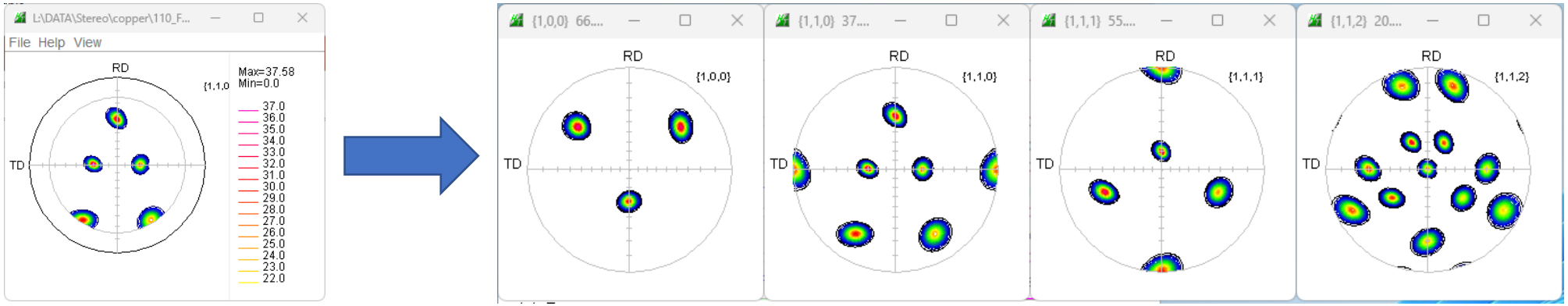
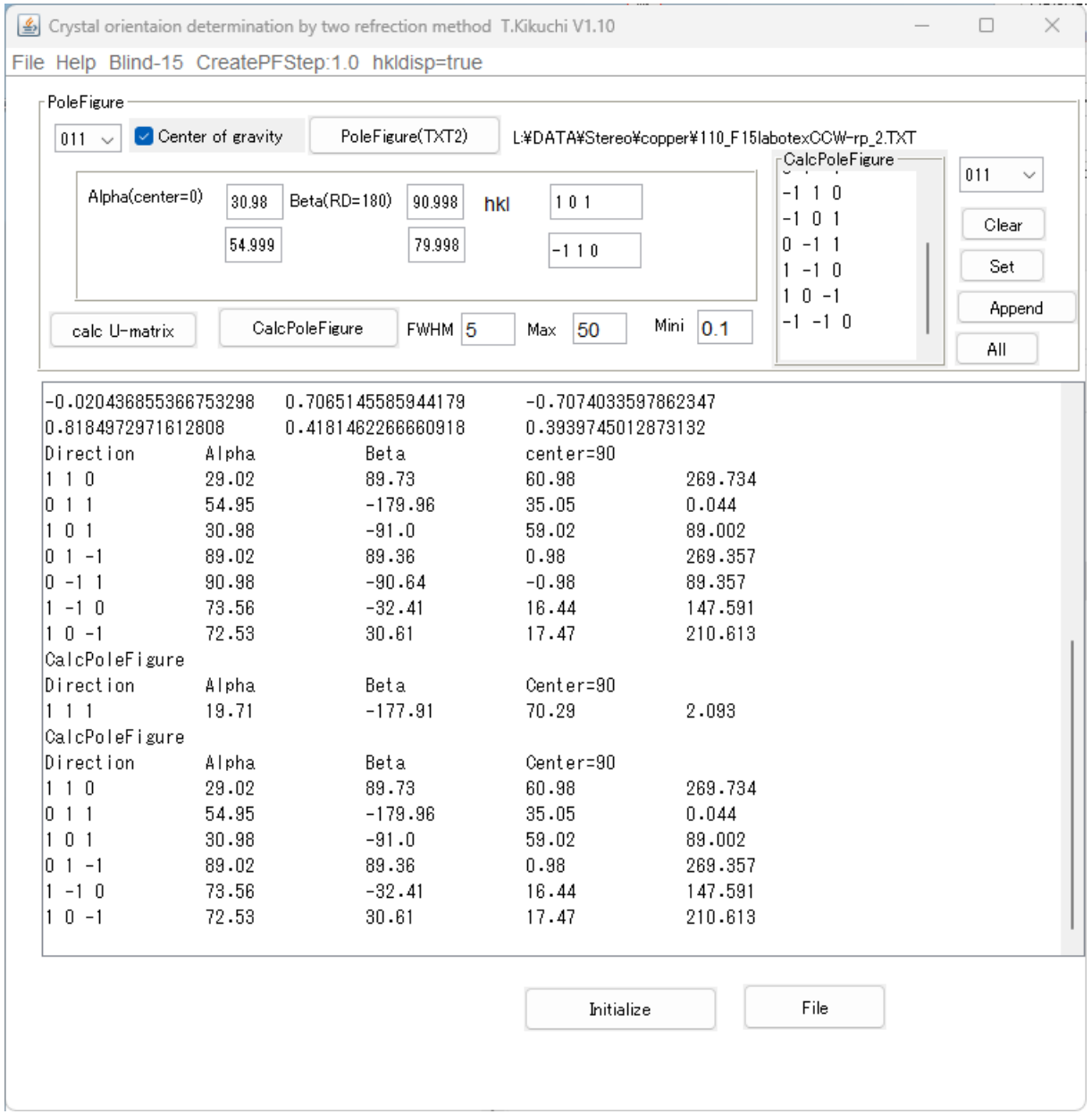
# ND->RD,ND->TD,RD->TD方向回転Schmid因子

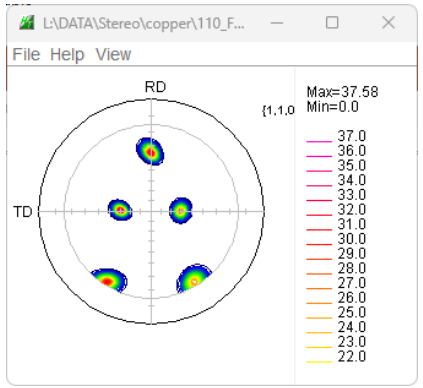
Schmid因子計算はND方向から計算される
引っ張りではTD方向やRD方向に引っ張る
ラウエカメラや極点図では、ＮＤ方向方位が求まる
引っ張りSchmid因子計算はNDに対しTD回転、RD回転で求める
測定時、RD方向取付は慎重に設定する
copper方位を例にBCCSchmidFactorCalcで手順を説明します。

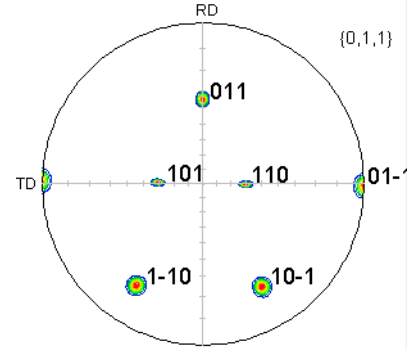


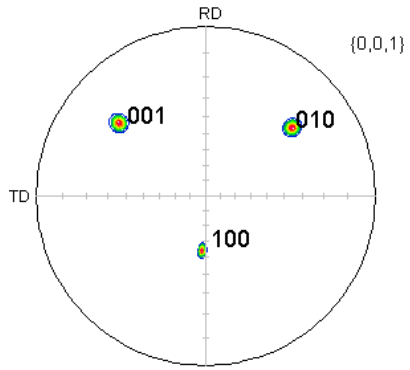
# {110}反射極点図から完全極点図４面を計算

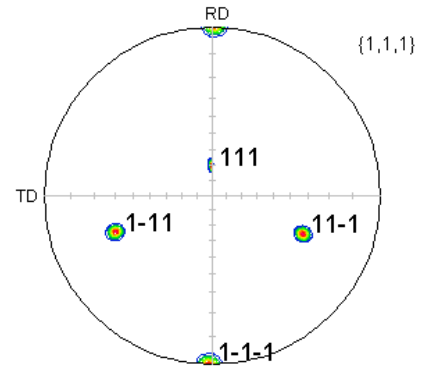
同一反射の確認を行う

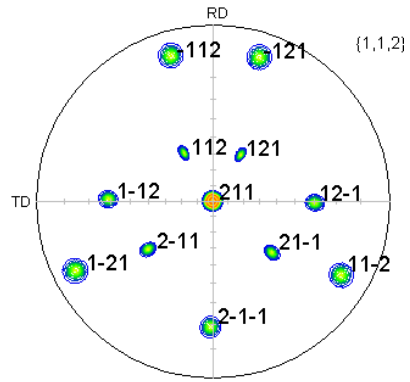


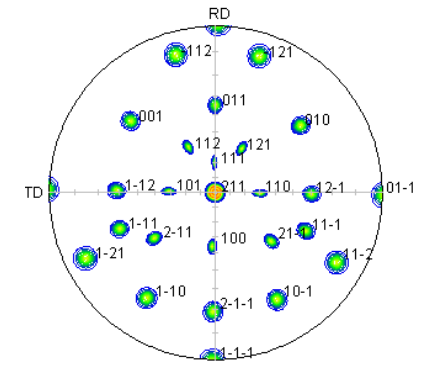



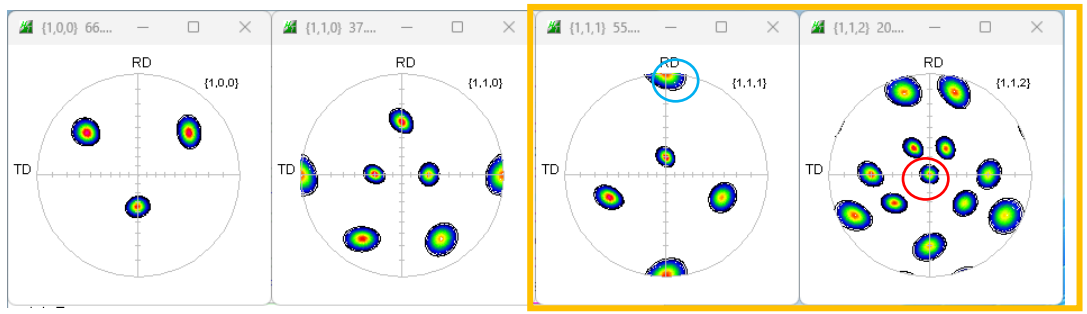



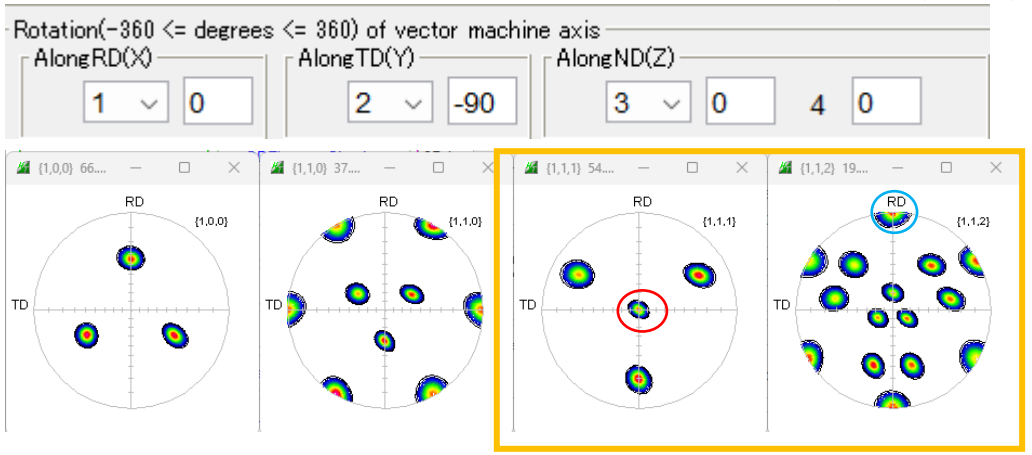




ODF解析で {112}<-1-11>が得られる

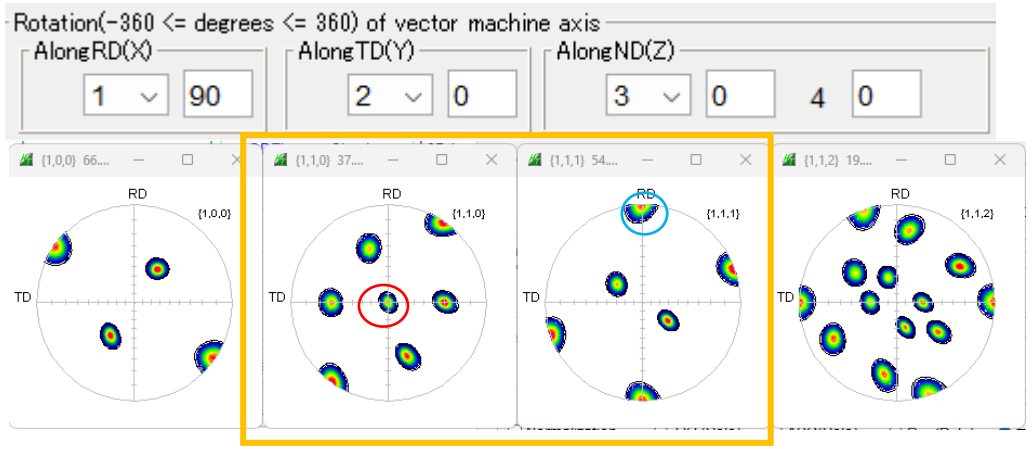
# Copper方位の回転




TD軸回転でRD方向　　ND->RD (112)->(111)

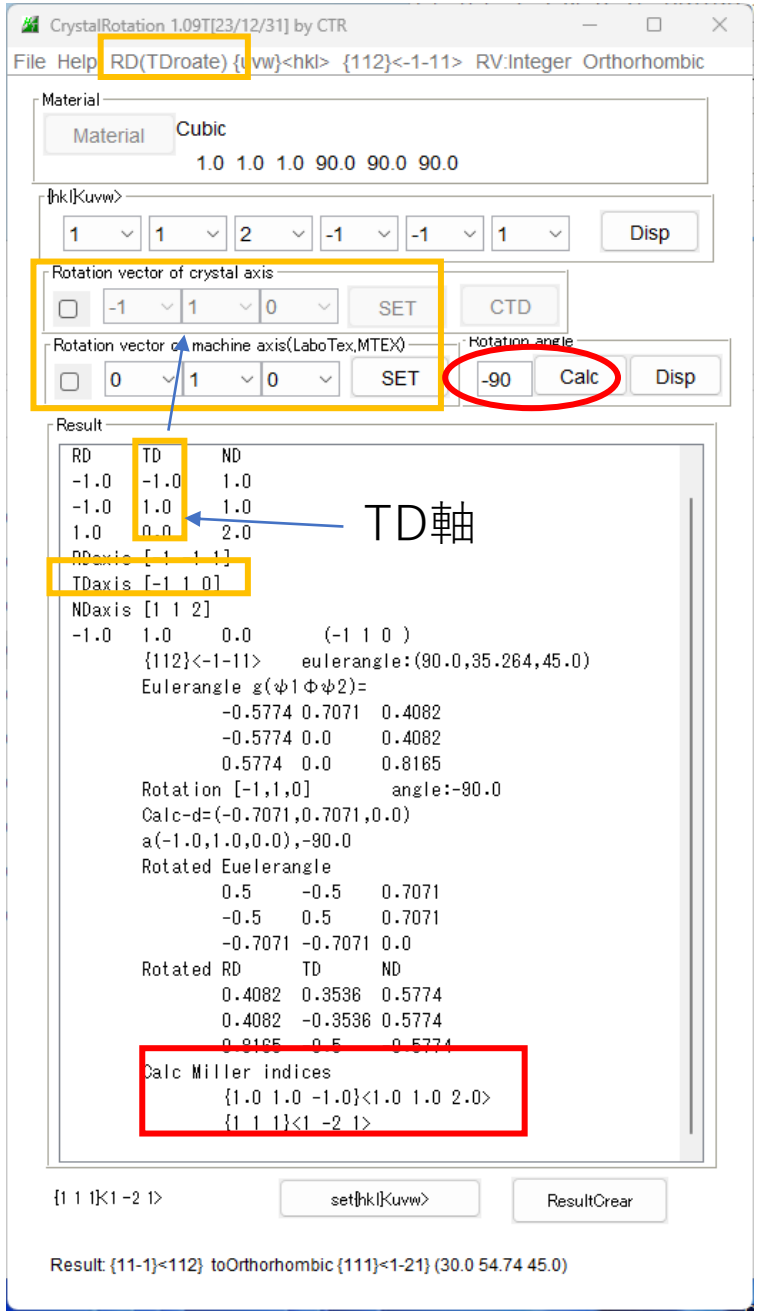



RTD軸回転でTD方向　　ND->TD (112)->(11 0 )

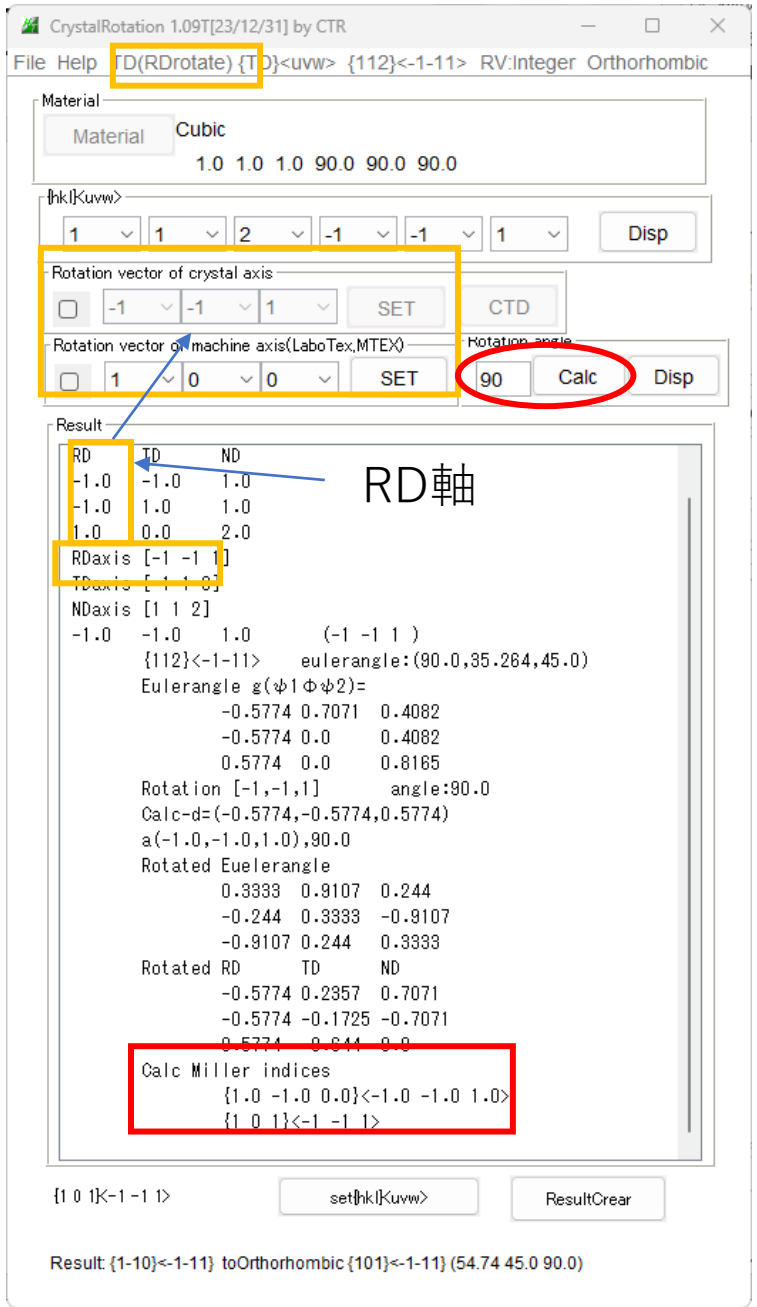



Schmid因子：RD方向は[111]から計算、TD方向は[110]から計算される

RD方向（TD軸回転）(uvw)<hkl>を得る




TD方向（RD軸回転）(xxx)<uvw>を得る

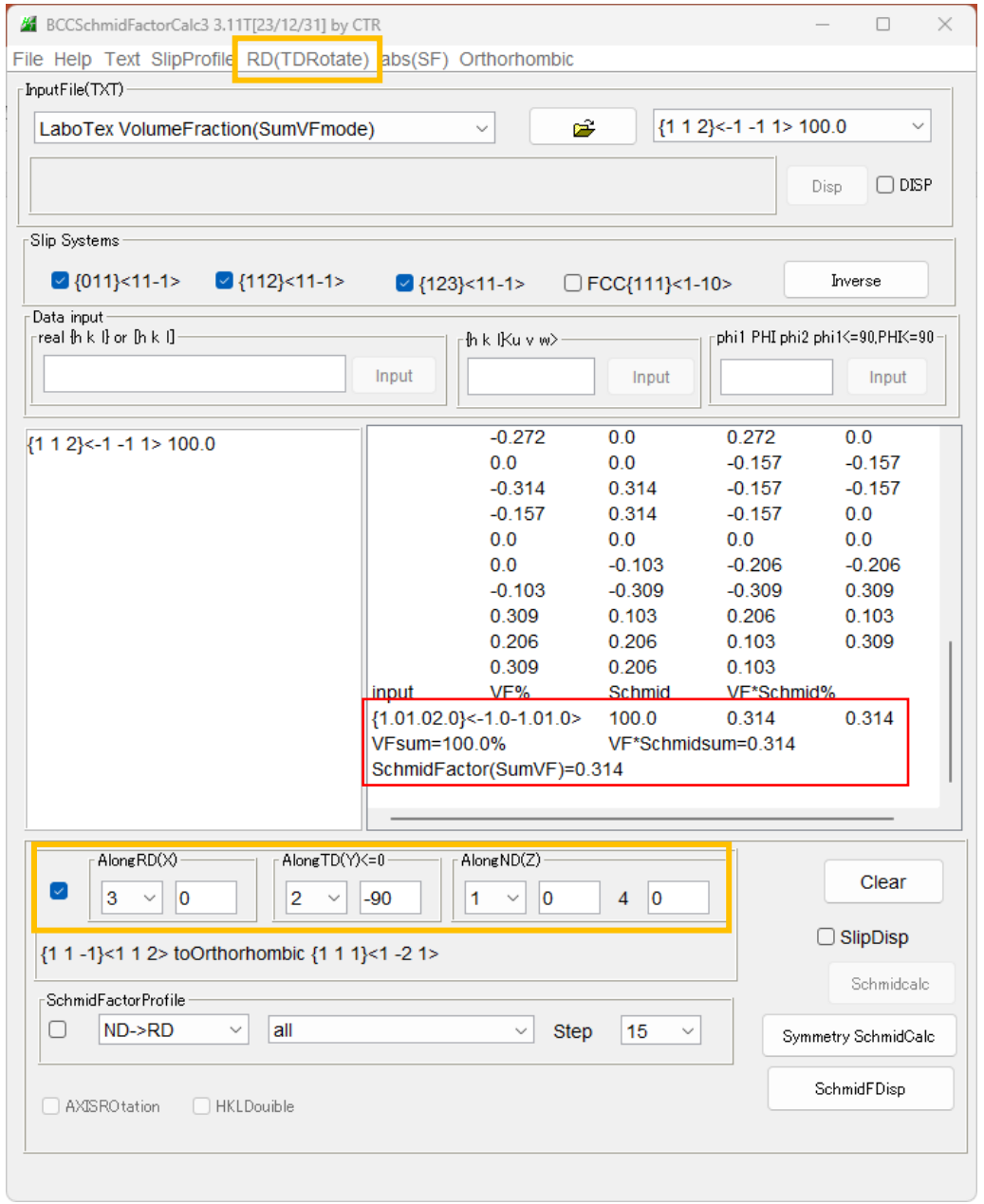



RD (112)->(111)

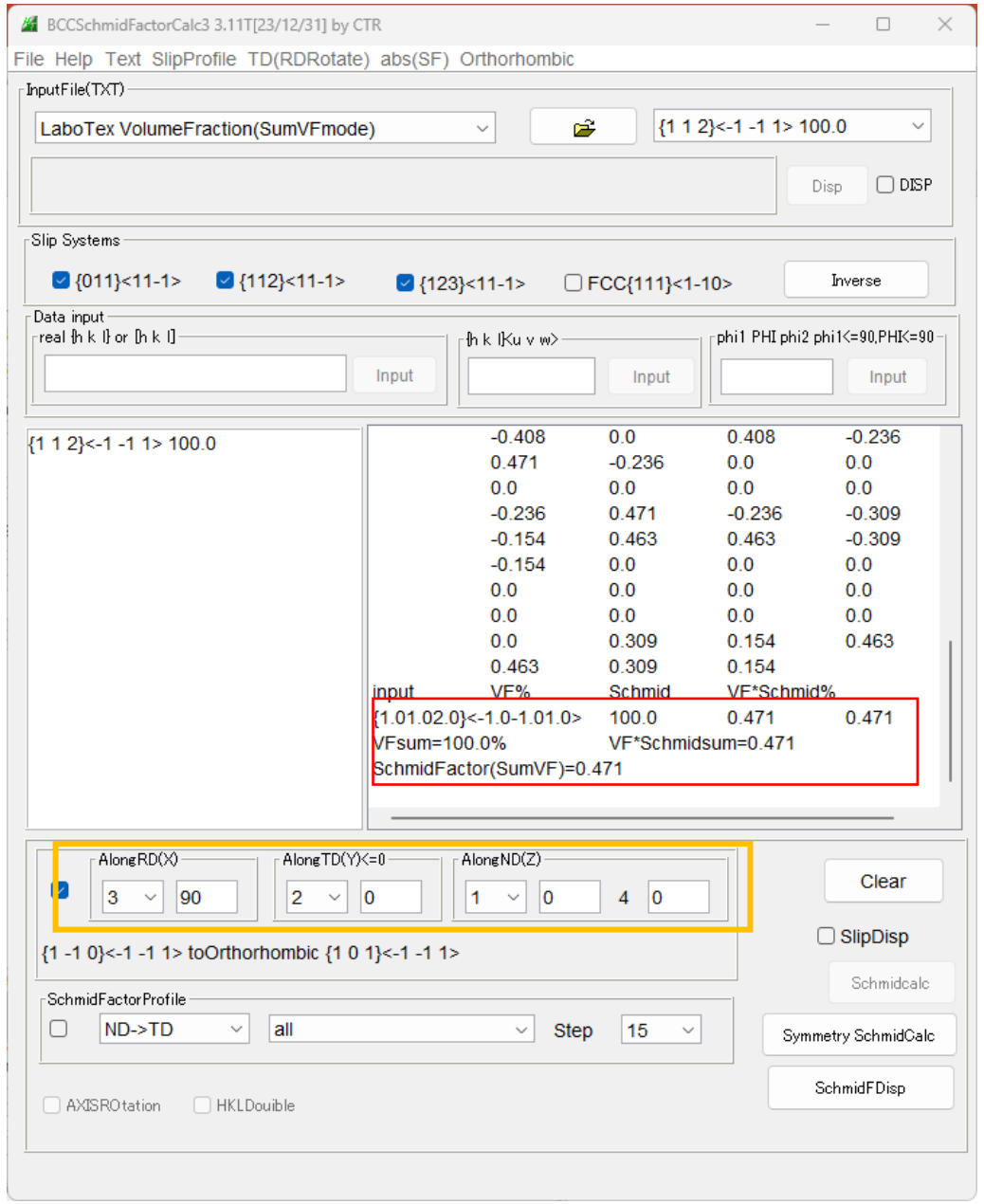
TD (112)->(101)

# Schmid因子計算

## RD(112)->(111): SF=0.314

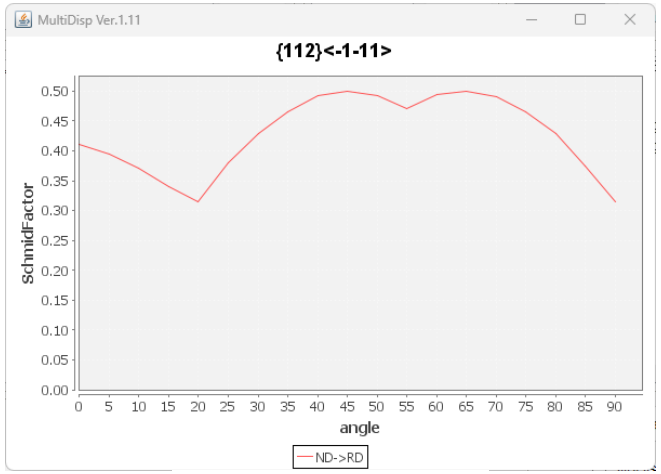



## TD(112)->(101): SF=0.471

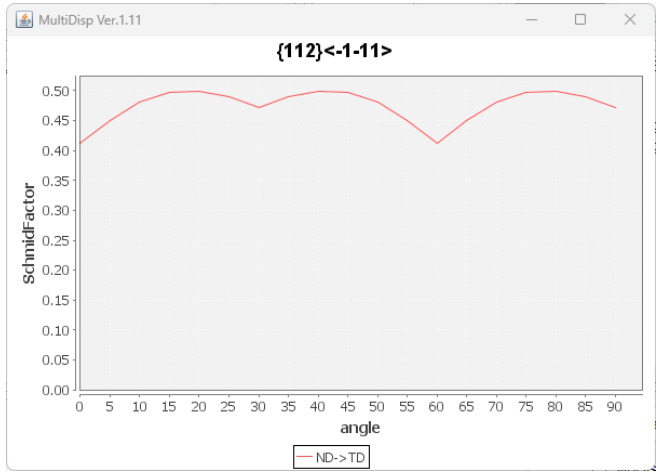


方位の回転

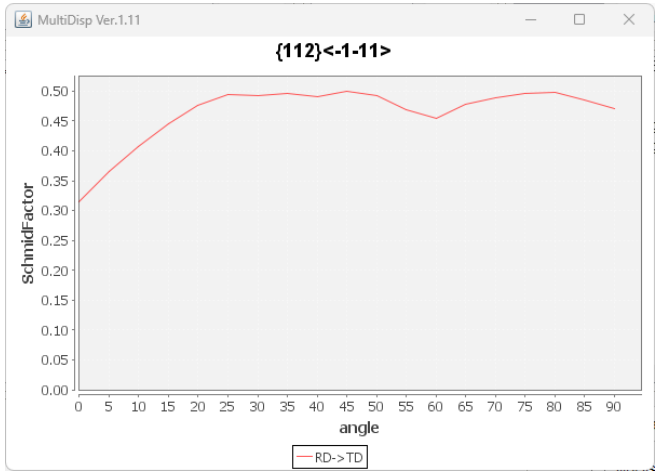
ND->RD




ND->TD




RD->TD




OBJFILE= {112}<-1-11>
COMMENT
AXIS=angle ND->RD
DATA-NUMBER=19

| | |
|---|---|
| 0.0 | 0.4115 |
| 5.0 | 0.3947 |
| 10.0 | 0.371 |
| 15.0 | 0.3409 |
| 20.0 | 0.3143 |
| 25.0 | 0.3795 |
| 30.0 | 0.4285 |
| 35.0 | 0.465 |
| 40.0 | 0.492 |
| 45.0 | 0.5 |
| 50.0 | 0.4925 |
| 55.0 | 0.4714 |
| 60.0 | 0.4939 |
| 65.0 | 0.4999 |
| 70.0 | 0.4903 |
| 75.0 | 0.465 |
| 80.0 | 0.4285 |
| 85.0 | 0.3742 |
| 90.0 | 0.3143 |

ND

RD

OBJFILE= {112}<-1-11>
COMMENT
AXIS=angle ND->TD
DATA-NUMBER=19

| | |
|---|---|
| 0.0 | 0.4115 |
| 5.0 | 0.4504 |
| 10.0 | 0.481 |
| 15.0 | 0.4967 |
| 20.0 | 0.4991 |
| 25.0 | 0.4891 |
| 30.0 | 0.4714 |
| 35.0 | 0.4891 |
| 40.0 | 0.4991 |
| 45.0 | 0.4967 |
| 50.0 | 0.481 |
| 55.0 | 0.4504 |
| 60.0 | 0.4115 |
| 65.0 | 0.4504 |
| 70.0 | 0.481 |
| 75.0 | 0.4967 |
| 80.0 | 0.4991 |
| 85.0 | 0.4891 |
| 90.0 | 0.4714 |

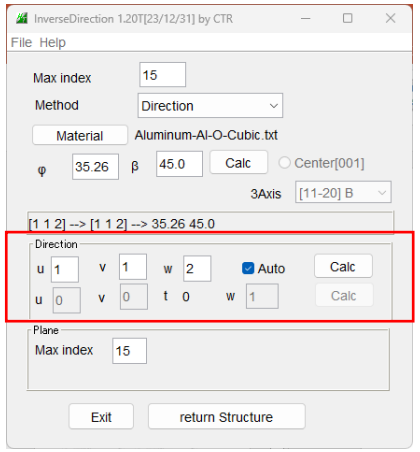
RD

TD

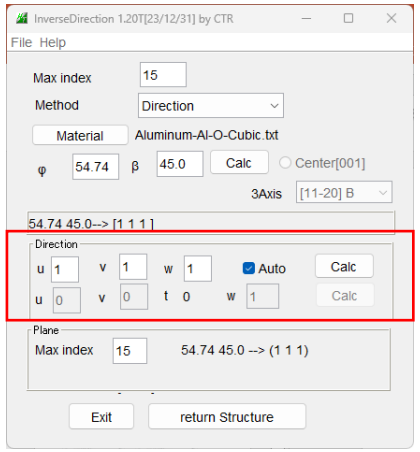
OBJFILE= {112}<-1-11>
COMMENT
AXIS=angle RD->TD
DATA-NUMBER=19

| | |
|---|---|
| 0.0 | 0.3143 |
| 5.0 | 0.3653 |
| 10.0 | 0.4071 |
| 15.0 | 0.4449 |
| 20.0 | 0.4769 |
| 25.0 | 0.4941 |
| 30.0 | 0.493 |
| 35.0 | 0.4959 |
| 40.0 | 0.4899 |
| 45.0 | 0.4999 |
| 50.0 | 0.4921 |
| 55.0 | 0.4698 |
| 60.0 | 0.4539 |
| 65.0 | 0.4782 |
| 70.0 | 0.4892 |
| 75.0 | 0.4969 |
| 80.0 | 0.4972 |
| 85.0 | 0.4852 |
| 90.0 | 0.4714 |

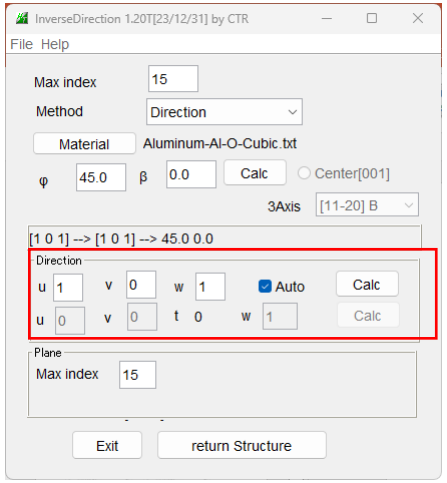
# BCCSchmid因子ステレオ三角形からSchmid因子を読み取る



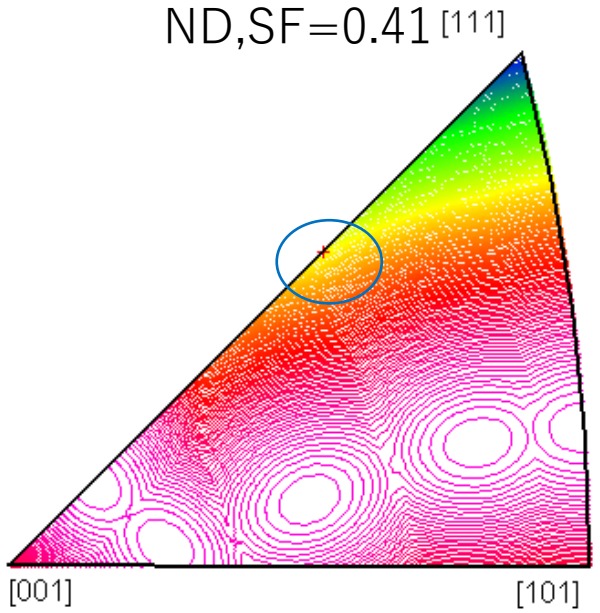

C:\CTR\work\SchmidLowBCC\Inverse.txt



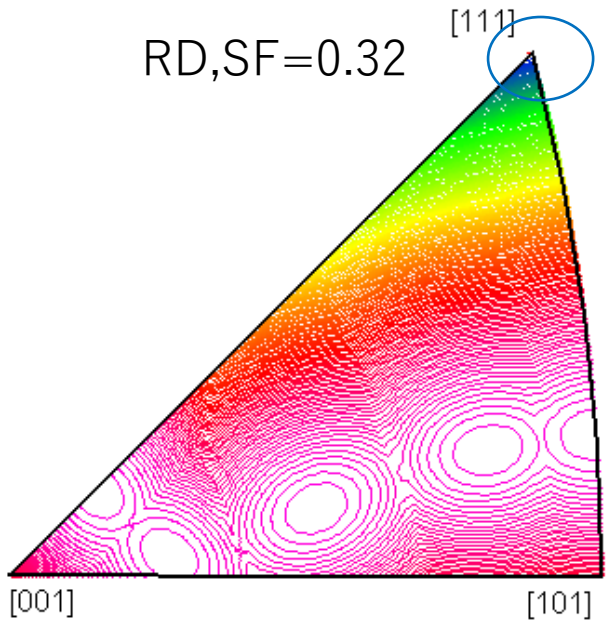

C:\CTR\work\SchmidLowBCC\Inverse.txt



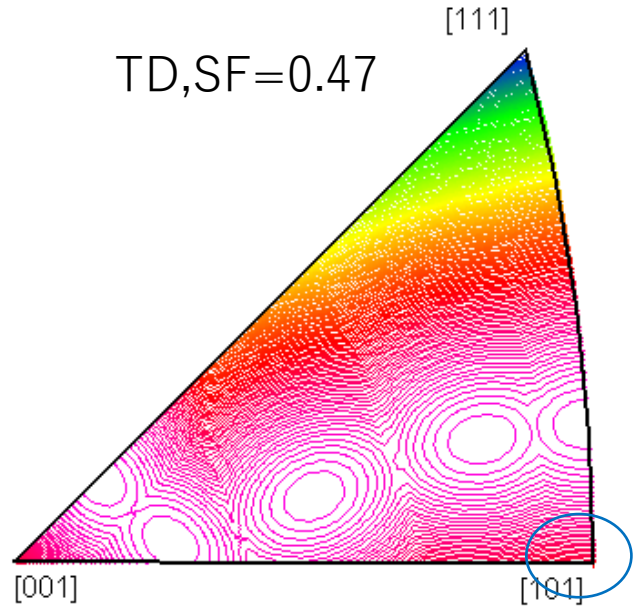

C:\CTR\work\SchmidLowBCC\Inverse.txt




(φ=35.26 , β=45.0) Σ=0.41 --> [1,1,2]




(φ=54.74 , β=45.0) Σ=0.32 --> [1,1,1]




(φ=45.0 , β=0.0) Σ=0.47 --> [1,0,1]

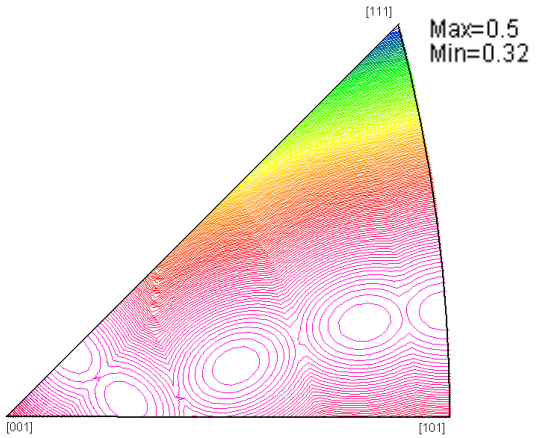
# ND->RD(TD軸[-110]回転) の方位関係のまとめ

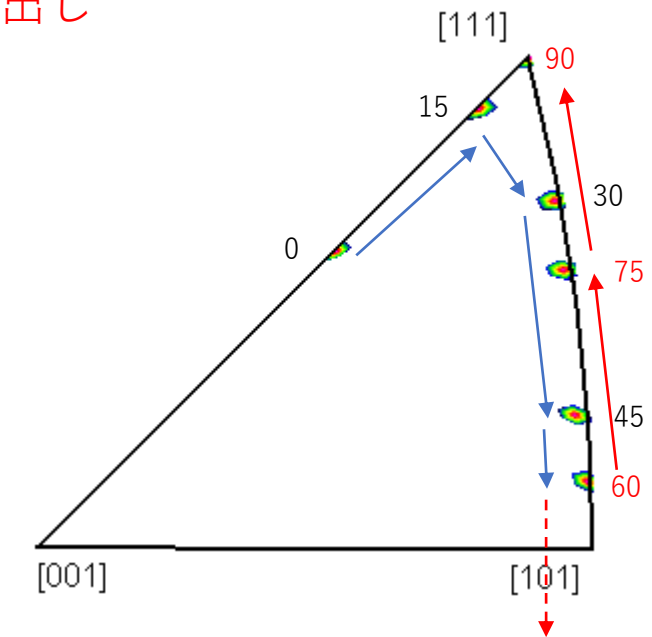
```
OBJFILE= {112}<-1-11>
COMMENT
AXIS=angle    ND->RD
DATA-NUMBER=7
0.0           0.4115
15.0          0.3409
30.0          0.4285
45.0          0.5
60.0          0.4939
75.0          0.465
90.0          0.3143
```

| Triclinic Euler角度 | Free Euler角度 | Inverse角度 |
|---|---|---|
| {1 1 2}<-1 -1 1>  (90.0 35.26 45.0) | {1 1 2}<-1 -1 1>  (90.0 35.26 45.0) | [1 1 2] --> [1 1 2] --> 35.26 45.0 |
| {6 6 7}<-3 -4 6>  (84.81 50.48 45.0) | {6 6 7}<-3 -4 6>  (84.81 50.48 45.0) | [6 6 7] --> [6 6 7] --> 50.48 45.0 |
| {3 3 2}<-1 -1 3>  (0.0 64.76 45.0) | {3 3 2}<-1 -1 3>  (0.0 64.76 45.0) | [3 3 2] --> [3 2 3] --> 50.24 33.69 |
| {37 37 9}<-9 -9 74>  (90.0 80.24 45.0) | {37 37 9}<-9 -9 74>  (90.0 80.24 45.0) | [37 37 9] --> [37 9 37] --> 45.82 13.67 |
| {23 23 3}<3 3 -46>  (270.0 84.73 45.0) | {23 23 -3}<3 3 46>  (90.0 95.27 45.0) | [23 23 -3] --> [23 -3 23] --> 45.24 7.43 |
| {17 17 9}<5 4 -17>  (272.23 69.48 45.0) | {17 17 -9}<5 4 17>  (87.77 110.52 45.0) | 17 17 -9] --> [17 -9 17] --> 48.53 27.9 |
| {1 1 1}<-2 1 1>  (150.0 54.74 45.0) | {1 1 -1}<1 1 2>  (90.0 125.26 45.0) | [1 1 1] --> [1 1 1] --> 54.74 45.0 |

ND->RDではeuler角度Φが35,50,65,80,95,110,125と変化しているが
指数の整数化で(90 Φ 45)付近の値が得られている

はみ出し



# ND->TD(RD軸[-1-10]回転）の方位関係のまとめ

```
OBJFILE= {112}<-1-11>
COMMENT
AXIS=angle   ND->TD
DATA-NUMBER=7
0.0          0.4115
15.0         0.4967
30.0         0.4714
45.0         0.4967
60.0         0.4115
75.0         0.4967
90.0         0.4714
```

Triclinic　Euler角度

```
{1 1 2}<-1 -1 1>    (90.0 35.26 45.0)
{19 7 26}<-1 -1 1>    (69.99 37.91 69.78)
{1 0 1}<-1 -1 1>    (54.74 45.0 90.0)
{26 7 19}<-1 1 1>    (134.96 54.79 74.93)
{2 1 1}<-1 1 1>    (140.77 65.91 63.43)
{26 19 7}<-1 1 1>    (143.78 77.74 53.84)
{1 1 0}<-1 1 1>    (144.74 90.0 45.0)
```

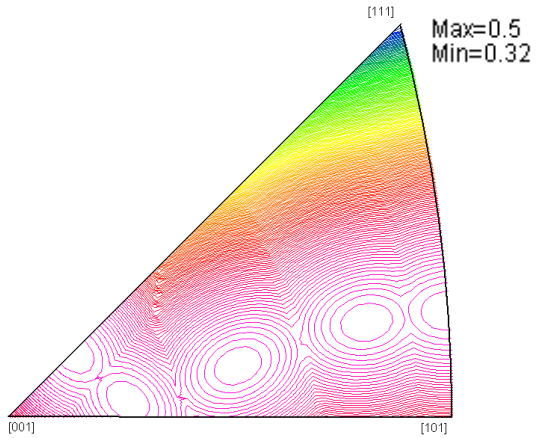
Free　Euler角度

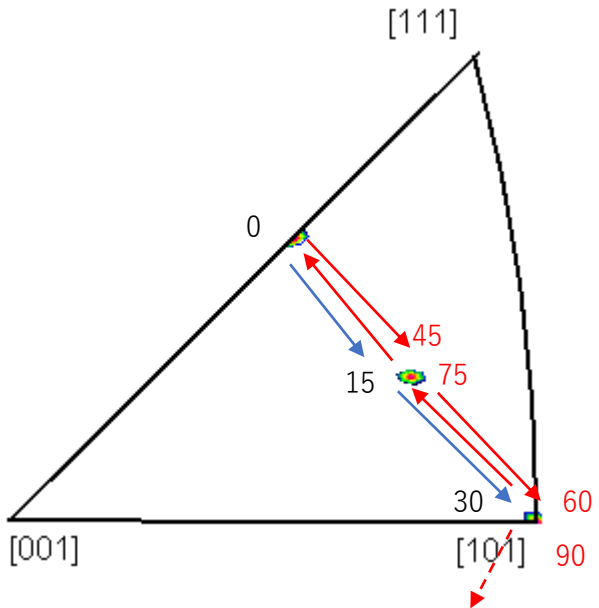
```
{1 1 2}<-1 -1 1>    (90.0 35.26 45.0)
{19 7 26}<-1 -1 1>    (69.99 37.91 69.78)
{1 0 1}<-1 -1 1>    (54.74 45.0 90.0)
{26 -7 19}<-1 -1 1>    (44.96 54.79 105.07)
{2 -1 1}<-1 -1 1>    (39.23 65.91 116.57)
{26 -19 7}<-1 -1 1>    (36.22 77.74 126.16)
{1 -1 0}<-1 -1 1>    (35.26 90.0 135.0)
```

Inverse角度

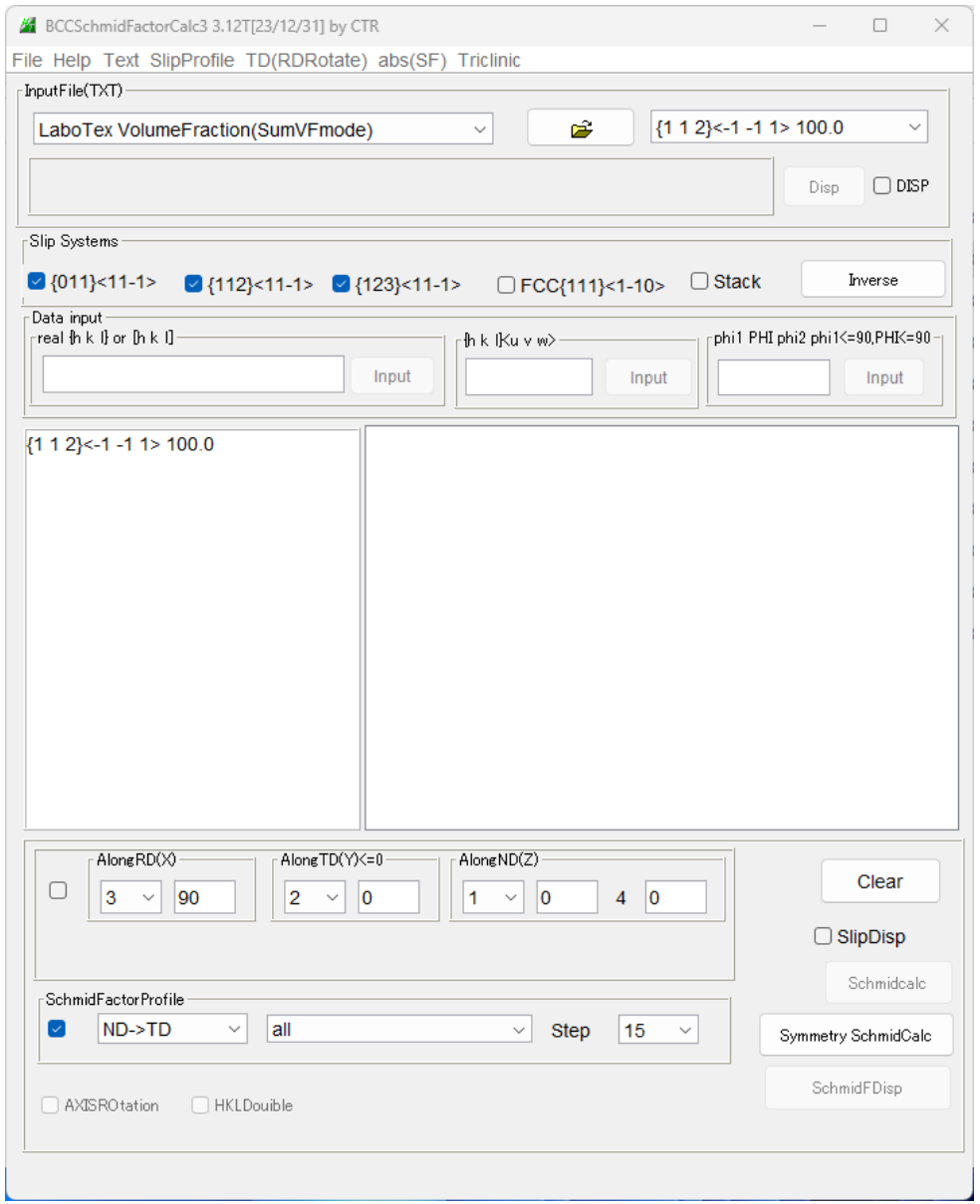
```
[1 1 2] --> [1 1 2] --> 35.26 45.0
[19 7 26] --> [19 7 26] --> 37.91 20.22
[1 0 1] --> [1 0 1] --> 45.0 0.0
[26 -7 19] --> [19 7 26] --> 37.91 20.22
[2 -1 1] --> [1 1 2] --> 35.26 45.0
[26 -19 7] --> [19 7 26] --> 37.91 20.22
[1 -1 0] --> [1 0 1] --> 45.0 0.0
```

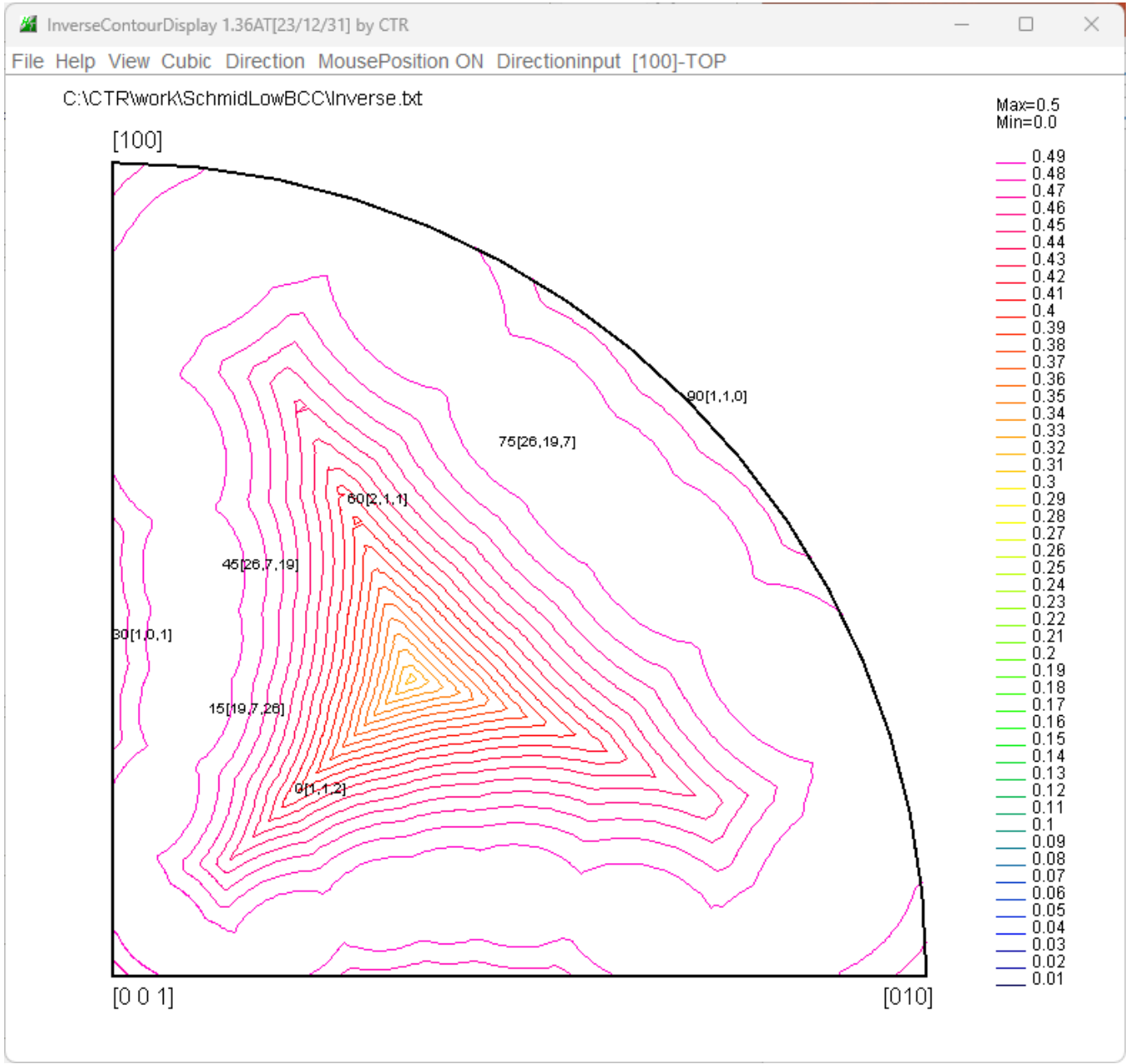
はみ出し



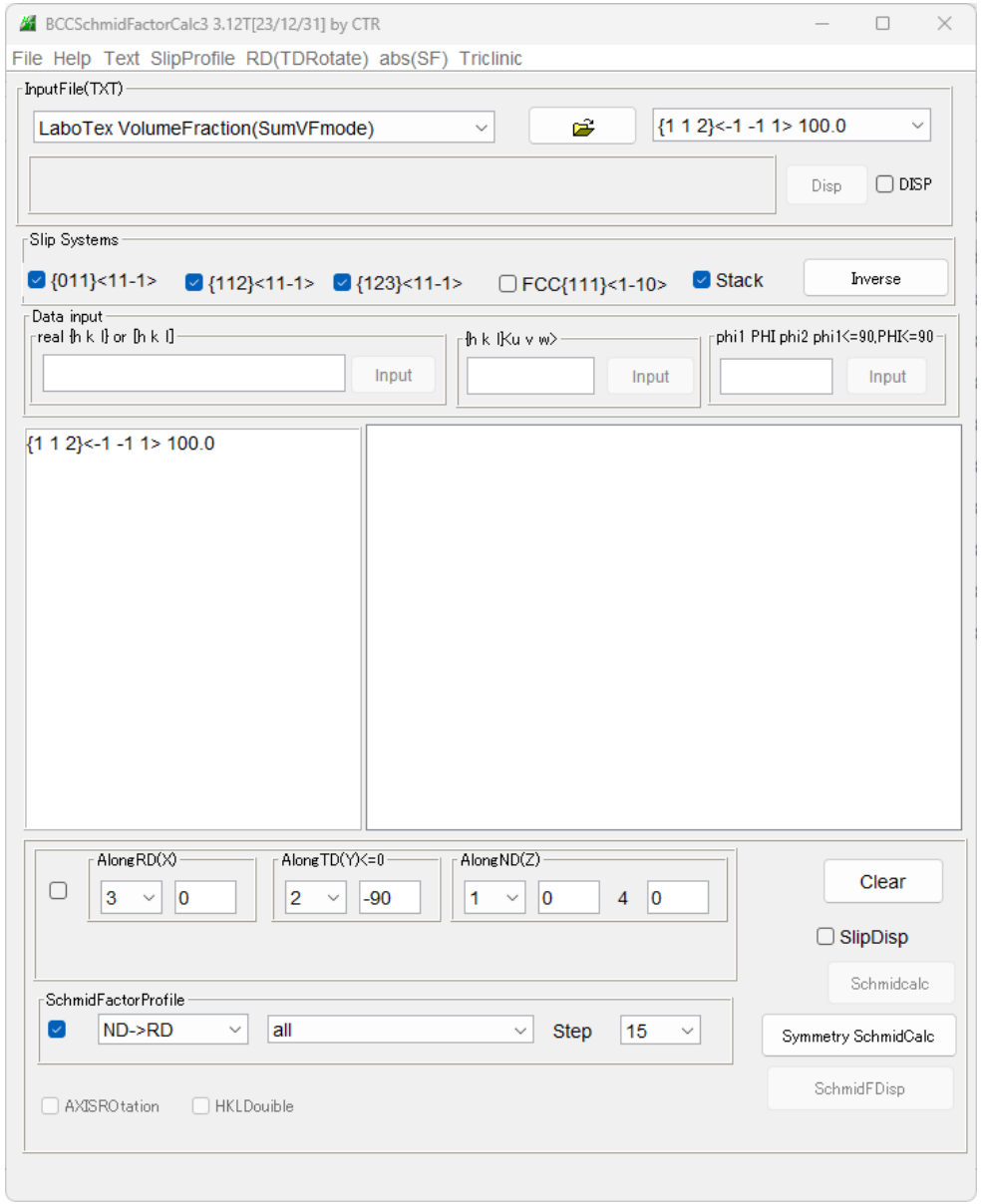



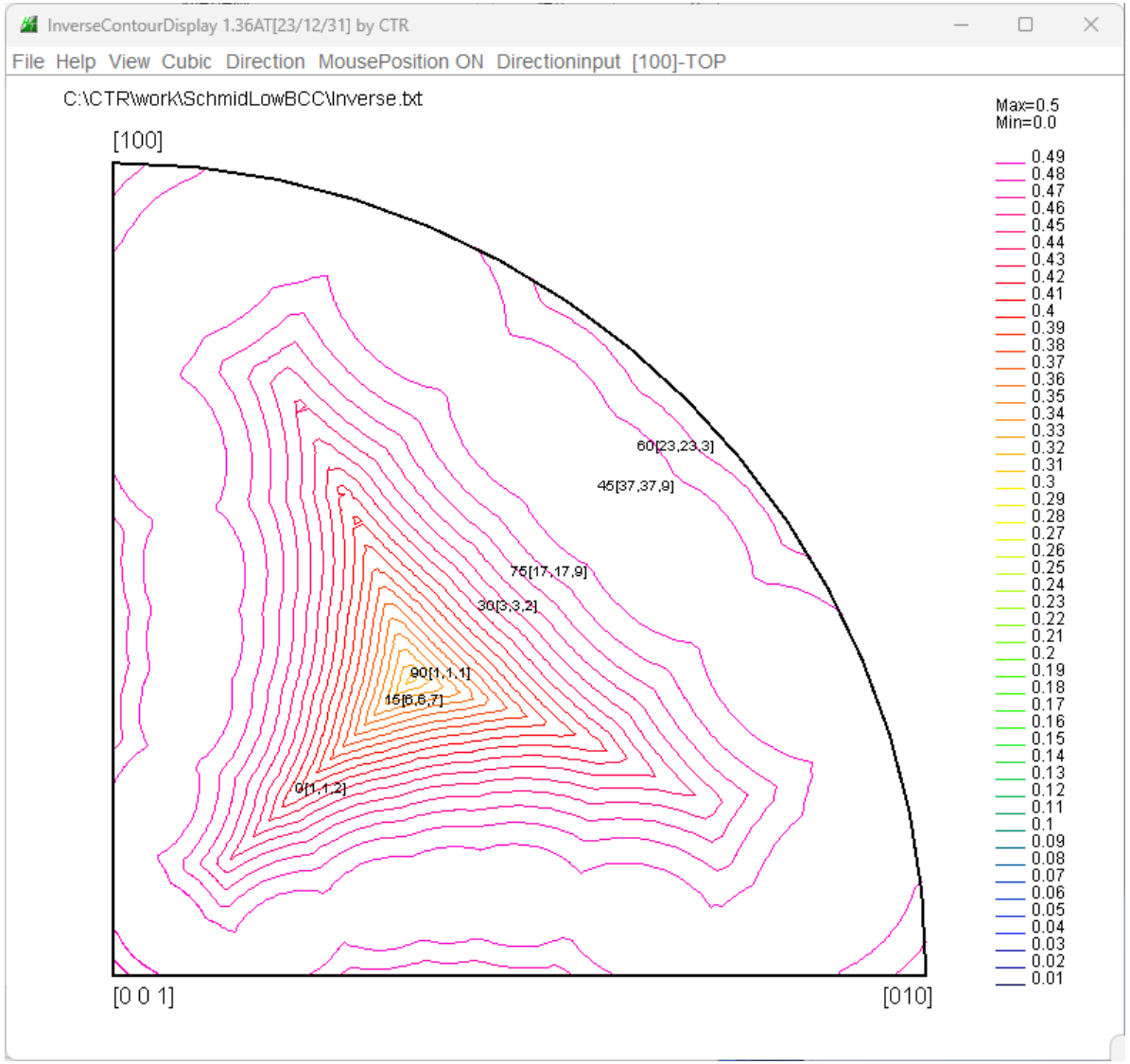
# 回転状況(ND->TD,Triclinic)



# 回転状況(ND->RD,Triclinic)



# 回転状況(RD->TD,Triclinic)