

# Defocus 多項式近似次数の変更

2019年11月25日

*HelperTex Office*

## 概要

CTRソフトウェアでは、defocusファイル作成時、defocus曲線の平滑化とステップ変更を目的にdefocus曲線を5次の多項式曲線で近似していた。今回、多項式の自動決定を追加した。

変更したソフトウェア

ODFPoleFigure1.5 (Ver1.62以降)

ODFPoleFigure2 (Ver. 3.93以降)

TenckhoffCalc (Ver1.13以降)

## ODFPoleFigure2

The screenshot shows the 'Defocus file Select Transmission defocus HKL+T' dialog box. The 'degree of a polynomial' field is highlighted with a red circle and contains the value '0'. Other visible options include 'Defocus(1) functions file', 'Make defocus function files by TXT2', 'Files', 'Normalization', 'Defocus(3) function files folder(Calc unbackdefocus)' set to 'BB185mm', 'Limit Alfa Defocus value' set to 'Free(LimitValue=0.0)', 'Defocus(2) function files folder(Calc backdefocus)' set to 'DSH1.2mm+Schulz+RSH5mm', 'Search minimum Equal Angle Rp%(Cubic only)', '1/Ra', and 'Profile'.

## ODFPoleFigure1.5

The screenshot shows the 'Defocus file Select Transmission defocus HKL+T' dialog box. The 'degree of a polynomial' field is highlighted with a red circle and contains the value '0'. Other visible options include 'Normalization pd.', 'TXT2', 'TextDisp', '1/Ra', 'Profile', and 'Limit Alfa Defocus val...' set to 'Free(LimitVal...)'.

## TenckhoffCalc

The screenshot shows the 'Make file' dialog box. The 'Polynomial' field is highlighted with a red circle and contains the value '0'. Other visible options include 'Fitting', 'Calc', 'Norarlization' (sic) set to 'MaxIntensity', '1', 'TenckhoffFile', 'TXT2', 'ASC', and 'Polynomial'.

random試料による5次多項式と自動多項式

random試料

CTR > DATA > Al-powder-random

名前	更新日時	種類	サイズ
111-random_S.ASC	2016/02/27 15:05	RINT20007st-	22 KB
200-random_S.ASC	2016/02/27 15:07	RINT20007st-	22 KB
220-random_S.ASC	2016/02/27 15:10	RINT20007st-	22 KB
111-random_S_chB0_2.TXT	2019/11/25 8:35	テキスト文書	29 KB
200-random_S_chB0_2.TXT	2019/11/25 8:35	テキスト文書	29 KB
220-random_S_chB0_2.TXT	2019/11/25 8:35	テキスト文書	29 KB
SLITTTHEFILE	2019/11/25 8:35	ファイル	1 KB

5次多項式

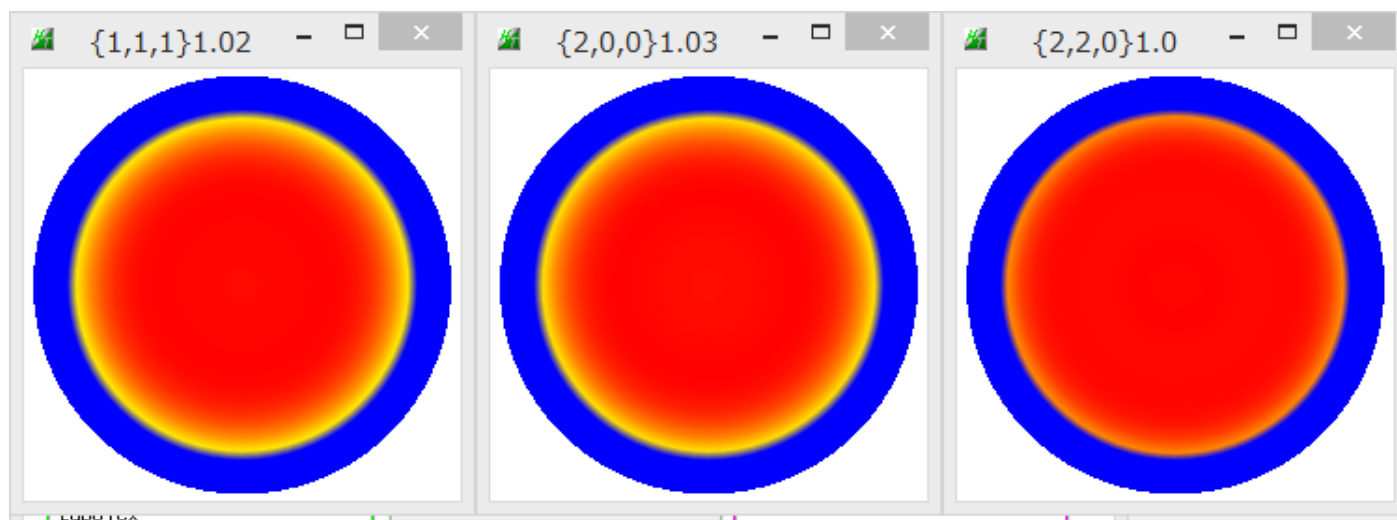
```
TextDisplay 1.13S C:¥CTR¥DATA¥Al-powder-random¥defocus-5degree¥DEFOCUS_F.TXT
File Help
filename,alphanumeric,alfastartangle,alfastep,function-n,mm, 19/11/25 3.10 for DefocusCalc,
111-random_S_chB0_2.TXT,16,0.0,5.0,5,7.0,0.9991999413533397,0.003638619449514704,-2.7504608987
200-random_S_chB0_2.TXT,16,0.0,5.0,5,7.0,0.9983771582228546,0.0034019110936822417,-2.205256346
220-random_S_chB0_2.TXT,16,0.0,5.0,5,7.0,1.0014377600383464,-0.004164371666159227,5.4936843353
```

Auto多項式

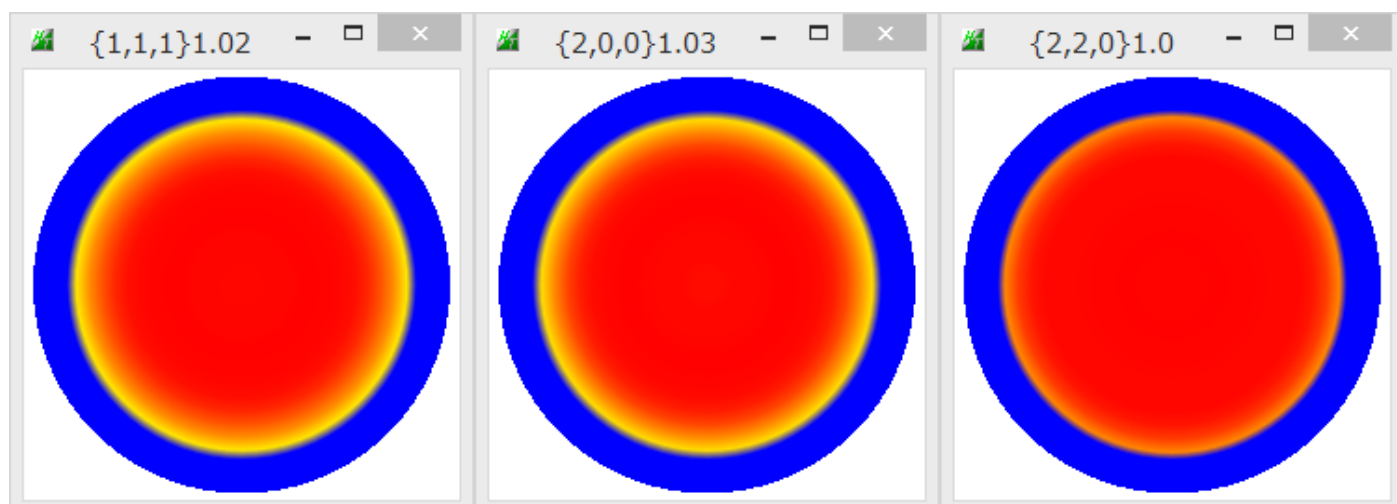
```
TextDisplay 1.13S C:¥CTR¥DATA¥Al-powder-random¥defocus-auto¥DEFOCUS_F.TXT
File Help
filename,alphanumeric,alfastartangle,alfastep,function-n,mm, 19/11/25 3.10 for DefocusCalc,
111-random_S_chB0_2.TXT,16,0.0,5.0,10,7.0,0.999994932039297,0.004080914197466327,-9.26086588
200-random_S_chB0_2.TXT,16,0.0,5.0,10,7.0,0.9999834258040219,0.0022121754173173103,-4.218599
220-random_S_chB0_2.TXT,16,0.0,5.0,11,7.0,0.9999758058486197,-0.023580104076026766,0.0097652
```

defocus 多項式曲線を使ってFlat極点図のreversedefocus

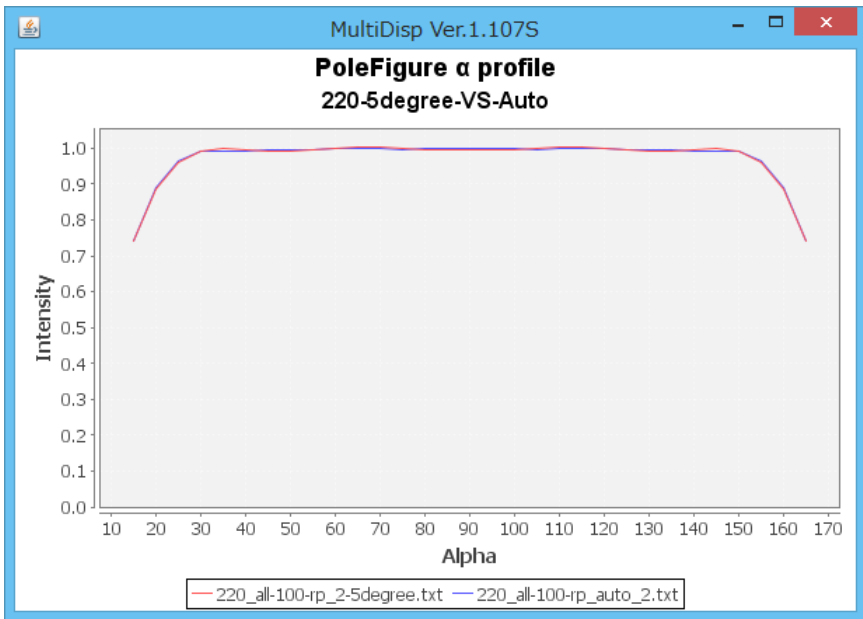
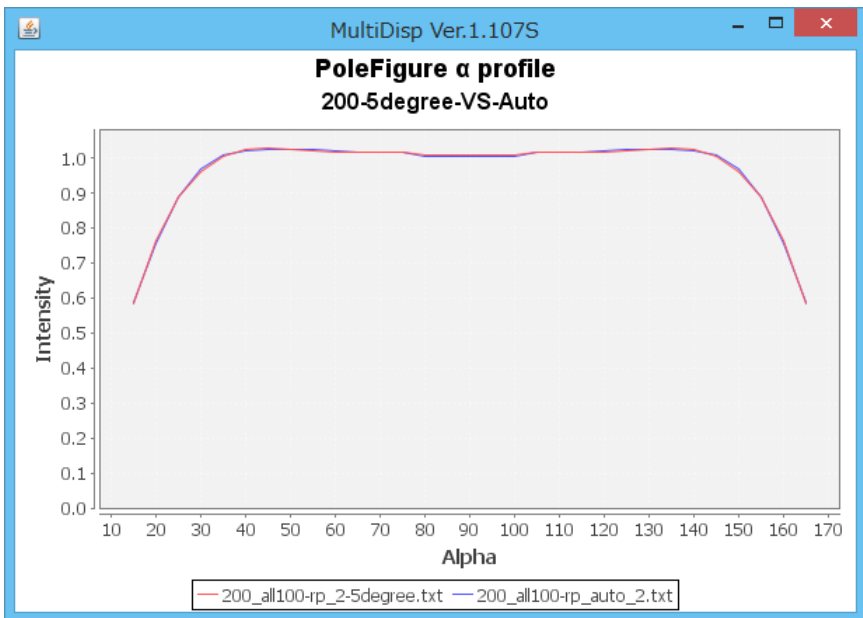
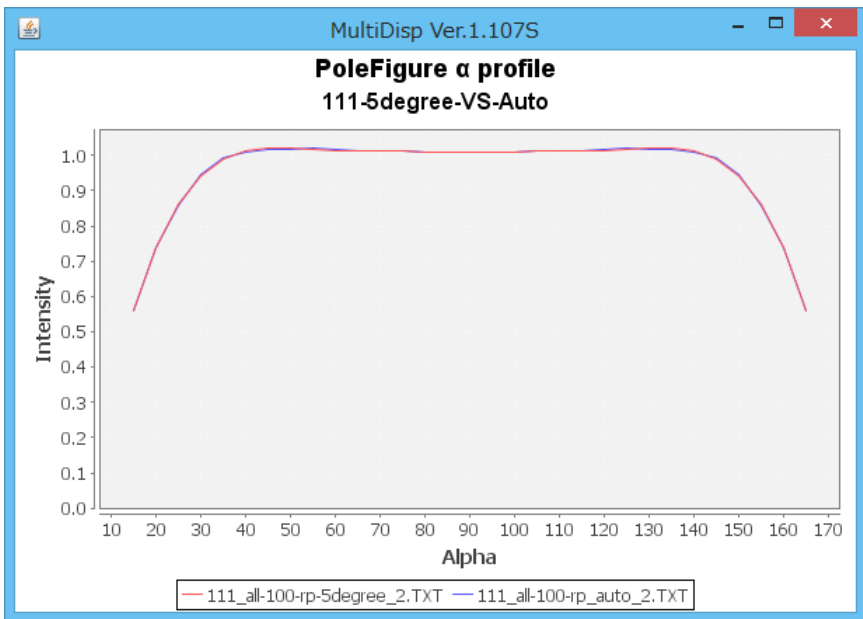
5degree-reverse



auto-reverse



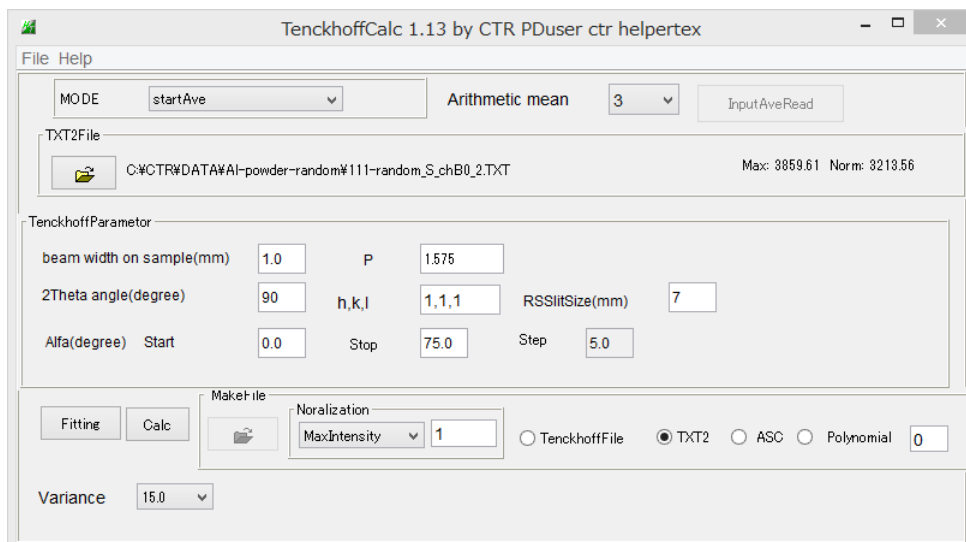
Profile比較



F l a t 部分のうねりが気になる。

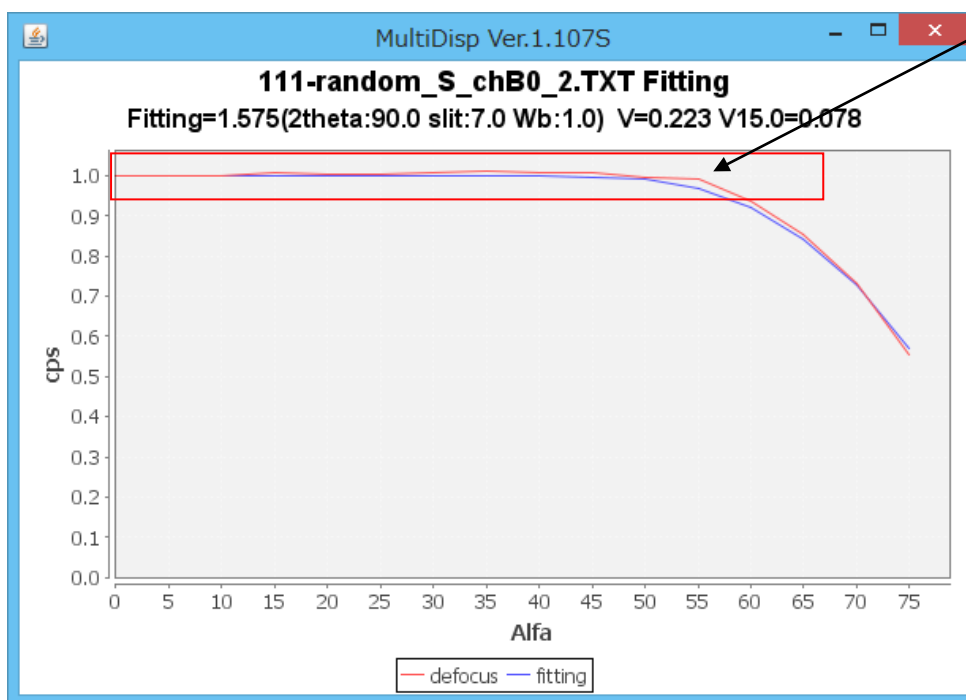
実測 defocus 曲線のうねりを整形

{111} defocus 曲線を確認

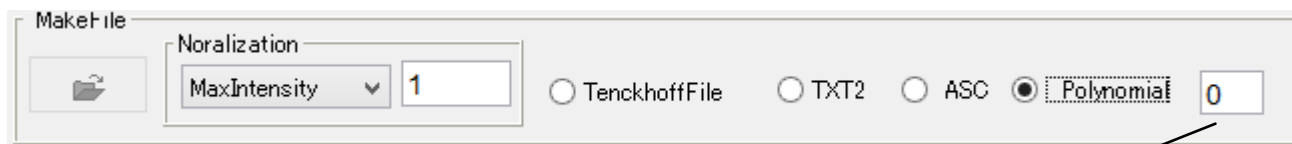


Tenckhoff 曲線に fitting

うねりの原因

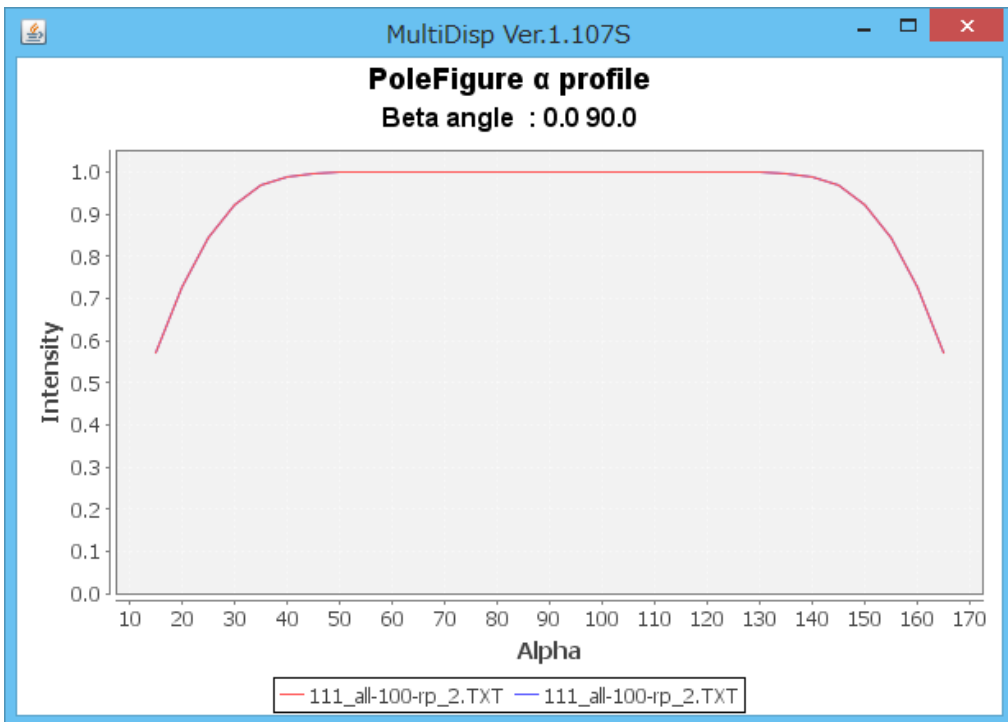
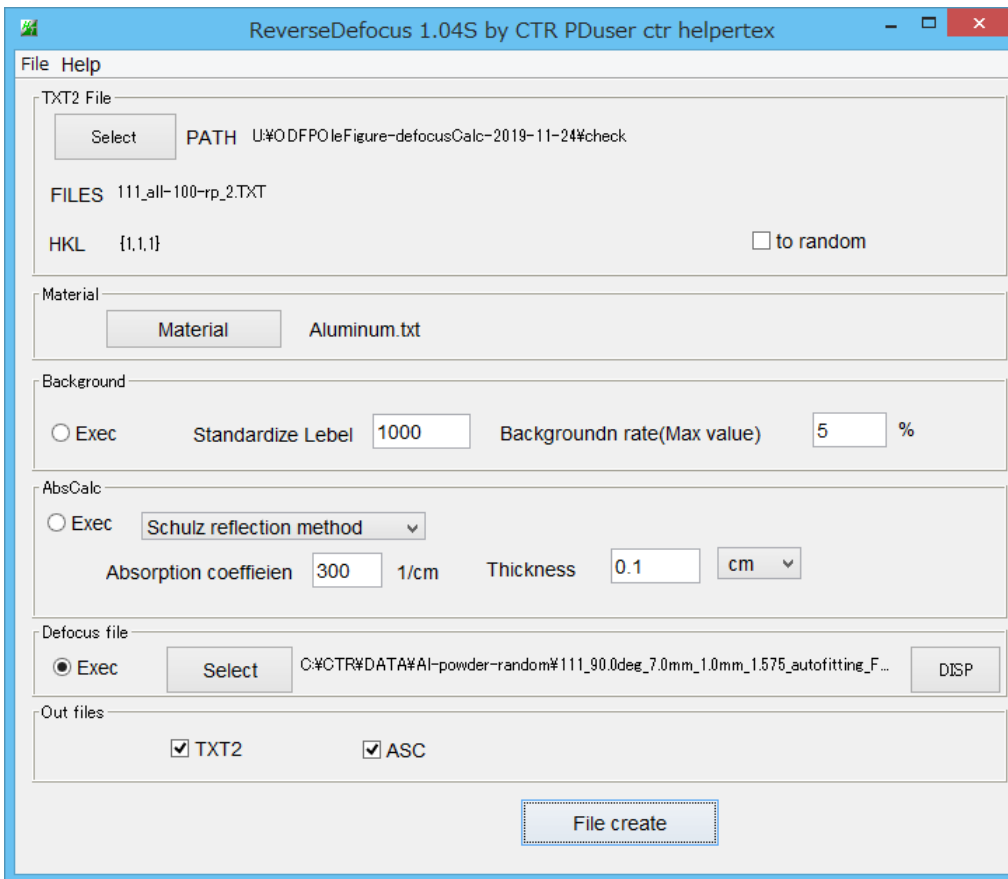


整形した多項式曲線を作成



```
filename,alfanumber,alfastartangle,alfastep,function-n,mm, 19/11/25 1.00 for TenckhoffCalc,  
111_90.0deg_7.0mm_1.0mm_1.575_autofitting_F1.TXT,16,0.0,5.0,11,1.0,1.0000002769223455,2.334
```

この曲線で reversedefocus を行う。



うねりが修正される。