00	3. 150000E+00	
sp200	D	3. 200000E+00	3. 250000E+00	3. 300000E+00	3. 350000E+00	
		0. 000000E+00	5. 432869E-08	1. 336040E-07	3. 101918E-07	
		1. 393528E-06	5. 964601E-06	2. 002068E-05	4. 631514E-05	
		8. 737674E-05	1. 386972E-04	2. 122636E-04	2. 937838E-04	
		3. 885386E-04	5. 017481E-04	6. 452983E-04	7. 476809E-04	
		9. 523126E-04	1. 200194E-03	6. 693904E-04	0. 000000E+00	
sc201	12. 8deg.					
si201	H	2. 400000E+00	2. 450000E+00	2. 500000E+00	2. 550000E+00	
		2. 600000E+00	2. 650000E+00	2. 700000E+00	2. 750000E+00	
		2. 800000E+00	2. 850000E+00	2. 900000E+00	2. 950000E+00	
		3. 000000E+00	3. 050000E+00	3. 100000E+00	3. 150000E+00	
sp201	D	3. 200000E+00	3. 250000E+00	3. 300000E+00	3. 350000E+00	
		0. 000000E+00	1. 015534E-08	5. 172167E-08	2. 913726E-07	
		1. 246024E-06	5. 492096E-06	1. 895603E-05	4. 530534E-05	
		8. 661069E-05	1. 385229E-04	2. 061662E-04	2. 826236E-04	
		3. 816342E-04	4. 907677E-04	6. 242888E-04	7. 663513E-04	
		9. 476346E-04	1. 310837E-03	7. 099409E-04	0. 000000E+00	
sc202	9. 9deg.					
si202	H	2. 400000E+00	2. 450000E+00	2. 500000E+00	2. 550000E+00	
		2. 600000E+00	2. 650000E+00	2. 700000E+00	2. 750000E+00	
		2. 800000E+00	2. 850000E+00	2. 900000E+00	2. 950000E+00	
		3. 000000E+00	3. 050000E+00	3. 100000E+00	3. 150000E+00	
sp202	D	3. 200000E+00	3. 250000E+00	3. 300000E+00	3. 350000E+00	
		0. 000000E+00	1. 211792E-09	4. 105558E-08	1. 882774E-07	
		1. 112295E-06	5. 368661E-06	1. 843584E-05	4. 265367E-05	
		8. 132138E-05	1. 329594E-04	2. 028986E-04	2. 739771E-04	
		3. 867599E-04	4. 907443E-04	5. 614512E-04	7. 826848E-04	
		8. 890135E-04	1. 343446E-03	9. 120396E-04	0. 000000E+00	
sc203	5. 7deg.					
si203	H	2. 400000E+00	2. 450000E+00	2. 500000E+00	2. 550000E+00	
		2. 600000E+00	2. 650000E+00	2. 700000E+00	2. 750000E+00	
		2. 800000E+00	2. 850000E+00	2. 900000E+00	2. 950000E+00	
		3. 000000E+00	3. 050000E+00	3. 100000E+00	3. 150000E+00	
sp203	D	3. 200000E+00	3. 250000E+00	3. 300000E+00	3. 350000E+00	
		0. 000000E+00	2. 200428E-12	3. 289271E-08	2. 174260E-07	
		9. 207329E-07	4. 965338E-06	1. 663292E-05	4. 189985E-05	
		7. 744934E-05	1. 305665E-04	1. 884017E-04	2. 781351E-04	
		3. 676369E-04	4. 880791E-04	5. 493066E-04	8. 029024E-04	
		7. 670230E-04	1. 457712E-03	1. 083939E-03	0. 000000E+00	
c	e2	1. 12535E-08	1. 37451E-08	1. 67883E-08	2. 05052E-08	2. 50452E-08
		3. 05902E-08	3. 73630E-08	4. 56353E-08	5. 57390E-08	6. 80798E-08
		8. 31529E-08	1. 01563E-07	1. 24050E-07	1. 51514E-07	1. 85060E-07
		2. 26033E-07	2. 76077E-07	3. 37202E-07	4. 11859E-07	5. 03046E-07
		6. 14421E-07	7. 50456E-07	9. 16609E-07	1. 11955E-06	1. 36742E-06
		1. 67017E-06	2. 03995E-06	2. 49160E-06	3. 04325E-06	3. 71703E-06
		4. 53999E-06	5. 54516E-06	6. 77287E-06	8. 27241E-06	1. 01039E-05
		1. 23410E-05	1. 50733E-05	1. 84106E-05	2. 24867E-05	2. 74654E-05
		3. 35463E-05	4. 09735E-05	5. 00451E-05	6. 11253E-05	7. 46586E-05
		9. 11882E-05	1. 11378E-04	1. 36037E-04	1. 66156E-04	2. 02943E-04
		2. 47875E-04	3. 02755E-04	3. 69786E-04	4. 51658E-04	5. 51656E-04
		6. 73795E-04	8. 22975E-04	1. 00518E-03	1. 22773E-03	1. 49956E-03
		1. 83156E-03	2. 23708E-03	2. 73237E-03	3. 33733E-03	4. 07622E-03
		4. 97871E-03	6. 08101E-03	7. 42736E-03	9. 07180E-03	1. 10803E-02
		1. 35335E-02	1. 65299E-02	2. 01897E-02	2. 46597E-02	3. 01194E-02
		3. 67879E-02	4. 49329E-02	5. 48812E-02	6. 70320E-02	8. 18731E-02
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		391. 37996 416. 06495 437. 58342 455. 77162 470. 49113				
		481. 62991 489. 10320 492. 85411 492. 85411 489. 10320				
		481. 62991 470. 49113 455. 77162 437. 58342 416. 06495				
		391. 37996 363. 71635 333. 28463 300. 31641 265. 06260				
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f52:n	999
fs52	-540 -541 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534
sd52	5654. 866776 502. 6548246 9. 80286 29. 33398 48. 64184 67. 57952 86. 00287 103. 77169 120. 75074 136. 81081 151. 82966 165. 69300 178. 29532 189. 54070 199. 34356 207. 62929 214. 33485 219. 40918 222. 81368 224. 52243 224. 52243 222. 81368 219. 40918 214. 33485 207. 62929 199. 34356 189. 54070 178. 29532 165. 69300 151. 82966 136. 81081 120. 75074 103. 77169 86. 00287 67. 57952 48. 64184 29. 33398 9. 80286
c	
CUT:N	J 0 0
nps	1000000000
c ctme	240
lost	10 J
print	
prdmp	4J 100000000

**Appendix C SDEF card for MCNP calculations for experiments with DD neutrons**

```

c
c      ----- FNS 80deg. beam line  DD neutron source -----
c
sdef    vec=0 0 1 pos=0 0 0 dir=d1 erg=fdir d2 wgt=1.000
s1      -1.000000E+00 -9. 961947E-01 -9. 848078E-01 -9. 659258E-01 -9. 396926E-01
         -9. 063078E-01 -8. 660254E-01 -8. 191520E-01 -7. 660444E-01 -7. 071068E-01
         -6. 427876E-01 -5. 735764E-01 -5. 000000E-01 -4. 226183E-01 -3. 420201E-01
         -2. 588190E-01 -1. 736482E-01 -8. 715574E-02  0. 000000E+00  8. 715574E-02
         1. 736482E-01  2. 588190E-01  3. 420201E-01  4. 226183E-01  5. 000000E-01
         5. 735764E-01  6. 427876E-01  7. 071068E-01  7. 660444E-01  8. 191520E-01
         8. 660254E-01  9. 063078E-01  9. 396926E-01  9. 659258E-01  9. 848078E-01
         9. 961947E-01  1. 000000E+00
sp1      0. 000000E+00  2. 746084E-03  5. 532517E-03  1. 091210E-02  1. 697202E-02
         2. 089774E-02  2. 272430E-02  2. 239802E-02  2. 231370E-02  2. 461626E-02
         2. 756731E-02  3. 023853E-02  3. 259615E-02  3. 570527E-02  3. 745706E-02
         3. 730517E-02  3. 674768E-02  3. 596516E-02  3. 478849E-02  2. 207588E-02
         2. 615313E-02  3. 065412E-02  3. 336342E-02  3. 531480E-02  3. 704504E-02
         3. 842962E-02  3. 951320E-02  4. 016592E-02  4. 005190E-02  3. 917579E-02
         3. 728861E-02  3. 431877E-02  3. 020326E-02  2. 485910E-02  1. 855225E-02
         1. 147833E-02  3. 873314E-03
sb1      0  1  35R
ds2      S  3  34I 38
sc3      180 - 175 deg.
si3      1. 0104E-05  1. 2341E-05  1. 5073E-05  1. 8411E-05  2. 2487E-05  2. 7465E-05
         3. 3546E-05  4. 0974E-05  5. 0045E-05  6. 1125E-05  7. 4659E-05  9. 1188E-05
         1. 1138E-04  1. 3604E-04  1. 6616E-04  2. 0294E-04  2. 4787E-04  3. 0275E-04
         3. 6979E-04  4. 5166E-04  5. 5166E-04  6. 7380E-04  8. 2297E-04  1. 0052E-03
         1. 2277E-03  1. 4996E-03  1. 8316E-03  2. 2371E-03  2. 7324E-03  3. 3373E-03
         4. 0762E-03  4. 9787E-03  6. 0810E-03  7. 4274E-03  9. 0718E-03  1. 1080E-02
         1. 3534E-02  1. 6530E-02  2. 0190E-02  2. 4660E-02  3. 0119E-02  3. 6788E-02
         4. 4933E-02  5. 4881E-02  6. 7032E-02  8. 1873E-02  0. 1 641 3. 35
sp3      0. 0000E+00  3. 0161E-11  4. 4041E-11  1. 0562E-10  3. 7906E-11  5. 6611E-11
         4. 0802E-11  2. 0442E-10  9. 7123E-11  1. 5023E-10  1. 2795E-10  9. 6140E-11
         2. 6280E-10  1. 5148E-10  2. 4653E-10  4. 1814E-10  3. 8638E-10  3. 5098E-10
         2. 5949E-10  5. 5585E-10  3. 9605E-10  6. 4844E-10  8. 7858E-10  8. 6043E-10
         1. 2898E-09  1. 1251E-09  1. 3776E-09  1. 1540E-09  1. 6088E-09  1. 6419E-09
         1. 8587E-09  2. 2106E-09  2. 3270E-09  3. 0069E-09  3. 1252E-09  4. 2773E-09
         4. 8440E-09  4. 9387E-09  7. 2591E-09  8. 2272E-09  9. 1209E-09  9. 7806E-09
         1. 2322E-08  1. 6182E-08  1. 9951E-08  2. 6533E-08  2. 7486E-08  8. 6050E-08
         8. 9504E-08  9. 5234E-08  1. 0422E-07  1. 1586E-07  1. 2252E-07  1. 3128E-07
         1. 5126E-07  1. 7470E-07  2. 0972E-07  2. 2967E-07  2. 1301E-07  1. 9856E-07
         1. 6628E-07  1. 6024E-07  1. 4744E-07  1. 5200E-07  1. 6553E-07  1. 8484E-07
         2. 0497E-07  3. 3574E-07  3. 7699E-07  3. 4205E-07  2. 6122E-07  2. 1019E-07
         1. 6723E-07  1. 2721E-07  1. 0690E-07  1. 0357E-07  8. 9912E-08  7. 8421E-08
         7. 7377E-08  8. 6198E-08  9. 8191E-08  1. 1143E-07  1. 1547E-07  2. 7108E-07
         5. 3150E-05  3. 0842E-05  1. 8377E-05  9. 8283E-06  4. 6601E-06  1. 8564E-06
         5. 9220E-07  2. 1471E-07  1. 7519E-07  2. 5919E-07  3. 4291E-07  2. 8606E-07
         2. 0193E-07  1. 4863E-07  1. 1762E-07  9. 2519E-08  7. 3008E-08  5. 8150E-08
         4. 6070E-08  3. 7499E-08  2. 8745E-08  1. 6568E-08  5. 5816E-09  7. 8724E-11
         0. 0000E+00  0. 0000E+00  0. 0000E+00  0. 0000E+00
sc4      175 - 170 deg.
si4      1. 0104E-05  1. 2341E-05  1. 5073E-05  1. 8411E-05  2. 2487E-05  2. 7465E-05
         3. 3546E-05  4. 0974E-05  5. 0045E-05  6. 1125E-05  7. 4659E-05  9. 1188E-05
         1. 1138E-04  1. 3604E-04  1. 6616E-04  2. 0294E-04  2. 4787E-04  3. 0275E-04
         3. 6979E-04  4. 5166E-04  5. 5166E-04  6. 7380E-04  8. 2297E-04  1. 0052E-03
         1. 2277E-03  1. 4996E-03  1. 8316E-03  2. 2371E-03  2. 7324E-03  3. 3373E-03
         4. 0762E-03  4. 9787E-03  6. 0810E-03  7. 4274E-03  9. 0718E-03  1. 1080E-02
         1. 3534E-02  1. 6530E-02  2. 0190E-02  2. 4660E-02  3. 0119E-02  3. 6788E-02
         4. 4933E-02  5. 4881E-02  6. 7032E-02  8. 1873E-02  0. 1 641 3. 35
sp4      0. 0000E+00  2. 4333E-11  2. 2963E-11  3. 3324E-11  3. 3462E-11  4. 2525E-11
         5. 4099E-11  7. 0997E-11  6. 6470E-11  7. 7506E-11  1. 2734E-10  1. 9416E-10
         1. 8744E-10  1. 8787E-10  2. 2276E-10  1. 3762E-10  3. 9144E-10  3. 4252E-10
         1. 5077E-10  3. 1282E-10  4. 4065E-10  5. 3782E-10  4. 9981E-10  8. 7196E-10
         5. 9217E-10  8. 7328E-10  9. 8247E-10  9. 5191E-10  9. 7068E-10  1. 3822E-09
         1. 4581E-09  1. 5912E-09  1. 9311E-09  2. 0561E-09  1. 7012E-09  2. 9547E-09
         3. 8392E-09  3. 8835E-09  5. 7016E-09  7. 5120E-09  7. 0853E-09  7. 0601E-09
         1. 0787E-08  1. 3115E-08  1. 6468E-08  2. 2881E-08  2. 3384E-08  7. 3739E-08
         7. 5550E-08  8. 5577E-08  9. 7037E-08  1. 0693E-07  1. 1160E-07  1. 0628E-07
         1. 2824E-07  1. 5787E-07  1. 8195E-07  2. 0607E-07  1. 9277E-07  1. 7555E-07
         1. 4522E-07  1. 3431E-07  1. 2774E-07  1. 3477E-07  1. 4940E-07  1. 7144E-07
         2. 0177E-07  3. 2590E-07  3. 7754E-07  3. 6740E-07  2. 7199E-07  2. 2391E-07
         1. 7425E-07  1. 2651E-07  1. 0653E-07  9. 7300E-08  8. 7008E-08  7. 7655E-08

```

		7. 0996E-08	7. 8491E-08	8. 5511E-08	9. 6338E-08	1. 0426E-07	2. 9627E-07
	sc5	3. 3608E-05	2. 0240E-05	1. 2515E-05	6. 9392E-06	3. 4469E-06	1. 3896E-06
	si5	4. 6940E-07	1. 7668E-07	1. 4199E-07	1. 9218E-07	2. 3300E-07	1. 8312E-07
		1. 2374E-07	9. 6672E-08	7. 6191E-08	5. 9494E-08	4. 7484E-08	3. 9214E-08
		3. 1023E-08	2. 5150E-08	1. 9471E-08	1. 0821E-08	3. 7930E-09	7. 3660E-11
		0. 0000E+00	0. 0000E+00	0. 0000E+00	0. 0000E+00		
		170 - 165	deg.				
	sp5	1. 0104E-05	1. 2341E-05	1. 5073E-05	1. 8411E-05	2. 2487E-05	2. 7465E-05
		3. 3546E-05	4. 0974E-05	5. 0045E-05	6. 1125E-05	7. 4659E-05	9. 1188E-05
		1. 1138E-04	1. 3604E-04	1. 6616E-04	2. 0294E-04	2. 4787E-04	3. 0275E-04
		3. 6979E-04	4. 5166E-04	5. 5166E-04	6. 7380E-04	8. 2297E-04	1. 0052E-03
		1. 2277E-03	1. 4996E-03	1. 8316E-03	2. 2371E-03	2. 7324E-03	3. 3373E-03
		4. 0762E-03	4. 9787E-03	6. 0810E-03	7. 4274E-03	9. 0718E-03	1. 1080E-02
		1. 3534E-02	1. 6530E-02	2. 0190E-02	2. 4660E-02	3. 0119E-02	3. 6788E-02
		4. 4933E-02	5. 4881E-02	6. 7032E-02	8. 1873E-02	0. 1 641	3. 35
	sc6	0. 0000E+00	4. 3029E-11	4. 1241E-11	5. 4521E-11	7. 9749E-11	9. 6452E-11
	si6	6. 4131E-11	6. 8699E-11	1. 0706E-10	1. 0111E-10	1. 6154E-10	1. 0863E-10
		1. 7520E-10	2. 8275E-10	1. 6863E-10	2. 2349E-10	3. 3980E-10	3. 3545E-10
		3. 3188E-10	3. 7172E-10	5. 1467E-10	5. 8125E-10	6. 9856E-10	8. 3968E-10
		8. 9594E-10	1. 0683E-09	1. 3635E-09	1. 2214E-09	1. 0459E-09	1. 7421E-09
		1. 9833E-09	1. 9941E-09	2. 3433E-09	3. 1138E-09	2. 8355E-09	4. 1499E-09
		4. 7936E-09	5. 0485E-09	6. 9641E-09	9. 8827E-09	7. 6918E-09	8. 8107E-09
		1. 2842E-08	1. 4563E-08	1. 9035E-08	2. 5860E-08	2. 5763E-08	8. 5324E-08
		9. 0753E-08	1. 0212E-07	1. 0963E-07	1. 1574E-07	1. 1674E-07	1. 1490E-07
		1. 3218E-07	1. 6559E-07	1. 9185E-07	2. 1495E-07	2. 0365E-07	1. 8888E-07
		1. 5892E-07	1. 4519E-07	1. 3446E-07	1. 3824E-07	1. 5277E-07	1. 7965E-07
		2. 1789E-07	3. 4275E-07	4. 1020E-07	3. 9131E-07	3. 0631E-07	2. 4881E-07
		2. 0058E-07	1. 4992E-07	1. 3174E-07	1. 2459E-07	1. 1282E-07	1. 0296E-07
		9. 2278E-08	9. 5790E-08	1. 0272E-07	1. 1310E-07	1. 2211E-07	3. 3800E-07
		3. 5356E-05	2. 6666E-05	1. 6164E-05	8. 9028E-06	4. 4596E-06	1. 8007E-06
		6. 1537E-07	2. 1777E-07	1. 6504E-07	2. 2221E-07	2. 6533E-07	2. 1691E-07
		1. 5180E-07	1. 1579E-07	9. 2783E-08	7. 4825E-08	5. 9943E-08	4. 8722E-08
		3. 9278E-08	3. 1967E-08	2. 4477E-08	1. 3229E-08	4. 7245E-09	1. 6531E-10
		0. 0000E+00	0. 0000E+00	0. 0000E+00	0. 0000E+00		
	sc6	165 - 160	deg.				
	si6	1. 0104E-05	1. 2341E-05	1. 5073E-05	1. 8411E-05	2. 2487E-05	2. 7465E-05
		3. 3546E-05	4. 0974E-05	5. 0045E-05	6. 1125E-05	7. 4659E-05	9. 1188E-05
		1. 1138E-04	1. 3604E-04	1. 6616E-04	2. 0294E-04	2. 4787E-04	3. 0275E-04
		3. 6979E-04	4. 5166E-04	5. 5166E-04	6. 7380E-04	8. 2297E-04	1. 0052E-03
		1. 2277E-03	1. 4996E-03	1. 8316E-03	2. 2371E-03	2. 7324E-03	3. 3373E-03
		4. 0762E-03	4. 9787E-03	6. 0810E-03	7. 4274E-03	9. 0718E-03	1. 1080E-02
		1. 3534E-02	1. 6530E-02	2. 0190E-02	2. 4660E-02	3. 0119E-02	3. 6788E-02
		4. 4933E-02	5. 4881E-02	6. 7032E-02	8. 1873E-02	0. 1 641	3. 35
	sp6	0. 0000E+00	3. 0607E-11	5. 3811E-11	8. 9881E-11	6. 1117E-11	7. 5169E-11
		9. 3289E-11	1. 0884E-10	1. 1498E-10	1. 2682E-10	1. 1839E-10	1. 5172E-10
		1. 9995E-10	2. 6652E-10	2. 8810E-10	2. 7847E-10	3. 1326E-10	4. 7904E-10
		3. 8260E-10	5. 3352E-10	6. 9763E-10	6. 9397E-10	6. 6626E-10	9. 8002E-10
		9. 9384E-10	1. 1921E-09	1. 4824E-09	1. 5261E-09	1. 4135E-09	1. 9159E-09
		2. 4329E-09	2. 3129E-09	3. 1990E-09	3. 5214E-09	3. 0384E-09	4. 6191E-09
		6. 0642E-09	6. 1791E-09	8. 4624E-09	1. 1069E-08	1. 0014E-08	1. 2246E-08
		1. 7101E-08	2. 0009E-08	2. 5417E-08	3. 2678E-08	3. 3331E-08	1. 0087E-07
		1. 0356E-07	1. 0729E-07	1. 1304E-07	1. 2035E-07	1. 2707E-07	1. 2774E-07
		1. 4690E-07	1. 7405E-07	2. 0196E-07	2. 2666E-07	2. 1216E-07	1. 9498E-07
		1. 6762E-07	1. 4804E-07	1. 3625E-07	1. 4209E-07	1. 6220E-07	1. 8721E-07
		2. 3295E-07	3. 5189E-07	4. 2623E-07	4. 0623E-07	3. 2050E-07	2. 6201E-07
		2. 0762E-07	1. 5753E-07	1. 3451E-07	1. 2874E-07	1. 1992E-07	1. 1284E-07
		1. 0899E-07	1. 1491E-07	1. 2391E-07	1. 3586E-07	1. 4089E-07	3. 8206E-07
		3. 0397E-05	3. 5181E-05	2. 0205E-05	1. 1006E-05	5. 5764E-06	2. 3005E-06
		7. 8147E-07	2. 7293E-07	1. 9983E-07	2. 5391E-07	2. 9256E-07	2. 3869E-07
		1. 7104E-07	1. 2837E-07	1. 0505E-07	8. 5689E-08	6. 9904E-08	5. 7997E-08
		4. 6868E-08	3. 7378E-08	2. 7952E-08	1. 4971E-08	5. 1796E-09	2. 5299E-10
		0. 0000E+00	0. 0000E+00	0. 0000E+00	0. 0000E+00		
	sc7	160 - 155	deg.				
	si7	1. 0104E-05	1. 2341E-05	1. 5073E-05	1. 8411E-05	2. 2487E-05	2. 7465E-05
		3. 3546E-05	4. 0974E-05	5. 0045E-05	6. 1125E-05	7. 4659E-05	9. 1188E-05
		1. 1138E-04	1. 3604E-04	1. 6616E-04	2. 0294E-04	2. 4787E-04	3. 0275E-04
		3. 6979E-04	4. 5166E-04	5. 5166E-04	6. 7380E-04	8. 2297E-04	1. 0052E-03
		1. 2277E-03	1. 4996E-03	1. 8316E-03	2. 2371E-03	2. 7324E-03	3. 3373E-03
		4. 0762E-03	4. 9787E-03	6. 0810E-03	7. 4274E-03	9. 0718E-03	1. 1080E-02
		1. 3534E-02	1. 6530E-02	2. 0190E-02	2. 4660E-02	3. 0119E-02	3. 6788E-02
		4. 4933E-02	5. 4881E-02	6. 7032E-02	8. 1873E-02	0. 1 641	3. 35
	sp7	0. 0000E+00	2. 9923E-11	4. 6990E-11	3. 2214E-11	9. 9838E-11	8. 8425E-11
		1. 1613E-10	1. 2364E-10	1. 5185E-10	1. 8525E-10	2. 1485E-10	1. 6039E-10
		2. 2264E-10	2. 6084E-10	2. 7669E-10	3. 2552E-10	3. 5966E-10	4. 6061E-10
		4. 2604E-10	5. 2004E-10	5. 8815E-10	7. 4209E-10	8. 7299E-10	1. 0986E-09

		1. 0593E-09	1. 2646E-09	1. 6331E-09	1. 5331E-09	1. 5128E-09	2. 1466E-09
		2. 3939E-09	2. 5425E-09	2. 9670E-09	3. 8248E-09	3. 3168E-09	5. 1229E-09
		6. 1752E-09	6. 8387E-09	8. 7876E-09	1. 1648E-08	1. 0857E-08	1. 3740E-08
		1. 8217E-08	2. 2334E-08	2. 7064E-08	3. 5040E-08	3. 8113E-08	1. 1202E-07
		1. 0746E-07	1. 0900E-07	1. 1220E-07	1. 2069E-07	1. 2998E-07	1. 3094E-07
		1. 4873E-07	1. 7784E-07	2. 0264E-07	2. 2583E-07	2. 1166E-07	1. 9592E-07
		1. 6627E-07	1. 4822E-07	1. 3385E-07	1. 4201E-07	1. 6041E-07	1. 8734E-07
		2. 3883E-07	3. 6032E-07	4. 2929E-07	4. 1003E-07	3. 2921E-07	2. 6500E-07
		2. 0544E-07	1. 5693E-07	1. 3413E-07	1. 2887E-07	1. 2030E-07	1. 1262E-07
		1. 0749E-07	1. 1193E-07	1. 2390E-07	1. 4251E-07	1. 6031E-07	4. 1330E-07
		1. 4360E-05	4. 2010E-05	2. 2840E-05	1. 2524E-05	6. 2880E-06	2. 6567E-06
		9. 1677E-07	3. 1768E-07	2. 1515E-07	2. 5496E-07	2. 7744E-07	2. 2473E-07
		1. 6194E-07	1. 2099E-07	1. 0050E-07	8. 3922E-08	6. 9972E-08	5. 8874E-08
		4. 8017E-08	3. 8268E-08	2. 8210E-08	1. 5203E-08	5. 2259E-09	3. 5733E-10
		4. 6106E-15	0. 0000E+00	0. 0000E+00	0. 0000E+00	0. 0000E+00	
sc8	s18	155 – 150 deg.					
		1. 0104E-05	1. 2341E-05	1. 5073E-05	1. 8411E-05	2. 2487E-05	2. 7465E-05
		3. 3546E-05	4. 0974E-05	5. 0045E-05	6. 1125E-05	7. 4659E-05	9. 1188E-05
		1. 1138E-04	1. 3604E-04	1. 6616E-04	2. 0294E-04	2. 4787E-04	3. 0275E-04
		3. 6979E-04	4. 5166E-04	5. 5166E-04	6. 7380E-04	8. 2297E-04	1. 0052E-03
		1. 2277E-03	1. 4996E-03	1. 8316E-03	2. 2371E-03	2. 7324E-03	3. 3373E-03
		4. 0762E-03	4. 9787E-03	6. 0810E-03	7. 4274E-03	9. 0718E-03	1. 1080E-02
		1. 3534E-02	1. 6530E-02	2. 0190E-02	2. 4660E-02	3. 0119E-02	3. 6788E-02
		4. 4933E-02	5. 4881E-02	6. 7032E-02	8. 1873E-02	0. 1 641 3. 35	
sp8		0. 0000E+00	6. 6214E-11	8. 2472E-11	7. 7389E-11	6. 4205E-11	1. 0603E-10
		1. 3573E-10	1. 1185E-10	1. 1074E-10	1. 6565E-10	1. 9814E-10	2. 0080E-10
		2. 7879E-10	2. 8615E-10	3. 7962E-10	2. 8600E-10	3. 7527E-10	4. 8158E-10
		3. 3512E-10	6. 2937E-10	7. 0249E-10	6. 7628E-10	8. 4083E-10	1. 0552E-09
		1. 0964E-09	1. 4094E-09	1. 6380E-09	1. 6892E-09	1. 5106E-09	2. 1475E-09
		2. 6089E-09	2. 7835E-09	3. 0068E-09	3. 7399E-09	3. 5811E-09	5. 0801E-09
		6. 4385E-09	6. 8616E-09	8. 8368E-09	1. 1442E-08	1. 0548E-08	1. 2661E-08
		1. 7174E-08	2. 0970E-08	2. 6287E-08	3. 3064E-08	3. 5233E-08	1. 0809E-07
		1. 1122E-07	1. 1974E-07	1. 2279E-07	1. 2280E-07	1. 2543E-07	1. 2571E-07
		1. 4128E-07	1. 7076E-07	1. 9760E-07	2. 1848E-07	2. 0621E-07	1. 9469E-07
		1. 6600E-07	1. 4361E-07	1. 3007E-07	1. 3788E-07	1. 5607E-07	1. 8296E-07
		2. 4447E-07	3. 4845E-07	4. 2182E-07	4. 0178E-07	3. 2148E-07	2. 6044E-07
		2. 0440E-07	1. 5348E-07	1. 3190E-07	1. 2520E-07	1. 1567E-07	1. 0860E-07
		1. 0482E-07	1. 0876E-07	1. 1908E-07	1. 4167E-07	1. 6637E-07	4. 0750E-07
		1. 9666E-06	3. 8654E-05	2. 5256E-05	1. 3832E-05	6. 9652E-06	3. 0564E-06
		1. 0804E-06	3. 7141E-07	2. 3330E-07	2. 5042E-07	2. 5523E-07	2. 0229E-07
		1. 4573E-07	1. 0959E-07	8. 9727E-08	7. 5510E-08	6. 4719E-08	5. 5188E-08
		4. 5529E-08	3. 6283E-08	2. 6798E-08	1. 4452E-08	5. 1799E-09	4. 6161E-10
		6. 3983E-13	0. 0000E+00	0. 0000E+00	0. 0000E+00		
sc9	s19	150 – 145 deg.					
		1. 0104E-05	1. 2341E-05	1. 5073E-05	1. 8411E-05	2. 2487E-05	2. 7465E-05
		3. 3546E-05	4. 0974E-05	5. 0045E-05	6. 1125E-05	7. 4659E-05	9. 1188E-05
		1. 1138E-04	1. 3604E-04	1. 6616E-04	2. 0294E-04	2. 4787E-04	3. 0275E-04
		3. 6979E-04	4. 5166E-04	5. 5166E-04	6. 7380E-04	8. 2297E-04	1. 0052E-03
		1. 2277E-03	1. 4996E-03	1. 8316E-03	2. 2371E-03	2. 7324E-03	3. 3373E-03
		4. 0762E-03	4. 9787E-03	6. 0810E-03	7. 4274E-03	9. 0718E-03	1. 1080E-02
		1. 3534E-02	1. 6530E-02	2. 0190E-02	2. 4660E-02	3. 0119E-02	3. 6788E-02
		4. 4933E-02	5. 4881E-02	6. 7032E-02	8. 1873E-02	0. 1 641 3. 35	
sp9		0. 0000E+00	6. 9438E-11	6. 5995E-11	7. 0053E-11	6. 2913E-11	8. 3161E-11
		8. 6549E-11	9. 9434E-11	1. 3262E-10	1. 0906E-10	1. 7007E-10	2. 0005E-10
		2. 0391E-10	2. 2668E-10	3. 2351E-10	3. 3000E-10	4. 1497E-10	4. 6028E-10
		3. 8254E-10	5. 7597E-10	6. 8744E-10	7. 1509E-10	8. 4686E-10	9. 1456E-10
		1. 0683E-09	1. 3553E-09	1. 5293E-09	1. 5619E-09	1. 4573E-09	2. 0060E-09
		2. 4798E-09	2. 6476E-09	3. 0565E-09	3. 7516E-09	3. 5582E-09	4. 7319E-09
		6. 1757E-09	6. 7723E-09	8. 6457E-09	1. 0886E-08	1. 0625E-08	1. 2406E-08
		1. 6728E-08	2. 0083E-08	2. 4821E-08	3. 2175E-08	3. 4209E-08	1. 0520E-07
		1. 0812E-07	1. 1489E-07	1. 1929E-07	1. 2728E-07	1. 3382E-07	1. 3152E-07
		1. 4455E-07	1. 6798E-07	1. 9189E-07	2. 1403E-07	2. 0295E-07	1. 8915E-07
		1. 6055E-07	1. 4083E-07	1. 2770E-07	1. 3388E-07	1. 5353E-07	1. 8007E-07
		2. 4430E-07	3. 3959E-07	4. 1299E-07	3. 9234E-07	3. 1423E-07	2. 5329E-07
		2. 0061E-07	1. 5346E-07	1. 2928E-07	1. 2353E-07	1. 1330E-07	1. 0789E-07
		1. 0491E-07	1. 0717E-07	1. 1873E-07	1. 4105E-07	1. 6513E-07	3. 8381E-07
		1. 0374E-06	1. 9175E-05	2. 8382E-05	1. 4864E-05	7. 6009E-06	3. 4014E-06
		1. 2567E-06	4. 4033E-07	2. 5200E-07	2. 4614E-07	2. 3196E-07	1. 8269E-07
		1. 2697E-07	9. 6101E-08	7. 5681E-08	6. 4383E-08	5. 5327E-08	4. 8109E-08
		3. 9900E-08	3. 2316E-08	2. 4085E-08	1. 3442E-08	5. 1249E-09	6. 1644E-10
		1. 2820E-12	0. 0000E+00	0. 0000E+00	0. 0000E+00		
sc10	s110	145 – 140 deg.					
		1. 0104E-05	1. 2341E-05	1. 5073E-05	1. 8411E-05	2. 2487E-05	2. 7465E-05
		3. 3546E-05	4. 0974E-05	5. 0045E-05	6. 1125E-05	7. 4659E-05	9. 1188E-05
		1. 1138E-04	1. 3604E-04	1. 6616E-04	2. 0294E-04	2. 4787E-04	3. 0275E-04

	3.6979E-04	4.5166E-04	5.5166E-04	6.7380E-04	8.2297E-04	1.0052E-03
	1.2277E-03	1.4996E-03	1.8316E-03	2.2371E-03	2.7324E-03	3.3373E-03
	4.0762E-03	4.9787E-03	6.0810E-03	7.4274E-03	9.0718E-03	1.1080E-02
	1.3534E-02	1.6530E-02	2.0190E-02	2.4660E-02	3.0119E-02	3.6788E-02
	4.4933E-02	5.4881E-02	6.7032E-02	8.1873E-02	0.1641	3.35
sp10	0.0000E+00	6.2977E-11	6.5368E-11	8.4244E-11	7.0675E-11	9.6659E-11
	1.0781E-10	1.0533E-10	1.6025E-10	1.8591E-10	1.6311E-10	2.1017E-10
	2.3763E-10	2.6095E-10	3.0857E-10	3.4744E-10	4.0602E-10	5.1580E-10
	3.6641E-10	5.5311E-10	6.4003E-10	7.7472E-10	9.3865E-10	1.0844E-09
	1.0205E-09	1.2917E-09	1.4982E-09	1.6067E-09	1.5944E-09	2.1434E-09
	2.4781E-09	2.7818E-09	3.1396E-09	3.7939E-09	3.4424E-09	4.7077E-09
	5.9610E-09	6.5812E-09	8.3938E-09	1.0924E-08	1.0666E-08	1.2164E-08
	1.6670E-08	2.0335E-08	2.4923E-08	3.1295E-08	3.4361E-08	1.0324E-07
	1.0443E-07	1.0989E-07	1.1642E-07	1.2230E-07	1.2808E-07	1.2933E-07
	1.5001E-07	1.7863E-07	2.0466E-07	2.2208E-07	2.0579E-07	1.8965E-07
	1.6120E-07	1.3943E-07	1.2702E-07	1.3312E-07	1.5074E-07	1.7718E-07
	2.4617E-07	3.3799E-07	4.0559E-07	3.8139E-07	3.0750E-07	2.5234E-07
	2.0054E-07	1.5161E-07	1.2805E-07	1.1915E-07	1.1294E-07	1.0774E-07
	1.0395E-07	1.0514E-07	1.1672E-07	1.4113E-07	1.6576E-07	3.5673E-07
	8.5387E-07	3.0753E-06	2.9378E-05	1.7634E-05	8.8883E-06	4.0741E-06
	1.5530E-06	5.4734E-07	2.8570E-07	2.5200E-07	2.2942E-07	1.8156E-07
	1.2396E-07	9.2621E-08	7.1027E-08	5.8584E-08	5.1505E-08	4.4721E-08
	3.8117E-08	3.1020E-08	2.3426E-08	1.3869E-08	5.7372E-09	8.6078E-10
	4.9148E-12	0.0000E+00	0.0000E+00	0.0000E+00		
sc11	140 - 135	deg.				
si11	1.0104E-05	1.2341E-05	1.5073E-05	1.8411E-05	2.2487E-05	2.7465E-05
	3.3546E-05	4.0974E-05	5.0045E-05	6.1125E-05	7.4659E-05	9.1188E-05
	1.1138E-04	1.3604E-04	1.6616E-04	2.0294E-04	2.4787E-04	3.0275E-04
	3.6979E-04	4.5166E-04	5.5166E-04	6.7380E-04	8.2297E-04	1.0052E-03
	1.2277E-03	1.4996E-03	1.8316E-03	2.2371E-03	2.7324E-03	3.3373E-03
	4.0762E-03	4.9787E-03	6.0810E-03	7.4274E-03	9.0718E-03	1.1080E-02
	1.3534E-02	1.6530E-02	2.0190E-02	2.4660E-02	3.0119E-02	3.6788E-02
	4.4933E-02	5.4881E-02	6.7032E-02	8.1873E-02	0.1641	3.35
sp11	0.0000E+00	7.6836E-11	8.0082E-11	4.4852E-11	8.3590E-11	1.1092E-10
	8.1715E-11	1.1694E-10	1.4054E-10	1.7456E-10	2.0030E-10	2.1968E-10
	2.0950E-10	2.6684E-10	2.9887E-10	3.8978E-10	3.7171E-10	5.1587E-10
	3.9367E-10	5.1621E-10	6.5499E-10	7.0004E-10	8.8373E-10	9.8469E-10
	1.1347E-09	1.3873E-09	1.5191E-09	1.5509E-09	1.5994E-09	2.1236E-09
	2.6502E-09	2.6451E-09	3.2690E-09	4.0652E-09	3.5434E-09	4.8470E-09
	6.0733E-09	6.5821E-09	8.5575E-09	1.0865E-08	1.0791E-08	1.3227E-08
	1.6779E-08	2.0877E-08	2.5133E-08	3.2358E-08	3.4558E-08	1.0361E-07
	1.0533E-07	1.0996E-07	1.1563E-07	1.2140E-07	1.2902E-07	1.2927E-07
	1.4975E-07	1.7712E-07	2.0472E-07	2.2777E-07	2.1798E-07	2.0755E-07
	1.7919E-07	1.5235E-07	1.3511E-07	1.3747E-07	1.5257E-07	1.7791E-07
	2.5084E-07	3.3775E-07	4.0251E-07	3.7714E-07	3.0331E-07	2.4916E-07
	2.0090E-07	1.5255E-07	1.2779E-07	1.2114E-07	1.1472E-07	1.0738E-07
	1.0493E-07	1.0721E-07	1.2352E-07	1.4464E-07	1.6921E-07	3.3372E-07
	7.3892E-07	1.5802E-06	1.4082E-05	2.7383E-05	1.2707E-05	5.7742E-06
	2.2487E-06	7.7961E-07	3.5905E-07	2.8222E-07	2.4957E-07	2.0722E-07
	1.4066E-07	1.0099E-07	7.6982E-08	6.0886E-08	5.2504E-08	4.6026E-08
	3.9844E-08	3.3385E-08	2.5878E-08	1.6082E-08	7.3996E-09	1.4207E-09
	1.2290E-11	5.0739E-16	0.0000E+00	0.0000E+00		
sc12	135 - 130	deg.				
si12	1.0104E-05	1.2341E-05	1.5073E-05	1.8411E-05	2.2487E-05	2.7465E-05
	3.3546E-05	4.0974E-05	5.0045E-05	6.1125E-05	7.4659E-05	9.1188E-05
	1.1138E-04	1.3604E-04	1.6616E-04	2.0294E-04	2.4787E-04	3.0275E-04
	3.6979E-04	4.5166E-04	5.5166E-04	6.7380E-04	8.2297E-04	1.0052E-03
	1.2277E-03	1.4996E-03	1.8316E-03	2.2371E-03	2.7324E-03	3.3373E-03
	4.0762E-03	4.9787E-03	6.0810E-03	7.4274E-03	9.0718E-03	1.1080E-02
	1.3534E-02	1.6530E-02	2.0190E-02	2.4660E-02	3.0119E-02	3.6788E-02
	4.4933E-02	5.4881E-02	6.7032E-02	8.1873E-02	0.1641	3.35
sp12	0.0000E+00	4.9233E-11	7.0272E-11	4.5256E-11	8.4708E-11	9.2738E-11
	1.0873E-10	9.6418E-11	1.2510E-10	1.8633E-10	2.0048E-10	1.9778E-10
	2.4775E-10	2.0663E-10	2.9193E-10	3.4364E-10	3.6073E-10	4.7856E-10
	4.1079E-10	5.8200E-10	6.3228E-10	7.0001E-10	9.3401E-10	9.6824E-10
	1.1264E-09	1.3526E-09	1.5437E-09	1.6638E-09	1.6883E-09	2.2517E-09
	2.7191E-09	2.8189E-09	3.4838E-09	3.9471E-09	3.7445E-09	5.1443E-09
	6.2888E-09	6.8499E-09	8.6446E-09	1.1197E-08	1.0982E-08	1.2822E-08
	1.6973E-08	2.0964E-08	2.5682E-08	3.2602E-08	3.5123E-08	1.0557E-07
	1.0680E-07	1.1224E-07	1.1617E-07	1.2355E-07	1.3194E-07	1.3271E-07
	1.5289E-07	1.7910E-07	2.0473E-07	2.2404E-07	2.1686E-07	2.0463E-07
	1.7875E-07	1.5839E-07	1.4822E-07	1.5380E-07	1.7147E-07	1.9647E-07
	2.6803E-07	3.4577E-07	4.0206E-07	3.7075E-07	3.0006E-07	2.4999E-07
	2.0012E-07	1.5375E-07	1.2886E-07	1.2306E-07	1.1615E-07	1.1074E-07
	1.0772E-07	1.1230E-07	1.2798E-07	1.4732E-07	1.6954E-07	3.1642E-07

		6. 55338E-07	1. 3039E-06	2. 2954E-06	2. 7514E-05	2. 1022E-05	9. 1575E-06
		3. 5505E-06	1. 2330E-06	5. 0231E-07	3. 4069E-07	2. 9236E-07	2. 5333E-07
		1. 7275E-07	1. 2045E-07	8. 8820E-08	6. 7872E-08	5. 6795E-08	4. 9844E-08
		4. 3304E-08	3. 6645E-08	2. 9276E-08	1. 9661E-08	9. 9431E-09	2. 4241E-09
		4. 0367E-11	4. 1842E-15	0. 0000E+00	0. 0000E+00		
sc13	si13	130 - 125 deg.					
		1. 0104E-05	1. 2341E-05	1. 5073E-05	1. 8411E-05	2. 2487E-05	2. 7465E-05
		3. 3546E-05	4. 0974E-05	5. 0045E-05	6. 1125E-05	7. 4659E-05	9. 1188E-05
		1. 1138E-04	1. 3604E-04	1. 6616E-04	2. 0294E-04	2. 4787E-04	3. 0275E-04
		3. 6979E-04	4. 5166E-04	5. 5166E-04	6. 7380E-04	8. 2297E-04	1. 0052E-03
		1. 2277E-03	1. 4996E-03	1. 8316E-03	2. 2371E-03	2. 7324E-03	3. 3373E-03
		4. 0762E-03	4. 9787E-03	6. 0810E-03	7. 4274E-03	9. 0718E-03	1. 1080E-02
		1. 3534E-02	1. 6530E-02	2. 0190E-02	2. 4660E-02	3. 0119E-02	3. 6788E-02
		4. 4933E-02	5. 4881E-02	6. 7032E-02	8. 1873E-02	0. 1 641	3. 35
sp13		0. 0000E+00	6. 6796E-11	6. 7933E-11	5. 3100E-11	8. 6936E-11	1. 0959E-10
		8. 6212E-11	1. 1184E-10	1. 3381E-10	1. 5854E-10	1. 8378E-10	2. 0385E-10
		2. 3891E-10	2. 7503E-10	3. 1896E-10	3. 8822E-10	3. 9284E-10	5. 6425E-10
		4. 1785E-10	5. 3936E-10	6. 7136E-10	7. 1901E-10	8. 9784E-10	1. 0095E-09
		1. 0896E-09	1. 3330E-09	1. 5953E-09	1. 7278E-09	1. 5985E-09	2. 2693E-09
		2. 5726E-09	2. 9547E-09	3. 3496E-09	4. 1100E-09	3. 7308E-09	5. 0521E-09
		6. 2885E-09	7. 0746E-09	8. 7374E-09	1. 0977E-08	1. 1107E-08	1. 3247E-08
		1. 7348E-08	2. 0895E-08	2. 5868E-08	3. 3098E-08	3. 6216E-08	1. 0816E-07
		1. 1050E-07	1. 1523E-07	1. 2007E-07	1. 2616E-07	1. 3373E-07	1. 3612E-07
		1. 5592E-07	1. 7906E-07	2. 0455E-07	2. 2246E-07	2. 1558E-07	2. 0250E-07
		1. 7813E-07	1. 5816E-07	1. 4829E-07	1. 5367E-07	1. 7330E-07	2. 0374E-07
		2. 8081E-07	3. 6359E-07	4. 1441E-07	3. 7983E-07	3. 0947E-07	2. 5530E-07
		2. 0544E-07	1. 5700E-07	1. 3212E-07	1. 2628E-07	1. 1963E-07	1. 1405E-07
		1. 1272E-07	1. 1949E-07	1. 3258E-07	1. 4863E-07	1. 6845E-07	3. 0150E-07
		5. 8886E-07	1. 1169E-06	1. 7298E-06	5. 4659E-06	3. 3936E-05	1. 6342E-05
		6. 2176E-06	2. 0901E-06	7. 6942E-07	4. 3197E-07	3. 5045E-07	3. 1087E-07
		2. 1826E-07	1. 4506E-07	1. 0438E-07	7. 6795E-08	6. 0612E-08	5. 2072E-08
		4. 6342E-08	3. 9435E-08	3. 2847E-08	2. 3062E-08	1. 3078E-08	3. 9002E-09
		1. 3529E-10	6. 4172E-13	0. 0000E+00	0. 0000E+00		
sc14	si14	125 - 120 deg.					
		1. 0104E-05	1. 2341E-05	1. 5073E-05	1. 8411E-05	2. 2487E-05	2. 7465E-05
		3. 3546E-05	4. 0974E-05	5. 0045E-05	6. 1125E-05	7. 4659E-05	9. 1188E-05
		1. 1138E-04	1. 3604E-04	1. 6616E-04	2. 0294E-04	2. 4787E-04	3. 0275E-04
		3. 6979E-04	4. 5166E-04	5. 5166E-04	6. 7380E-04	8. 2297E-04	1. 0052E-03
		1. 2277E-03	1. 4996E-03	1. 8316E-03	2. 2371E-03	2. 7324E-03	3. 3373E-03
		4. 0762E-03	4. 9787E-03	6. 0810E-03	7. 4274E-03	9. 0718E-03	1. 1080E-02
		1. 3534E-02	1. 6530E-02	2. 0190E-02	2. 4660E-02	3. 0119E-02	3. 6788E-02
		4. 4933E-02	5. 4881E-02	6. 7032E-02	8. 1873E-02	0. 1 641	3. 35
sp14		0. 0000E+00	6. 7124E-11	6. 1550E-11	8. 3659E-11	7. 2956E-11	1. 0515E-10
		9. 4207E-11	1. 4132E-10	1. 5248E-10	1. 5525E-10	1. 7925E-10	1. 8839E-10
		2. 7443E-10	3. 0151E-10	2. 9322E-10	3. 8000E-10	3. 3154E-10	4. 8459E-10
		4. 0875E-10	5. 6631E-10	6. 7016E-10	7. 5974E-10	8. 8620E-10	1. 0825E-09
		1. 1218E-09	1. 4113E-09	1. 6283E-09	1. 6711E-09	1. 7376E-09	2. 2738E-09
		2. 7824E-09	2. 8544E-09	3. 4886E-09	4. 2598E-09	4. 0157E-09	5. 1648E-09
		6. 6380E-09	7. 1693E-09	8. 9730E-09	1. 1405E-08	1. 1531E-08	1. 4187E-08
		1. 7481E-08	2. 1929E-08	2. 6377E-08	3. 3924E-08	3. 7499E-08	1. 1075E-07
		1. 1369E-07	1. 1813E-07	1. 2081E-07	1. 2729E-07	1. 3634E-07	1. 3872E-07
		1. 5950E-07	1. 8206E-07	2. 0423E-07	2. 2290E-07	2. 1330E-07	2. 0299E-07
		1. 7745E-07	1. 5847E-07	1. 4827E-07	1. 5401E-07	1. 7434E-07	2. 0282E-07
		2. 8425E-07	3. 6184E-07	4. 0449E-07	3. 7502E-07	3. 1039E-07	2. 6381E-07
		2. 2113E-07	1. 7873E-07	1. 5428E-07	1. 4349E-07	1. 3337E-07	1. 2334E-07
		1. 2007E-07	1. 2473E-07	1. 3360E-07	1. 4686E-07	1. 6719E-07	2. 8828E-07
		5. 4682E-07	9. 7085E-07	1. 4315E-06	1. 9033E-06	1. 2419E-05	3. 3842E-05
		1. 2229E-05	4. 0442E-06	1. 3346E-06	6. 0099E-07	4. 3254E-07	3. 8971E-07
		2. 8248E-07	1. 7958E-07	1. 2448E-07	9. 0476E-08	7. 0709E-08	5. 7415E-08
		4. 9050E-08	4. 2244E-08	3. 5912E-08	2. 7227E-08	1. 6841E-08	5. 9046E-09
		3. 7990E-10	2. 1669E-13	0. 0000E+00	0. 0000E+00		
sc15	si15	120 - 115 deg.					
		1. 0104E-05	1. 2341E-05	1. 5073E-05	1. 8411E-05	2. 2487E-05	2. 7465E-05
		3. 3546E-05	4. 0974E-05	5. 0045E-05	6. 1125E-05	7. 4659E-05	9. 1188E-05
		1. 1138E-04	1. 3604E-04	1. 6616E-04	2. 0294E-04	2. 4787E-04	3. 0275E-04
		3. 6979E-04	4. 5166E-04	5. 5166E-04	6. 7380E-04	8. 2297E-04	1. 0052E-03
		1. 2277E-03	1. 4996E-03	1. 8316E-03	2. 2371E-03	2. 7324E-03	3. 3373E-03
		4. 0762E-03	4. 9787E-03	6. 0810E-03	7. 4274E-03	9. 0718E-03	1. 1080E-02
		1. 3534E-02	1. 6530E-02	2. 0190E-02	2. 4660E-02	3. 0119E-02	3. 6788E-02
		4. 4933E-02	5. 4881E-02	6. 7032E-02	8. 1873E-02	0. 1 641	3. 35
sp15		0. 0000E+00	5. 9301E-11	5. 0213E-11	7. 6393E-11	9. 1782E-11	9. 1375E-11
		1. 0558E-10	1. 1291E-10	1. 2005E-10	1. 6339E-10	1. 6831E-10	2. 0620E-10
		2. 1072E-10	2. 8031E-10	3. 0652E-10	3. 5004E-10	4. 2953E-10	5. 1924E-10
		4. 1065E-10	6. 2515E-10	7. 0264E-10	7. 8484E-10	9. 2485E-10	1. 0505E-09
		1. 0976E-09	1. 4316E-09	1. 7725E-09	1. 7628E-09	1. 8203E-09	2. 2897E-09

	2. 8483E-09	3. 0396E-09	3. 6583E-09	4. 5284E-09	4. 2768E-09	5. 3472E-09
	6. 7885E-09	7. 5038E-09	8. 9979E-09	1. 1225E-08	1. 2311E-08	1. 4621E-08
	1. 8037E-08	2. 2305E-08	2. 6785E-08	3. 3917E-08	3. 9077E-08	1. 1339E-07
	1. 1570E-07	1. 1918E-07	1. 2314E-07	1. 2927E-07	1. 4037E-07	1. 4360E-07
	1. 6281E-07	1. 8270E-07	2. 0466E-07	2. 2088E-07	2. 1320E-07	2. 0185E-07
	1. 7953E-07	1. 5872E-07	1. 5046E-07	1. 5571E-07	1. 7587E-07	2. 0526E-07
	2. 8677E-07	3. 6356E-07	4. 0043E-07	3. 6511E-07	3. 0643E-07	2. 6051E-07
	2. 1905E-07	1. 8072E-07	1. 6175E-07	1. 5592E-07	1. 5086E-07	1. 4417E-07
	1. 4294E-07	1. 4123E-07	1. 4192E-07	1. 4858E-07	1. 6947E-07	2. 8536E-07
	5. 1040E-07	8. 5460E-07	1. 2246E-06	1. 4914E-06	2. 1593E-06	2. 0547E-05
	3. 1977E-05	9. 3990E-06	2. 8388E-06	9. 7173E-07	5. 6819E-07	4. 9639E-07
	3. 7011E-07	2. 2873E-07	1. 5842E-07	1. 1154E-07	8. 3864E-08	6. 3824E-08
	5. 2780E-08	4. 6404E-08	3. 9405E-08	3. 1039E-08	2. 0864E-08	8. 6210E-09
	8. 8013E-10	5. 3417E-13	0. 0000E+00	0. 0000E+00		
sc16	115 - 110 deg.					
si16	1. 0104E-05	1. 2341E-05	1. 5073E-05	1. 8411E-05	2. 2487E-05	2. 7465E-05
	3. 3546E-05	4. 0974E-05	5. 0045E-05	6. 1125E-05	7. 4659E-05	9. 1188E-05
	1. 1138E-04	1. 3604E-04	1. 6616E-04	2. 0294E-04	2. 4787E-04	3. 0275E-04
	3. 6979E-04	4. 5166E-04	5. 5166E-04	6. 7380E-04	8. 2297E-04	1. 0052E-03
	1. 2277E-03	1. 4996E-03	1. 8316E-03	2. 2371E-03	2. 7324E-03	3. 3373E-03
	4. 0762E-03	4. 9787E-03	6. 0810E-03	7. 4274E-03	9. 0718E-03	1. 1080E-02
	1. 3534E-02	1. 6530E-02	2. 0190E-02	2. 4660E-02	3. 0119E-02	3. 6788E-02
	4. 4933E-02	5. 4881E-02	6. 7032E-02	8. 1873E-02	0. 1 641 3. 35	
sp16	0. 0000E+00	6. 0757E-11	5. 8603E-11	7. 0242E-11	7. 3906E-11	7. 5424E-11
	9. 2024E-11	1. 1943E-10	1. 2266E-10	1. 7769E-10	1. 6961E-10	2. 0701E-10
	2. 2158E-10	2. 7177E-10	3. 2232E-10	3. 2721E-10	4. 1090E-10	4. 9169E-10
	4. 3871E-10	5. 7236E-10	7. 1755E-10	7. 8958E-10	8. 9372E-10	1. 0685E-09
	1. 1575E-09	1. 4150E-09	1. 6496E-09	1. 6784E-09	1. 7696E-09	2. 4040E-09
	2. 7498E-09	3. 1970E-09	3. 6422E-09	4. 5803E-09	4. 2262E-09	5. 2914E-09
	6. 8494E-09	7. 6101E-09	9. 0266E-09	1. 1293E-08	1. 2653E-08	1. 4508E-08
	1. 8231E-08	2. 2667E-08	2. 6720E-08	3. 3699E-08	3. 9716E-08	1. 1293E-07
	1. 1569E-07	1. 1988E-07	1. 2294E-07	1. 3091E-07	1. 4036E-07	1. 4556E-07
	1. 6462E-07	1. 8158E-07	2. 0218E-07	2. 1932E-07	2. 1101E-07	2. 0042E-07
	1. 7859E-07	1. 5998E-07	1. 5046E-07	1. 5626E-07	1. 7605E-07	2. 0556E-07
	2. 9019E-07	3. 6210E-07	3. 8998E-07	3. 5789E-07	3. 0182E-07	2. 5762E-07
	2. 1673E-07	1. 7931E-07	1. 6018E-07	1. 5336E-07	1. 4773E-07	1. 4329E-07
	1. 4414E-07	1. 4618E-07	1. 5209E-07	1. 6242E-07	1. 9171E-07	3. 0271E-07
	4. 9796E-07	7. 7402E-07	1. 0459E-06	1. 2259E-06	1. 3802E-06	2. 7890E-06
	2. 7135E-05	2. 7898E-05	7. 2000E-06	1. 9603E-06	8. 1581E-07	6. 2237E-07
	4. 7281E-07	2. 8081E-07	1. 9158E-07	1. 3261E-07	9. 7395E-08	7. 2564E-08
	5. 7299E-08	4. 8118E-08	4. 1218E-08	3. 3057E-08	2. 3840E-08	1. 1077E-08
	1. 6448E-09	3. 4887E-12	0. 0000E+00	0. 0000E+00		
sc17	110 - 105 deg.					
si17	1. 0104E-05	1. 2341E-05	1. 5073E-05	1. 8411E-05	2. 2487E-05	2. 7465E-05
	3. 3546E-05	4. 0974E-05	5. 0045E-05	6. 1125E-05	7. 4659E-05	9. 1188E-05
	1. 1138E-04	1. 3604E-04	1. 6616E-04	2. 0294E-04	2. 4787E-04	3. 0275E-04
	3. 6979E-04	4. 5166E-04	5. 5166E-04	6. 7380E-04	8. 2297E-04	1. 0052E-03
	1. 2277E-03	1. 4996E-03	1. 8316E-03	2. 2371E-03	2. 7324E-03	3. 3373E-03
	4. 0762E-03	4. 9787E-03	6. 0810E-03	7. 4274E-03	9. 0718E-03	1. 1080E-02
	1. 3534E-02	1. 6530E-02	2. 0190E-02	2. 4660E-02	3. 0119E-02	3. 6788E-02
	4. 4933E-02	5. 4881E-02	6. 7032E-02	8. 1873E-02	0. 1 641 3. 35	
sp17	0. 0000E+00	4. 7316E-11	6. 9143E-11	8. 1918E-11	7. 9453E-11	9. 5692E-11
	1. 1205E-10	1. 1476E-10	1. 4259E-10	1. 6775E-10	1. 9508E-10	1. 7705E-10
	2. 4065E-10	2. 7385E-10	2. 7478E-10	3. 5933E-10	3. 8967E-10	4. 7455E-10
	4. 2712E-10	5. 3051E-10	6. 7742E-10	7. 5503E-10	8. 2660E-10	9. 7932E-10
	1. 1171E-09	1. 3146E-09	1. 7053E-09	1. 7329E-09	1. 7964E-09	2. 3900E-09
	2. 8054E-09	2. 9800E-09	3. 4630E-09	4. 4121E-09	4. 1611E-09	5. 2360E-09
	6. 6262E-09	7. 2105E-09	8. 9115E-09	1. 0859E-08	1. 2521E-08	1. 4255E-08
	1. 7763E-08	2. 2302E-08	2. 5886E-08	3. 3667E-08	3. 8780E-08	1. 1138E-07
	1. 1412E-07	1. 1817E-07	1. 2112E-07	1. 2929E-07	1. 3938E-07	1. 4491E-07
	1. 6345E-07	1. 8069E-07	1. 9923E-07	2. 1539E-07	2. 0825E-07	1. 9974E-07
	1. 7707E-07	1. 5739E-07	1. 4938E-07	1. 5492E-07	1. 7622E-07	2. 0706E-07
	2. 8591E-07	3. 5691E-07	3. 8104E-07	3. 4780E-07	2. 9536E-07	2. 5088E-07
	2. 0915E-07	1. 7320E-07	1. 5463E-07	1. 4842E-07	1. 4348E-07	1. 4095E-07
	1. 4173E-07	1. 4176E-07	1. 4638E-07	1. 5851E-07	1. 9617E-07	3. 0956E-07
	4. 8637E-07	7. 1110E-07	9. 2267E-07	1. 0199E-06	1. 0430E-06	1. 2399E-06
	3. 8589E-06	2. 9570E-05	2. 3979E-05	5. 2206E-06	1. 4206E-06	8. 1255E-07
	5. 8247E-07	3. 4624E-07	2. 2679E-07	1. 5769E-07	1. 1223E-07	8. 2973E-08
	6. 5190E-08	5. 0380E-08	4. 0722E-08	3. 4664E-08	2. 4089E-08	1. 3082E-08
	2. 5238E-09	6. 3861E-12	0. 0000E+00	0. 0000E+00		
sc18	105 - 100 deg.					
si18	1. 0104E-05	1. 2341E-05	1. 5073E-05	1. 8411E-05	2. 2487E-05	2. 7465E-05
	3. 3546E-05	4. 0974E-05	5. 0045E-05	6. 1125E-05	7. 4659E-05	9. 1188E-05
	1. 1138E-04	1. 3604E-04	1. 6616E-04	2. 0294E-04	2. 4787E-04	3. 0275E-04
	3. 6979E-04	4. 5166E-04	5. 5166E-04	6. 7380E-04	8. 2297E-04	1. 0052E-03

		1. 2277E-03	1. 4996E-03	1. 8316E-03	2. 2371E-03	2. 7324E-03	3. 3373E-03
		4. 0762E-03	4. 9787E-03	6. 0810E-03	7. 4274E-03	9. 0718E-03	1. 1080E-02
		1. 3534E-02	1. 6530E-02	2. 0190E-02	2. 4660E-02	3. 0119E-02	3. 6788E-02
		4. 4933E-02	5. 4881E-02	6. 7032E-02	8. 1873E-02	0. 1 641 3. 35	
sp18		0. 0000E+00	3. 6146E-11	6. 1668E-11	6. 9472E-11	7. 5366E-11	9. 1057E-11
		1. 0106E-10	1. 2465E-10	1. 1921E-10	1. 3928E-10	1. 7911E-10	2. 3223E-10
		2. 2537E-10	2. 5641E-10	2. 9053E-10	3. 5117E-10	3. 4124E-10	4. 9355E-10
		4. 2561E-10	5. 7430E-10	6. 8816E-10	6. 9184E-10	8. 8885E-10	9. 9290E-10
		1. 1535E-09	1. 3438E-09	1. 5696E-09	1. 6502E-09	1. 7388E-09	2. 2591E-09
		2. 6368E-09	3. 0012E-09	3. 4249E-09	4. 3460E-09	3. 9812E-09	5. 0980E-09
		6. 2634E-09	7. 0947E-09	8. 4131E-09	1. 0146E-08	1. 1725E-08	1. 3503E-08
		1. 7033E-08	2. 1051E-08	2. 5011E-08	3. 2371E-08	3. 7196E-08	1. 0718E-07
		1. 1121E-07	1. 1559E-07	1. 1794E-07	1. 2587E-07	1. 3641E-07	1. 4128E-07
		1. 6052E-07	1. 7696E-07	1. 9519E-07	2. 1134E-07	2. 0704E-07	1. 9601E-07
		1. 7444E-07	1. 5639E-07	1. 4757E-07	1. 5304E-07	1. 7331E-07	2. 0636E-07
		2. 8138E-07	3. 4972E-07	3. 7099E-07	3. 3783E-07	2. 8494E-07	2. 4135E-07
		2. 0183E-07	1. 6769E-07	1. 4914E-07	1. 4366E-07	1. 4023E-07	1. 4020E-07
		1. 3831E-07	1. 3776E-07	1. 4061E-07	1. 5142E-07	1. 9892E-07	3. 0883E-07
		4. 6523E-07	6. 4189E-07	8. 0241E-07	8. 5496E-07	8. 6016E-07	8. 4258E-07
		1. 2893E-06	5. 5228E-06	2. 8788E-05	2. 1968E-05	3. 7998E-06	1. 2558E-06
		7. 4769E-07	4. 2156E-07	2. 7695E-07	1. 8758E-07	1. 2961E-07	9. 6484E-08
		7. 0901E-08	5. 3559E-08	4. 1740E-08	3. 3513E-08	2. 4064E-08	1. 3685E-08
		3. 6311E-09	3. 5585E-11	0. 0000E+00	0. 0000E+00		
sc19		100 - 95 deg.					
si19		1. 0104E-05	1. 2341E-05	1. 5073E-05	1. 8411E-05	2. 2487E-05	2. 7465E-05
		3. 3546E-05	4. 0974E-05	5. 0045E-05	6. 1125E-05	7. 4659E-05	9. 1188E-05
		1. 1138E-04	1. 3604E-04	1. 6616E-04	2. 0294E-04	2. 4787E-04	3. 0275E-04
		3. 6979E-04	4. 5166E-04	5. 5166E-04	6. 7380E-04	8. 2297E-04	1. 0052E-03
		1. 2277E-03	1. 4996E-03	1. 8316E-03	2. 2371E-03	2. 7324E-03	3. 3373E-03
		4. 0762E-03	4. 9787E-03	6. 0810E-03	7. 4274E-03	9. 0718E-03	1. 1080E-02
		1. 3534E-02	1. 6530E-02	2. 0190E-02	2. 4660E-02	3. 0119E-02	3. 6788E-02
		4. 4933E-02	5. 4881E-02	6. 7032E-02	8. 1873E-02	0. 1 641 3. 35	
sp19		0. 0000E+00	4. 4368E-11	5. 8253E-11	6. 8689E-11	8. 0579E-11	8. 4032E-11
		8. 6448E-11	1. 2464E-10	1. 2997E-10	1. 7838E-10	1. 4108E-10	1. 7124E-10
		1. 9634E-10	2. 3418E-10	2. 6337E-10	3. 4977E-10	3. 5608E-10	4. 6397E-10
		4. 2242E-10	5. 1422E-10	6. 1882E-10	6. 3377E-10	7. 8543E-10	8. 9998E-10
		1. 0191E-09	1. 2298E-09	1. 4135E-09	1. 5911E-09	1. 6317E-09	2. 0349E-09
		2. 4840E-09	2. 7049E-09	3. 2771E-09	4. 1912E-09	3. 7041E-09	4. 6401E-09
		5. 8377E-09	6. 5788E-09	7. 7655E-09	9. 5544E-09	1. 1006E-08	1. 2628E-08
		1. 5744E-08	2. 0255E-08	2. 3073E-08	3. 0004E-08	3. 4900E-08	1. 0078E-07
		1. 0479E-07	1. 0852E-07	1. 1162E-07	1. 1977E-07	1. 3006E-07	1. 3403E-07
		1. 5393E-07	1. 7136E-07	1. 8992E-07	2. 0574E-07	2. 0209E-07	1. 9139E-07
		1. 6959E-07	1. 5127E-07	1. 4146E-07	1. 4625E-07	1. 6426E-07	1. 9875E-07
		2. 7340E-07	3. 3978E-07	3. 5857E-07	3. 2293E-07	2. 7420E-07	2. 3061E-07
		1. 9328E-07	1. 6067E-07	1. 4420E-07	1. 3862E-07	1. 3668E-07	1. 3588E-07
		1. 3224E-07	1. 3126E-07	1. 3515E-07	1. 4472E-07	2. 0357E-07	3. 0718E-07
		4. 3987E-07	5. 8949E-07	7. 0071E-07	7. 1601E-07	7. 0600E-07	6. 2991E-07
		7. 3876E-07	1. 6337E-06	7. 5836E-06	2. 5869E-05	2. 1278E-05	3. 0840E-06
		1. 0931E-06	5. 3534E-07	3. 3047E-07	2. 2397E-07	1. 5700E-07	1. 0931E-07
		8. 1338E-08	6. 2543E-08	4. 5016E-08	3. 2325E-08	2. 3270E-08	1. 3471E-08
		4. 3576E-09	1. 1870E-10	4. 8069E-16	0. 0000E+00		
sc20		95 - 90 deg.					
si20		1. 0104E-05	1. 2341E-05	1. 5073E-05	1. 8411E-05	2. 2487E-05	2. 7465E-05
		3. 3546E-05	4. 0974E-05	5. 0045E-05	6. 1125E-05	7. 4659E-05	9. 1188E-05
		1. 1138E-04	1. 3604E-04	1. 6616E-04	2. 0294E-04	2. 4787E-04	3. 0275E-04
		3. 6979E-04	4. 5166E-04	5. 5166E-04	6. 7380E-04	8. 2297E-04	1. 0052E-03
		1. 2277E-03	1. 4996E-03	1. 8316E-03	2. 2371E-03	2. 7324E-03	3. 3373E-03
		4. 0762E-03	4. 9787E-03	6. 0810E-03	7. 4274E-03	9. 0718E-03	1. 1080E-02
		1. 3534E-02	1. 6530E-02	2. 0190E-02	2. 4660E-02	3. 0119E-02	3. 6788E-02
		4. 4933E-02	5. 4881E-02	6. 7032E-02	8. 1873E-02	0. 1 641 3. 35	
sp20		0. 0000E+00	5. 0720E-11	4. 0115E-11	4. 4481E-11	6. 0037E-11	5. 3393E-11
		8. 2244E-11	8. 6467E-11	1. 0154E-10	1. 0567E-10	1. 2805E-10	1. 4092E-10
		1. 7479E-10	2. 0535E-10	2. 3425E-10	2. 6422E-10	3. 2185E-10	3. 9527E-10
		3. 5576E-10	4. 3863E-10	5. 0830E-10	5. 6078E-10	6. 8258E-10	7. 9040E-10
		8. 9668E-10	1. 0441E-09	1. 2820E-09	1. 3478E-09	1. 4664E-09	1. 8280E-09
		2. 2240E-09	2. 4393E-09	2. 8650E-09	3. 5194E-09	3. 3099E-09	4. 0886E-09
		5. 2108E-09	5. 5455E-09	6. 7676E-09	8. 3293E-09	9. 9523E-09	1. 0757E-08
		1. 3523E-08	1. 7381E-08	2. 0117E-08	2. 6020E-08	3. 0202E-08	8. 8555E-08
		9. 2177E-08	9. 6419E-08	9. 9659E-08	1. 0705E-07	1. 1654E-07	1. 1824E-07
		1. 4071E-07	1. 5807E-07	1. 7728E-07	1. 9256E-07	1. 8934E-07	1. 7734E-07
		1. 5489E-07	1. 3678E-07	1. 2744E-07	1. 3176E-07	1. 4852E-07	1. 8622E-07
		2. 5547E-07	3. 2345E-07	3. 4440E-07	3. 1020E-07	2. 5797E-07	2. 1477E-07
		1. 7863E-07	1. 4732E-07	1. 3042E-07	1. 2549E-07	1. 2555E-07	1. 2195E-07
		1. 1932E-07	1. 1714E-07	1. 2162E-07	1. 3163E-07	2. 0205E-07	3. 0244E-07
		4. 2211E-07	5. 4766E-07	6. 1532E-07	6. 0075E-07	5. 6727E-07	4. 8606E-07

	5. 0933E-07	7. 7406E-07	2. 2592E-06	8. 6642E-06	2. 3445E-05	2. 0778E-05
	2. 5791E-06	7. 8088E-07	3. 9862E-07	2. 4987E-07	1. 7620E-07	1. 2263E-07
	8. 7948E-08	6. 4985E-08	4. 8788E-08	3. 3136E-08	2. 2163E-08	1. 1598E-08
	4. 2287E-09	1. 9287E-10	1. 1873E-13	0. 0000E+00		
sc21	90 - 85 deg.					
si21	1. 0104E-05	1. 2341E-05	1. 5073E-05	1. 8411E-05	2. 2487E-05	2. 7465E-05
	3. 3546E-05	4. 0974E-05	5. 0045E-05	6. 1125E-05	7. 4659E-05	9. 1188E-05
	1. 1138E-04	1. 3604E-04	1. 6616E-04	2. 0294E-04	2. 4787E-04	3. 0275E-04
	3. 6979E-04	4. 5166E-04	5. 5166E-04	6. 7380E-04	8. 2297E-04	1. 0052E-03
	1. 2277E-03	1. 4996E-03	1. 8316E-03	2. 2371E-03	2. 7324E-03	3. 3373E-03
	4. 0762E-03	4. 9787E-03	6. 0810E-03	7. 4274E-03	9. 0718E-03	1. 1080E-02
	1. 3534E-02	1. 6530E-02	2. 0190E-02	2. 4660E-02	3. 0119E-02	3. 6788E-02
	4. 4933E-02	5. 4881E-02	6. 7032E-02	8. 1873E-02	0. 1 641	3. 35
sp21	0. 0000E+00	2. 9148E-11	6. 8680E-11	4. 4509E-11	5. 1110E-11	7. 0281E-11
	7. 8070E-11	9. 2524E-11	1. 0915E-10	1. 2340E-10	1. 3867E-10	1. 3720E-10
	1. 4232E-10	2. 0396E-10	2. 4152E-10	2. 7471E-10	2. 8862E-10	3. 7843E-10
	3. 3209E-10	4. 4604E-10	5. 2332E-10	5. 4707E-10	6. 9234E-10	7. 9083E-10
	8. 5896E-10	1. 0412E-09	1. 2661E-09	1. 4010E-09	1. 4218E-09	1. 7580E-09
	2. 0840E-09	2. 2970E-09	2. 6548E-09	3. 3313E-09	3. 2160E-09	4. 1508E-09
	4. 9174E-09	5. 6109E-09	6. 5150E-09	8. 1966E-09	9. 8077E-09	1. 0405E-08
	1. 2960E-08	1. 6449E-08	1. 9912E-08	2. 5719E-08	2. 9182E-08	8. 3414E-08
	8. 6221E-08	9. 0728E-08	9. 4414E-08	9. 9701E-08	1. 0526E-07	1. 0208E-07
	1. 2676E-07	1. 4620E-07	1. 6511E-07	1. 8300E-07	1. 7723E-07	1. 6686E-07
	1. 4376E-07	1. 2456E-07	1. 1524E-07	1. 1942E-07	1. 3395E-07	1. 7307E-07
	2. 4251E-07	3. 0977E-07	3. 3179E-07	2. 9414E-07	2. 4610E-07	2. 0437E-07
	1. 6710E-07	1. 3444E-07	1. 1758E-07	1. 1352E-07	1. 1719E-07	1. 1528E-07
	1. 1411E-07	1. 1396E-07	1. 1654E-07	1. 2781E-07	2. 0965E-07	3. 0801E-07
	4. 1574E-07	5. 2545E-07	5. 5394E-07	5. 1783E-07	4. 5842E-07	3. 6997E-07
	3. 4623E-07	3. 8500E-07	7. 0111E-07	1. 9832E-06	5. 1782E-06	1. 2595E-05
	1. 1942E-05	1. 4654E-06	4. 7841E-07	2. 7477E-07	1. 8686E-07	1. 3355E-07
	9. 8773E-08	6. 9838E-08	5. 0149E-08	3. 4594E-08	2. 1674E-08	1. 2386E-08
	4. 0639E-09	3. 2260E-10	8. 0565E-13	0. 0000E+00		
sc22	85 - 80 deg.					
si22	1. 0104E-05	1. 2341E-05	1. 5073E-05	1. 8411E-05	2. 2487E-05	2. 7465E-05
	3. 3546E-05	4. 0974E-05	5. 0045E-05	6. 1125E-05	7. 4659E-05	9. 1188E-05
	1. 1138E-04	1. 3604E-04	1. 6616E-04	2. 0294E-04	2. 4787E-04	3. 0275E-04
	3. 6979E-04	4. 5166E-04	5. 5166E-04	6. 7380E-04	8. 2297E-04	1. 0052E-03
	1. 2277E-03	1. 4996E-03	1. 8316E-03	2. 2371E-03	2. 7324E-03	3. 3373E-03
	4. 0762E-03	4. 9787E-03	6. 0810E-03	7. 4274E-03	9. 0718E-03	1. 1080E-02
	1. 3534E-02	1. 6530E-02	2. 0190E-02	2. 4660E-02	3. 0119E-02	3. 6788E-02
	4. 4933E-02	5. 4881E-02	6. 7032E-02	8. 1873E-02	0. 1 641	3. 35
sp22	0. 0000E+00	4. 6293E-11	5. 0478E-11	5. 8519E-11	5. 9660E-11	7. 3300E-11
	8. 7359E-11	1. 0337E-10	1. 3066E-10	1. 2286E-10	1. 5212E-10	1. 7364E-10
	2. 0582E-10	2. 0470E-10	2. 8562E-10	2. 9443E-10	3. 3055E-10	4. 3696E-10
	3. 9144E-10	4. 6627E-10	5. 5602E-10	6. 4548E-10	7. 5013E-10	8. 8644E-10
	9. 8514E-10	1. 1491E-09	1. 3873E-09	1. 7019E-09	1. 7138E-09	2. 0651E-09
	2. 4919E-09	2. 7551E-09	3. 1765E-09	3. 9750E-09	3. 8084E-09	4. 9875E-09
	6. 0411E-09	6. 9006E-09	8. 0694E-09	9. 9812E-09	1. 1339E-08	1. 2920E-08
	1. 6063E-08	1. 9866E-08	2. 4024E-08	3. 0699E-08	3. 5378E-08	1. 0118E-07
	1. 0461E-07	1. 0796E-07	1. 1093E-07	1. 1658E-07	1. 2259E-07	1. 1903E-07
	1. 4370E-07	1. 6257E-07	1. 8031E-07	1. 9555E-07	1. 9044E-07	1. 7877E-07
	1. 5681E-07	1. 3785E-07	1. 2878E-07	1. 3435E-07	1. 5105E-07	1. 9221E-07
	2. 5908E-07	3. 2704E-07	3. 4447E-07	3. 0608E-07	2. 5778E-07	2. 1378E-07
	1. 7582E-07	1. 4525E-07	1. 3002E-07	1. 2983E-07	1. 3324E-07	1. 3072E-07
	1. 2882E-07	1. 2905E-07	1. 3082E-07	1. 4125E-07	2. 3239E-07	3. 3102E-07
	4. 2798E-07	5. 2967E-07	5. 3128E-07	4. 7645E-07	4. 0387E-07	3. 2394E-07
	3. 0098E-07	3. 3158E-07	5. 1301E-07	1. 1086E-06	2. 8834E-06	6. 3438E-06
	1. 3143E-05	1. 5722E-05	2. 3114E-06	5. 4597E-07	3. 0569E-07	2. 1456E-07
	1. 5867E-07	1. 1393E-07	7. 9417E-08	5. 7054E-08	3. 4189E-08	1. 8351E-08
	6. 6432E-09	6. 4034E-10	2. 4604E-12	0. 0000E+00		
sc23	80 - 75 deg.					
si23	1. 0104E-05	1. 2341E-05	1. 5073E-05	1. 8411E-05	2. 2487E-05	2. 7465E-05
	3. 3546E-05	4. 0974E-05	5. 0045E-05	6. 1125E-05	7. 4659E-05	9. 1188E-05
	1. 1138E-04	1. 3604E-04	1. 6616E-04	2. 0294E-04	2. 4787E-04	3. 0275E-04
	3. 6979E-04	4. 5166E-04	5. 5166E-04	6. 7380E-04	8. 2297E-04	1. 0052E-03
	1. 2277E-03	1. 4996E-03	1. 8316E-03	2. 2371E-03	2. 7324E-03	3. 3373E-03
	4. 0762E-03	4. 9787E-03	6. 0810E-03	7. 4274E-03	9. 0718E-03	1. 1080E-02
	1. 3534E-02	1. 6530E-02	2. 0190E-02	2. 4660E-02	3. 0119E-02	3. 6788E-02
	4. 4933E-02	5. 4881E-02	6. 7032E-02	8. 1873E-02	0. 1 641	3. 35
sp23	0. 0000E+00	3. 6254E-11	5. 2159E-11	6. 3683E-11	6. 4113E-11	8. 3775E-11
	9. 2380E-11	1. 1542E-10	1. 0920E-10	1. 2651E-10	1. 6923E-10	1. 8603E-10
	2. 0572E-10	2. 4183E-10	2. 8854E-10	3. 1836E-10	3. 7009E-10	4. 5752E-10
	4. 1207E-10	5. 6555E-10	6. 0060E-10	7. 0428E-10	8. 4088E-10	1. 0192E-09
	1. 1071E-09	1. 3074E-09	1. 5447E-09	1. 8495E-09	1. 9181E-09	2. 3366E-09
	2. 6902E-09	3. 1413E-09	3. 6246E-09	4. 3386E-09	4. 2671E-09	5. 5821E-09

		6. 6010E-09	7. 4908E-09	9. 0361E-09	1. 1046E-08	1. 2648E-08	1. 4583E-08
		1. 8026E-08	2. 2063E-08	2. 6488E-08	3. 3910E-08	3. 9424E-08	1. 1222E-07
		1. 1458E-07	1. 1868E-07	1. 1969E-07	1. 2562E-07	1. 3345E-07	1. 3334E-07
		1. 5595E-07	1. 7152E-07	1. 8893E-07	2. 0300E-07	1. 9837E-07	1. 8798E-07
		1. 6346E-07	1. 4521E-07	1. 3654E-07	1. 4268E-07	1. 6109E-07	2. 0567E-07
		2. 7105E-07	3. 3635E-07	3. 4890E-07	3. 0815E-07	2. 5970E-07	2. 1690E-07
		1. 7894E-07	1. 5038E-07	1. 3693E-07	1. 4112E-07	1. 4160E-07	1. 3967E-07
		1. 3609E-07	1. 3550E-07	1. 3683E-07	1. 4979E-07	2. 4864E-07	3. 4889E-07
		4. 3809E-07	5. 2848E-07	5. 0383E-07	4. 3891E-07	3. 5832E-07	2. 8580E-07
		2. 6601E-07	2. 9652E-07	4. 3299E-07	7. 8086E-07	1. 7953E-06	4. 0370E-06
		7. 9576E-06	1. 4252E-05	1. 8841E-05	3. 9138E-06	5. 9662E-07	3. 3537E-07
		2. 2081E-07	1. 6149E-07	1. 1462E-07	7. 6916E-08	4. 7357E-08	2. 7689E-08
		9. 9216E-09	1. 2284E-09	4. 9712E-12	0. 0000E+00		
sc24	si24	75 - 70	deg.				
		1. 0104E-05	1. 2341E-05	1. 5073E-05	1. 8411E-05	2. 2487E-05	2. 7465E-05
		3. 3546E-05	4. 0974E-05	5. 0045E-05	6. 1125E-05	7. 4659E-05	9. 1188E-05
		1. 1138E-04	1. 3604E-04	1. 6616E-04	2. 0294E-04	2. 4787E-04	3. 0275E-04
		3. 6979E-04	4. 5166E-04	5. 5166E-04	6. 7380E-04	8. 2297E-04	1. 0052E-03
		1. 2277E-03	1. 4996E-03	1. 8316E-03	2. 2371E-03	2. 7324E-03	3. 3373E-03
		4. 0762E-03	4. 9787E-03	6. 0810E-03	7. 4274E-03	9. 0718E-03	1. 1080E-02
		1. 3534E-02	1. 6530E-02	2. 0190E-02	2. 4660E-02	3. 0119E-02	3. 6788E-02
		4. 4933E-02	5. 4881E-02	6. 7032E-02	8. 1873E-02	0. 1 641	3. 35
		0. 0000E+00	4. 5597E-09	4. 7841E-11	5. 3541E-11	5. 4041E-11	7. 8060E-11
		9. 1841E-11	1. 1395E-10	1. 5529E-10	1. 3994E-10	1. 5922E-10	1. 8227E-10
		2. 0115E-10	2. 3840E-10	3. 2607E-10	3. 2163E-10	3. 6700E-10	4. 8701E-10
		4. 7477E-10	5. 6019E-10	6. 5238E-10	7. 2469E-10	8. 9290E-10	1. 0326E-09
		1. 1849E-09	1. 3401E-09	1. 6625E-09	2. 0305E-09	1. 9421E-09	2. 4471E-09
		2. 9279E-09	3. 2344E-09	3. 8224E-09	4. 7217E-09	4. 7188E-09	5. 9314E-09
		7. 0471E-09	8. 0475E-09	9. 5036E-09	1. 1716E-08	1. 3585E-08	1. 5329E-08
		9. 1910E-08	2. 3722E-08	2. 7899E-08	3. 5741E-08	4. 2027E-08	1. 1772E-07
		1. 1915E-07	1. 2225E-07	1. 2298E-07	1. 3083E-07	1. 3911E-07	1. 4193E-07
		1. 6313E-07	1. 7838E-07	1. 9244E-07	2. 0670E-07	2. 0191E-07	1. 8969E-07
		1. 6638E-07	1. 4677E-07	1. 4012E-07	1. 4755E-07	1. 6619E-07	2. 1223E-07
		2. 7585E-07	3. 3933E-07	3. 5045E-07	3. 0740E-07	2. 5931E-07	2. 1685E-07
		1. 7854E-07	1. 5137E-07	1. 4139E-07	1. 4776E-07	1. 4615E-07	1. 4342E-07
		1. 4023E-07	1. 3842E-07	1. 4054E-07	1. 5640E-07	2. 6015E-07	3. 6551E-07
		4. 5019E-07	5. 2719E-07	4. 8714E-07	4. 0972E-07	3. 2191E-07	2. 5626E-07
		2. 4126E-07	2. 6919E-07	3. 6788E-07	5. 8843E-07	1. 1459E-06	2. 5293E-06
		4. 9836E-06	8. 9241E-06	1. 4392E-05	2. 0144E-05	6. 1723E-06	6. 4171E-07
		3. 3737E-07	2. 2595E-07	1. 5918E-07	1. 1268E-07	6. 5211E-08	4. 0926E-08
		1. 4264E-08	2. 9022E-09	2. 7774E-11	0. 0000E+00		
sc25	si25	70 - 65	deg.				
		1. 0104E-05	1. 2341E-05	1. 5073E-05	1. 8411E-05	2. 2487E-05	2. 7465E-05
		3. 3546E-05	4. 0974E-05	5. 0045E-05	6. 1125E-05	7. 4659E-05	9. 1188E-05
		1. 1138E-04	1. 3604E-04	1. 6616E-04	2. 0294E-04	2. 4787E-04	3. 0275E-04
		3. 6979E-04	4. 5166E-04	5. 5166E-04	6. 7380E-04	8. 2297E-04	1. 0052E-03
		1. 2277E-03	1. 4996E-03	1. 8316E-03	2. 2371E-03	2. 7324E-03	3. 3373E-03
		4. 0762E-03	4. 9787E-03	6. 0810E-03	7. 4274E-03	9. 0718E-03	1. 1080E-02
		1. 3534E-02	1. 6530E-02	2. 0190E-02	2. 4660E-02	3. 0119E-02	3. 6788E-02
		4. 4933E-02	5. 4881E-02	6. 7032E-02	8. 1873E-02	0. 1 641	3. 35
		0. 0000E+00	4. 3683E-11	5. 0187E-11	7. 4641E-11	8. 2150E-11	8. 8297E-11
		9. 2317E-11	9. 8436E-11	1. 2684E-10	1. 3738E-10	1. 5943E-10	1. 9473E-10
		2. 2708E-10	2. 5589E-10	2. 7062E-10	3. 2907E-10	3. 8577E-10	5. 0308E-10
		4. 1855E-10	5. 9853E-10	6. 5665E-10	7. 7542E-10	9. 0371E-10	1. 0404E-09
		1. 1660E-09	1. 4585E-09	1. 6889E-09	2. 1153E-09	2. 1074E-09	2. 5194E-09
		2. 9596E-09	3. 3167E-09	3. 9769E-09	4. 8469E-09	4. 9514E-09	6. 1285E-09
		7. 1209E-09	8. 2729E-09	9. 7455E-09	1. 2130E-08	1. 4386E-08	1. 6095E-08
		1. 9886E-08	2. 4395E-08	2. 8956E-08	3. 6691E-08	4. 2685E-08	1. 1998E-07
		1. 2243E-07	1. 2374E-07	1. 2543E-07	1. 3333E-07	1. 4272E-07	1. 4707E-07
		1. 6620E-07	1. 8008E-07	1. 9425E-07	2. 0802E-07	2. 0364E-07	1. 8968E-07
		1. 6590E-07	1. 4856E-07	1. 4109E-07	1. 4921E-07	1. 6820E-07	2. 1625E-07
		2. 8038E-07	3. 3831E-07	3. 4950E-07	3. 0465E-07	2. 5643E-07	2. 1709E-07
		1. 7883E-07	1. 5161E-07	1. 4357E-07	1. 5321E-07	1. 4975E-07	1. 4669E-07
		1. 4311E-07	1. 4319E-07	1. 4318E-07	1. 6276E-07	2. 7105E-07	3. 8094E-07
		4. 6356E-07	5. 3112E-07	4. 7397E-07	3. 9472E-07	3. 0058E-07	2. 4105E-07
		2. 2005E-07	2. 4582E-07	3. 2476E-07	4. 8640E-07	8. 1503E-07	1. 6612E-06
		3. 1950E-06	5. 7953E-06	9. 5200E-06	1. 4338E-05	2. 0740E-05	8. 9619E-06
		6. 6543E-07	3. 3861E-07	2. 1680E-07	1. 5956E-07	1. 0223E-07	5. 5850E-08
		2. 6168E-08	6. 3584E-09	1. 9789E-10	0. 0000E+00		
sc26	si26	65 - 60	deg.				
		1. 0104E-05	1. 2341E-05	1. 5073E-05	1. 8411E-05	2. 2487E-05	2. 7465E-05
		3. 3546E-05	4. 0974E-05	5. 0045E-05	6. 1125E-05	7. 4659E-05	9. 1188E-05
		1. 1138E-04	1. 3604E-04	1. 6616E-04	2. 0294E-04	2. 4787E-04	3. 0275E-04
		3. 6979E-04	4. 5166E-04	5. 5166E-04	6. 7380E-04	8. 2297E-04	1. 0052E-03
		1. 2277E-03	1. 4996E-03	1. 8316E-03	2. 2371E-03	2. 7324E-03	3. 3373E-03

sp26	4. 0762E-03	4. 9787E-03	6. 0810E-03	7. 4274E-03	9. 0718E-03	1. 1080E-02
	1. 3534E-02	1. 6530E-02	2. 0190E-02	2. 4660E-02	3. 0119E-02	3. 6788E-02
	4. 4933E-02	5. 4881E-02	6. 7032E-02	8. 1873E-02	0. 1 641	3. 35
	0. 0000E+00	4. 0823E-11	4. 7823E-11	5. 8491E-11	7. 5989E-11	7. 1127E-11
	9. 3390E-11	1. 2533E-10	1. 2174E-10	1. 4496E-10	1. 7721E-10	2. 1397E-10
	2. 2194E-10	2. 5391E-10	2. 9323E-10	3. 5734E-10	3. 8491E-10	4. 7197E-10
	4. 6918E-10	6. 1351E-10	6. 7108E-10	8. 0253E-10	9. 0801E-10	1. 0673E-09
	1. 2453E-09	1. 4075E-09	1. 7000E-09	2. 0769E-09	2. 1811E-09	2. 6207E-09
	3. 0125E-09	3. 4740E-09	4. 0443E-09	4. 8849E-09	5. 1206E-09	6. 2903E-09
	7. 4839E-09	8. 5293E-09	1. 0047E-08	1. 2146E-08	1. 4610E-08	1. 6616E-08
	1. 9963E-08	2. 4480E-08	2. 9302E-08	3. 7000E-08	4. 3324E-08	1. 2131E-07
	1. 2401E-07	1. 2649E-07	1. 2860E-07	1. 3579E-07	1. 4537E-07	1. 5055E-07
	1. 6934E-07	1. 8246E-07	1. 9549E-07	2. 0789E-07	2. 0191E-07	1. 9032E-07
	1. 6513E-07	1. 4798E-07	1. 4152E-07	1. 5151E-07	1. 6927E-07	2. 1829E-07
	2. 8290E-07	3. 3799E-07	3. 4417E-07	3. 0028E-07	2. 5530E-07	2. 1444E-07
	1. 7642E-07	1. 5200E-07	1. 4729E-07	1. 5773E-07	1. 5384E-07	1. 5024E-07
	1. 4639E-07	1. 4588E-07	1. 4603E-07	1. 7021E-07	2. 8324E-07	4. 0022E-07
	4. 8174E-07	5. 4204E-07	4. 6996E-07	3. 8511E-07	2. 8345E-07	2. 2269E-07
	1. 9853E-07	2. 1901E-07	2. 8995E-07	4. 1449E-07	6. 2374E-07	1. 1500E-06
	2. 1239E-06	3. 9081E-06	6. 5910E-06	1. 0138E-05	1. 4606E-05	2. 1024E-05
	1. 2150E-05	7. 1587E-07	3. 3440E-07	2. 1812E-07	1. 4401E-07	8. 5800E-08
	4. 2222E-08	1. 2088E-08	7. 5339E-10	0. 0000E+00		
sc27	60 - 55 deg.					
si27	1. 0104E-05	1. 2341E-05	1. 5073E-05	1. 8411E-05	2. 2487E-05	2. 7465E-05
	3. 3546E-05	4. 0974E-05	5. 0045E-05	6. 1125E-05	7. 4659E-05	9. 1188E-05
	1. 1138E-04	1. 3604E-04	1. 6616E-04	2. 0294E-04	2. 4787E-04	3. 0275E-04
	3. 6979E-04	4. 5166E-04	5. 5166E-04	6. 7380E-04	8. 2297E-04	1. 0052E-03
	1. 2277E-03	1. 4996E-03	1. 8316E-03	2. 2371E-03	2. 7324E-03	3. 3373E-03
	4. 0762E-03	4. 9787E-03	6. 0810E-03	7. 4274E-03	9. 0718E-03	1. 1080E-02
	1. 3534E-02	1. 6530E-02	2. 0190E-02	2. 4660E-02	3. 0119E-02	3. 6788E-02
	4. 4933E-02	5. 4881E-02	6. 7032E-02	8. 1873E-02	0. 1 641	3. 35
sp27	0. 0000E+00	3. 9876E-11	5. 4830E-11	6. 5429E-11	7. 3857E-11	1. 0269E-10
	9. 7006E-11	1. 0250E-10	1. 1444E-10	1. 5222E-10	1. 6854E-10	1. 9727E-10
	2. 3868E-10	2. 4076E-10	3. 1728E-10	3. 6524E-10	3. 8804E-10	4. 8508E-10
	5. 1244E-10	5. 9452E-10	7. 1378E-10	7. 9336E-10	9. 7092E-10	1. 0551E-09
	1. 2502E-09	1. 4406E-09	1. 6915E-09	2. 1796E-09	2. 2124E-09	2. 5102E-09
	3. 0183E-09	3. 4790E-09	4. 1904E-09	5. 0965E-09	5. 3565E-09	6. 4675E-09
	7. 3645E-09	8. 4539E-09	1. 0049E-08	1. 2221E-08	1. 5040E-08	1. 6692E-08
	2. 0387E-08	2. 5218E-08	2. 9709E-08	3. 7752E-08	4. 3798E-08	1. 2370E-07
	1. 2613E-07	1. 2851E-07	1. 2917E-07	1. 3695E-07	1. 4640E-07	1. 5279E-07
	1. 6992E-07	1. 8158E-07	1. 9493E-07	2. 0636E-07	2. 0284E-07	1. 8880E-07
	1. 6560E-07	1. 4791E-07	1. 4370E-07	1. 5257E-07	1. 7144E-07	2. 2149E-07
	2. 8550E-07	3. 3761E-07	3. 4048E-07	2. 9818E-07	2. 5474E-07	2. 1381E-07
	1. 7618E-07	1. 5304E-07	1. 5159E-07	1. 6061E-07	1. 5744E-07	1. 5395E-07
	1. 5052E-07	1. 5190E-07	1. 4914E-07	1. 8167E-07	2. 9310E-07	4. 1271E-07
	4. 9147E-07	5. 4579E-07	4. 6280E-07	3. 7012E-07	2. 6341E-07	2. 0511E-07
	1. 8342E-07	1. 9953E-07	2. 6237E-07	3. 6827E-07	5. 1742E-07	8. 5078E-07
	1. 4708E-06	2. 6991E-06	4. 7263E-06	7. 5307E-06	1. 0816E-05	1. 5051E-05
	2. 1099E-05	1. 5109E-05	1. 0347E-06	3. 3104E-07	2. 0578E-07	1. 2465E-07
	6. 2628E-08	2. 0132E-08	2. 0591E-09	0. 0000E+00		
sc28	55 - 50 deg.					
si28	1. 0104E-05	1. 2341E-05	1. 5073E-05	1. 8411E-05	2. 2487E-05	2. 7465E-05
	3. 3546E-05	4. 0974E-05	5. 0045E-05	6. 1125E-05	7. 4659E-05	9. 1188E-05
	1. 1138E-04	1. 3604E-04	1. 6616E-04	2. 0294E-04	2. 4787E-04	3. 0275E-04
	3. 6979E-04	4. 5166E-04	5. 5166E-04	6. 7380E-04	8. 2297E-04	1. 0052E-03
	1. 2277E-03	1. 4996E-03	1. 8316E-03	2. 2371E-03	2. 7324E-03	3. 3373E-03
	4. 0762E-03	4. 9787E-03	6. 0810E-03	7. 4274E-03	9. 0718E-03	1. 1080E-02
	1. 3534E-02	1. 6530E-02	2. 0190E-02	2. 4660E-02	3. 0119E-02	3. 6788E-02
	4. 4933E-02	5. 4881E-02	6. 7032E-02	8. 1873E-02	0. 1 641	3. 35
sp28	0. 0000E+00	3. 8203E-11	4. 7863E-11	7. 2921E-11	9. 3141E-11	7. 5916E-11
	1. 1121E-10	1. 0672E-10	1. 1998E-10	1. 5603E-10	1. 8851E-10	2. 0550E-10
	2. 1718E-10	2. 5836E-10	2. 8468E-10	3. 4364E-10	3. 9091E-10	4. 8945E-10
	5. 2350E-10	5. 8602E-10	6. 6880E-10	8. 2760E-10	8. 9690E-10	1. 0556E-09
	1. 1622E-09	1. 4195E-09	1. 7082E-09	2. 1719E-09	2. 2082E-09	2. 6251E-09
	3. 1276E-09	3. 5870E-09	4. 2026E-09	4. 9509E-09	5. 3623E-09	6. 4987E-09
	7. 7647E-09	8. 7463E-09	1. 0253E-08	1. 2452E-08	1. 5344E-08	1. 7036E-08
	2. 0283E-08	2. 5407E-08	2. 9976E-08	3. 8044E-08	4. 5013E-08	1. 2472E-07
	1. 2746E-07	1. 2801E-07	1. 2949E-07	1. 3645E-07	1. 4788E-07	1. 5421E-07
	1. 6975E-07	1. 8144E-07	1. 9498E-07	2. 0692E-07	2. 0209E-07	1. 8960E-07
	1. 6419E-07	1. 4798E-07	1. 4309E-07	1. 5327E-07	1. 7201E-07	2. 2250E-07
	2. 8773E-07	3. 3779E-07	3. 3768E-07	2. 9747E-07	2. 5480E-07	2. 1510E-07
	1. 7680E-07	1. 5504E-07	1. 5858E-07	1. 6459E-07	1. 6330E-07	1. 5945E-07
	1. 5633E-07	1. 5555E-07	1. 4977E-07	1. 8653E-07	2. 9821E-07	4. 1937E-07
	4. 9382E-07	5. 4903E-07	4. 5594E-07	3. 5782E-07	2. 5056E-07	1. 9320E-07
	1. 7048E-07	1. 8583E-07	2. 4293E-07	3. 3982E-07	4. 4812E-07	6. 5477E-07

		1. 0494E-06	1. 8888E-06	3. 4570E-06	5. 6725E-06	8. 4786E-06	1. 1854E-05
		1. 5676E-05	2. 1642E-05	1. 7400E-05	1. 4573E-06	3. 0839E-07	1. 8291E-07
		9. 4512E-08	3. 2485E-08	4. 8527E-09	0. 0000E+00		
sc29	si29	50 - 45 deg.					
		1. 0104E-05	1. 2341E-05	1. 5073E-05	1. 8411E-05	2. 2487E-05	2. 7465E-05
		3. 3546E-05	4. 0974E-05	5. 0045E-05	6. 1125E-05	7. 4659E-05	9. 1188E-05
		1. 1138E-04	1. 3604E-04	1. 6616E-04	2. 0294E-04	2. 4787E-04	3. 0275E-04
		3. 6979E-04	4. 5166E-04	5. 5166E-04	6. 7380E-04	8. 2297E-04	1. 0052E-03
		1. 2277E-03	1. 4996E-03	1. 8316E-03	2. 2371E-03	2. 7324E-03	3. 3373E-03
		4. 0762E-03	4. 9787E-03	6. 0810E-03	7. 4274E-03	9. 0718E-03	1. 1080E-02
		1. 3534E-02	1. 6530E-02	2. 0190E-02	2. 4660E-02	3. 0119E-02	3. 6788E-02
		4. 4933E-02	5. 4881E-02	6. 7032E-02	8. 1873E-02	0. 1 641	3. 35
sp29		0. 0000E+00	4. 2620E-11	4. 7638E-11	5. 4691E-11	6. 7777E-11	8. 5235E-11
		8. 4717E-11	1. 0897E-10	1. 3386E-10	1. 6164E-10	1. 8482E-10	1. 9858E-10
		2. 3747E-10	2. 7600E-10	3. 2106E-10	3. 9599E-10	3. 9371E-10	5. 0754E-10
		5. 3189E-10	6. 4220E-10	7. 0599E-10	8. 0940E-10	9. 4087E-10	1. 1357E-09
		1. 2279E-09	1. 4162E-09	1. 7438E-09	2. 2425E-09	2. 2979E-09	2. 5956E-09
		3. 0521E-09	3. 5642E-09	4. 2355E-09	5. 1808E-09	5. 5638E-09	6. 5947E-09
		7. 7555E-09	8. 9040E-09	1. 0183E-08	1. 2490E-08	1. 5755E-08	1. 7155E-08
		2. 0746E-08	2. 5498E-08	3. 0344E-08	3. 8142E-08	4. 5395E-08	1. 2541E-07
		1. 2732E-07	1. 2836E-07	1. 3089E-07	1. 3700E-07	1. 4908E-07	1. 5531E-07
		1. 7070E-07	1. 8325E-07	1. 9556E-07	2. 0675E-07	2. 0203E-07	1. 8909E-07
		1. 6387E-07	1. 4928E-07	1. 4457E-07	1. 5534E-07	1. 7453E-07	2. 2414E-07
		2. 8877E-07	3. 4040E-07	3. 3784E-07	2. 9693E-07	2. 5419E-07	2. 1554E-07
		1. 7962E-07	1. 5858E-07	1. 6390E-07	1. 6879E-07	1. 6625E-07	1. 6007E-07
		1. 5398E-07	1. 4940E-07	1. 4404E-07	1. 8785E-07	2. 9909E-07	4. 2205E-07
		4. 9317E-07	5. 4836E-07	4. 5125E-07	3. 4818E-07	2. 4304E-07	1. 8447E-07
		1. 6332E-07	1. 7515E-07	2. 2842E-07	3. 1844E-07	4. 0460E-07	5. 2531E-07
		7. 7278E-07	1. 3836E-06	2. 6064E-06	4. 3710E-06	6. 7268E-06	9. 6000E-06
		1. 2882E-05	1. 6646E-05	2. 2957E-05	1. 8784E-05	1. 7027E-06	2. 7051E-07
		1. 3187E-07	5. 5473E-08	9. 6810E-09	0. 0000E+00		
sc30	si30	45 - 40 deg.					
		1. 0104E-05	1. 2341E-05	1. 5073E-05	1. 8411E-05	2. 2487E-05	2. 7465E-05
		3. 3546E-05	4. 0974E-05	5. 0045E-05	6. 1125E-05	7. 4659E-05	9. 1188E-05
		1. 1138E-04	1. 3604E-04	1. 6616E-04	2. 0294E-04	2. 4787E-04	3. 0275E-04
		3. 6979E-04	4. 5166E-04	5. 5166E-04	6. 7380E-04	8. 2297E-04	1. 0052E-03
		1. 2277E-03	1. 4996E-03	1. 8316E-03	2. 2371E-03	2. 7324E-03	3. 3373E-03
		4. 0762E-03	4. 9787E-03	6. 0810E-03	7. 4274E-03	9. 0718E-03	1. 1080E-02
		1. 3534E-02	1. 6530E-02	2. 0190E-02	2. 4660E-02	3. 0119E-02	3. 6788E-02
		4. 4933E-02	5. 4881E-02	6. 7032E-02	8. 1873E-02	0. 1 641	3. 35
sp30		0. 0000E+00	5. 6948E-11	5. 1987E-11	6. 5773E-11	7. 9102E-11	8. 1410E-11
		9. 6091E-11	1. 1205E-10	1. 2651E-10	1. 6500E-10	1. 5608E-10	1. 9056E-10
		2. 1944E-10	2. 5215E-10	3. 0108E-10	3. 0916E-10	4. 3506E-10	5. 1301E-10
		5. 0269E-10	6. 2473E-10	6. 9287E-10	8. 0260E-10	9. 1144E-10	1. 0975E-09
		1. 2814E-09	1. 4038E-09	1. 7747E-09	2. 1590E-09	2. 2331E-09	2. 5880E-09
		3. 1412E-09	3. 6101E-09	4. 3071E-09	5. 4925E-09	5. 4761E-09	6. 7698E-09
		7. 8605E-09	8. 8949E-09	1. 0338E-08	1. 2559E-08	1. 5947E-08	1. 7145E-08
		2. 1121E-08	2. 5568E-08	3. 0353E-08	3. 8404E-08	4. 5558E-08	1. 2578E-07
		1. 2793E-07	1. 2929E-07	1. 3165E-07	1. 3796E-07	1. 4987E-07	1. 5703E-07
		1. 7211E-07	1. 8351E-07	1. 9607E-07	2. 0766E-07	2. 0367E-07	1. 8989E-07
		1. 6559E-07	1. 5054E-07	1. 4666E-07	1. 5786E-07	1. 7658E-07	2. 2843E-07
		2. 9327E-07	3. 4161E-07	3. 3996E-07	2. 9792E-07	2. 5500E-07	2. 1333E-07
		1. 7925E-07	1. 5698E-07	1. 6234E-07	1. 6654E-07	1. 6293E-07	1. 5453E-07
		1. 4927E-07	1. 4312E-07	1. 3772E-07	1. 8959E-07	2. 9938E-07	4. 2237E-07
		4. 9789E-07	5. 5276E-07	4. 4717E-07	3. 4261E-07	2. 3685E-07	1. 7882E-07
		1. 5890E-07	1. 6849E-07	2. 1856E-07	3. 0009E-07	3. 6573E-07	4. 3342E-07
		5. 9392E-07	1. 0425E-06	1. 9792E-06	3. 4780E-06	5. 4743E-06	7. 9404E-06
		1. 0795E-05	1. 4256E-05	1. 7933E-05	2. 4577E-05	1. 9042E-05	1. 4080E-06
		2. 0107E-07	8. 3991E-08	1. 7152E-08	0. 0000E+00		
sc31	si31	40 - 35 deg.					
		1. 0104E-05	1. 2341E-05	1. 5073E-05	1. 8411E-05	2. 2487E-05	2. 7465E-05
		3. 3546E-05	4. 0974E-05	5. 0045E-05	6. 1125E-05	7. 4659E-05	9. 1188E-05
		1. 1138E-04	1. 3604E-04	1. 6616E-04	2. 0294E-04	2. 4787E-04	3. 0275E-04
		3. 6979E-04	4. 5166E-04	5. 5166E-04	6. 7380E-04	8. 2297E-04	1. 0052E-03
		1. 2277E-03	1. 4996E-03	1. 8316E-03	2. 2371E-03	2. 7324E-03	3. 3373E-03
		4. 0762E-03	4. 9787E-03	6. 0810E-03	7. 4274E-03	9. 0718E-03	1. 1080E-02
		1. 3534E-02	1. 6530E-02	2. 0190E-02	2. 4660E-02	3. 0119E-02	3. 6788E-02
		4. 4933E-02	5. 4881E-02	6. 7032E-02	8. 1873E-02	0. 1 641	3. 35
sp31		0. 0000E+00	5. 7513E-11	6. 7989E-11	5. 5805E-11	6. 7709E-11	7. 7121E-11
		9. 0499E-11	1. 0654E-10	1. 3961E-10	1. 4917E-10	1. 6080E-10	1. 8081E-10
		2. 1748E-10	2. 7960E-10	2. 9804E-10	3. 6066E-10	4. 3232E-10	4. 7069E-10
		5. 1533E-10	6. 4514E-10	7. 0239E-10	8. 3958E-10	9. 2285E-10	1. 1036E-09
		1. 2638E-09	1. 4523E-09	1. 6894E-09	2. 1613E-09	2. 2974E-09	2. 6433E-09
		3. 1198E-09	3. 6635E-09	4. 3579E-09	5. 2104E-09	5. 5124E-09	6. 5661E-09
		7. 8229E-09	8. 9667E-09	1. 0522E-08	1. 2650E-08	1. 5915E-08	1. 7566E-08

	2. 1080E-08	2. 5810E-08	3. 0438E-08	3. 8689E-08	4. 5202E-08	1. 2672E-07
	1. 2798E-07	1. 2990E-07	1. 3108E-07	1. 3863E-07	1. 5125E-07	1. 5918E-07
	1. 7334E-07	1. 8370E-07	1. 9768E-07	2. 0781E-07	2. 0587E-07	1. 9169E-07
	1. 6709E-07	1. 5243E-07	1. 5163E-07	1. 6358E-07	1. 8241E-07	2. 3033E-07
	2. 9540E-07	3. 4246E-07	3. 3541E-07	2. 9252E-07	2. 5042E-07	2. 0746E-07
	1. 7176E-07	1. 5073E-07	1. 5636E-07	1. 6200E-07	1. 5813E-07	1. 5168E-07
	1. 4419E-07	1. 3816E-07	1. 3208E-07	1. 9227E-07	3. 0088E-07	4. 2364E-07
	4. 9706E-07	5. 5208E-07	4. 4488E-07	3. 3749E-07	2. 3349E-07	1. 7450E-07
	1. 5546E-07	1. 6635E-07	2. 0912E-07	2. 8757E-07	3. 4511E-07	3. 6897E-07
	4. 5652E-07	8. 0257E-07	1. 5666E-06	2. 8158E-06	4. 5190E-06	6. 6981E-06
	9. 2187E-06	1. 2265E-05	1. 5748E-05	1. 9731E-05	2. 6853E-05	1. 7866E-05
	5. 6038E-07	1. 2434E-07	2. 7954E-08	0. 0000E+00		
sc32	35 - 30 deg.					
si32	1. 0104E-05	1. 2341E-05	1. 5073E-05	1. 8411E-05	2. 2487E-05	2. 7465E-05
	3. 3546E-05	4. 0974E-05	5. 0045E-05	6. 1125E-05	7. 4659E-05	9. 1188E-05
	1. 1138E-04	1. 3604E-04	1. 6616E-04	2. 0294E-04	2. 4787E-04	3. 0275E-04
	3. 6979E-04	4. 5166E-04	5. 5166E-04	6. 7380E-04	8. 2297E-04	1. 0052E-03
	1. 2277E-03	1. 4996E-03	1. 8316E-03	2. 2371E-03	2. 7324E-03	3. 3373E-03
	4. 0762E-03	4. 9787E-03	6. 0810E-03	7. 4274E-03	9. 0718E-03	1. 1080E-02
	1. 3534E-02	1. 6530E-02	2. 0190E-02	2. 4660E-02	3. 0119E-02	3. 6788E-02
	4. 4933E-02	5. 4881E-02	6. 7032E-02	8. 1873E-02	0. 1 641	3. 35
sp32	0. 0000E+00	5. 7881E-11	5. 6271E-11	4. 8059E-11	6. 4527E-11	7. 5311E-11
	1. 0896E-10	1. 2307E-10	1. 3223E-10	1. 5261E-10	1. 6666E-10	1. 6417E-10
	2. 3724E-10	2. 6499E-10	2. 8502E-10	3. 2785E-10	4. 5562E-10	5. 0341E-10
	5. 1291E-10	6. 4771E-10	7. 3455E-10	8. 0295E-10	9. 6683E-10	1. 0757E-09
	1. 2398E-09	1. 5153E-09	1. 8255E-09	2. 2089E-09	2. 2455E-09	2. 6866E-09
	3. 1852E-09	3. 6657E-09	4. 2710E-09	5. 2507E-09	5. 6436E-09	6. 6371E-09
	7. 8546E-09	9. 0897E-09	1. 0468E-08	1. 2716E-08	1. 5876E-08	1. 7535E-08
	2. 1152E-08	2. 5688E-08	3. 0692E-08	3. 8884E-08	4. 6012E-08	1. 2691E-07
	1. 2968E-07	1. 3076E-07	1. 3266E-07	1. 4107E-07	1. 5246E-07	1. 6120E-07
	1. 7523E-07	1. 8659E-07	1. 9964E-07	2. 0989E-07	2. 0827E-07	1. 9719E-07
	1. 7130E-07	1. 5563E-07	1. 5337E-07	1. 6274E-07	1. 8113E-07	2. 2405E-07
	2. 8750E-07	3. 3686E-07	3. 2521E-07	2. 8528E-07	2. 4338E-07	1. 9940E-07
	1. 6572E-07	1. 4542E-07	1. 5289E-07	1. 5907E-07	1. 5655E-07	1. 4786E-07
	1. 4015E-07	1. 3452E-07	1. 2938E-07	1. 9522E-07	3. 0298E-07	4. 2291E-07
	4. 9124E-07	5. 5206E-07	4. 4109E-07	3. 3340E-07	2. 2941E-07	1. 7319E-07
	1. 5591E-07	1. 6599E-07	2. 0269E-07	2. 7627E-07	3. 2358E-07	3. 2719E-07
	3. 6970E-07	6. 2689E-07	1. 2505E-06	2. 3214E-06	3. 8501E-06	5. 7763E-06
	8. 2223E-06	1. 0940E-05	1. 3877E-05	1. 7617E-05	2. 2187E-05	2. 8195E-05
	1. 4156E-05	1. 9883E-07	4. 3314E-08	0. 0000E+00		
sc33	30 - 25 deg.					
si33	1. 0104E-05	1. 2341E-05	1. 5073E-05	1. 8411E-05	2. 2487E-05	2. 7465E-05
	3. 3546E-05	4. 0974E-05	5. 0045E-05	6. 1125E-05	7. 4659E-05	9. 1188E-05
	1. 1138E-04	1. 3604E-04	1. 6616E-04	2. 0294E-04	2. 4787E-04	3. 0275E-04
	3. 6979E-04	4. 5166E-04	5. 5166E-04	6. 7380E-04	8. 2297E-04	1. 0052E-03
	1. 2277E-03	1. 4996E-03	1. 8316E-03	2. 2371E-03	2. 7324E-03	3. 3373E-03
	4. 0762E-03	4. 9787E-03	6. 0810E-03	7. 4274E-03	9. 0718E-03	1. 1080E-02
	1. 3534E-02	1. 6530E-02	2. 0190E-02	2. 4660E-02	3. 0119E-02	3. 6788E-02
	4. 4933E-02	5. 4881E-02	6. 7032E-02	8. 1873E-02	0. 1 641	3. 35
sp33	0. 0000E+00	5. 7093E-11	4. 6475E-11	6. 5204E-11	7. 0645E-11	8. 4037E-11
	8. 4347E-11	1. 1087E-10	1. 1495E-10	1. 5342E-10	1. 5256E-10	1. 9863E-10
	2. 1639E-10	2. 8445E-10	2. 8713E-10	3. 4790E-10	4. 3613E-10	4. 8523E-10
	5. 1581E-10	6. 6497E-10	6. 8707E-10	8. 5402E-10	9. 4584E-10	1. 0953E-09
	1. 2543E-09	1. 4730E-09	1. 7784E-09	2. 2310E-09	2. 3267E-09	2. 6014E-09
	3. 1571E-09	3. 5844E-09	4. 2705E-09	5. 3049E-09	5. 7160E-09	6. 7542E-09
	7. 7010E-09	8. 9513E-09	1. 0663E-08	1. 2915E-08	1. 6073E-08	1. 8112E-08
	2. 1305E-08	2. 6160E-08	3. 1243E-08	3. 8895E-08	4. 6161E-08	1. 2855E-07
	1. 3165E-07	1. 3301E-07	1. 3627E-07	1. 4321E-07	1. 5658E-07	1. 6594E-07
	1. 7860E-07	1. 9046E-07	2. 0230E-07	2. 1396E-07	2. 1011E-07	1. 9383E-07
	1. 6737E-07	1. 5185E-07	1. 4836E-07	1. 5708E-07	1. 7321E-07	2. 1795E-07
	2. 7929E-07	3. 2847E-07	3. 1937E-07	2. 7505E-07	2. 3736E-07	1. 9427E-07
	1. 5974E-07	1. 4095E-07	1. 5009E-07	1. 5792E-07	1. 5475E-07	1. 4606E-07
	1. 3530E-07	1. 3079E-07	1. 2597E-07	1. 9835E-07	3. 0169E-07	4. 2538E-07
	4. 8459E-07	5. 4283E-07	4. 3917E-07	3. 2929E-07	2. 2702E-07	1. 7235E-07
	1. 5596E-07	1. 6436E-07	1. 9949E-07	2. 6894E-07	3. 1469E-07	2. 9545E-07
	3. 0621E-07	5. 0330E-07	1. 0209E-06	1. 9663E-06	3. 2792E-06	5. 0767E-06
	7. 2764E-06	9. 7219E-06	1. 2710E-05	1. 5988E-05	1. 9875E-05	2. 6647E-05
	2. 6691E-05	8. 6360E-06	6. 0174E-08	0. 0000E+00		
sc34	25 - 20 deg.					
si34	1. 0104E-05	1. 2341E-05	1. 5073E-05	1. 8411E-05	2. 2487E-05	2. 7465E-05
	3. 3546E-05	4. 0974E-05	5. 0045E-05	6. 1125E-05	7. 4659E-05	9. 1188E-05
	1. 1138E-04	1. 3604E-04	1. 6616E-04	2. 0294E-04	2. 4787E-04	3. 0275E-04
	3. 6979E-04	4. 5166E-04	5. 5166E-04	6. 7380E-04	8. 2297E-04	1. 0052E-03
	1. 2277E-03	1. 4996E-03	1. 8316E-03	2. 2371E-03	2. 7324E-03	3. 3373E-03
	4. 0762E-03	4. 9787E-03	6. 0810E-03	7. 4274E-03	9. 0718E-03	1. 1080E-02

		1. 3534E-02	1. 6530E-02	2. 0190E-02	2. 4660E-02	3. 0119E-02	3. 6788E-02
sp34		4. 4933E-02	5. 4881E-02	6. 7032E-02	8. 1873E-02	0. 1 641	3. 35
		0. 0000E+00	4. 1035E-11	4. 7506E-11	6. 5743E-11	6. 3249E-11	7. 8783E-11
		1. 0401E-10	1. 0624E-10	1. 1405E-10	1. 6098E-10	1. 4374E-10	1. 8386E-10
		2. 2896E-10	2. 5778E-10	3. 1672E-10	3. 6101E-10	4. 2758E-10	5. 1262E-10
		5. 1700E-10	6. 2716E-10	6. 8330E-10	9. 0553E-10	1. 0169E-09	1. 0828E-09
		1. 2639E-09	1. 4893E-09	1. 7758E-09	2. 1969E-09	2. 4097E-09	2. 7610E-09
		3. 3051E-09	3. 8243E-09	4. 3221E-09	5. 2520E-09	5. 7962E-09	6. 7559E-09
		8. 1885E-09	9. 1318E-09	1. 0707E-08	1. 3044E-08	1. 6390E-08	1. 7939E-08
		2. 1685E-08	2. 6288E-08	3. 1331E-08	4. 0210E-08	4. 7765E-08	1. 3237E-07
		1. 3564E-07	1. 3715E-07	1. 3996E-07	1. 4919E-07	1. 6129E-07	1. 6944E-07
		1. 8186E-07	1. 8993E-07	2. 0151E-07	2. 0845E-07	2. 0283E-07	1. 8845E-07
		1. 6224E-07	1. 4471E-07	1. 4183E-07	1. 5220E-07	1. 6869E-07	2. 1180E-07
		2. 7631E-07	3. 2195E-07	3. 1318E-07	2. 7164E-07	2. 3127E-07	1. 8896E-07
		1. 5496E-07	1. 3799E-07	1. 4588E-07	1. 5733E-07	1. 5480E-07	1. 4314E-07
		1. 3316E-07	1. 2755E-07	1. 2523E-07	1. 9834E-07	2. 9926E-07	4. 2399E-07
		4. 7632E-07	5. 3322E-07	4. 3678E-07	3. 2667E-07	2. 2474E-07	1. 7132E-07
		1. 5782E-07	1. 6463E-07	1. 9752E-07	2. 6454E-07	3. 0827E-07	2. 7177E-07
		2. 5988E-07	4. 1914E-07	8. 6193E-07	1. 6916E-06	2. 9045E-06	4. 5024E-06
		6. 6113E-06	8. 9584E-06	1. 1530E-05	1. 4861E-05	1. 8382E-05	2. 2801E-05
		3. 2757E-05	2. 2250E-05	4. 3081E-07	0. 0000E+00		
sc35		20 - 15 deg.					
si35		1. 0104E-05	1. 2341E-05	1. 5073E-05	1. 8411E-05	2. 2487E-05	2. 7465E-05
		3. 3546E-05	4. 0974E-05	5. 0045E-05	6. 1125E-05	7. 4659E-05	9. 1188E-05
		1. 1138E-04	1. 3604E-04	1. 6616E-04	2. 0294E-04	2. 4787E-04	3. 0275E-04
		3. 6979E-04	4. 5166E-04	5. 5166E-04	6. 7380E-04	8. 2297E-04	1. 0052E-03
		1. 2277E-03	1. 4996E-03	1. 8316E-03	2. 2371E-03	2. 7324E-03	3. 3373E-03
		4. 0762E-03	4. 9787E-03	6. 0810E-03	7. 4274E-03	9. 0718E-03	1. 1080E-02
		1. 3534E-02	1. 6530E-02	2. 0190E-02	2. 4660E-02	3. 0119E-02	3. 6788E-02
		4. 4933E-02	5. 4881E-02	6. 7032E-02	8. 1873E-02	0. 1 641	3. 35
sp35		0. 0000E+00	4. 2241E-11	4. 9019E-11	6. 7881E-11	7. 4916E-11	6. 5384E-11
		8. 7041E-11	1. 2519E-10	1. 1846E-10	1. 3408E-10	1. 5860E-10	2. 1780E-10
		2. 3093E-10	2. 4687E-10	2. 6261E-10	3. 6756E-10	3. 7260E-10	5. 3298E-10
		5. 3773E-10	6. 2362E-10	7. 6215E-10	8. 5349E-10	9. 5265E-10	1. 0912E-09
		1. 2925E-09	1. 4079E-09	1. 7783E-09	2. 3296E-09	2. 4180E-09	2. 7621E-09
		3. 3761E-09	3. 9343E-09	4. 3804E-09	5. 4781E-09	5. 9082E-09	6. 8544E-09
		8. 2026E-09	9. 6126E-09	1. 1219E-08	1. 3127E-08	1. 6817E-08	1. 8625E-08
		2. 2218E-08	2. 7310E-08	3. 3066E-08	4. 1174E-08	4. 8615E-08	1. 3594E-07
		1. 4044E-07	1. 4346E-07	1. 4614E-07	1. 5107E-07	1. 6209E-07	1. 6696E-07
		1. 7538E-07	1. 8267E-07	1. 9266E-07	2. 0256E-07	1. 9708E-07	1. 8233E-07
		1. 5619E-07	1. 4055E-07	1. 3714E-07	1. 4829E-07	1. 6561E-07	2. 0756E-07
		2. 6651E-07	3. 1417E-07	3. 0752E-07	2. 6867E-07	2. 3021E-07	1. 8453E-07
		1. 5349E-07	1. 3583E-07	1. 4296E-07	1. 5994E-07	1. 5535E-07	1. 4072E-07
		1. 3174E-07	1. 2714E-07	1. 2390E-07	1. 9819E-07	2. 9385E-07	4. 1810E-07
		4. 6791E-07	5. 3722E-07	4. 3122E-07	3. 2009E-07	2. 2109E-07	1. 7245E-07
		1. 5962E-07	1. 6746E-07	1. 9471E-07	2. 6286E-07	3. 0432E-07	2. 5704E-07
		2. 3691E-07	3. 5975E-07	7. 5953E-07	1. 4807E-06	2. 6467E-06	4. 1020E-06
		6. 0712E-06	8. 3213E-06	1. 1018E-05	1. 3817E-05	1. 7692E-05	2. 1207E-05
sc36		2. 7988E-05	2. 7138E-05	1. 4101E-05	0. 0000E+00		
si36		15 - 10 deg.					
		1. 0104E-05	1. 2341E-05	1. 5073E-05	1. 8411E-05	2. 2487E-05	2. 7465E-05
		3. 3546E-05	4. 0974E-05	5. 0045E-05	6. 1125E-05	7. 4659E-05	9. 1188E-05
		1. 1138E-04	1. 3604E-04	1. 6616E-04	2. 0294E-04	2. 4787E-04	3. 0275E-04
		3. 6979E-04	4. 5166E-04	5. 5166E-04	6. 7380E-04	8. 2297E-04	1. 0052E-03
		1. 2277E-03	1. 4996E-03	1. 8316E-03	2. 2371E-03	2. 7324E-03	3. 3373E-03
		4. 0762E-03	4. 9787E-03	6. 0810E-03	7. 4274E-03	9. 0718E-03	1. 1080E-02
		1. 3534E-02	1. 6530E-02	2. 0190E-02	2. 4660E-02	3. 0119E-02	3. 6788E-02
		4. 4933E-02	5. 4881E-02	6. 7032E-02	8. 1873E-02	0. 1 641	3. 35
sp36		0. 0000E+00	4. 2333E-11	6. 3577E-11	5. 2978E-11	6. 4857E-11	7. 8013E-11
		9. 3058E-11	1. 0529E-10	1. 1797E-10	1. 6044E-10	1. 5602E-10	1. 7368E-10
		2. 4105E-10	2. 5715E-10	3. 3160E-10	4. 0249E-10	3. 7966E-10	4. 5460E-10
		5. 0439E-10	6. 1946E-10	7. 0834E-10	8. 7748E-10	9. 3295E-10	1. 1441E-09
		1. 2642E-09	1. 5847E-09	1. 7168E-09	2. 3198E-09	2. 5184E-09	2. 8191E-09
		3. 3732E-09	3. 9055E-09	4. 7104E-09	5. 5313E-09	6. 1381E-09	7. 0893E-09
		8. 5289E-09	9. 9220E-09	1. 1230E-08	1. 3788E-08	1. 7401E-08	1. 9404E-08
		2. 3530E-08	2. 8697E-08	3. 4599E-08	4. 3042E-08	5. 1418E-08	1. 4390E-07
		1. 4556E-07	1. 4588E-07	1. 4375E-07	1. 4648E-07	1. 5661E-07	1. 6145E-07
		1. 7023E-07	1. 7705E-07	1. 8675E-07	1. 9709E-07	1. 9178E-07	1. 7793E-07
		1. 5316E-07	1. 3711E-07	1. 3506E-07	1. 4613E-07	1. 6383E-07	2. 0378E-07
		2. 6255E-07	3. 0794E-07	3. 0582E-07	2. 6607E-07	2. 2732E-07	1. 8170E-07
		1. 5090E-07	1. 3366E-07	1. 3848E-07	1. 6313E-07	1. 5271E-07	1. 3794E-07
		1. 2990E-07	1. 2348E-07	1. 2212E-07	1. 9721E-07	2. 8912E-07	4. 1373E-07
		4. 6654E-07	5. 2898E-07	4. 3240E-07	3. 1651E-07	2. 1791E-07	1. 7328E-07
		1. 6287E-07	1. 6869E-07	1. 9303E-07	2. 5945E-07	3. 0096E-07	2. 5092E-07
		2. 1747E-07	3. 1140E-07	6. 7203E-07	1. 3748E-06	2. 4758E-06	3. 8876E-06

	5. 7380E-06	7. 8292E-06	1. 0574E-05	1. 3425E-05	1. 6623E-05	2. 0693E-05
	2. 5030E-05	3. 4460E-05	1. 9918E-05	0. 0000E+00		
sc37	10 - 5 deg.					
si37	1. 0104E-05	1. 2341E-05	1. 5073E-05	1. 8411E-05	2. 2487E-05	2. 7465E-05
	3. 3546E-05	4. 0974E-05	5. 0045E-05	6. 1125E-05	7. 4659E-05	9. 1188E-05
	1. 1138E-04	1. 3604E-04	1. 6616E-04	2. 0294E-04	2. 4787E-04	3. 0275E-04
	3. 6979E-04	4. 5166E-04	5. 5166E-04	6. 7380E-04	8. 2297E-04	1. 0052E-03
	1. 2277E-03	1. 4996E-03	1. 8316E-03	2. 2371E-03	2. 7324E-03	3. 3373E-03
	4. 0762E-03	4. 9787E-03	6. 0810E-03	7. 4274E-03	9. 0718E-03	1. 1080E-02
	1. 3534E-02	1. 6530E-02	2. 0190E-02	2. 4660E-02	3. 0119E-02	3. 6788E-02
	4. 4933E-02	5. 4881E-02	6. 7032E-02	8. 1873E-02	0. 1 641	3. 35
sp37	0. 0000E+00	4. 4101E-11	4. 6502E-11	6. 5911E-11	7. 8813E-11	8. 9097E-11
	1. 1864E-10	9. 4108E-11	1. 1790E-10	1. 2931E-10	1. 6033E-10	1. 7672E-10
	2. 4113E-10	2. 5441E-10	3. 0763E-10	3. 6550E-10	4. 0473E-10	5. 3083E-10
	5. 6563E-10	6. 1932E-10	7. 0152E-10	8. 8133E-10	1. 0237E-09	1. 0969E-09
	1. 3239E-09	1. 5383E-09	1. 8569E-09	2. 2451E-09	2. 6366E-09	2. 7187E-09
	3. 5442E-09	4. 1780E-09	4. 9066E-09	5. 7265E-09	6. 1846E-09	7. 5686E-09
	8. 7875E-09	1. 0397E-08	1. 2232E-08	1. 4598E-08	1. 8465E-08	2. 0843E-08
	2. 5368E-08	3. 1154E-08	3. 6269E-08	4. 6058E-08	5. 4099E-08	1. 4654E-07
	1. 4420E-07	1. 3840E-07	1. 3844E-07	1. 4307E-07	1. 5128E-07	1. 5655E-07
	1. 6540E-07	1. 7373E-07	1. 8161E-07	1. 9386E-07	1. 9115E-07	1. 7817E-07
	1. 4958E-07	1. 3492E-07	1. 3235E-07	1. 4216E-07	1. 6175E-07	1. 9930E-07
	2. 5689E-07	3. 0415E-07	2. 9893E-07	2. 6094E-07	2. 2799E-07	1. 7815E-07
	1. 4766E-07	1. 3072E-07	1. 3637E-07	1. 6646E-07	1. 4867E-07	1. 3624E-07
	1. 2827E-07	1. 2414E-07	1. 2148E-07	1. 9588E-07	2. 7750E-07	4. 0379E-07
	4. 5417E-07	5. 2315E-07	4. 3114E-07	3. 1058E-07	2. 1324E-07	1. 7271E-07
	1. 6526E-07	1. 7044E-07	1. 9359E-07	2. 5759E-07	3. 0122E-07	2. 4622E-07
	2. 0594E-07	2. 9480E-07	6. 2468E-07	1. 2835E-06	2. 3049E-06	3. 7286E-06
	5. 4551E-06	7. 6211E-06	1. 0397E-05	1. 3373E-05	1. 5081E-05	2. 1381E-05
sc38	5 - 0 deg.					
si38	1. 0104E-05	1. 2341E-05	1. 5073E-05	1. 8411E-05	2. 2487E-05	2. 7465E-05
	3. 3546E-05	4. 0974E-05	5. 0045E-05	6. 1125E-05	7. 4659E-05	9. 1188E-05
	1. 1138E-04	1. 3604E-04	1. 6616E-04	2. 0294E-04	2. 4787E-04	3. 0275E-04
	3. 6979E-04	4. 5166E-04	5. 5166E-04	6. 7380E-04	8. 2297E-04	1. 0052E-03
	1. 2277E-03	1. 4996E-03	1. 8316E-03	2. 2371E-03	2. 7324E-03	3. 3373E-03
	4. 0762E-03	4. 9787E-03	6. 0810E-03	7. 4274E-03	9. 0718E-03	1. 1080E-02
	1. 3534E-02	1. 6530E-02	2. 0190E-02	2. 4660E-02	3. 0119E-02	3. 6788E-02
	4. 4933E-02	5. 4881E-02	6. 7032E-02	8. 1873E-02	0. 1 641	3. 35
sp38	0. 0000E+00	3. 3104E-11	5. 0953E-11	4. 0307E-11	5. 9728E-11	8. 7590E-11
	7. 3701E-11	8. 3036E-11	6. 4952E-11	1. 6997E-10	1. 2540E-10	2. 0508E-10
	2. 6072E-10	3. 3993E-10	3. 4816E-10	2. 7994E-10	4. 9273E-10	6. 2832E-10
	6. 2527E-10	5. 2542E-10	7. 8210E-10	9. 8467E-10	9. 7272E-10	1. 1716E-09
	1. 4918E-09	1. 3975E-09	1. 8671E-09	2. 4478E-09	2. 4388E-09	2. 9073E-09
	3. 4086E-09	4. 3503E-09	4. 8376E-09	5. 8635E-09	6. 4693E-09	8. 2333E-09
	9. 3016E-09	1. 1776E-08	1. 2918E-08	1. 6006E-08	1. 9670E-08	2. 2553E-08
	2. 6485E-08	3. 1710E-08	3. 7322E-08	4. 7190E-08	5. 4647E-08	1. 4659E-07
	1. 4044E-07	1. 3692E-07	1. 3913E-07	1. 3867E-07	1. 5156E-07	1. 5540E-07
	1. 6372E-07	1. 6818E-07	1. 7727E-07	1. 9532E-07	1. 9080E-07	1. 7025E-07
	1. 4558E-07	1. 3694E-07	1. 3200E-07	1. 4100E-07	1. 6192E-07	1. 9989E-07
	2. 4595E-07	2. 9901E-07	3. 0199E-07	2. 6367E-07	2. 2285E-07	1. 7802E-07
	1. 5082E-07	1. 3086E-07	1. 3412E-07	1. 6978E-07	1. 4616E-07	1. 3325E-07
	1. 2762E-07	1. 2302E-07	1. 2062E-07	1. 9614E-07	2. 7428E-07	3. 8908E-07
	4. 4635E-07	5. 2749E-07	4. 1577E-07	3. 0364E-07	2. 1473E-07	1. 6969E-07
	1. 6955E-07	1. 7205E-07	1. 9023E-07	2. 5731E-07	3. 0078E-07	2. 4528E-07
	2. 0215E-07	2. 9331E-07	6. 0022E-07	1. 3013E-06	2. 2595E-06	3. 7128E-06
	5. 2798E-06	7. 6557E-06	1. 0059E-05	1. 3351E-05	1. 4956E-05	2. 1765E-05
	2. 0729E-05	3. 8785E-05	2. 8746E-05	0. 0000E+00		

# 国際単位系 (SI)

表1. SI 基本単位

基本量	SI 基本単位	
	名称	記号
長さ	メートル	m
質量	キログラム	kg
時間	秒	s
電流	アンペア	A
熱力学温度	ケルビン	K
物質量	モル	mol
光度	カンデラ	cd

表2. 基本単位を用いて表されるSI組立単位の例

組立量	SI 基本単位	
	名称	記号
面積	平方メートル	$m^2$
体積	立方メートル	$m^3$
速度	メートル毎秒	$m/s$
加速	メートル毎秒毎秒	$m/s^2$
波数	メートル	$m^{-1}$
密度、質量密度	キログラム毎立方メートル	$kg/m^3$
面積密度	キログラム毎平方メートル	$kg/m^2$
比体積	立方メートル毎キログラム	$m^3/kg$
電流密度	アンペア毎平方メートル	$A/m^2$
磁界の強さ	アンペア毎メートル	$A/m$
量濃度 <sup>(a)</sup> 、濃度 <sup>(b)</sup>	モル毎立方メートル	$mol/m^3$
質量濃度	キログラム毎立方メートル	$kg/m^3$
輝度	カンデラ毎平方メートル	$cd/m^2$
屈折率 <sup>(b)</sup>	(数字の) 1	1
比透磁率 <sup>(b)</sup>	(数字の) 1	1

(a) 量濃度(amount concentration)は臨床化学の分野では物質濃度(substance concentration)ともよばれる。

(b) これらは無次元量あるいは次元1をもつ量であるが、そのことを表す単位記号である数字の1は通常は表記しない。

表3. 固有の名称と記号で表されるSI組立単位

組立量	SI 組立単位		
	名称	記号	他のSI単位による表し方
平面角	ラジアン <sup>(b)</sup>	rad	$1^{(b)}$
立体角	ステラジアン <sup>(b)</sup>	sr <sup>(c)</sup>	$1^{(b)}$
周波数	ヘルツ <sup>(d)</sup>	Hz	$s^{-1}$
力	ニュートン	N	$m \ kg \ s^{-2}$
圧力、応力	パスカル	Pa	$N/m^2$
エネルギー、仕事、熱量	ジュール	J	$m^2 \ kg \ s^{-2}$
仕事率、工率、放射束	ワット	W	$m^2 \ kg \ s^{-3}$
電荷、電気量	クーロン	C	$s \ A$
電位差(電圧)、起電力	ボルト	V	$m^2 \ kg \ s^{-3} \ A^{-1}$
静電容量	ファラード	F	$C/V$
電気抵抗	オーム	$\Omega$	$m^2 \ kg \ s^{-3} \ A^{-2}$
コンダクタンス	ジーメンス	S	$A/V$
磁束密度	ウエーバー	Wb	$m^2 \ kg \ s^{-2} \ A^{-1}$
磁束密度	テスラ	T	$Wb/m^2$
インダクタンス	ヘンリー	H	$Wb/A$
セルシウス度	セルシウス度 <sup>(e)</sup>	°C	K
光束度	ルーメン	lm	cd sr <sup>(c)</sup>
照度	ルクス	lx	$lm/m^2$
放射性核種の放射能 <sup>(f)</sup>	ベクレル <sup>(d)</sup>	Bq	$s^{-1}$
吸収線量、比エネルギー一分率	グレイ	Gy	$J/kg$
カーマ			$m^2 \ s^{-2}$
線量当量、周辺線量当量、方向性線量当量、個人線量当量	シーベルト <sup>(g)</sup>	Sv	$J/kg$
酸素活性	カタール	kat	$m^2 \ s^{-2}$

(a) SI接頭語は固有の名称と記号を持つ組立単位と組み合せても使用できる。しかし接頭語を付した単位はもはやコヒーレントではない。

(b) ラジアンとステラジアンは数字の1に対する単位の特別な名称で、量についての情報をつたえるために使われる。実際には、使用する時には記号rad及びsrが用いられるが、習慣として組立単位としての記号である数字の1は明示されない。

(c) 制光子ではステラジアンという名称と記号srを単位の表し方の中に、そのまま維持している。

(d) ヘルツは周期現象についてのみ、ベクレルは放射性核種の統計的過程についてのみ使用される。

(e) セルシウス度はケルビンの特別な名称で、セルシウス度を表すために使用される。セルシウス度とケルビンの単位の大きさは同一である。したがって、温度差や温度間隔を表す数値はどちらの単位で表しても同じである。

(f) 放射性核種の放射能(activity referred to a radionuclide)は、しばしば誤った用語で“radioactivity”と記される。

(g) 単位シーベルト(PV,2002,70,205)についてはCIPM勧告2(CI-2002)を参照。

表4. 単位の中に固有の名称と記号を含むSI組立単位の例

組立量	SI 組立単位		
	名称	記号	SI 基本単位による表し方
粘度	パスカル秒	Pa s	$m^{-1} \ kg \ s^{-1}$
力のモーメント	ニュートンメートル	N m	$m^2 \ kg \ s^{-2}$
表面張力	ニュートン每メートル	N/m	$kg \ s^{-2}$
角速度	ラジアン毎秒	rad/s	$m^{-1} \ s^{-1}=s^{-1}$
角加速度	ラジアン毎秒毎秒	rad/s <sup>2</sup>	$m^{-1} \ s^{-2}=s^{-2}$
熱流密度、放射照度	ワット毎平方メートル	W/m <sup>2</sup>	$kg \ s^{-3}$
熱容量、エンタルピー	ジュール每ケルビン	J/K	$m^2 \ kg \ s^{-2} \ K^{-1}$
比熱容量、比エンタルピー	ジュール每キログラム毎ケルビン	J/(kg K)	$m^2 \ s^{-2} \ K^{-1}$
比エネルギー	ジュール每キログラム	J/kg	$m^2 \ s^{-2}$
熱伝導率	ワット每メートル毎ケルビン	W/(m K)	$m \ kg \ s^{-3} \ K^{-1}$
体積エネルギー	ジュール每立方メートル	J/m <sup>3</sup>	$m^1 \ kg \ s^2$
電界の強さ	ボルト每メートル	V/m	$m \ kg \ s^{-3} \ A^{-1}$
電荷密度	クーロン每立方メートル	C/m <sup>3</sup>	$m^{-3} \ sA$
表面電荷密度	クーロン每平方メートル	C/m <sup>2</sup>	$m^{-2} \ sA$
電束密度、電気変位	クーロン每平方メートル	C/m <sup>2</sup>	$m^{-2} \ sA$
誘電率	アラード毎メートル	F/m	$m^3 \ kg^{-1} \ s^4 \ A^2$
透磁率	ヘンリー毎メートル	H/m	$m \ kg \ s^{-2} \ A^2$
モルエネルギー	ジュール每モル	J/mol	$m^2 \ kg \ s^{-2} \ mol^{-1}$
モルエントロピー、モル熱容量	ジュール每モル每ケルビン	J/(mol K)	$m^2 \ kg \ s^{-2} \ K^{-1} \ mol^{-1}$
照射線量(X線及びγ線)	クーロン每キログラム	C/kg	$kg^{-1} \ sA$
吸収線量率	グレイ毎秒	Gy/s	$m^{-2} \ s^{-3}$
放射強度	ワット每メートル毎スチラジアン	W/sr	$m^2 \ m^{-2} \ kg \ s^{-3}=m^2 \ kg \ s^{-3}$
放射輝度	ワット每平方メートル毎スチラジアン	W/(m <sup>2</sup> sr)	$m^2 \ m^{-2} \ kg \ s^{-3}=kg \ s^{-3}$
醇素活性濃度	カタール每立方メートル	kat/m <sup>3</sup>	$m^{-3} \ mol$

表5. SI接頭語

乗数	接頭語	記号	乗数	接頭語	記号
$10^{24}$	ヨタ	Y	$10^{-1}$	デシ	d
$10^{21}$	ゼタ	Z	$10^{-2}$	センチ	c
$10^{18}$	エクサ	E	$10^{-3}$	ミリ	m
$10^{15}$	ペタ	P	$10^{-6}$	マイクロ	μ
$10^{12}$	テラ	T	$10^{-9}$	ナノ	n
$10^9$	ギガ	G	$10^{-12}$	ピコ	p
$10^6$	メガ	M	$10^{-15}$	フェムト	f
$10^3$	キロ	k	$10^{-18}$	アト	a
$10^2$	ヘクト	h	$10^{-21}$	ゼット	z
$10^1$	デカ	da	$10^{-24}$	ヨクト	y

表6. SIに属さないが、SIと併用される単位

名称	記号	SI 単位による値
分	min	1 min=60s
時	h	1 h=60 min=3600 s
日	d	1 d=24 h=86 400 s
度	°	$1^\circ=(\pi/180) \ rad$
分	'	$1'=(1/60)^\circ=(n/10800) \ rad$
秒	"	$1''=(1/60)'=(n/648000) \ rad$
ヘクタール	ha	$1ha=1m^2=10^4m^2$
リットル	L	$1L=1dm^3=10^3cm^3=10^{-3}m^3$
トン	t	$1t=10^3kg$

表7. SIに属さないが、SIと併用される単位で、SI単位で表される数値が実験的に得られるもの

名称	記号	SI 単位で表される数値
電子ボルト	eV	$1eV=1.602 \ 176 \ 53(14) \times 10^{-19}J$
ダルトン	Da	$1Da=1.660 \ 538 \ 86(28) \times 10^{-27}kg$
統一原子質量単位	u	$1u=1 Da$
天文単位	ua	$1ua=1.495 \ 978 \ 706 \ 91(6) \times 10^{11}m$

表8. SIに属さないが、SIと併用されるその他の単位

名称	記号	SI 単位で表される数値
バール	bar	$1bar=0.1MPa=100kPa=10^5Pa$
水銀柱ミリメートル	mmHg	$1mmHg=133.322Pa$
オングストローム	Å	$1 \text{ \AA}=0.1nm=100pm=10^{-10}m$
海里	M	$1 M=1852m$
バーン	b	$1 b=100fm^2=(10^{-12}cm)^2=10^{-28}m^2$
ノット	kn	$1 kn=(1852/3600)m/s$
ネーパル	Np	SI単位との数値的な関係は、対数量の定義に依存。
ベル	B	
デジベル	dB	

名称	記号	SI 単位で表される数値
エрг	erg	$1 erg=10^{-7}J$
ダイナ	dyn	$1 dyn=10^{-5}N$
ポアソン	P	$1 P=1 \text{ dyne} \ s \ cm^{-2}=0.1Pa \ s$
ストークス	St	$1 St=1cm^2 \ s^{-1}=10^4m^2 \ s^{-1}$
スチルブ	sb	$1 sb=1cd \ cm^{-2}=10^4cd \ m^{-2}$
フォント	ph	$1 ph=1cd \ sr \ cm^{-2} \ 10^4lx$
ガル	Gal	$1 Gal=1cm \ s^{-2}=10^{-2}ms^{-2}$
マックスウェル	Mx	$1 Mx=1G \ cm^2=10^8Wb$
ガウス	G	$1 G=1Mx \ cm^2=10^4T$
エルステッド	Oe	$1 Oe \triangleq (10^3/4\pi)A \ m^{-1}$

(c) 3元系のCGS単位系とSIでは直接比較できないため、等号「 $\triangleq$ 」は対応関係を示すものである。

表10. SIに属さないその他の単位の例

名称	記号	SI 単位で表される数値
キュリ	Ci	$1 Ci=3.7 \times 10^{10}Bq$
レントゲン	R	$1 R=2.58 \times 10^4C/kg$
ラド	rad	$1 rad=1cGy=10^2Gy$
レム	rem	$1 rem=1cSv=10^2Sv$
ガンマ	γ	$1 \gamma=1 nT=10^{-9}T$
フェルミ	fm	$1 \text{フェルミ}=1 fm=10^{-15}m$
メートル系カラット		$1 \text{メートル系カラット}=200 mg=2 \times 10^{-4}kg$
トル	Torr	$1 Torr = (101 325/760) Pa$
標準大気圧	atm	$1 atm = 101 325 Pa$
カロリ	cal	$1 cal=4.1858J \ ((15^\circ C) \ カロリー), 4.1868J \ ((IT) \ カロリー)$
ミクロン	μ	$1 \mu=1 \mu m=10^{-6}m$

