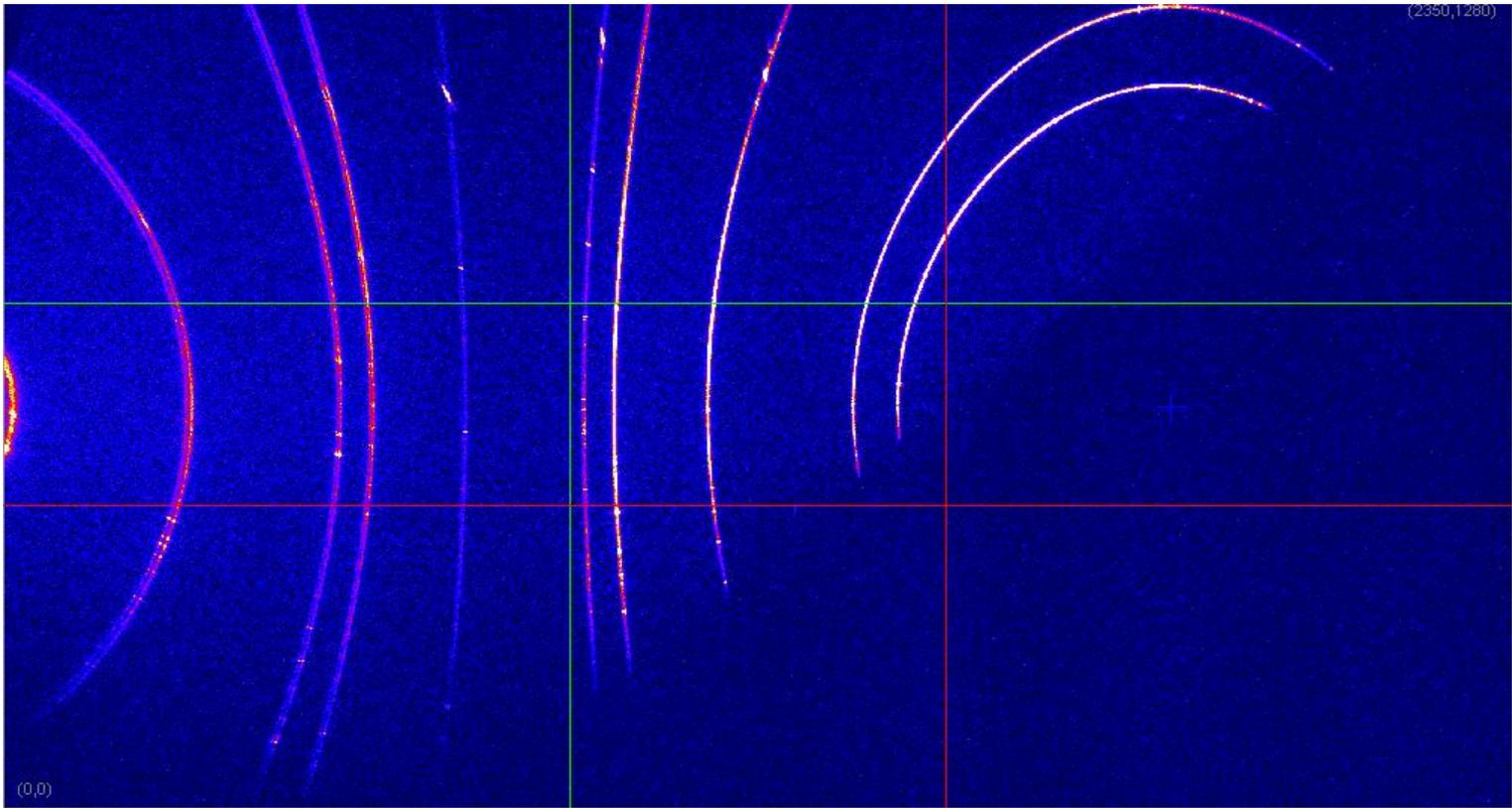


# 2DP極点処理とODF

2DP極点図を最新CTRソフトウェアで処理し、ODF解析  
LaboTex3.0(Ver3.0.5.3)  
MTEX(Ver5.1.1)を使用

2018年10月  
HelperTex Office

# ImageData



ImageDataからASC極点図を切り出す。  
Randomデータからdefocus曲線作成は1deg間隔  
Sampleは5deg間隔(1deg間隔の場合、1deg->5deg処理を行う)

# RAPID->2DP->DATA

RAPID2-007-100 $\mu$ m-FT10sec ▶ 2018-10-03 ▶ random

名前	更新日時	種類	サイズ
111-1deg.asc	2007/06/19 8:24	RINT20007ｽｷ-	263 KB
111-5deg.asc	2007/06/19 8:25	RINT20007ｽｷ-	16 KB
200-1deg.asc	2007/06/18 21:59	RINT20007ｽｷ-	260 KB
200-5deg.asc	2007/06/18 22:00	RINT20007ｽｷ-	16 KB
220-1deg.asc	2007/06/18 21:46	RINT20007ｽｷ-	255 KB
220-5deg.asc	2007/06/18 21:46	RINT20007ｽｷ-	15 KB
311-1deg.asc	2007/06/18 21:50	RINT20007ｽｷ-	256 KB
311-5deg.asc	2007/06/18 21:51	RINT20007ｽｷ-	16 KB

RAPID2-007-100 $\mu$ m-FT10sec ▶ 2018-10-03 ▶ sample

名前	更新日時	種類	サイズ
Alsample111-1deg.asc	2007/06/19 15:11	RINT20007ｽｷ-	253 KB
Alsample111-5deg.asc	2007/06/19 15:11	RINT20007ｽｷ-	15 KB
Alsample200-1deg.asc	2007/06/19 15:15	RINT20007ｽｷ-	258 KB
Alsample200-5deg.asc	2007/06/19 15:15	RINT20007ｽｷ-	16 KB
Alsample220-1deg.asc	2007/06/19 15:31	RINT20007ｽｷ-	252 KB
Alsample220-5deg.asc	2007/06/19 15:31	RINT20007ｽｷ-	15 KB
Alsample311-1deg.asc	2007/06/19 15:33	RINT20007ｽｷ-	252 KB
Alsample311-5deg.asc	2007/06/19 15:33	RINT20007ｽｷ-	15 KB

```
*TYPE = Raw
*CLASS = PoleFig
*SAMPLE =
*COMMENT = Export from Riga
*FNAME =
*DATE =
*GROUP_COUNT = 1
*PF_PCOUNT = 1, 91
*PF_ASTART = 1, 0.0000
*PF_ASTOP = 1, 90.0000
*PF_ASTEP = 1, 1.0000

*BEGIN
*GROUP = 0
*START = 0.0000
*STOP = 360.0000
*STEP = 1.0000
*OFFSET = 0.0
*SPEED = 60.0000
*FULL_SCALE = 1000
*PF_ANGLE = 0.0000
*PF_BANGLE = 0.0000
*INDEX = 1 1 1
*COUNT = 361
0.00 , 0.00 , 0.00 , 0.00
0.00 , 0.00 , 0.00 , 0.00
0.00 , 0.00 , 0.00 , 0.00
```

ファイル先頭は指数から始まる。  
1degデータを用いてdefocus曲線を作成し  
5degデータで極点処理を行う

# randomファイル処理(入力データの確認)

The screenshot displays the ODF software interface. At the top, four plots show the intensity distribution in the RD (Radial Diffraction) and TD (Tangential Diffraction) plane for different hkl values: {1,1,1}, {2,0,0}, {2,2,0}, and {3,1,1}. Below the plots is the main configuration window titled 'ODFPoleFigure2 3.82SKT[19/03/31] by CTR'. The 'Files select' dropdown menu is highlighted with a red circle and contains the text 'ASC(RAPID)'. A blue arrow points from the text '測定されていない領域をCutモード' at the bottom of the page to this dropdown menu. The configuration window includes various settings for calculation conditions, background deletion, peak slits, and defocusing functions.

測定されていない領域をCutモード

# randomファイル処理(TXT2作成)

The screenshot displays the ODFPoleFigure2 3.82SKT[19/03/31] by CTR software interface. The top section contains four RD (Reciprocal Lattice) plots for different Miller indices: {1,1,1} 294.72, {2,0,0} 491.64, {2,2,0} 149.74, and {3,1,1} 92.35. Each plot shows a circular distribution of data points in the RD-TD plane.

The main control panel includes the following sections:

- Files select:** A dropdown menu set to "ASC(RAPID)" and a file list containing "111-1degZcut.asc", "200-1degZcut.asc", "220-1degZcut.asc", and "311-1degZcut.asc".
- Calculation Condition:** A text field showing the path "C:\CTR\TEST\RAPID2-007-100 μm-FT10sec#2018-10-03#random#111-1degZcut.asc".
- Background delete mode:** Radio buttons for "DoubleMode", "SingleMode", "LowMode", "HighMode", and "Nothing" (selected).
- Smoothing:** A dropdown menu set to "Savitzky-Golay mean" and a "Disp" button.
- Smoothing for ADC:** A section with "Cycles" set to 3, "Weight" set to 6, and a "Disp" button.
- Normalization:** Radio buttons for "CTR" (selected) and "Connect".
- CenterData:** Radio buttons for "Average" and "TXT2" (selected).
- OutFiles:** Radio buttons for "Asc", "MTeXAsc", "Ras", "TXT", and "TXT2" (selected).
- Buttons:** "Cancel", "Calc" (circled in red), "Connect", "Exit&ODF", "ODF", "ValueODFV...", and "ValueODFV-A".

A blue arrow points to the "Calc" button. The status bar at the bottom left displays the message "Filemake success !!".

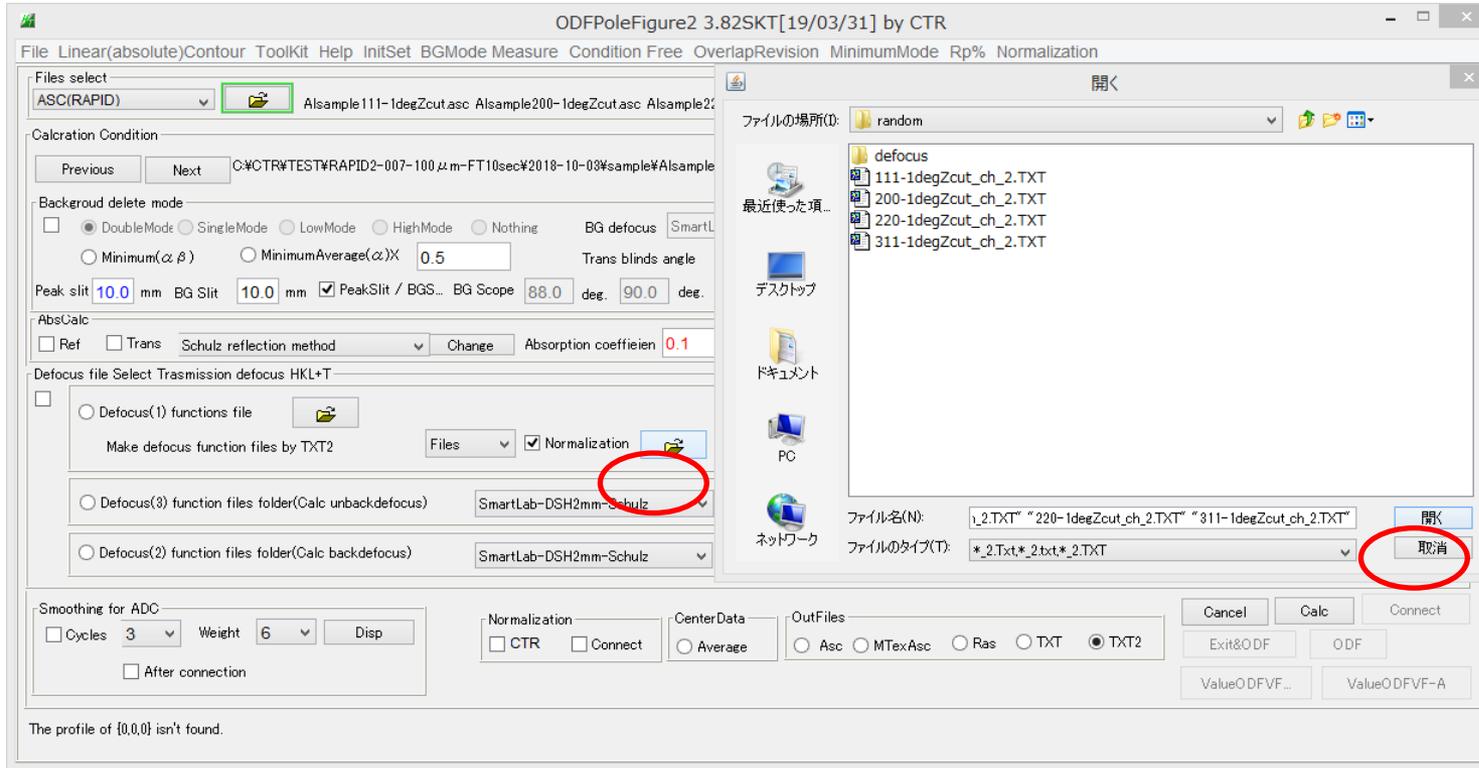
# randomファイル処理(TXT2ファイルの確認)

File Explorer window showing a directory of files. The selected file is `111-1degZcut_ch_2.TXT`. The preview pane shows the following data:

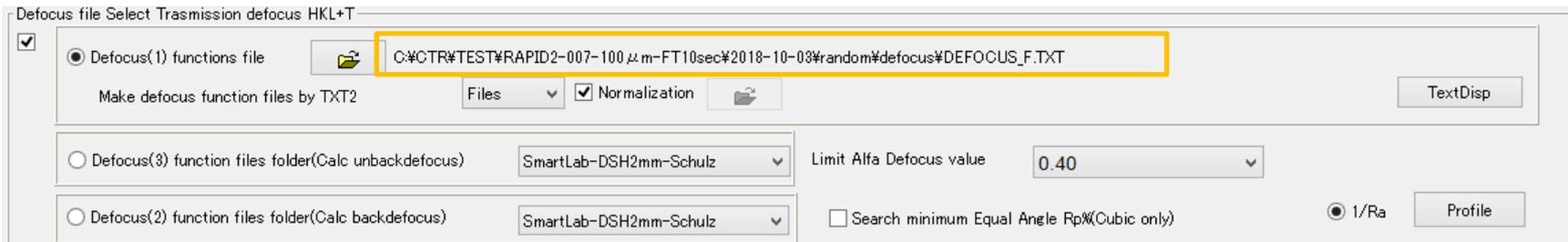
ファイル(F)	編集(E)	書式(O)
35.0	0.0	0.0
35.0	1.0	0.0
35.0	2.0	0.0
35.0	3.0	0.05
35.0	4.0	0.1
35.0	5.0	0.14
35.0	6.0	0.17
35.0	7.0	0.2
35.0	8.0	0.21
35.0	9.0	0.21
35.0	10.0	0.18
35.0	11.0	0.14
35.0	12.0	0.09
35.0	13.0	0.05
35.0	14.0	0.02
35.0	15.0	0.0
35.0	16.0	0.0
35.0	17.0	0.0
35.0	18.0	0.0
35.0	19.0	0.0

ZCutで測定されていない領域が削除される。

# randomファイル処理(TXT2の登録)



## TXT2ファイルを登録する



# Sample処理(指数の確認と登録)

The screenshot displays the ODFPoleFigure2 software interface. At the top, four windows show pole figures for different samples, labeled with their  $\{0,0,0\}$  values: 128.29, 43.2, 38.1, and 19.3. The main window is titled "ODFPoleFigure2 3.82SKT[19/03/31] by CTR".

The software interface includes the following sections:

- Files select:** Shows the selected file "ASC(RAPID)" and a list of sample files.
- Calculation Condition:** Includes a "Previous" button, a "Next" button, and a file path: "C:\CTR\TEST\RAPID2-007-100 μm-FT10sec#2018-10-03#sample#AIsample111-5degZcut.asc". A red circle highlights the "hkl" field set to "1,1,1" with a "Change" button next to it.
- Background delete mode:** Includes radio buttons for "DoubleMode", "SingleMode", "LowMode", "HighMode", and "Nothing" (selected). It also has a "MinimumAverage( $\alpha$ )X" field set to "0.5".
- AbsCalc:** Includes checkboxes for "Ref" and "Trans", a "Schulz reflection method" dropdown, a "Change" button, "Absorption coefficient" set to "0.1", "Thickness" set to "1", and "2Theta" set to "0.0".
- Defocus file:** Includes a "Defocus(1) functions file" dropdown, a "Make defocus function files by TXT2" button, and a "Limit Alfa Defocus value" set to "0.40".
- Smoothing for ADC:** Includes a "Cycles" dropdown set to "3", a "Weight" dropdown set to "6", and a "Disp" button.
- Normalization:** Includes a "CenterData" dropdown set to "Average" and "OutFiles" options: "Asc", "MTeXAsc", "Ras", "TXT", and "TXT2" (selected).

At the bottom, there are buttons for "Cancel", "Calc", "Connect", "Exit&ODF", "ODF", "ValueODFVF...", and "ValueODFVF-A". A status message at the bottom left reads: "The profile of {0,0,0} isn't found."

# Sample処理(RDの確認)

The screenshot displays the ODF software interface. At the top, four windows show RD plots for different samples:  $\{0,0,0\}$  128.29,  $\{0,0,0\}$  43.2,  $\{0,0,0\}$  38.1, and  $\{0,0,0\}$  19.3. Each plot shows intensity distribution in the RD-TD plane. Below these is the main ODF window titled "ODFPoleFigure2 3.82SKT[19/03/31] by CTR". The interface includes a menu bar, a file selection area, and various calculation condition settings. A central plot window titled "MultiDisp Ver.1.107S" shows a profile of intensity (cps) versus  $\beta$  (deg). The plot title is "alfa:65.0deg. Interporation RD=5.0deg. Max=0.22deg." and it compares "raw" (red line) and "rddata" (blue line) data. The profile shows a peak at approximately 175 degrees. On the right side, there are controls for smoothing (Savitzky-Golay mean), RD (Interporation), and profile generation (1/Ra). A blue arrow points from the "RD" control to the "Profile" button. At the bottom left, a message states "The profile of {0,0,0} isn't found."

# Sample処理(random補正量の指定)

The screenshot displays the ODF software interface. At the top, four windows show pole figures for different samples: {0,0,0} 128.29, {0,0,0} 43.2, {0,0,0} 38.1, and {0,0,0} 19.3. Each plot shows intensity distribution in the RD-TD plane. Below these is the main ODFPoleFigure2 window with a menu bar and a file list containing 'ASC(RAPID)' and several sample files. A 'MultiDisp Ver.1.1075' window is open, showing a 'Defocus(1,1,1)' graph. The graph plots 'cps' (counts per second) on the y-axis (0.0 to 6.5) against 'alfa' on the x-axis (40 to 85). A red curve starts at approximately 6.5 cps at alfa=40 and decreases to about 1.0 cps at alfa=85. A horizontal blue line is drawn at approximately 2.5 cps. The legend indicates the red line is for '111' and the blue line is for 'LEVEL'. The software interface also includes various control panels for background deletion, peak slit (set to 10.0), defocus file selection, and smoothing parameters. A status bar at the bottom left indicates 'The profile of {0,0,0} isn't found.'

# Sample処理

The screenshot displays the ODFPoleFigure2 software interface. At the top, four pole figure plots are shown for the  $\{0,0,0\}$  reflection, with values 128.29, 43.2, 38.1, and 19.3. Below these are four more plots for the  $\{3,1,1\}$ ,  $\{2,0,0\}$ ,  $\{2,2,0\}$ , and  $\{3,1,1\}$  reflections, with values 9.94, 6.11, 6.38, and 2.86. The central control panel includes a 'Files select' dropdown set to 'ASC(RAPID)', a 'Calculation Condition' section with a file path, and various settings for background deletion, smoothing, and peak detection. The 'AbsCalc' section at the bottom right has 'Calc' and 'ODF' buttons circled in red. A status bar at the bottom left shows 'Filemake success !!'.

ODF向けファイル作成

# ODFファイル作成

PFtoODF3 8.35SKT[19/03/31] by CTR

File Option Symmetric Software Data Help

Lattice constant

Material Aluminum.txt

Structure Code(Symmetries after Schoenfiles) 7 - O (cubic)

a 1.0 <=b 1.0 <=c 1.0 alpha 90.0 beta 90.0 gamm 90.0

Initialize

Start

getHKL-Filename

AllFileSelect

PF Data

SelectFile(TXT(b,intens),TXT2(a,b,intens))	h,k,l	2Theta	Alpha scope	AlphaS	AlphaE	Select
Alsample111-5degZcut_chR0D1L39S_2.TXT	1,1,1	0.0	5.0->40.0	5.0	40.0	<input checked="" type="checkbox"/>
Alsample200-5degZcut_chR0D1L39S_2.TXT	2,0,0	0.0	0.0->50.0	0.0	50.0	<input checked="" type="checkbox"/>
Alsample220-5degZcut_chR0D1L39S_2.TXT	2,2,0	0.0	10.0->60.0	10.0	60.0	<input checked="" type="checkbox"/>
Alsample311-5degZcut_chR0D1L39S_2.TXT	3,1,1	0.0	20.0->60.0	20.0	60.0	<input checked="" type="checkbox"/>
	2,1,1	0.0		0.0	0.0	<input type="checkbox"/>
	3,1,1	0.0		0.0	0.0	<input type="checkbox"/>
	4,0,0	0.0		0.0	0.0	<input type="checkbox"/>
	3,3,1	0.0		0.0	0.0	<input type="checkbox"/>
	4,2,2	0.0		0.0	0.0	<input type="checkbox"/>
	5,1,1	0.0		0.0	0.0	<input type="checkbox"/>
	5,2,1	0.0		0.0	0.0	<input type="checkbox"/>
	5,3,1	0.0		0.0	0.0	<input type="checkbox"/>

Comment Alsample111-5degZcut\_chR0D1L39S\_2.TXT Alsample200-5degZcut\_chR0D1L39S\_2.TXT Alsample220-5degZcut\_chR0D1L39S\_2.TXT

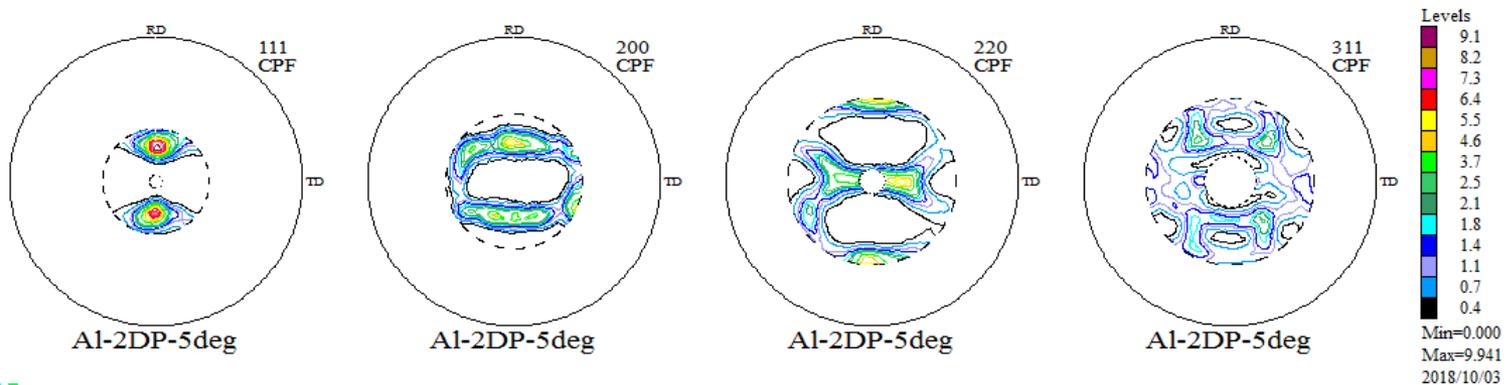
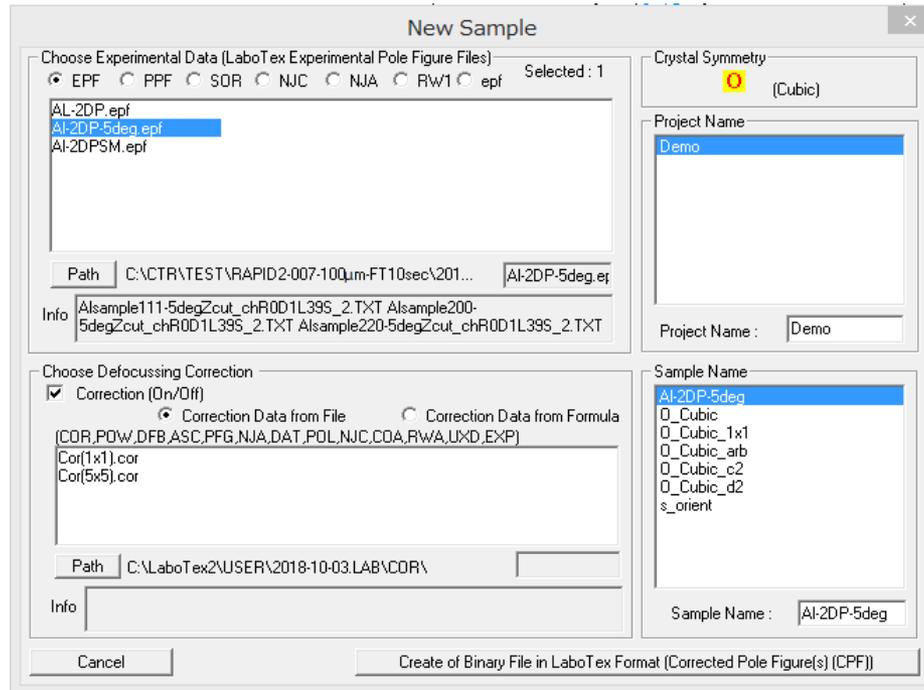
Symmetric type Full

CenterData  Average

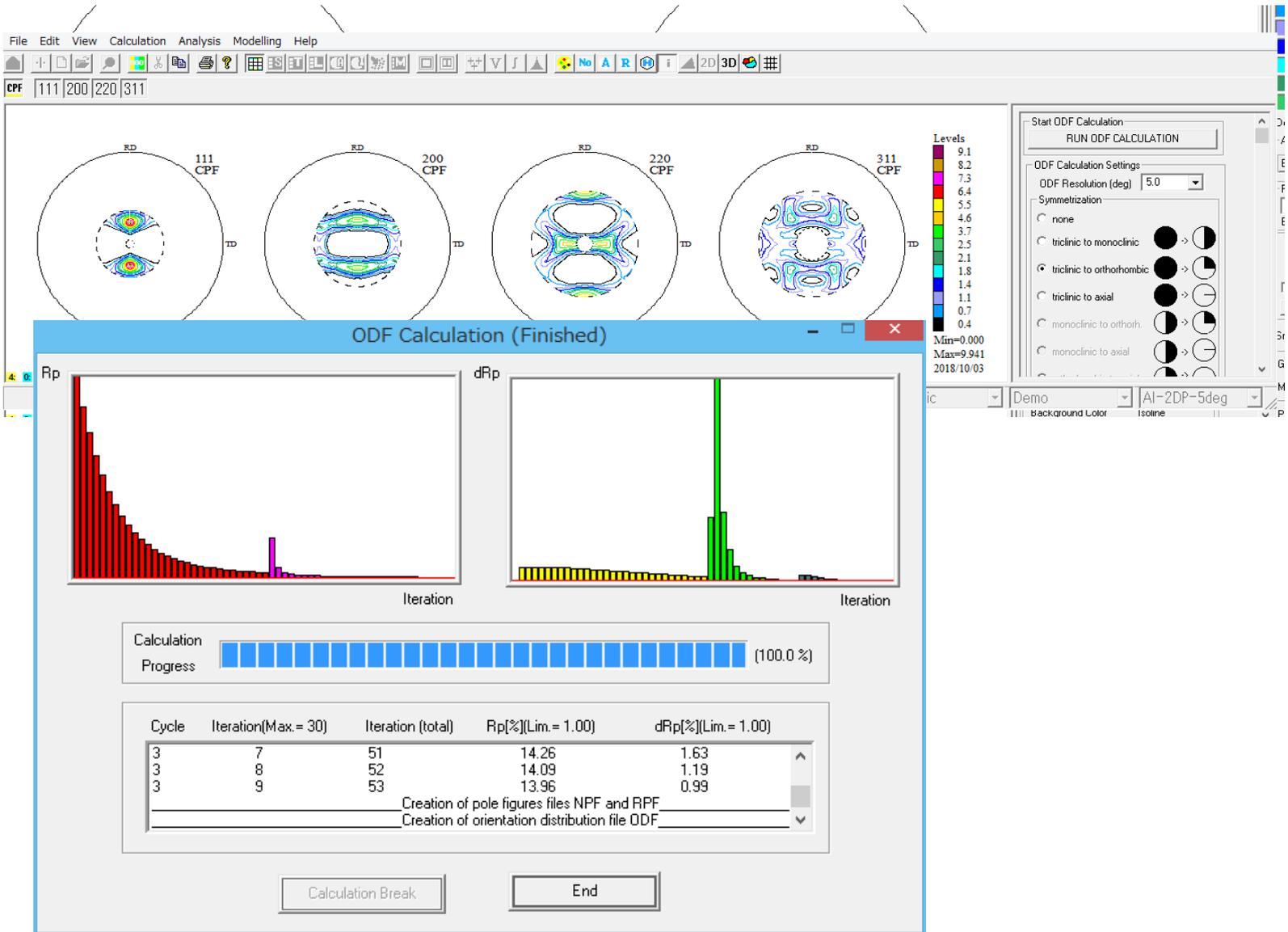
Epf file save

Labotex(EPF),popLA(RAW) filename AI-2DP-5deg

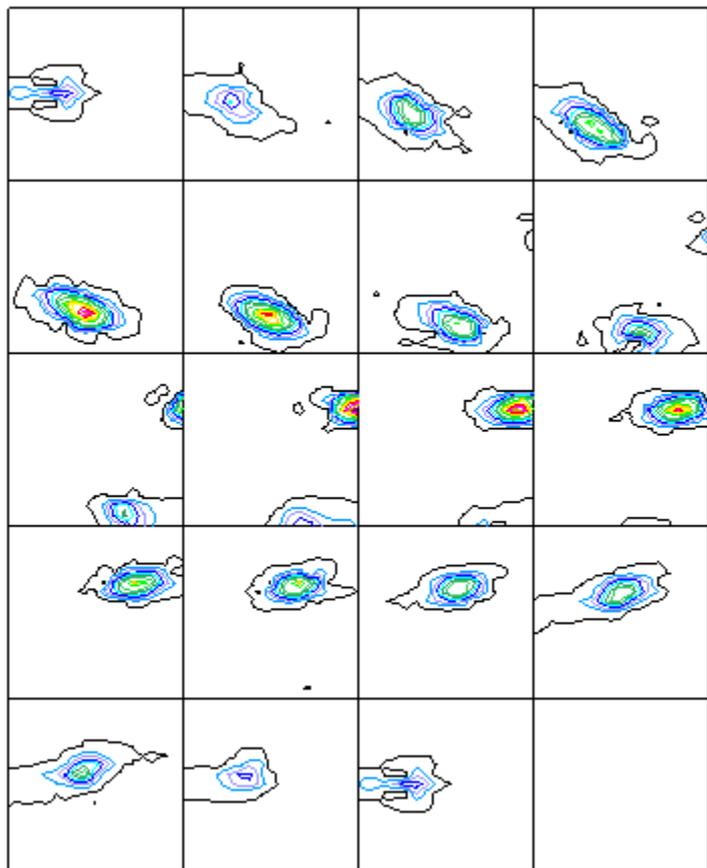
# LaboTexで読み込み



# ODF計算

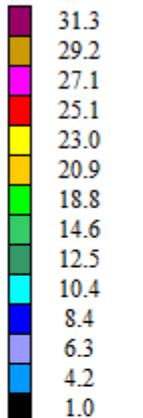


# ODF計算結果



Al-2DP-5deg

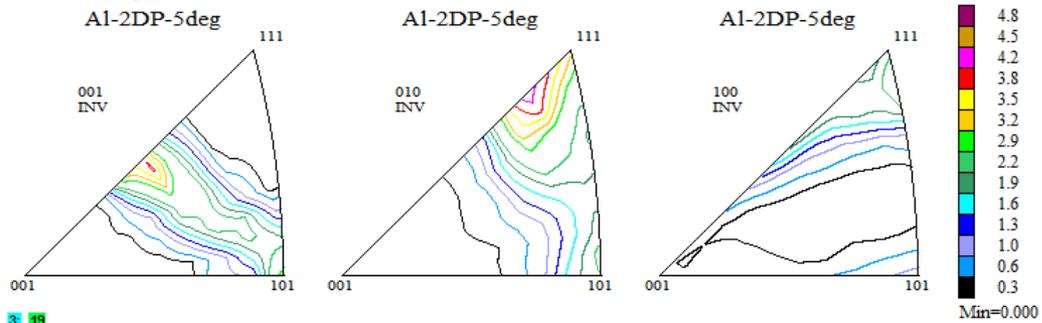
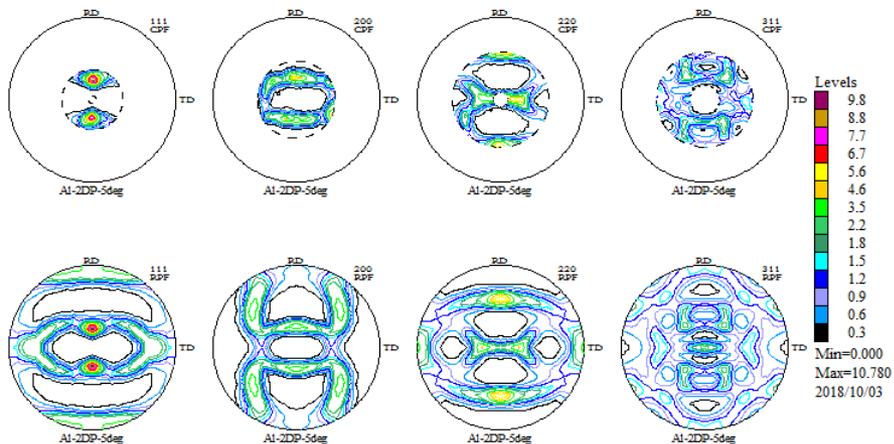
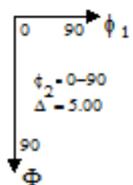
Levels



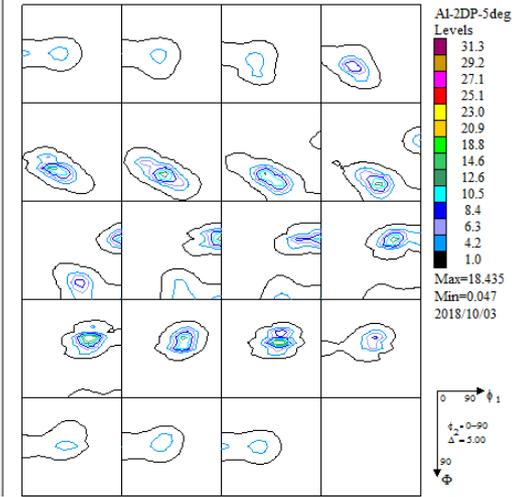
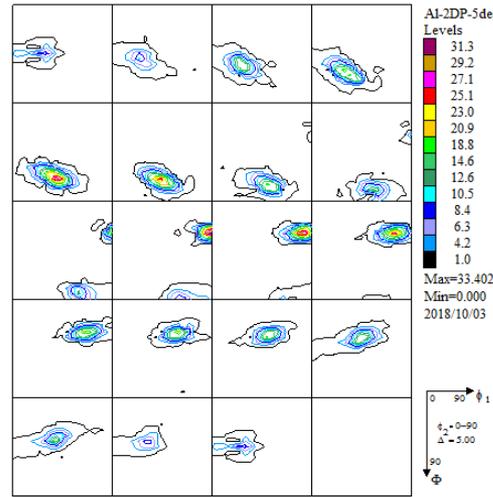
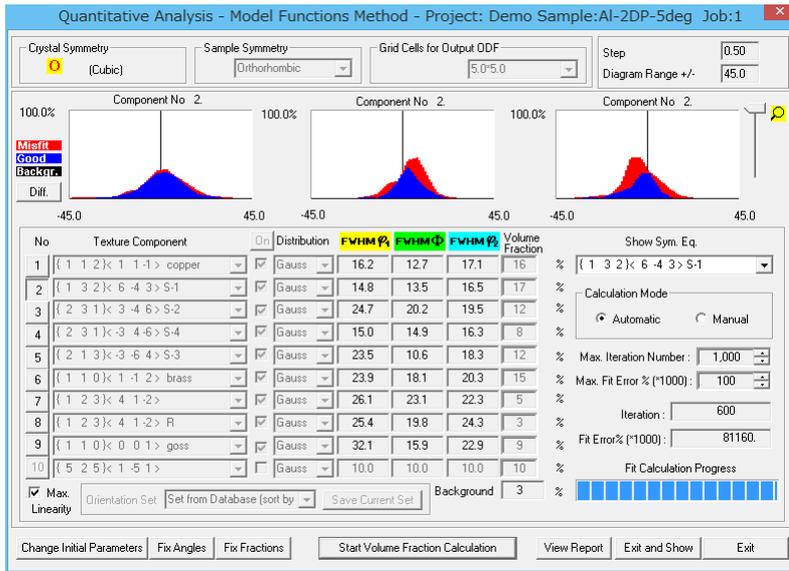
Max=33.402

Min=0.000

2018/10/03



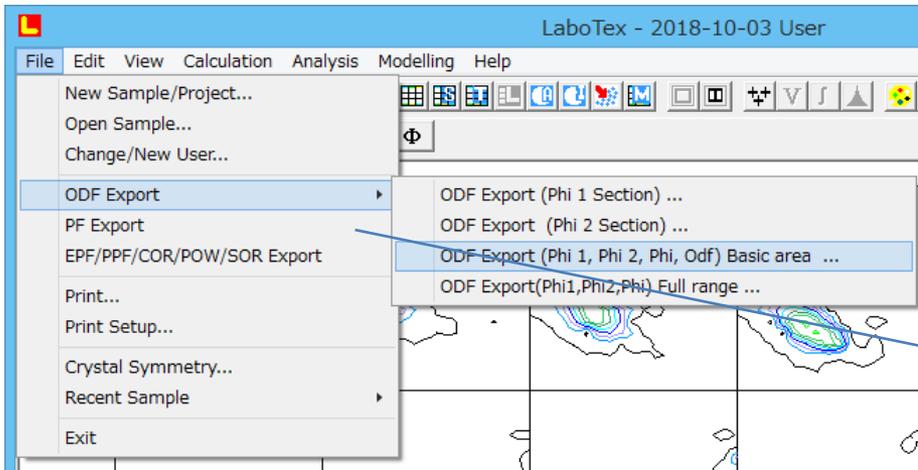
# 結晶方位の定量



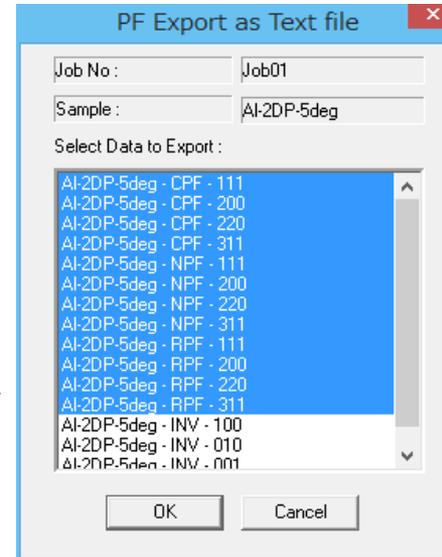
入力極点図から計算

VolumeFractionから計算

## ODFのExport

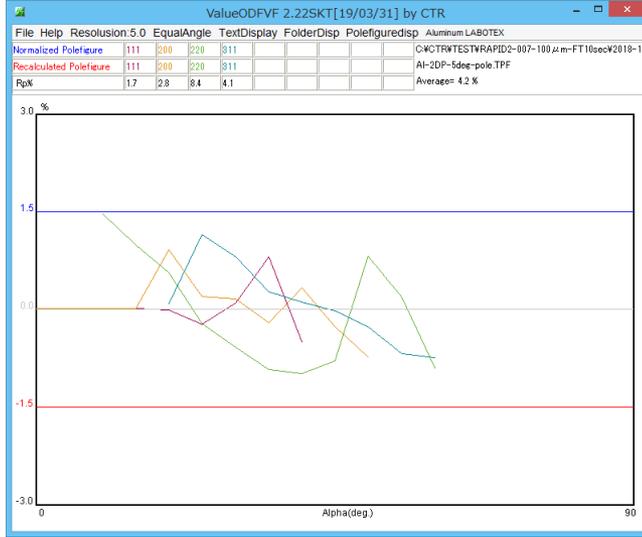


## 極点図のExport



# CTRソフトウェア

Error評価

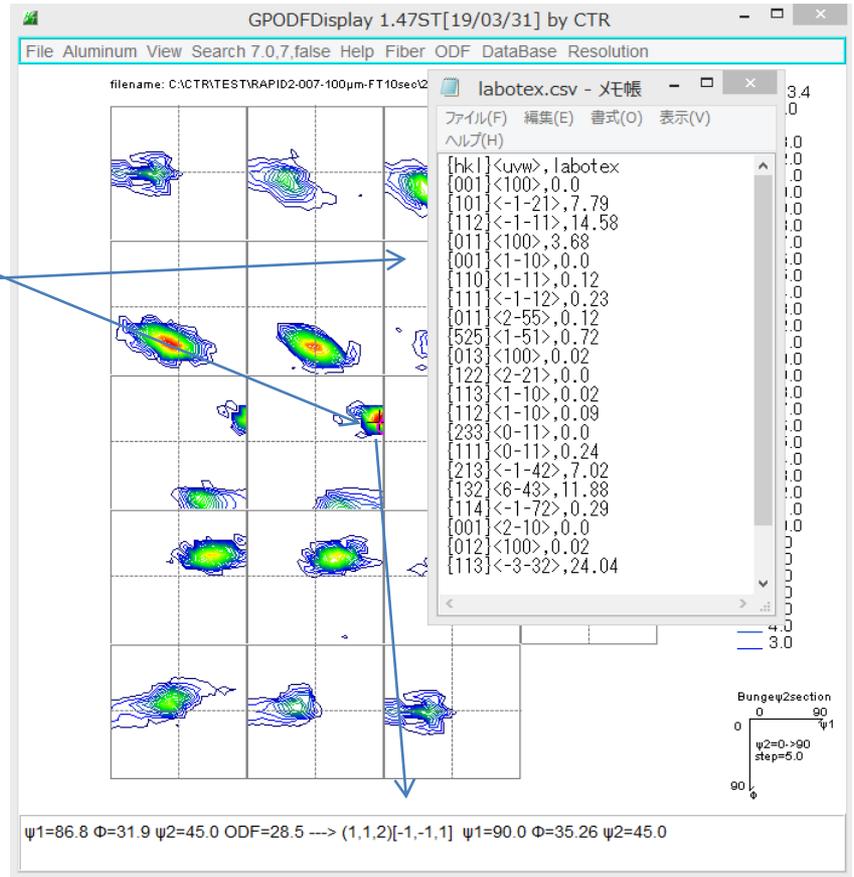


Normalized Polefigure	111	200	220	311
Recalculated Polefigure	111	200	220	311
Rp%	1.7	2.8	8.4	4.1

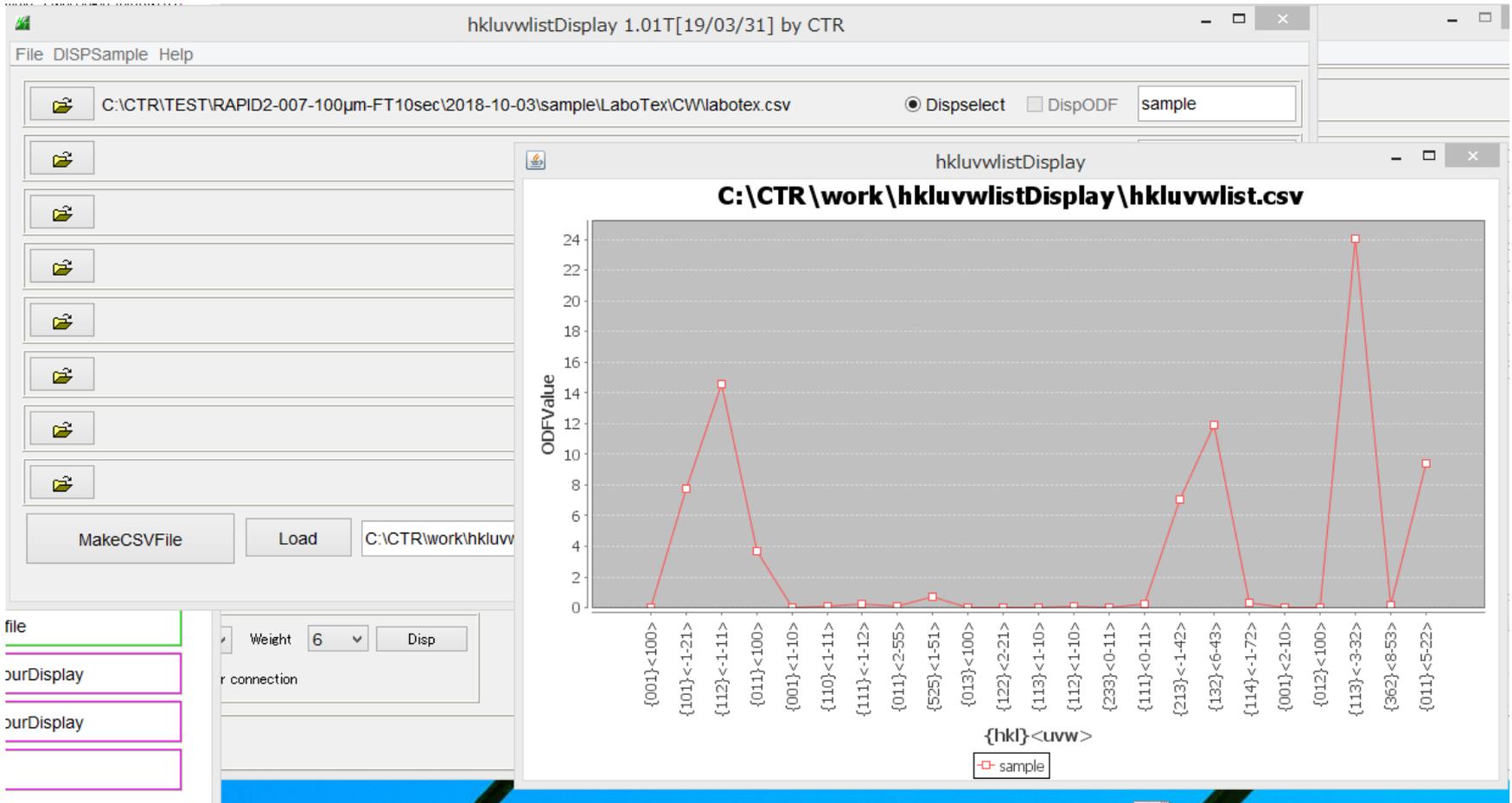
Al-2DP-5deg-pole.TPF  
Average= 4.2 %

マウスカーソル位置の方位計算

指定された方位の密度計算

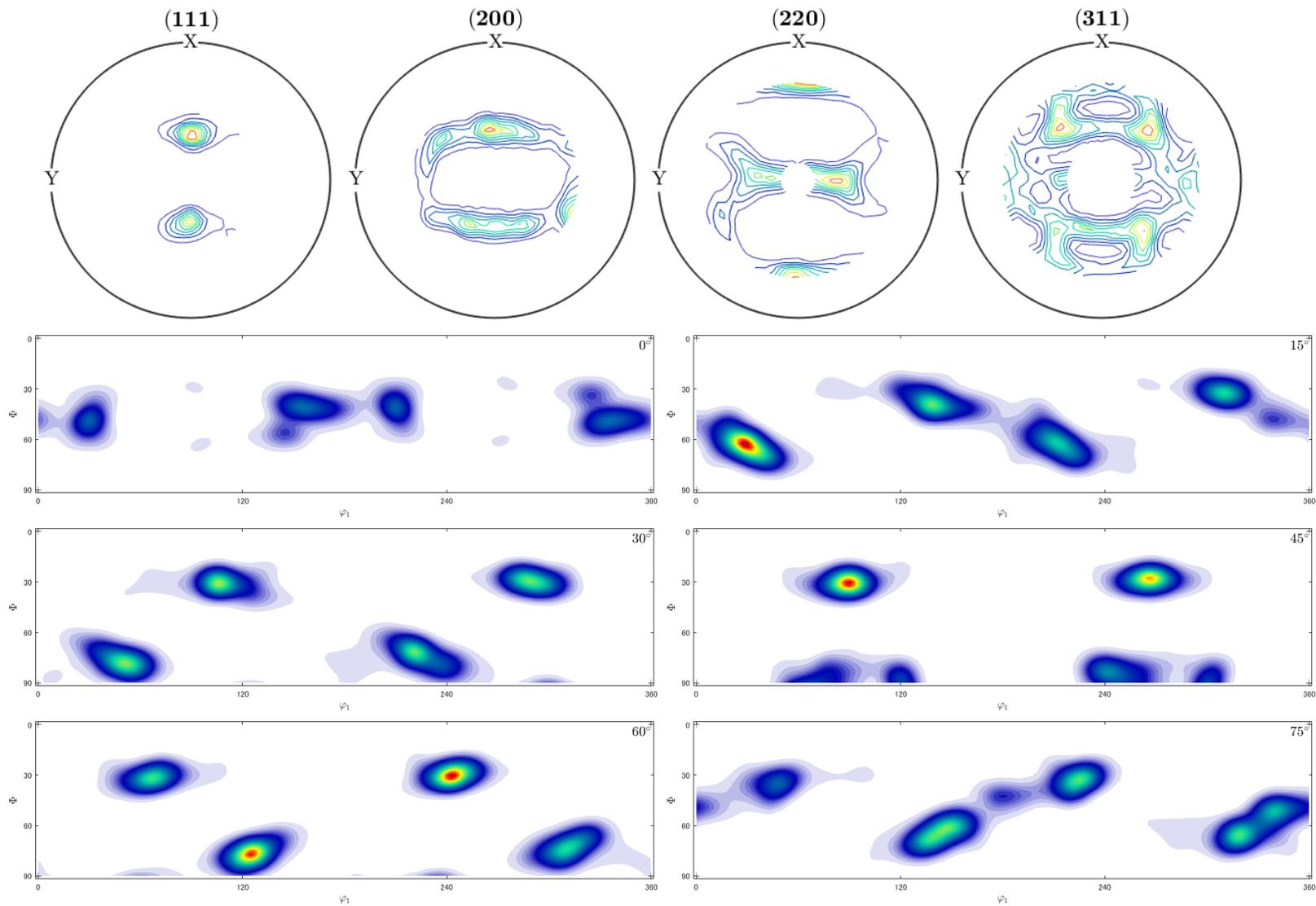


# 方位密度表現

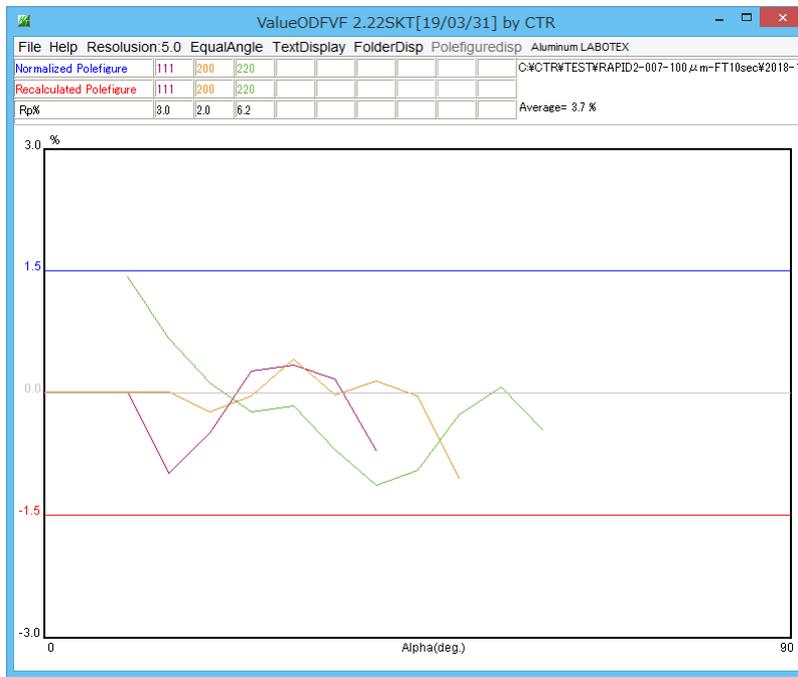
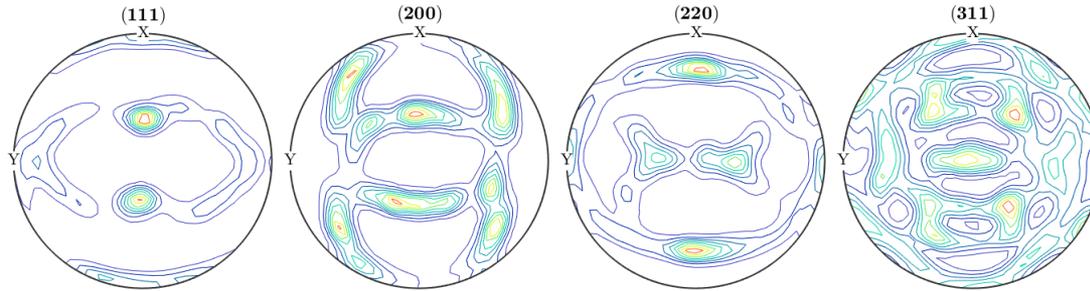


最大8個の方位密度比較が可能

# MTEX处理



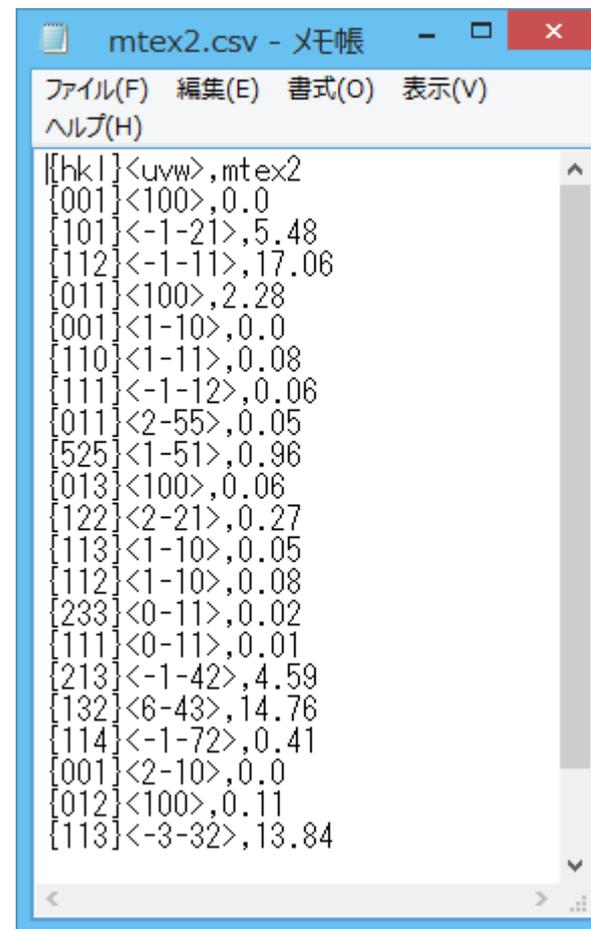
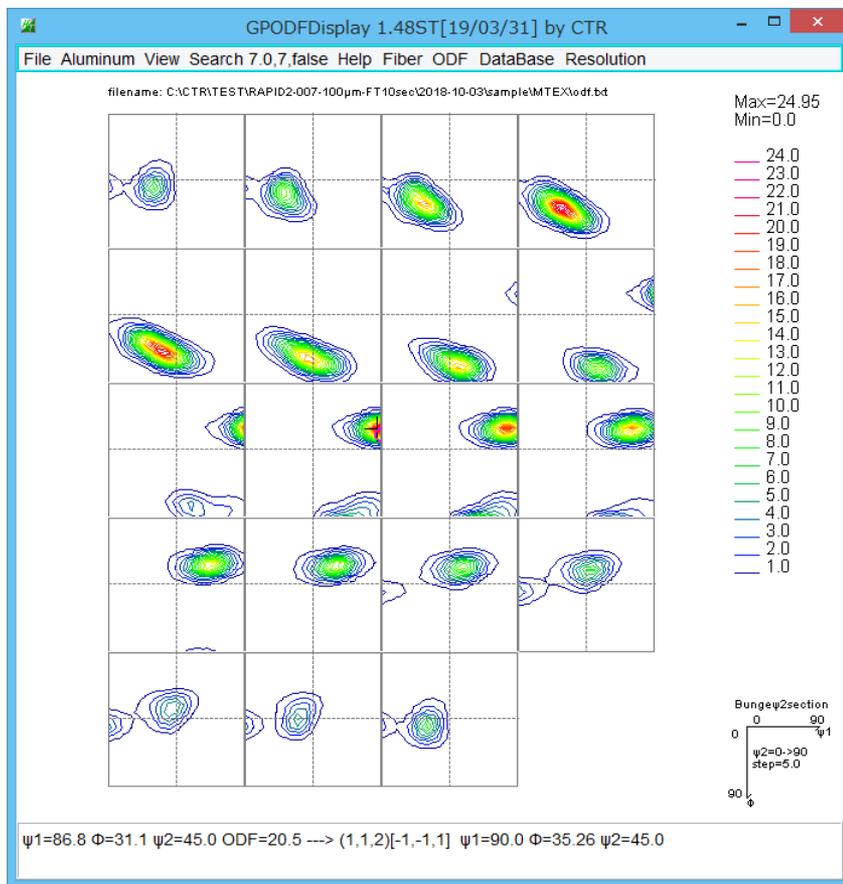
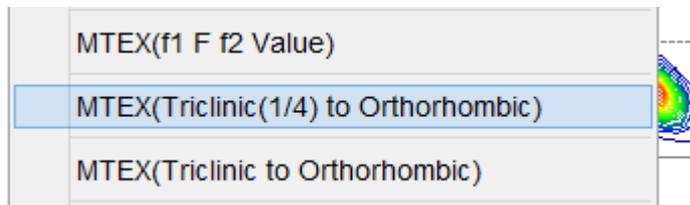
# MTEX処理(再計算極点図とError)



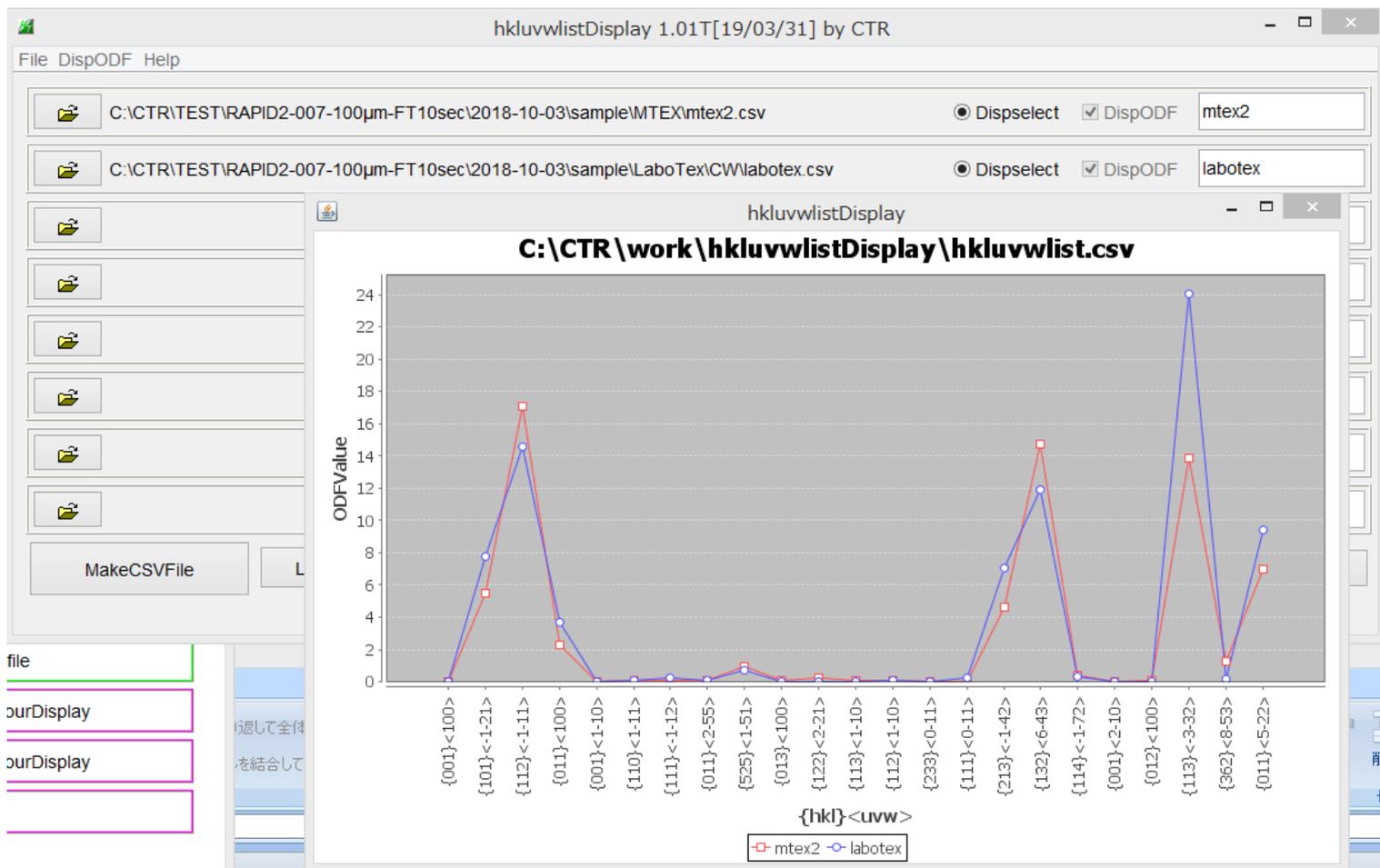
Normalized Polefigure	111	200	220
Recalculated Polefigure	111	200	220
Rp%	3.0	2.0	6.2

Average= 3.7 %

# ExportODFをOrthorhombicで表示と方位密度



# LaboTex-MTEX方位密度比較



方位密度はほぼ同一の結果が得られます。

# 同一反射の複数の極点図の場合

The screenshot displays the ODFPoleFigure2 software interface. The top row shows seven pole figure plots for reflections  $\{1,1,1\}$  and  $\{2,0,0\}$ . The central window is the main control panel, titled "ODFPoleFigure2 3.82SKT[19/03/31] by CTR". It includes a "Files select" section with a list of data files, a "Calculation Condition" section with various parameters like "Peak slit" and "BG Slit", and a "Smoothing" section. The bottom row shows three more pole figure plots for reflections  $\{1,1,1\}$ ,  $\{1,0,0\}$ , and  $\{1,1,0\}$ . A control panel on the right side of the main window has a "Connect" button circled in red. The background shows a desktop environment with icons for "3D Explorer" and "ODFPoleFigur... - ショートカット".

データの接続が可能になりました。