

# アルミナに対する最近のCTRソフトウェア

2026年03月02日

HelperTex Office

## 概要

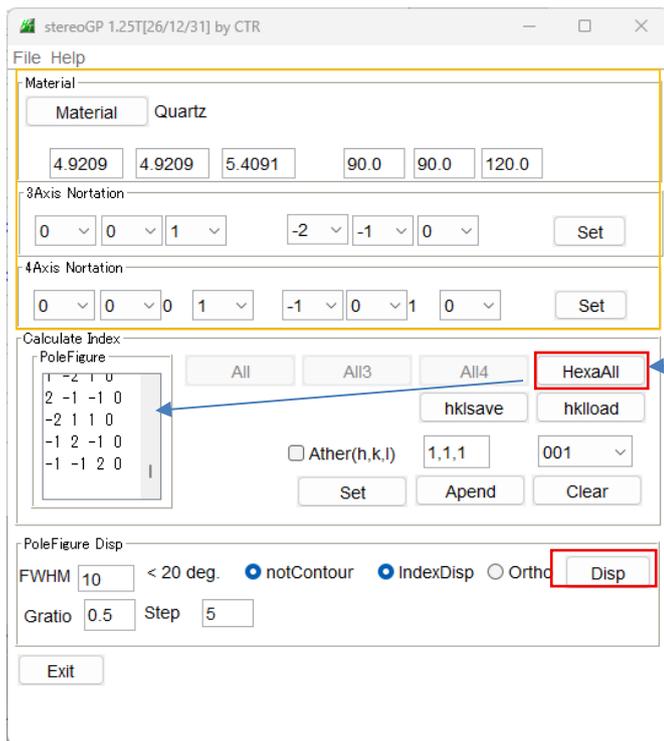
Hexagonalに対する以下の機能を紹介します。

ステレオ投影

base1すべり  $\{0001\} \langle 11-20 \rangle$  SchmidFactor

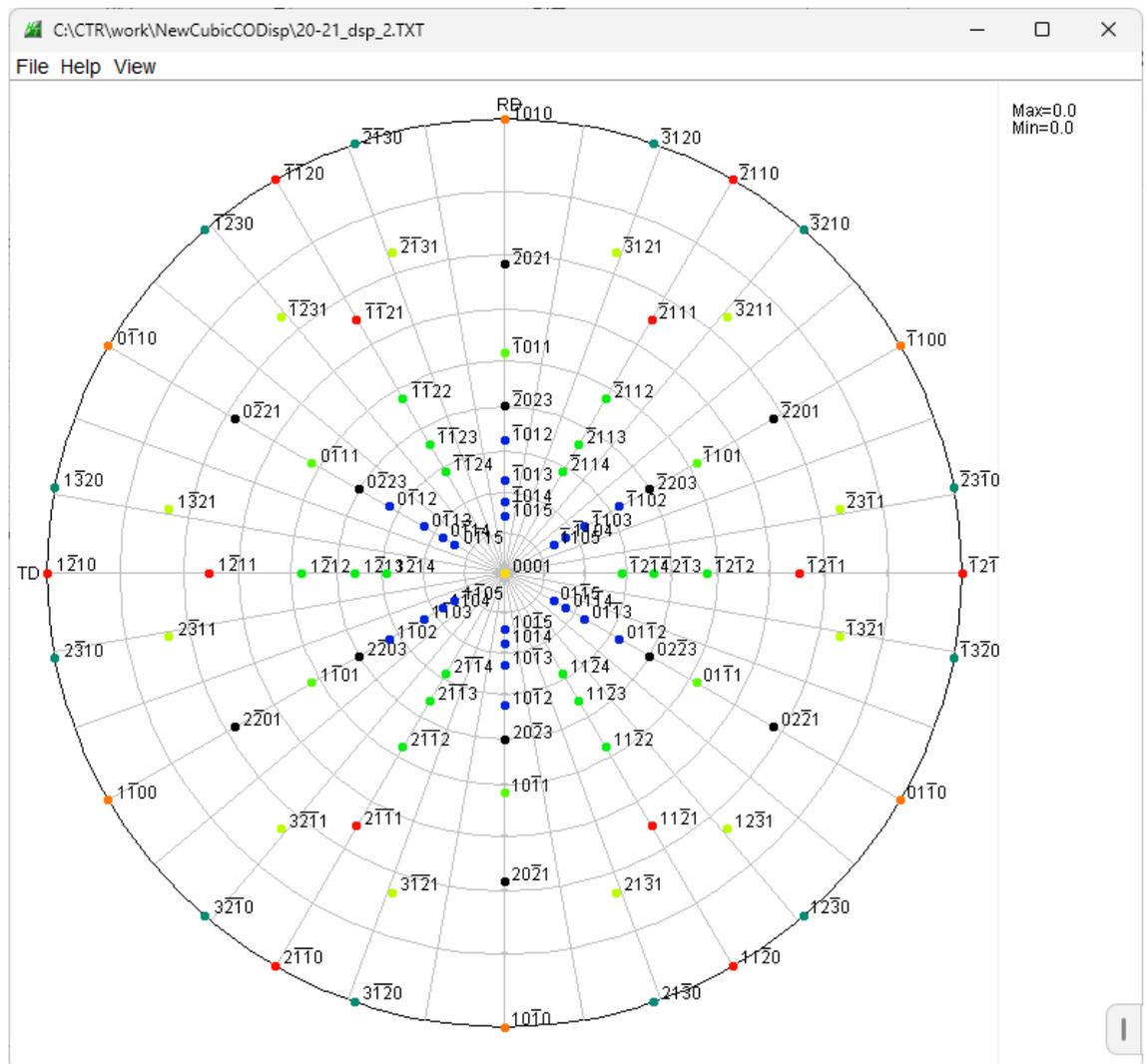
# Hexagonalのステレオ投影

リガクX線回折ハンドブックには、SiO<sub>2</sub>のステレオ投影図(0001) [-1010] が示されている。  
描画は



方位 (h k l) < u v w > の指定から  
ステレオ投影図を得る

Hexaの一般的に表示する方位を選択



# A1203の場合

stereoGP 1.25T[26/12/31] by CTR

File Help

Material: AluminumOxide

4.7588 4.7588 12.992 90.0 90.0 120.0

3Axis Notation: 0 0 1 -2 -1 0 Set

4Axis Notation: 0 0 0 1 -1 0 1 0 Set

Calculate Index

PoleFigure: 

-2	1	0	
2	-1	-1	0
-2	1	1	0
-1	2	-1	0
-1	-1	2	0

All All3 All4 HexaAll

hklsave hkload

Ather(h,k,l) 1,1,1 001

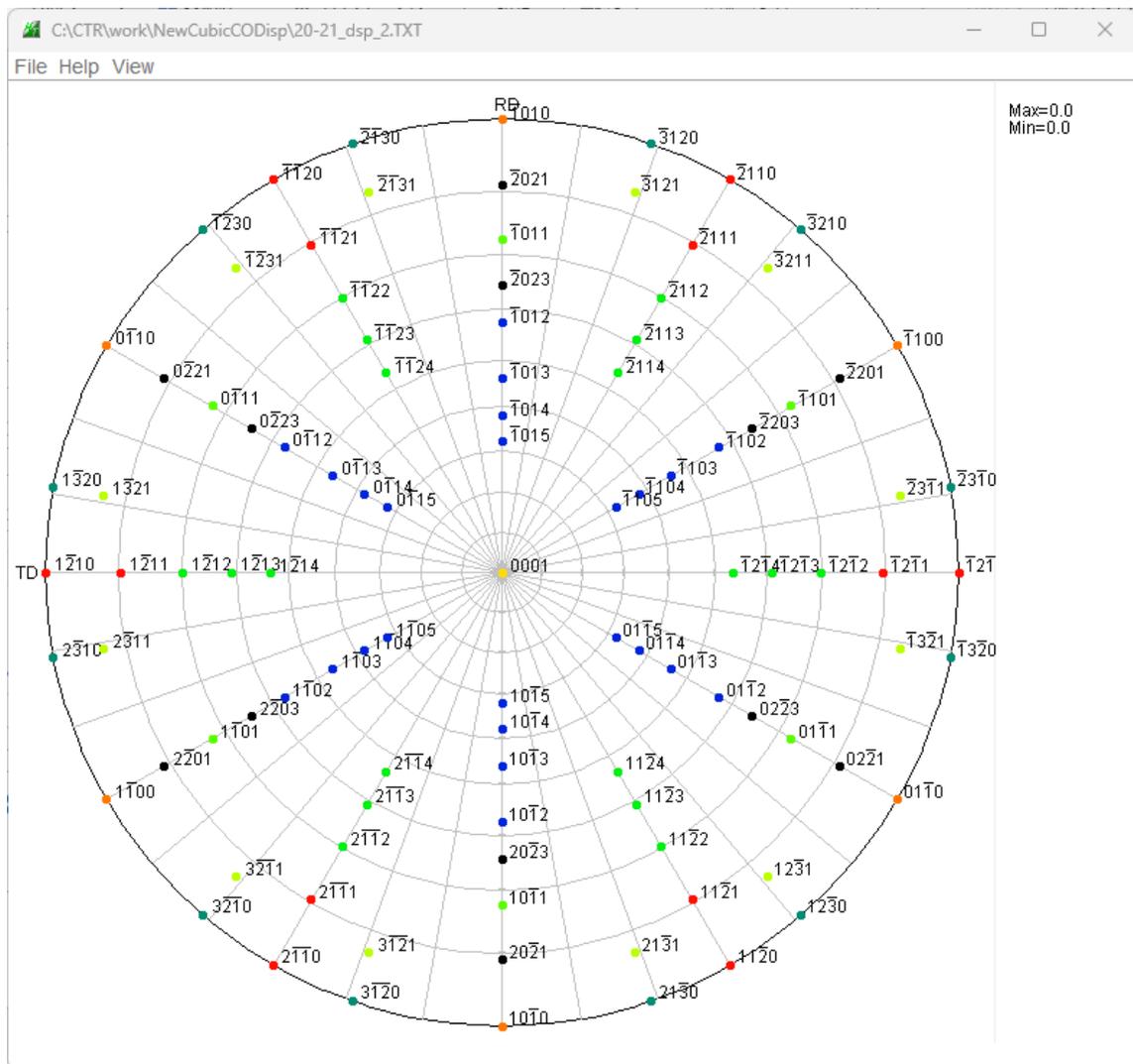
Set Apend Clear

PoleFigure Disp

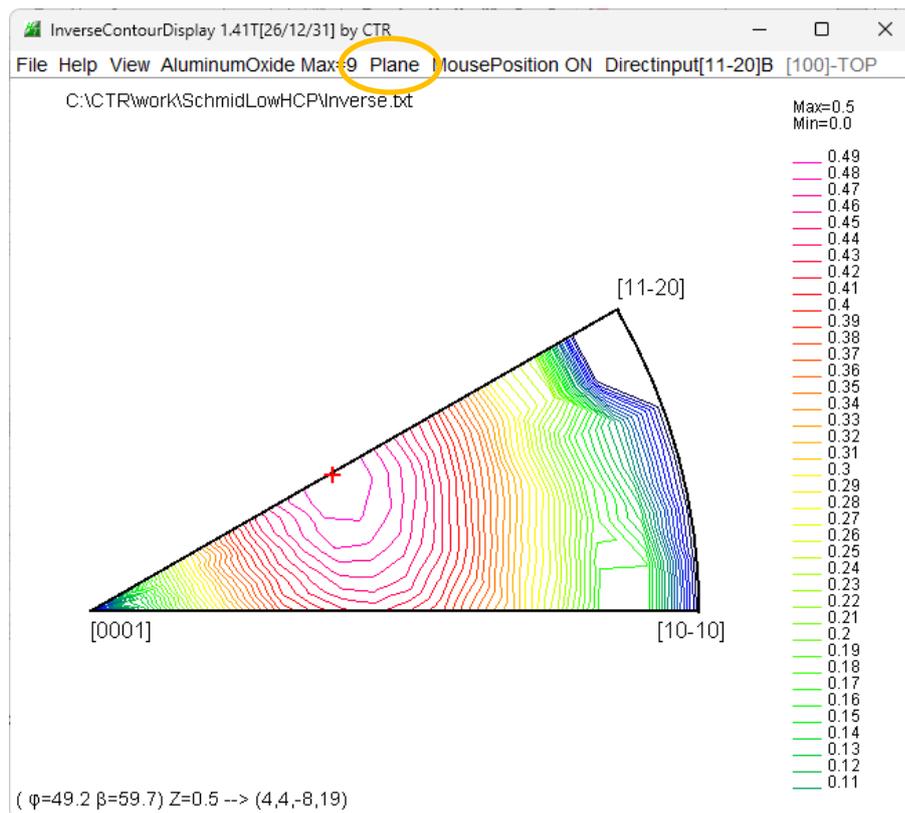
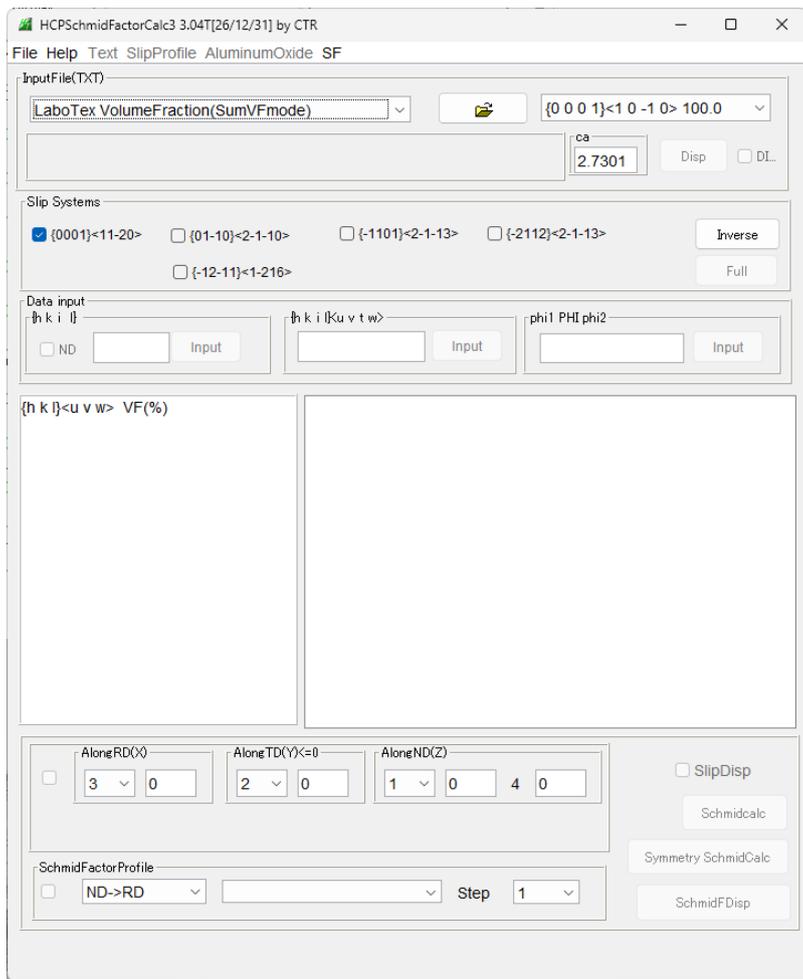
FWHM 10 < 20 deg.  notContour  IndexDisp  Ortho Disp

Gratio 0.5 Step 5

Exit



# A12O3のbase1すべり



最大値は (4, 4, -8, 19)

Data Inputで確認

HCPSchmidFactorCalc3 3.04T[26/12/31] by CTR

File Help Text SlipProfile AluminumOxide abs(SF)

InputFile(TXT)  
Data input  {0 0 0 1}<1 0 -1 0> 100.0

ca  
2.7301 Disp  DI...

Slip Systems  
 {0001}<11-20>  {01-10}<2-1-10>  {-1101}<2-1-13>  {-2112}<2-1-13>  
 {-12-11}<1-216> Inverse Full

Data input  
{h k i l} {h k i l|k u v t w} phi1 PHI phi2  
 ND 4 4 -8 19 Input  Input  Input

{h k i l}<u v t w> phi1 PHI phi2  
{4 4 -8 19}

Calc Schmid's Factor abs(SF)mode  
{44-819} cubic {12 7 12}  
(0001)[-2110] -0.248  
(0001)[1-210] -0.248  
(0001)[11-20] 0.495  
maxScmidFactor= 0.495

AlongRD(X) AlongTD(Y)<=0 AlongND(Z) SlipDisp  
 3 0 2 0 1 0 4 0  Schmidcalc

SchmidFactorProfile  
 ND->RD Step 1 Symmetry SchmidCalc SchmidFDisp



実際の材料では、LaboTexのVolumeFraction結果を用いる。

Quantitative Analysis - Model Functions Method - Project: Demo Sample:123-1-21 Job:2

Crystal Symmetry:  $D_6$  (Hexagonal) | Sample Symmetry: Orthorhombic | Grid Cells for Output ODF: 5.0\*5.0 | Step: 0.50 | Diagram Range +/-: 45.0

Component No. 1. 100.0% | Component No. 1. 100.0% | Component No. 1. 100.0%

Misfit: Good | Backgr. Diff.

No	Texture Component	Distribution	FWHM $\phi_1$	FWHM $\phi_2$	FWHM $\phi_3$	Volume Fraction	Show Sym. Eq.
1	{ 49.74, 70.21, 49.11 }	Gauss	10.0	10.0	10.0	49	{ 1 2 3 } < 1 -2 1 >
2	{ 1 2 3 } < 1 -2 1 >	Gauss	10.1	10.0	10.1	100	Calculation Mode
3	{ 52.02, 74.5, 22.60 }	Gauss	10.0	10.0	10.0	10	

ODF

LaboTex - Texture - Quantitative Analysis Report (MF Method)  
 User: tst111  
 Project: Demo  
 Sample: 123-1-21  
 Job: 2  
 Date: 2026/03/02  
 Time: 18:17:09

Volume Fraction	FWHM Phi1	FWHM Phi	FWHM Phi2	Orientation
99.97	10.1	10.0	10.1	{ 1 2 3 } < 1 -2 1 >
0.03				Background Volume Fraction

LaboTex VolumeFraction(SumVFmode) | { 0 0 0 1 } < 1 0 -1 0 > 100.0

C:\LaboTex2\USER\tst111.LAB\ID6-Hexagonal.LAB\Demo.LAB\123-1-21.LAB\Job01\123-1-21.POD | ca: 2.7301 | Disp | DI..

Slip Systems:  {0001}<11-20> |  {01-10}<2-1-10> |  {-1101}<2-1-13> |  {-2112}<2-1-13> |  {-12-11}<1-216> | Inverse | Full

Data input:  ND |  {h k l} |  {h k l | k u v t w} | phi1 PHI phi2

{ 1 2 -3 3 } < 4 -5 1 3 > 100.0

Calc Schmid's Factor abs(SF)mode

{12-33} cubic {8 7 4}

(0001)[-2110]	-0.104
(0001)[1-210]	-0.208
(0001)[11-20]	0.313
maxScmidFactor=	0.313

{hkl}<uvtw>	VF	Schmid	VF*Schmid
{ 1 2 -3 3 } < 4 -5 1 3 >	100.0	0.313	0.313
vfsum=	1.0		
SchmidFactor(VFsummode)=	0.313		

Along RD(X):  3 0 | Along TD(Y)<=0:  2 0 | Along ND(Z):  1 0 4 0 |  SlipDisp | Schmidcalc | Symmetry SchmidCalc | SchmidFDisp

SchmidFactorProfile:  ND->RD | all | Step: 1