

PFRotationとCrystalRotation

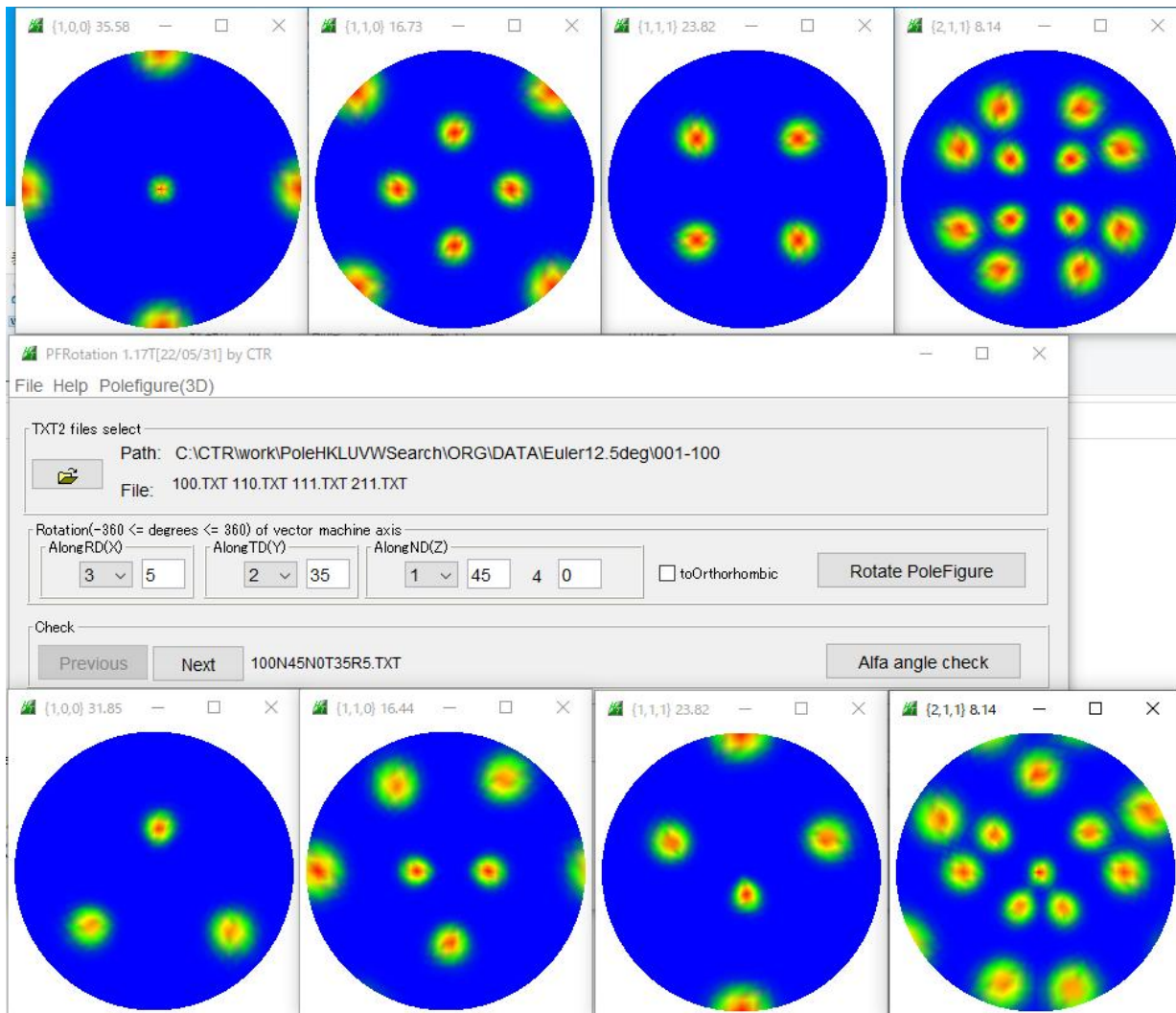
2022年05月18日

HelperTex Office

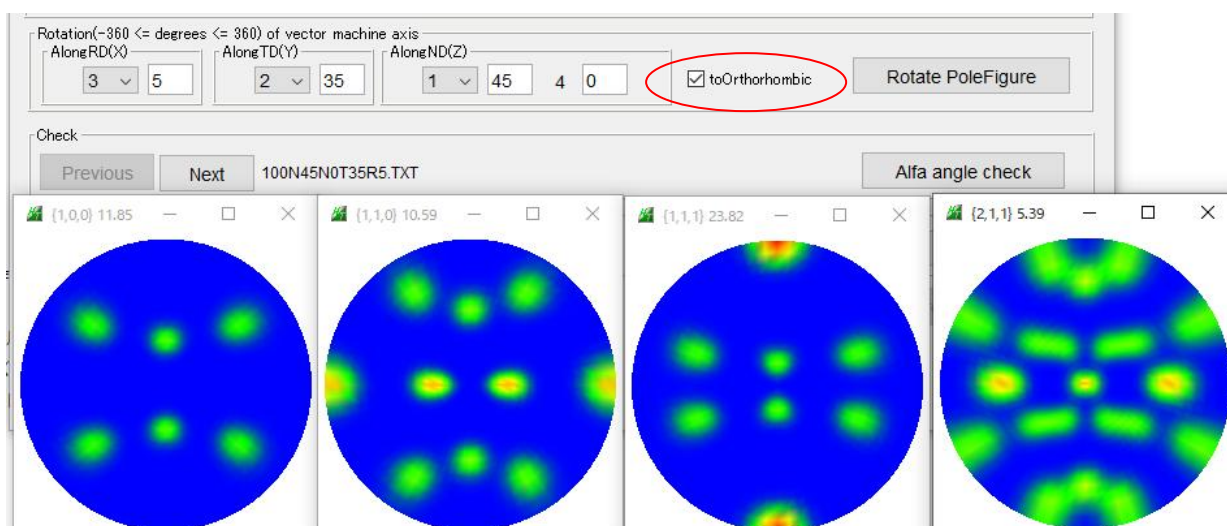
概要

RD-TD-ND軸の試料軸回転と結晶方位の関係はCrystal Rotationで計算される。
しかし極点図はPFRotationで行われる。
結晶方位と極点図を確かめるには、PFRotationの併用で実現できます。
以下にこのソフトウェアの併用方法を説明します。

C u b e を N D 4 5 d e g → T D 3 5 d e g → R D 5 d e g 回 転

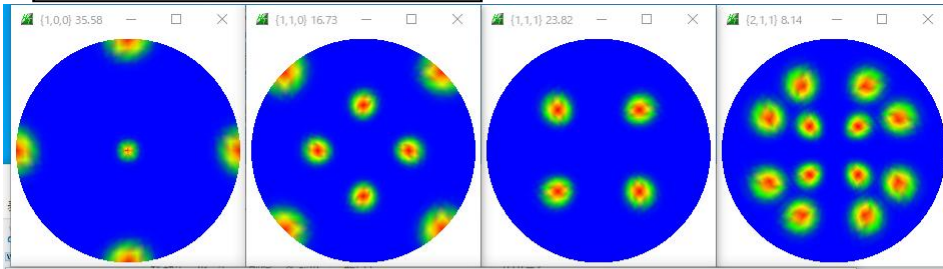


Orthorhombic化



回転の分解

ND → 45度回転



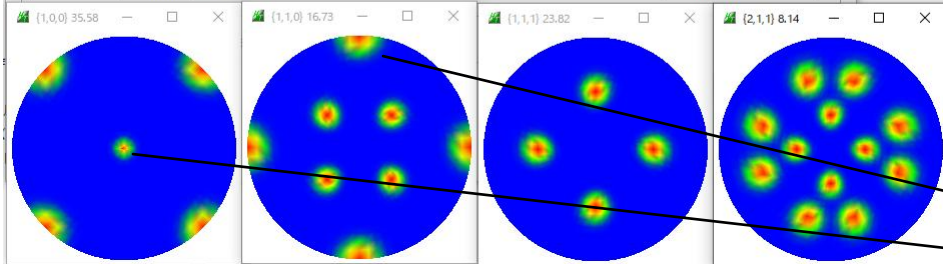
PFRotation 1.17T[22/05/31] by CTR

File Help Polefigure(3D)

TXT2 files select
Path: C:\CTR\work\PoleHKLUVWSearch\ORG\DATA\Euler12.5deg\001-100
File: 100.TXT 110.TXT 111.TXT 211.TXT

Rotation(-360 ≤ degrees ≤ 360) of vector machine axis
Along RD(X) 3 0 Along TD(Y) 2 0 Along ND(Z) 1 45 4 0 toOrthorhombic Rotate PoleFigure

Check
Previous Next 100N45N0T0R0.TXT Alfa angle check



{0 0 1} < 1 1 0 >

CrystalRotation 1.04T[22/05/31] by CTR

File Help

Material
Material Cubic Fe-alpha
1.0 1.0 1.0 90.0 90.0 90.0

hkl|kuvw>
0 0 1 1 0 0 Disp

Rotation vector of crystal axis
 0 0 1 SET CTD

Rotation vector of machine axis(LaboTex, MTEX) 0 0 1 SET Rotation angle 45 Calc Disp

Result

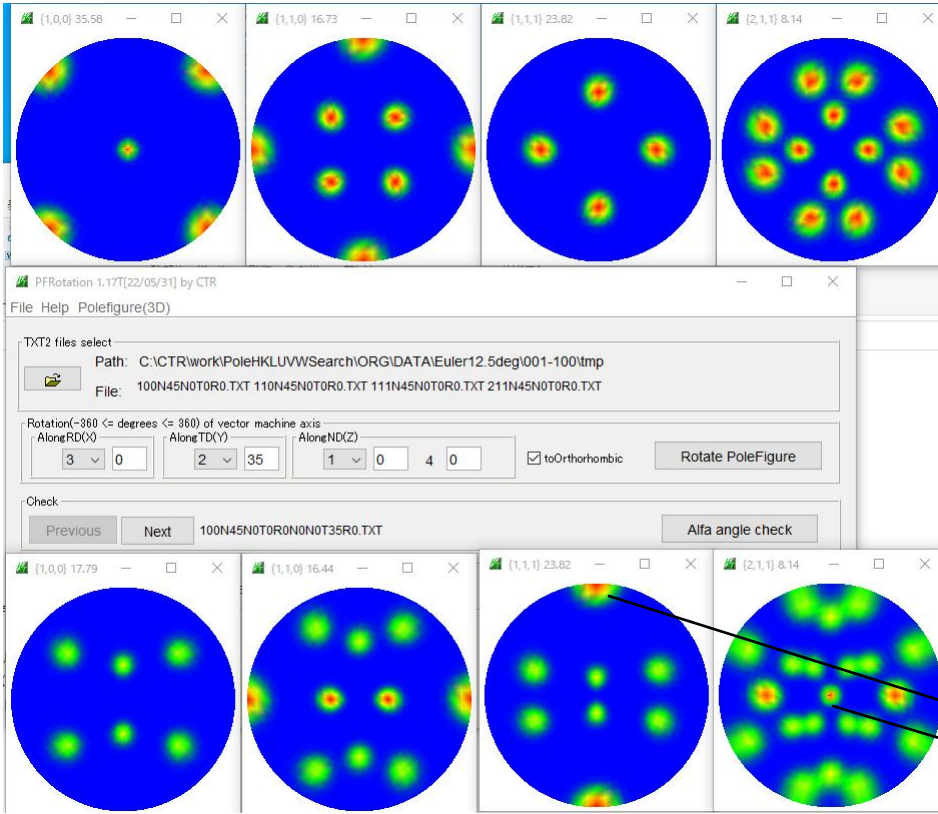
```
{001}<100> eulerangle:(0.0,0.0,0.0)
g(ψ1φψ2)=
  1.0 0.0 0.0
  0.0 1.0 0.0
  0.0 0.0 1.0
Rotation [001] angle:45.0
Calc-d=(0.0,0.0,1.0)
a(001),45.0=
  0.7071 0.7071 0.0
 -0.7071 0.7071 0.0
  0.0 0.0 1.0
ag=
  0.7071 0.7071 0.0
 -0.7071 0.7071 0.0
  0.0 0.0 1.0
Calc Miller indices
{0 0 1}<1 -1 0>
```

set|hkl|kuvw>

Machine axis ND=[001] Set
(001)[100]に対する回転軸 Crystalaxis[001]
Calc で Crystalaxis[001]で 45度回転
{001}<1-10>が計算される

次の回転の準備

TD → 35度回転



{ 2 1 1 } < 1 - 1 - 1 >

CrystalRotation 1.04T[22/05/31] by CTR

File Help

Material: Cubic Fe-alpha
1.0 1.0 1.0 90.0 90.0 90.0

hkl|kuvw>: 0 0 1 1 -1 0 Disp

Rotation vector of crystal axis: -1 -1 0 SET CTD

Rotation vector of machine axis(LaboTex, mTEX): 0 1 0 SET Rotation angle: 35 Calc Disp

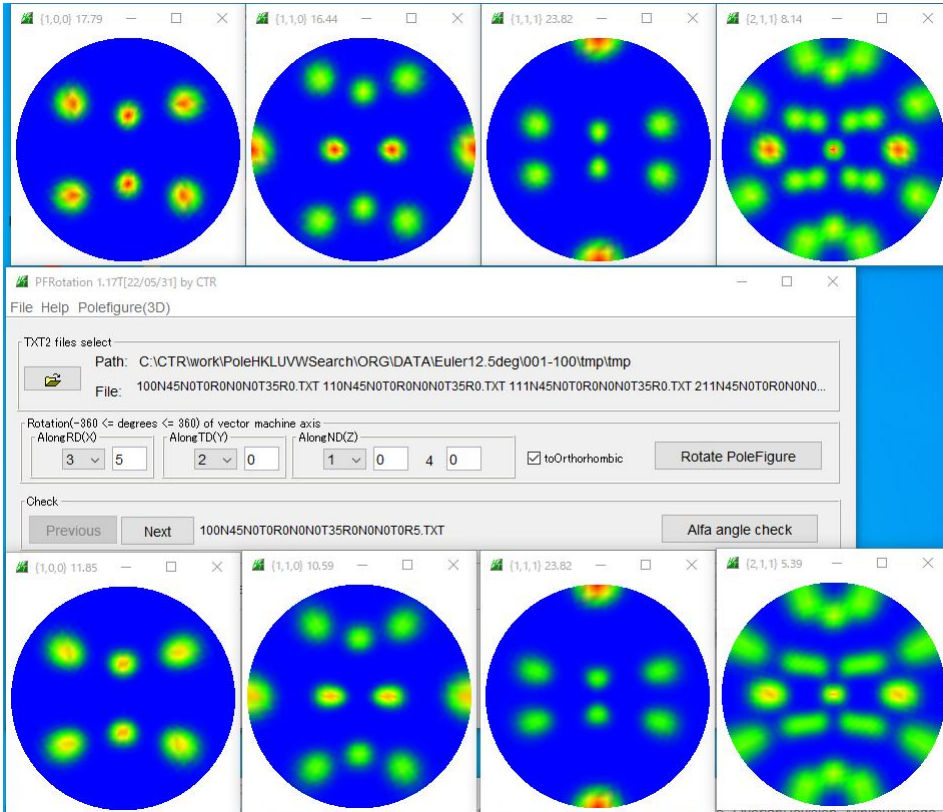
Result

```
{001}<1-10> eulerangle:(45.0,0.0,0.0)
g(ψ1φψ2)=
  0.7071 0.7071 0.0
 -0.7071 0.7071 0.0
  0.0 0.0 1.0
Rotation [-1-10] angle:35.0
Calc-d=(-0.7071,-0.7071,0.0)
a(-1-10),35.0=
  0.9096 0.0904 0.4056
  0.0904 0.9096 -0.4056
 -0.4056 0.4056 0.8192
ag=
  0.5792 0.7071 0.4056
 -0.5792 0.7071 -0.4056
 -0.5792 0.0 0.8192
Calc Miller indices
{1 -1 2}<1 -1 -1>
```

{1 -1 2}|kuvw> sethkl|kuvw>

Machine axis TD=[010] Set
(001)[100]に対する回転軸 Crystalaxis[-1-10]
Calc で Crystalaxis[-1-10]で 35度回転
{1-12}<1-1-1>が計算される

ND → 5度回転



CrystalRotation 1.04T[22/05/31] by CTR

File Help

Material
 Material Cubic Fe-alpha
 1.0 1.0 1.0 90.0 90.0 90.0

hkl|Kuvw>
 1 -1 2 1 -1 -1 Disp

Rotation vector of crystal axis
 1 -1 -1 SET CTD

Rotation vector of machine axis(LaboTex,MTEX)
 1 0 0 SET

Rotation angle
 5 Calc Disp

Result

```

{1-12}<1-1-1> eulerangle:(270.0,35.264,135.0)
g(ψ1 φ ψ2)=
  0.5774 0.7071 0.4082
 -0.5774 0.0 -0.4082
 -0.5774 0.0 0.8165
Rotation [1-1-1] angle:5.0
Calc-d=(0.5774,-0.5774,-0.5774)
a(1-1-1),5.0=
  0.9975 -0.0516 0.0491
  0.0491 0.9975 0.0516
 -0.0516 -0.0491 0.9975
ag=
  0.5774 0.7053 0.4683
 -0.5774 0.0347 -0.3451
 -0.5774 -0.0365 0.8134
Calc Miller indices
{4 -3 7}<1 -1 -1>
  
```

{4 -3 7}K1 -1 -1> sethkl|Kuvw>