

# 結晶方位の回転(Copper方位にて)

LaboTexによるによるND->TD,ND->RD回転

方法：Euler角度指定による回転

CrystalRotationによるND->TD,ND->RD回転

方法：RD軸（X軸）,TD軸（Y軸）から回転結晶軸を計算し回転

BCCSchmidFactorCalcによるND->TD,ND->RD回転

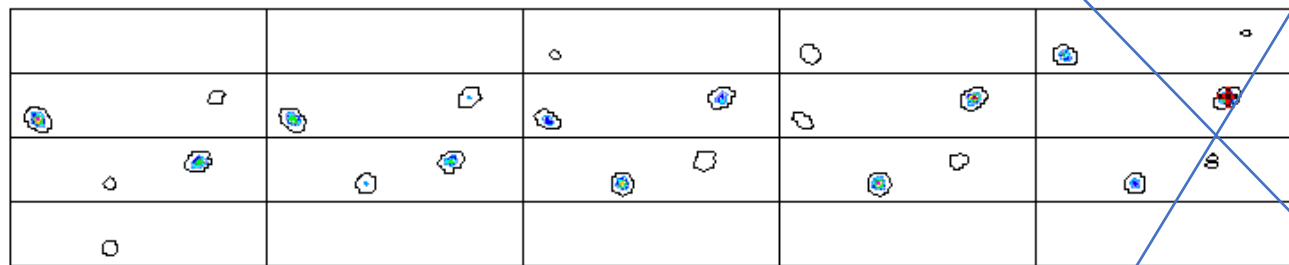
方法：CrystalOrientationと同じ

PFRotationによる極点図ND->TD,ND->RD回転

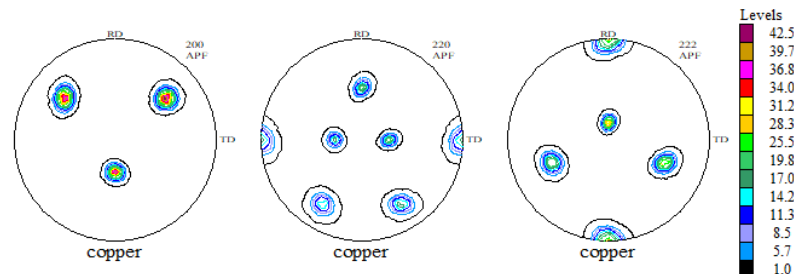
方法：RD軸（X軸）、TD軸（Y軸）による回転

ND

Step 5.00  $\varphi_2 = 270.00$   $\Phi = 35.26$   $\varphi_1 = 45.00$  HKL ( 1 1 2 ) UVW [ 1 1 -1 ]



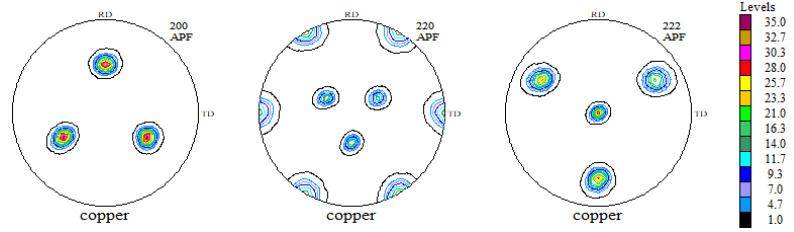
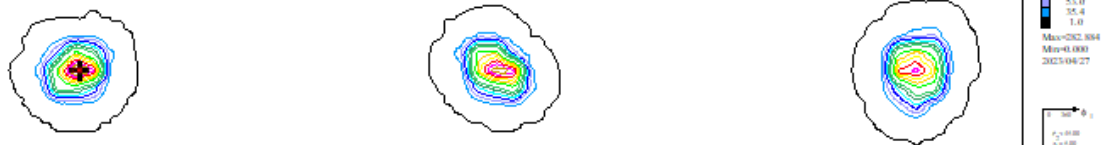
Step 5.00  $\varphi_2 = 90.97$   $\Phi = 54.68$   $\varphi_1 = 45.00$  HKL ( 1 1 1 ) UVW [ -1 -1 2 ]



RD

Euler Angles  
 $\varphi_1$   $\Phi$   $\varphi_2$   
 (-360 - 360) (-180 - 180) (-360 - 360)  
 90 90 -90

Y軸回転 {hkl}と{uvw}の入れ替え



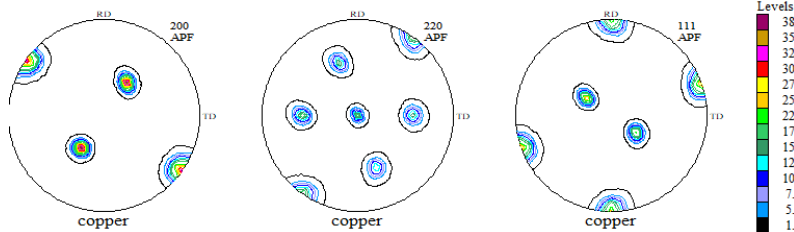
0 19

Step 5.00  $\varphi_2 = 215.32$   $\Phi = 90.00$   $\varphi_1 = 45.00$  HKL ( 1 1 0 ) UVW [ -1 1 -1 ]

TD

Euler Angles  
 $\varphi_1$   $\Phi$   $\varphi_2$   
 (-360 - 360) (-180 - 180) (-360 - 360)  
 0 90 0

X軸回転 <uvw>軸による回転



0 19

# RD方向(Y軸 (TD方向軸) の90度回転)

## LaboTex

Euler Angles

$\phi_1$     $\Phi$     $\phi_2$

(-360 - 360) (-180 - 180) (-360 - 360)

90   90   -90

$(1\ 1\ 1)$  Uvw  $[-1\ -1\ 2]$

CrystalRotation 1.08T[23/12/31] by CTR

File Help RD(TDrotate) {uvw}<hkl> {112}<-1-11> RV:Integer Orthorhombic

Material: Cubic  
1.0 1.0 1.0 90.0 90.0 90.0

hkl|Kuvw>: 1 2 1 1 -1 1

Rotation vector of crystal axis: -1 0 1

Rotation vector of machine axis(LaboTex,MTEX): 0 1 0   Rotation angle: -90

Result:

```
RD   TD   ND
1.0  -1.0  1.0
-1.0  0.0  2.0
1.0   1.0  1.0
RDaxis [1 -1 1]
TDaxis [-1 0 1]
NDaxis [1 2 1]
-1.0  0.0  1.0      (-1 0 1)
{121}<-1-11>      eulerangle:(39.232,85.905,26.565)
Eulerangle g(phi1 Phi phi2)=
0.5774  0.7071  0.4082
-0.5774 -0.0836  0.8165
0.5774  -0.7071  0.4082
Rotation [-1,0,1]      angle:-90.0
Calc-d=(-0.7071,0.0,0.7071)
a(-1.0,0.0,1.0),-90.0
Rotated Eulerangle
0.5   -0.7071  -0.5
0.7071  0.0   0.7071
-0.5   -0.7071  0.5
Rotated RD   TD   ND
0.4082  0.7521  -0.5773
0.8165  0.0   0.5774
0.4082  -0.6822  -0.5774
Calc Miller indices
{-1.0 1.0 -1.0}<-1.0 2.0 1.0>
{1 1 1}<-1 -1 2>
```

{1 1 1}<-1 -1 2>   set|hkl|Kuvw>

{112}<-11-1> toOrthorhombic {121}<-1-11>

Result: {-11-1}<121> toOrthorhombic {111}<-1-12>

BCCSchmidFactorCalc3 3.10T[23/12/31] by CTR

File Help Text SlipProfile RD(TDrotate) abs(SF) Orthorhombic

InputFile(TXT): LaboTex VolumeFraction(SumVFmode) {1 1 2}<-1 -1 1> 100.0

Slip Systems: {011}<-11-1> {112}<-11-1> {123}<-11-1> FCC{111}<-1-10>

Data input: real {h k l} or {h k l}   phi1 PHI phi2 phi1<=90,PHI<=90

{1 1 2}<-1 1 -1> 100.0

	-0.272	0.0	0.272	0.0
	0.0	0.0	-0.157	-0.157
	-0.314	0.314	-0.157	-0.157
	-0.157	0.314	-0.157	0.0
	0.0	0.0	0.0	0.0
	0.0	-0.103	-0.206	-0.206
	-0.103	-0.309	-0.309	0.309
	0.309	0.103	0.206	0.103
	0.206	0.206	0.103	0.309
	0.309	0.206	0.103	0.309

Input VF% Schmid VF\*Schmid%

{1.02.01.0}<-1.0-1.01.0> 100.0 0.314 0.314

VFsum=100.0% VF\*Schmidsum=0.314

SchmidFactor(SumVF)=0.314

Along RD(X): 3 0   Along TD(Y)<=0: 2 -90   Along ND(Z): 1 0 4 0

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

SchmidFactorProfile: ND->RD all Step 1

AXISRotation   HKLDouble

Clear   SlipDisp   Schmidcalc   Symmetry SchmidCalc   SchmidFDisp

# TD方向(X軸 (RD方向軸) の90度回転)

LaboTex

Euler Angles

$\varphi_1$     $\Phi$     $\varphi_2$

(-360 - 360) (-180 - 180) (-360 - 360)

0   90   0

HKL ( 1 1 0 ) : UVW [ -1 : 1 -1 ]

CrystalRotation 1.08T[23/12/31] by CTR

File Help TD(RDrotate) {TD}<uvw> {112}<-1-11> RV:Integer Orthorhombic

Material: Material Cubic 1.0 1.0 1.0 90.0 90.0 90.0

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

Rotation vector of crystal axis  
 1 -1 1 SET CTD

Rotation vector of slip plane (LaboTex)   Rotation angle  
 1 0 0 SET 90 Calc Disp

Result

```

RD   TD   ND
1.0  -1.0  1.0
-1.0  0.0  2.0
1.0   1.0  1.0
RDaxis [1 -1 1]
TDaxis [-1 0 1]
NDaxis [1 2 1]
1.0  -1.0  1.0   (1 -1 1)
{121}<-1-11>   eulerangle:(39.232,85.905,26.565)
Eulerangle g(phi1 Phi phi2)=
          0.5774  0.7071  0.4082
          -0.5774 -0.0636  0.8165
          0.5774  -0.7071  0.4082
Rotation [1,-1,1]   angle:90.0
Calc-d=(0.5774,-0.5774,0.5774)
a(1.0,-1.0,1.0),90.0
Rotated Eulerangle
          0.3333  0.244  0.9107
          -0.9107  0.3333  0.244
          -0.244  -0.9107  0.3333
Rotated RD   TD   ND
          0.5774  -0.4238  0.7071
          -0.5774  -0.8377  0.0
          0.5774  -0.3504  -0.7071
Calc Miller indices
{1 0 0}<-1 0 -1 0>
{1 1 0}<-1 -1 1>
    
```

{1 1 0}<-1 -1 1>   set|hkl|Kuvw>

{112}<-1-11> toOrthorhombic {121}<-1-11>

Result: {10-1}<-1-11> toOrthorhombic {110}<-1-11>

BCCSchmidFactorCalc3 3.10T[23/12/31] by CTR

File Help Text SlipProfile TD(RDrotate) abs(SF) Orthorhombic

InputFile(TXT)  
 LaboTex VolumeFraction(SumVFmode) {1 1 2}<-1 -1 1> 100.0

Slip Systems  
 {011}<-11-1>    {112}<-11-1>    {123}<-11-1>    FCC{111}<-1-10>   Inverse

Data input  
 real h k l or [h k l]   h k |Ku v w>   phi1 PHI phi2 phi1<=90,PHI<=90

{1 1 2}<-1 1 -1> 100.0

Calc Schmid's Factor abs(SF)mode  
 {1.02.01.0}<-1.0-1.01.0> rotation (2[90.0],1[0.0],0[0.0]3[0.0])

slip0	slip1	slip2	slip3	slip4
	slip5	slip6	slip7	slip8
	slip9	slip10	slip11	
-0.408	-0.408	0.0	-0.408	-0.408
0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0

input   VF%   Schmid   VF\*Schmid%

{1.02.01.0}<-1.0-1.01.0>   100.0   0.408   0.408

VFsum=100.0%   VF\*Schmidsum=0.408

SchmidFactor(SumVF)=0.408

AlongRD(X)   AlongTD(Y)X=0   AlongND(Z)

3 90   2 0   1 0 4 0

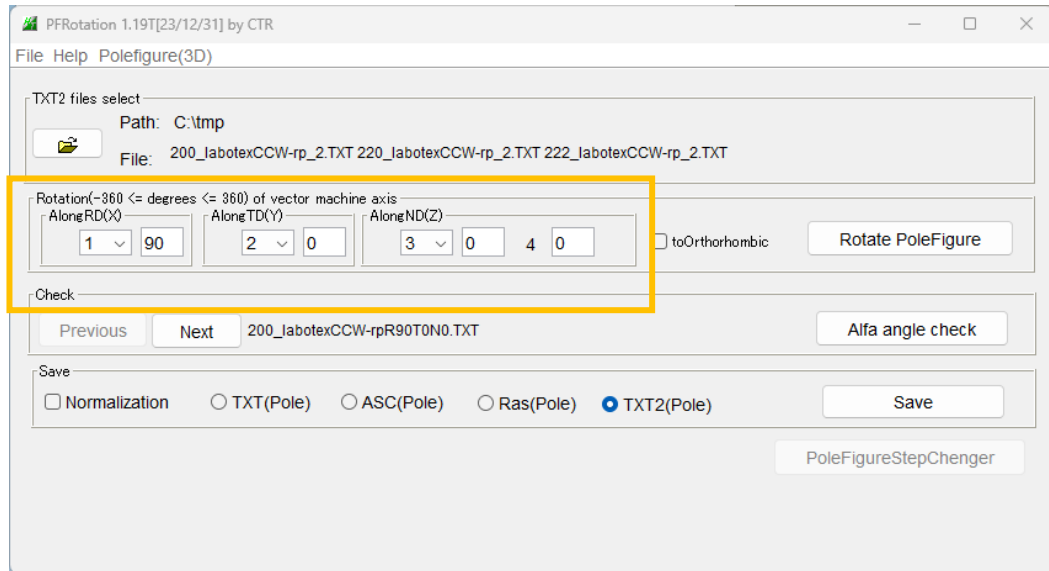
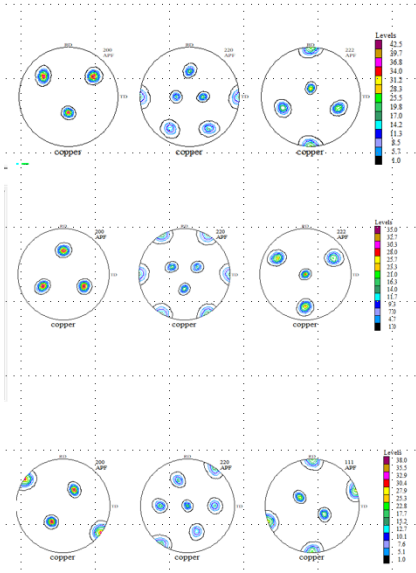
{1 0 -1}<-1 -1 1> toOrthorhombic {1 1 0}<-1 -1 1>

SchmidFactorProfile  
 ND->TD   all   Step 1

AXISRotation    HKLDouble

Clear  
 SlipDisp  
 SchmidCalc  
 Symmetry SchmidCalc  
 SchmidFDisp

# 極点図の回転

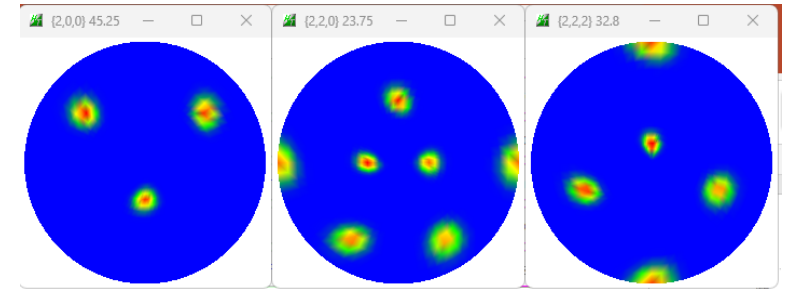


LaboTexではCCWでODFが一致が極点図は反転

ND

Rotation(-360 ≤ degrees ≤ 360) of vector machine axis

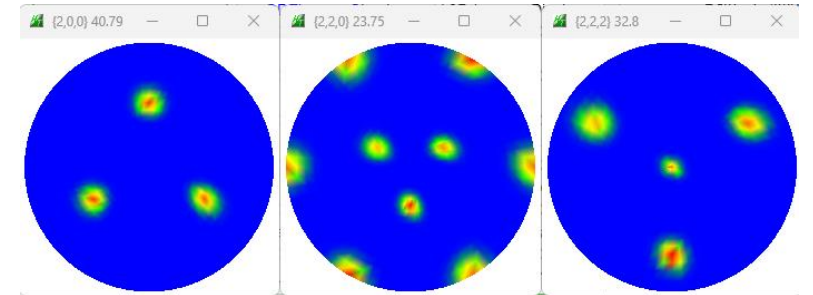
AlongRD(X) 1 0    AlongTD(Y) 2 0    AlongND(Z) 3 0 4 0



RD

Rotation(-360 ≤ degrees ≤ 360) of vector machine axis

AlongRD(X) 1 0    AlongTD(Y) 2 -90    AlongND(Z) 3 0 4 0



Euler Angles

$\varphi_1$      $\Phi$      $\varphi_2$

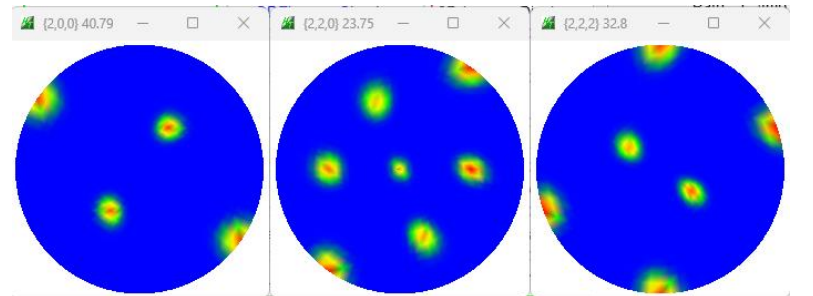
(-360 - 360) (-180 - 180) (-360 - 360)

90    90    -90

TD

Rotation(-360 ≤ degrees ≤ 360) of vector machine axis

AlongRD(X) 1 90    AlongTD(Y) 2 0    AlongND(Z) 3 0 4 0



Euler Angles

$\varphi_1$      $\Phi$      $\varphi_2$

(-360 - 360) (-180 - 180) (-360 - 360)

0    90    0