

# アルミニウムA社P材-10の解析例

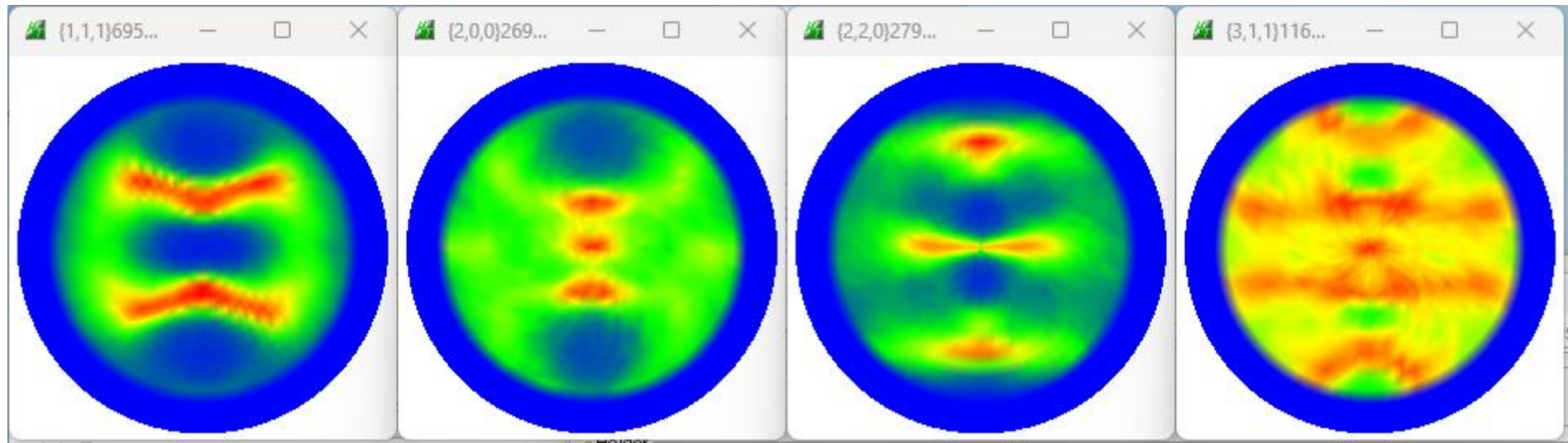
粉末random試料によるdefocus補正

Rp%評価

Random(BG)%評価

VolumeFraction評価

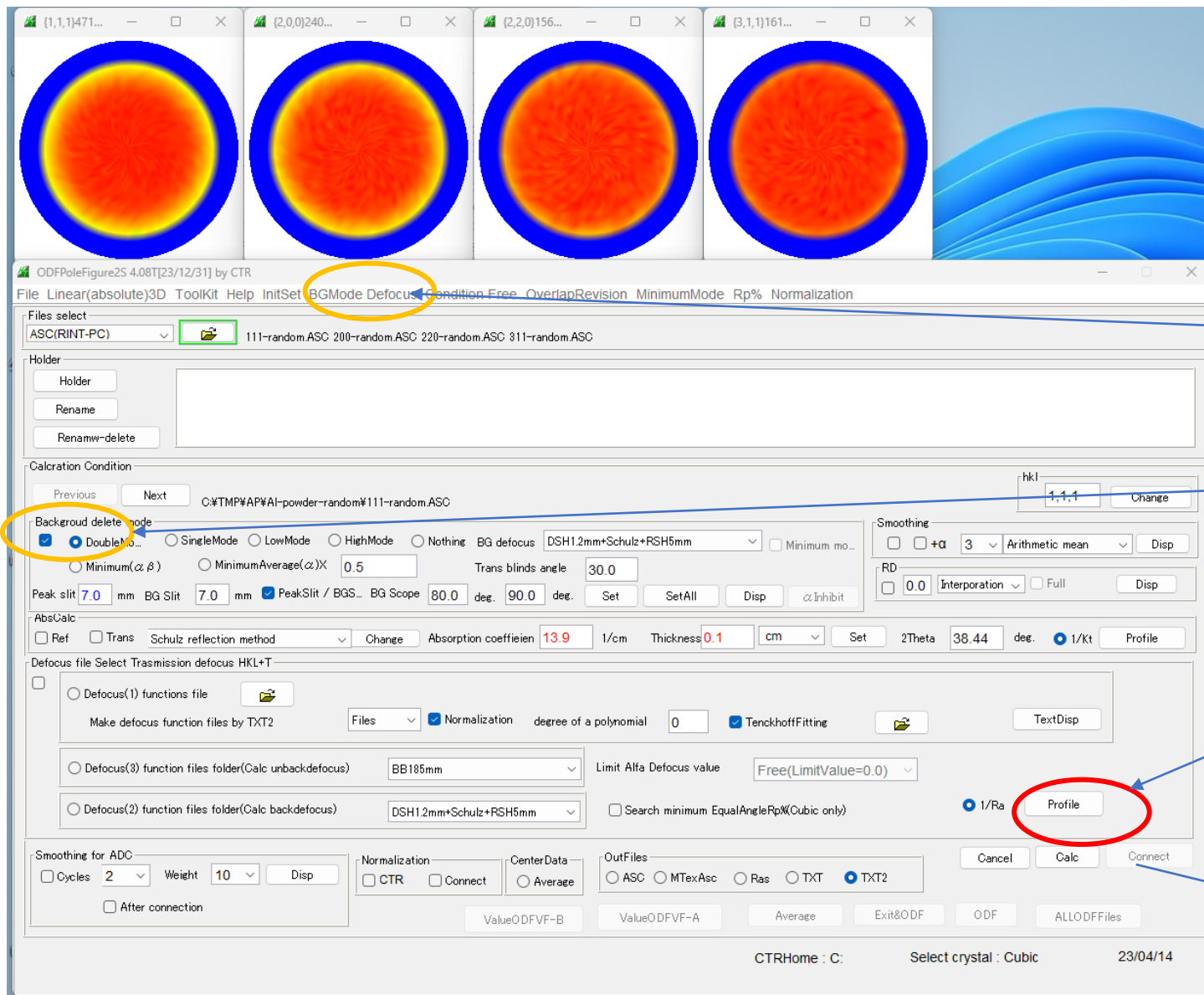
逆極点評価



# データ

- 圧延版からTD方向に20個切り出し1から20の番号に割付
- 番号10解析
- 試料の表面加工は行っていない
- R a n d o m試料は粉末

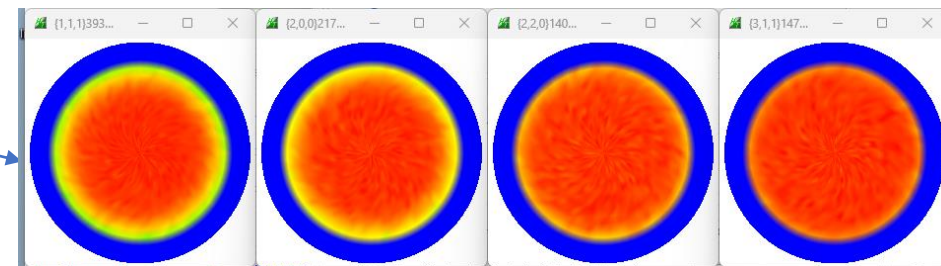
# 粉末試料によるdefocus補正データ作成



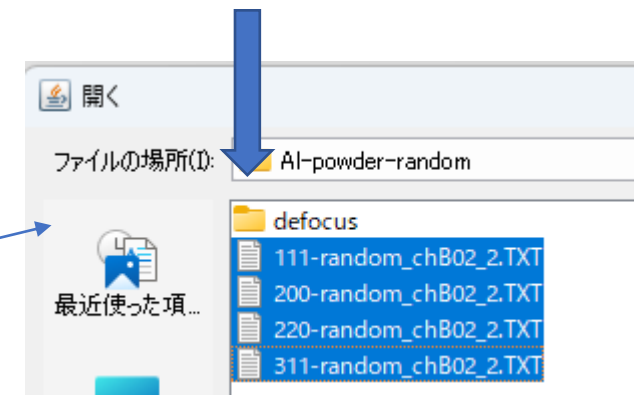
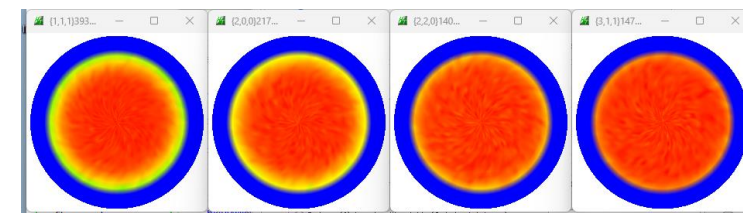
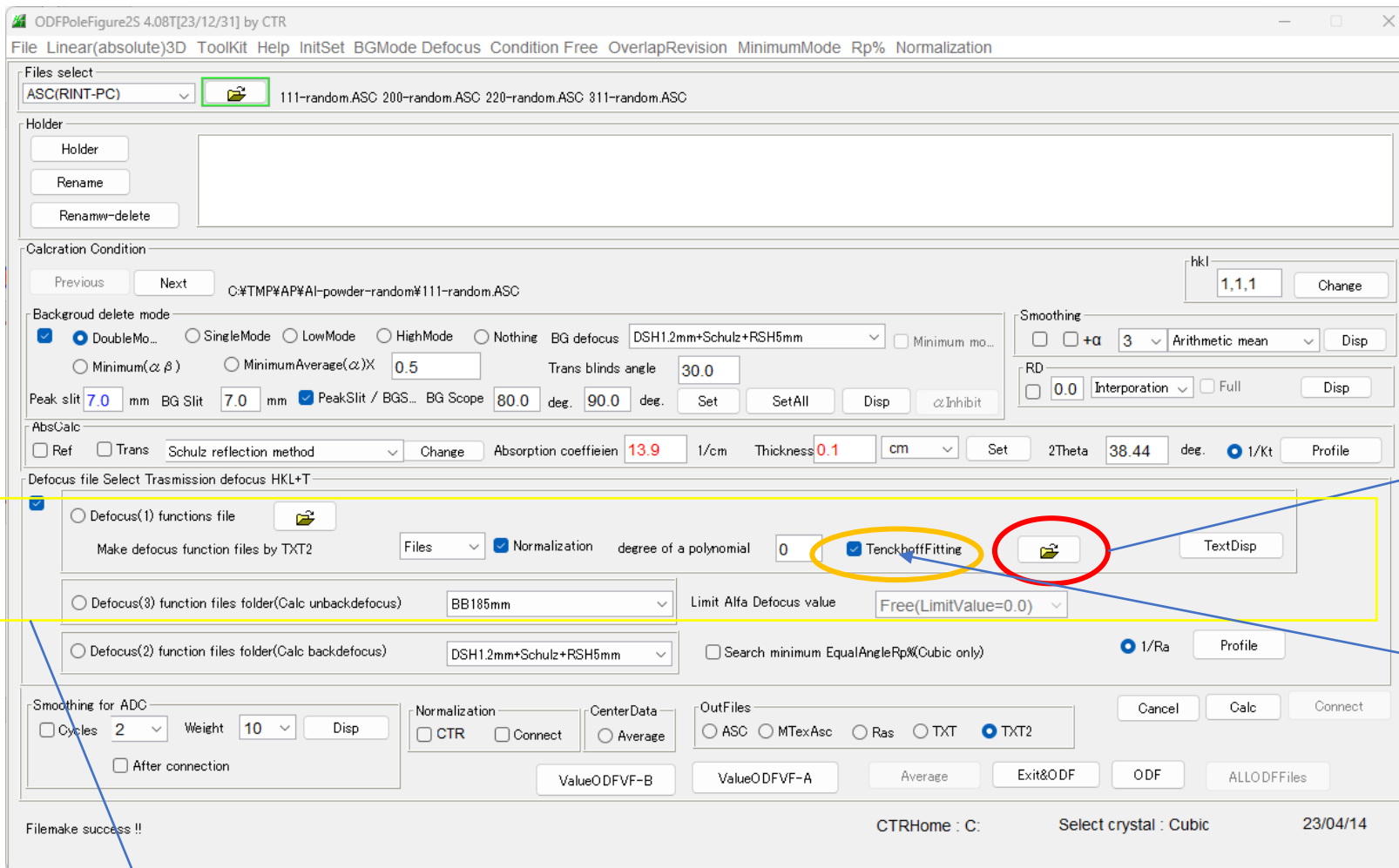
Background-defocusモード補正指定

Background削除指定

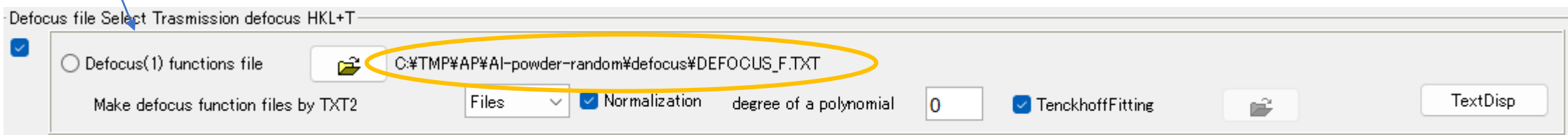
Background削除処理



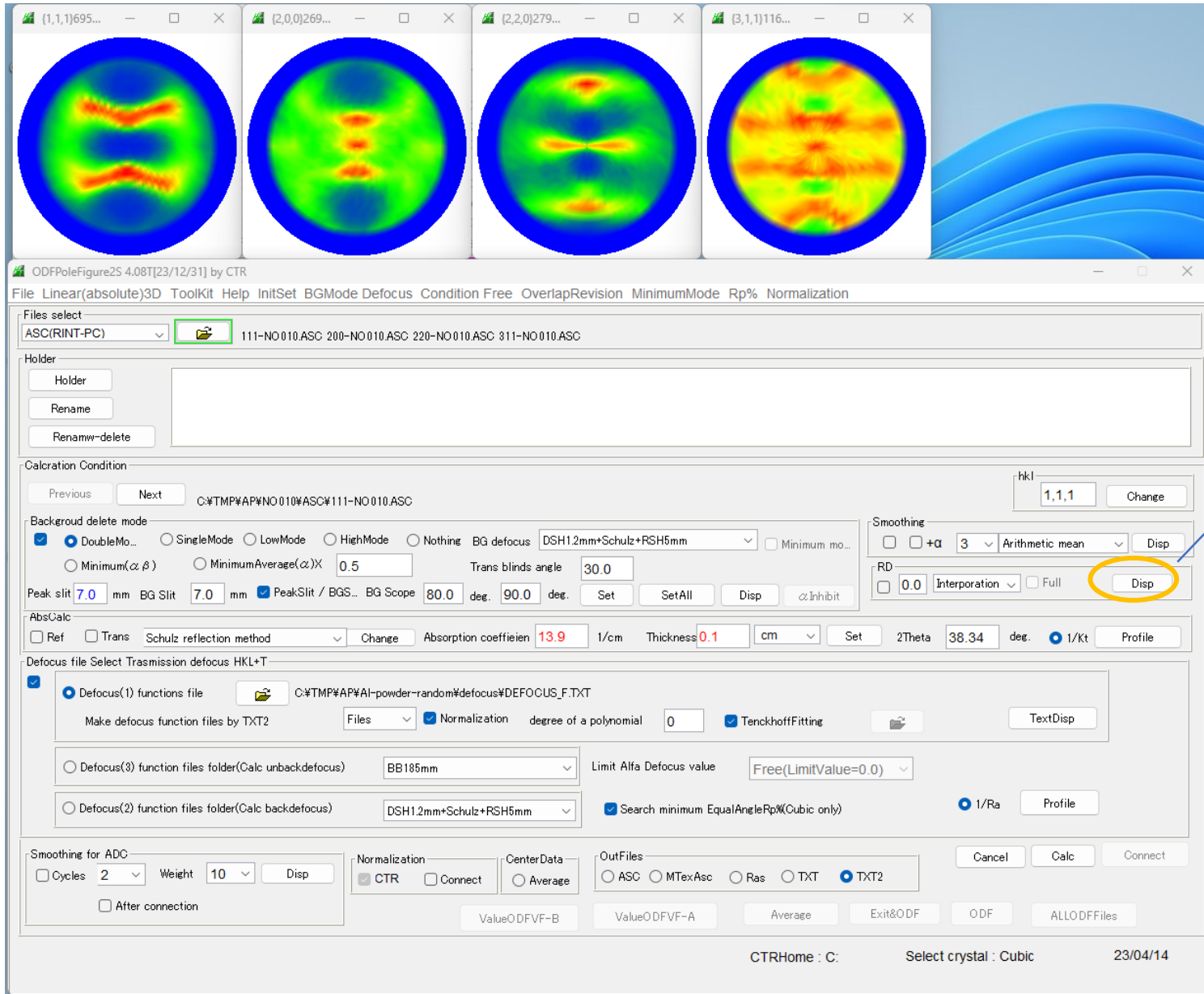
# Defocusファイル登録



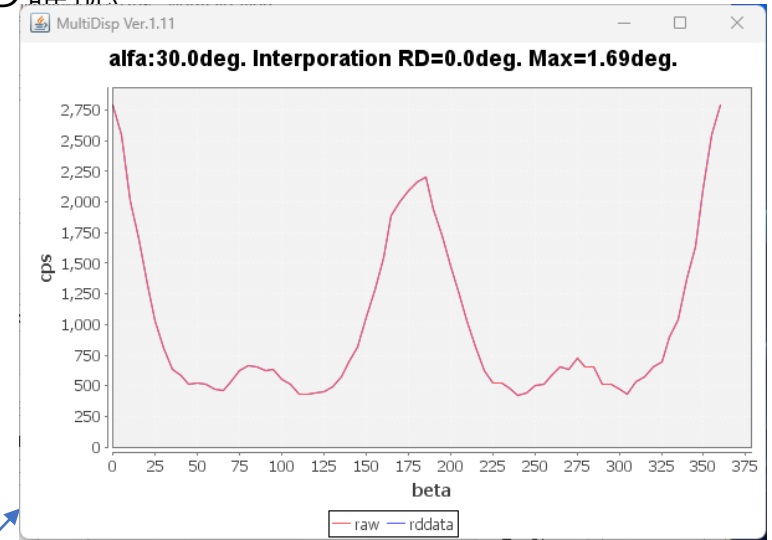
Backgroundを削除したファイルを TenckhoffFittingで登録



# A社P材-10の極点処理 1



RD確認



補正角度決定

# A社P材-10の極点処理2

The screenshot displays the ODF software interface with four circular diffraction patterns and a 3D surface plot. The interface includes various settings for background removal, defocus correction, and peak optimization. Key settings and annotations are as follows:

- Files select:** 111-NO 010.ASC 200-NO 010.ASC 220-NO 010.ASC 311-NO 010.ASC
- Holder:** Holder, Rename, Renamw-delete
- Calcration Condition:** Previous, Next, C:\TMP\AP\NO 010\ASC\220-NO 010.ASC
- Background delete mode:**  DoubleMode,  SingleMode,  LowMode,  HighMode,  Nothing
- BG defocus:** DSH1.2mm+Schulz+RSH5mm
- Smoothing:**  +a, 3, Arithmetic mean, Disp
- RD:**  0, Interpolation, Full, Disp
- AbsCalc:**  Ref,  Trans, Schulz reflection method, Absorption coefficient: 13.9, 1/cm, Thickness: 0.1, cm, 2Theta: 64.86, deg., 1/Kt, Profile
- Defocus file:**  Defocus(1) functions file, C:\TMP\AP\AI-powder-random\defocus\DEFocus\_F.TXT
- Make defocus function files by TXT2:** Files,  Normalization, degree of a polynomial: 0,  TenckhoffFitting, TextDisp
- Defocus(3) function files folder:** Calc unbackdefocus, BB185mm, Limit Alfa Defocus value: Free(LimitValue=0.0)
- Defocus(2) function files folder:** Calc backdefocus, DSH1.2mm+Schulz+RSH5mm,  Search minimum EqualAngleRp%(Cubic only), 1/Ra, Profile
- Smoothing for ADC:**  Cycles, 2, Weight: 10, Disp
- Normalization:**  CTR,  Connect,  Average
- CenterData:**  Average
- OutFiles:**  ASC,  MTextAsc,  Ras,  TXT,  TXT2
- Buttons:** Cancel, Calc, Connect
- Footer:** CTRHome : C:, Select crystal : Cubic, 23/04/14

処理

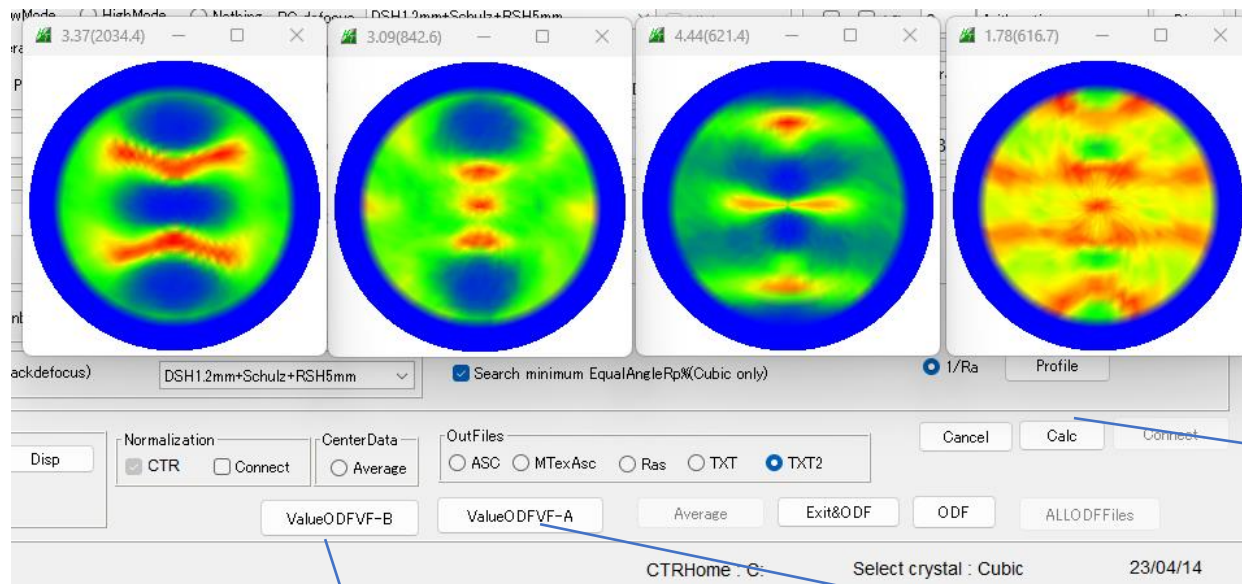
RD補正

BG-defocusモードによる  
background削除

defocus補正

最適化Rp%

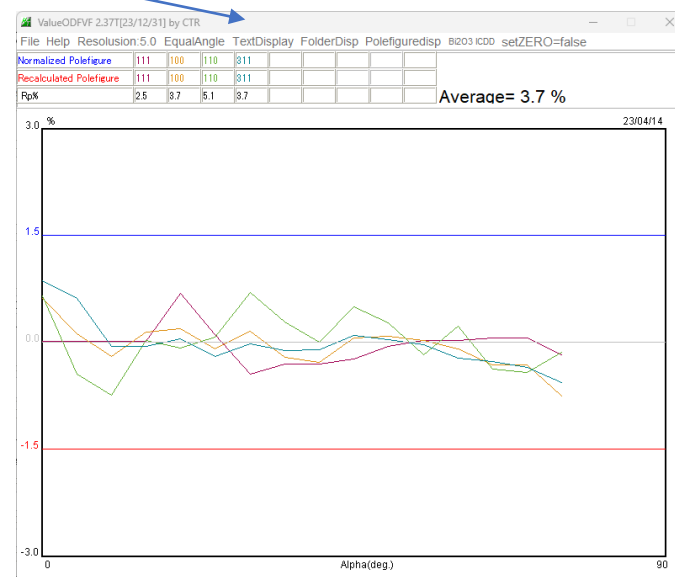
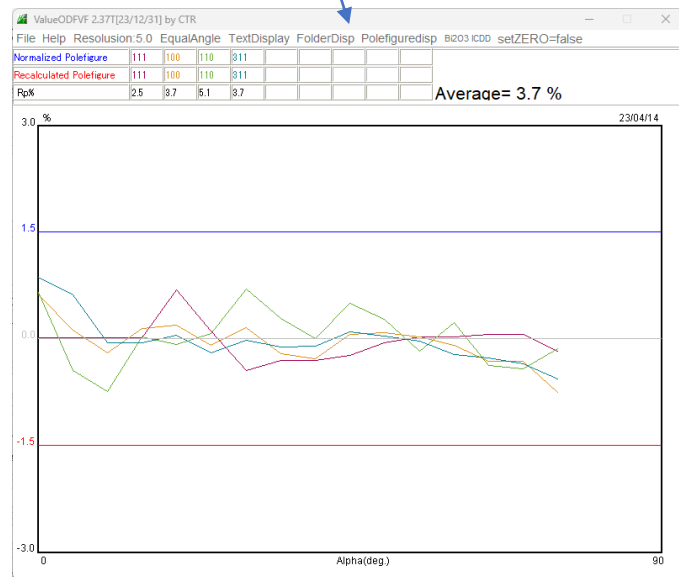
# A社P材-10の極点処理確認



$$RP_{\{hkl\}} = \frac{1}{N} \sum_{i=1}^N \left| \frac{\{PF_{exp.}\}_i - \{PF_{calc.}\}_i}{\{PF_{exp.}\}_i} \right| \cdot 100\%$$

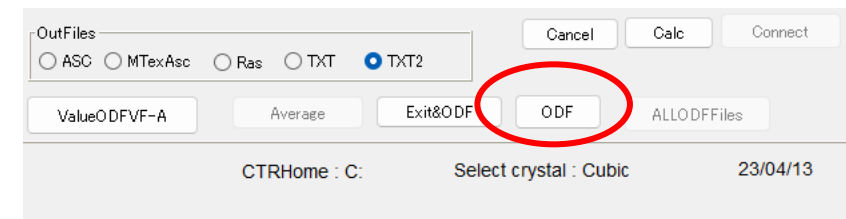
ODF解析前後による入力データ評価  
 ValueODFVF-B (最適化Rp%前)  
 ValueODFVF-A (最適化Rp%後)

結果  
 粉末random補正曲線が最適な為  
 最適化Rp%前後で同一データ

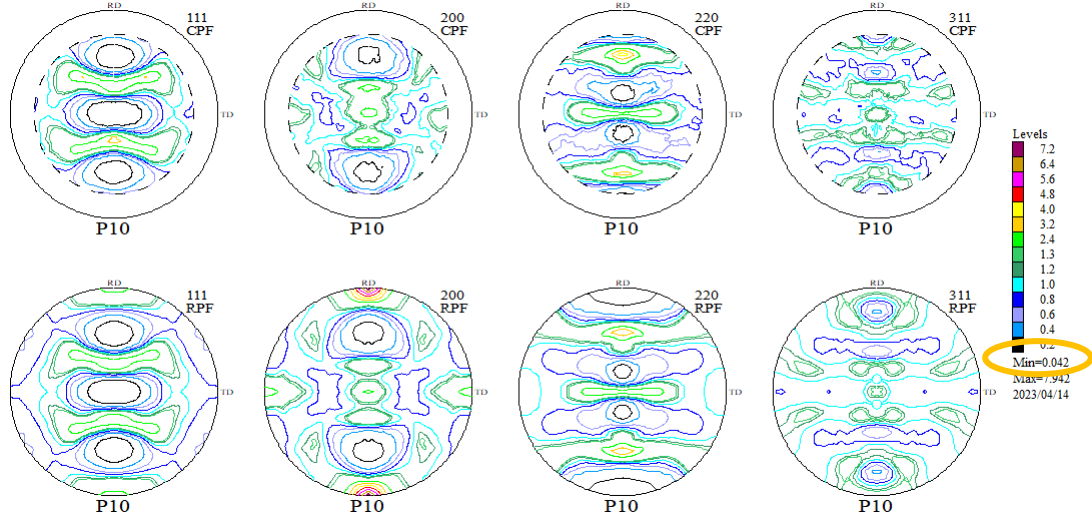


最適化Rp%でも同様

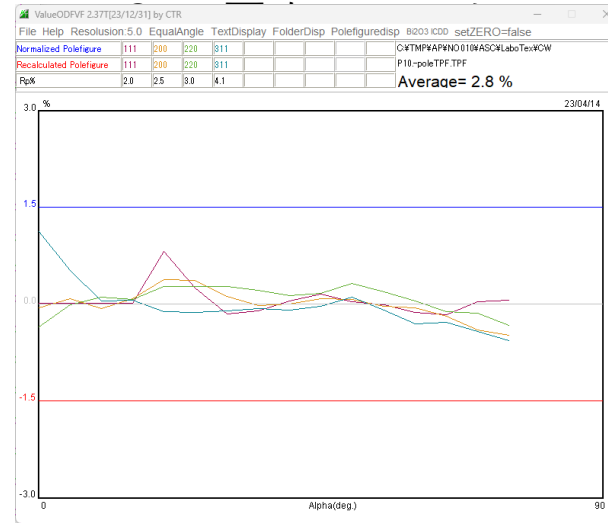
## ODF向けファイル作成



# LaboTexによるODF解析



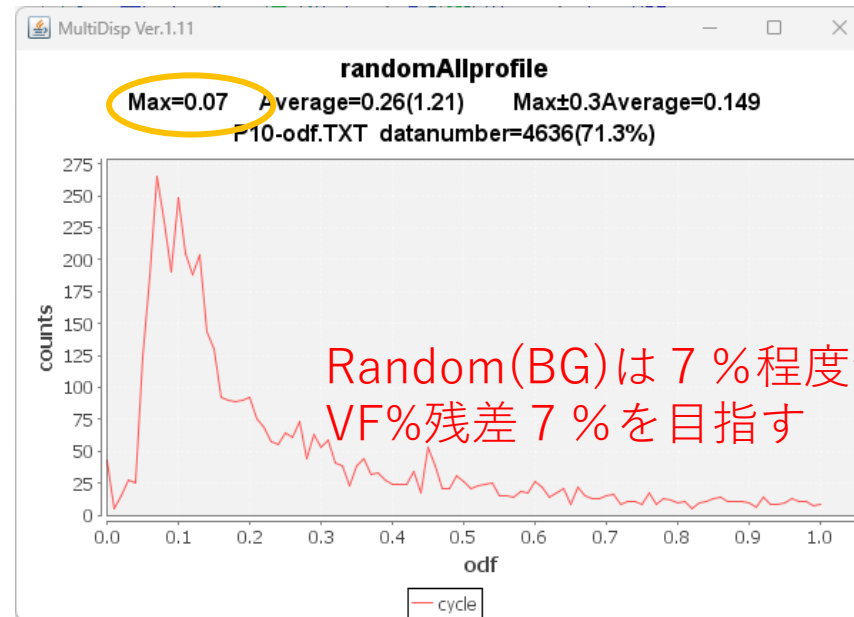
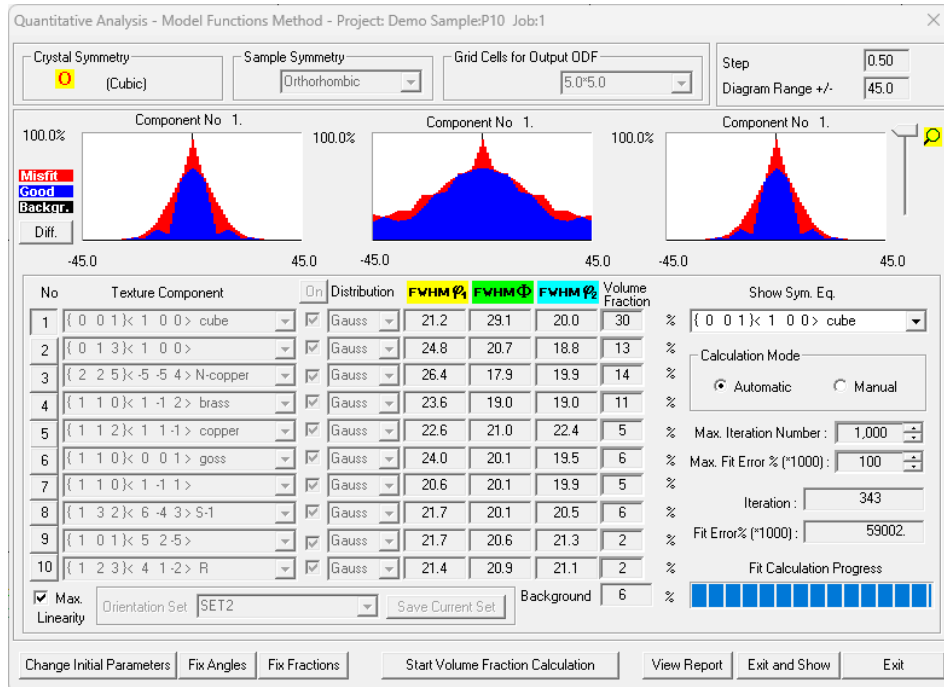
Min=0.042->random(BG)が含まれている可能性小



random(BG)定量を行う

Rp%は測定時より下がる

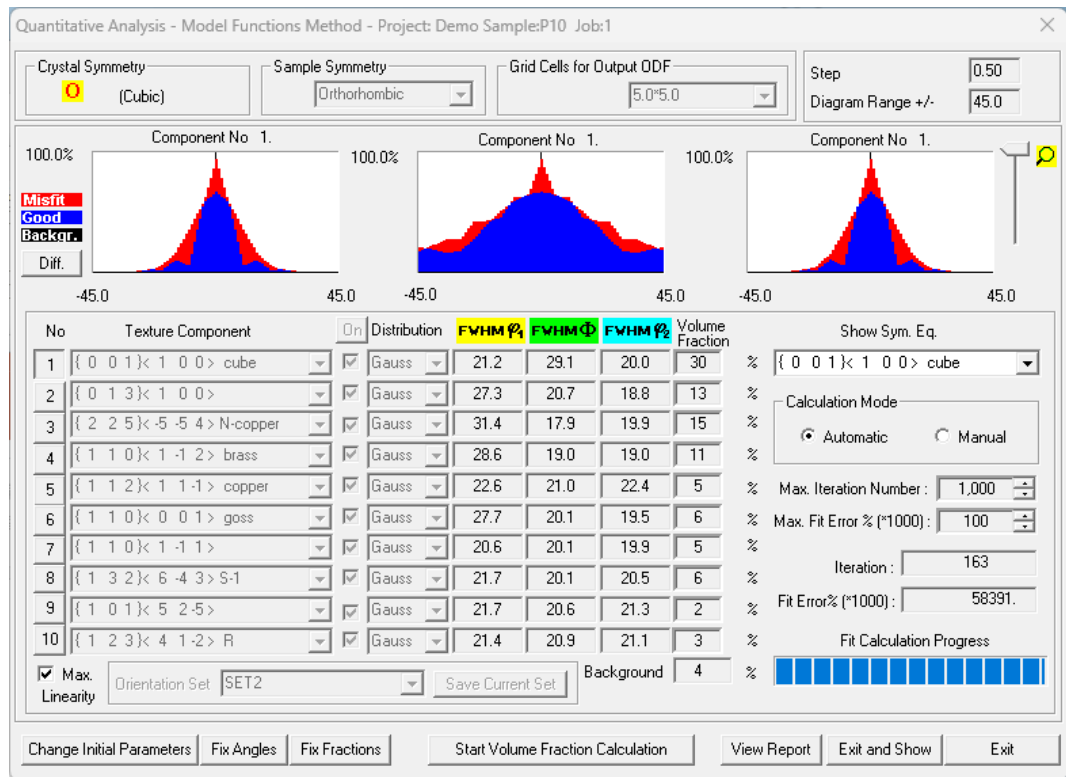
Random(BG)が含まれると  
Rp%は低下する傾向あり



Random(BG)は7%程度含まれている  
VF%残差7%を目指す



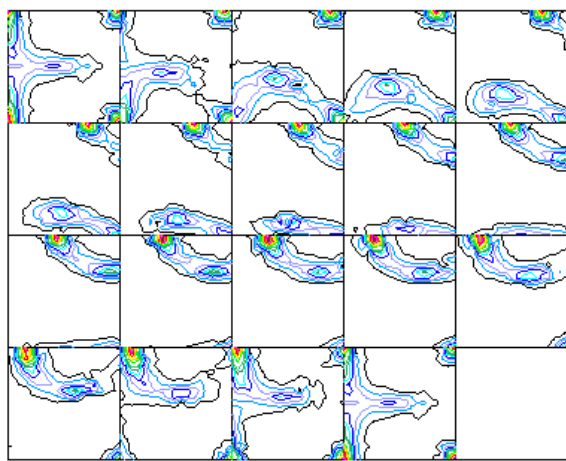
# VolumeFraction



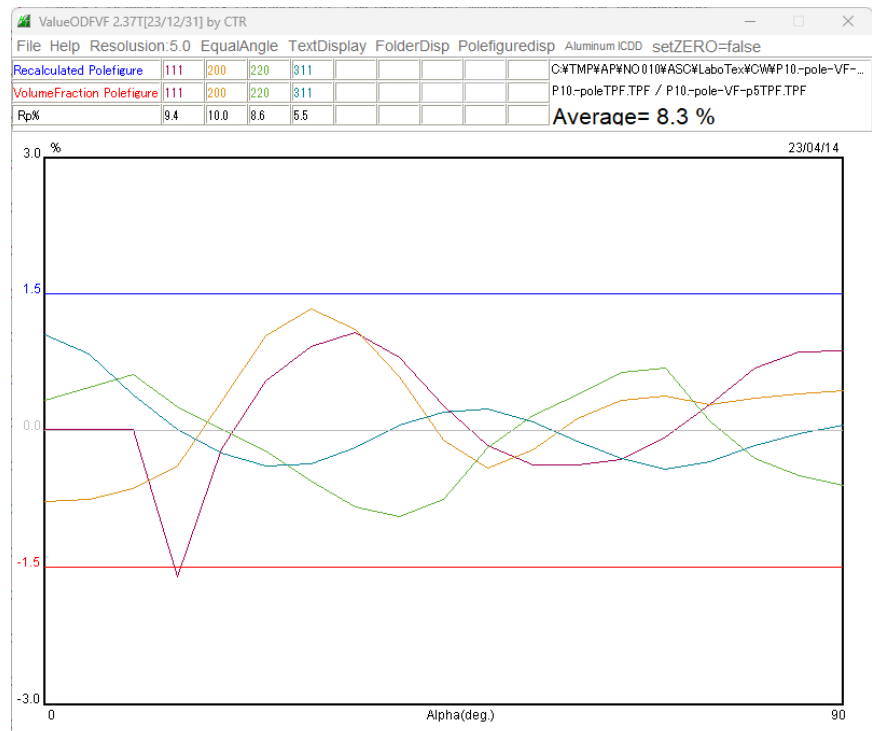
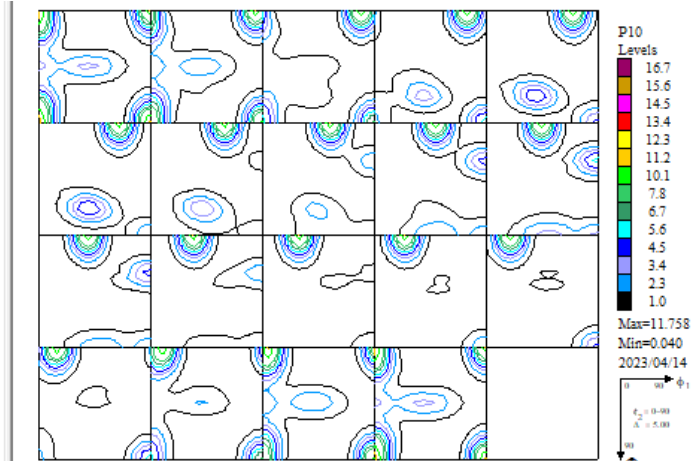
No.	VF (%)	Phi1 (FWHM)	Phi (FWHM)	Phi2 (FWHM)	Orientation
1:	30.00	21.2	29.1	20.0	{ 0 0 1 } < 1 0 0 > cube
2:	13.00	27.3	20.7	18.8	{ 0 1 3 } < 1 0 0 >
3:	15.00	31.4	17.9	19.9	{ 2 2 5 } < -5 -5 4 > N-cop
4:	11.00	28.6	19.0	19.0	{ 1 1 0 } < 1 -1 2 > bras
5:	5.00	22.6	21.0	22.4	{ 1 1 2 } < 1 1 -1 > copp
6:	6.00	27.7	20.1	19.5	{ 1 1 0 } < 0 0 1 > goss
7:	5.00	20.6	20.1	19.9	{ 1 1 0 } < 1 -1 1 >
8:	6.00	21.7	20.1	20.5	{ 1 3 2 } < 6 -4 3 > S-1
9:	2.00	21.7	20.6	21.3	{ 1 0 1 } < 5 2 -5 >
10:	3.00	21.4	20.9	21.1	{ 1 2 3 } < 4 1 -2 > R
11:	4.00	Background Volume Fraction			

Background=random(BG)+other= 7 +Other=4.00  
 VolumeFractionが決定されているが乱れがある。

ODF解析結果

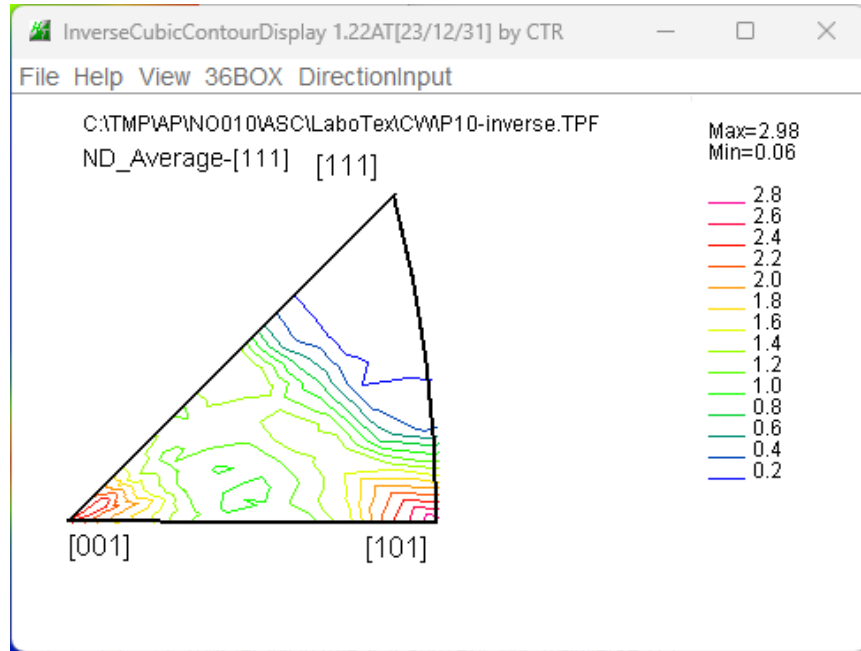


VF%から計算したODF

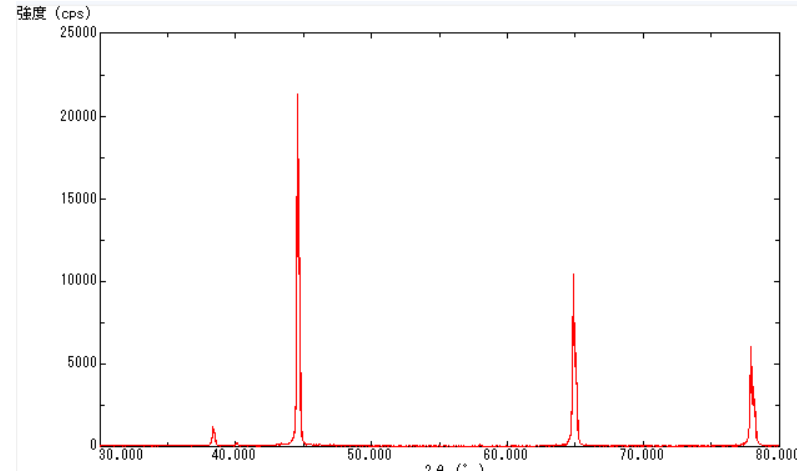


# AP-10の逆極点図

ODF解析から計算



$\theta/\theta$  プロファイルから計算



Randommode Standardization Savitzky-Golay(SMpoints5) BGsmoints=3 PEAK

	[111]	[200]	[220]	[311]	[222]
No010-profile	0.07	2.86	2.66	0.0	0.0

$\theta/\theta$  プロファイルでは  
回折線の測定のため  
指数は限定される

