

125 $\mu\text{m}\phi$ Cuワイヤーの結晶方位

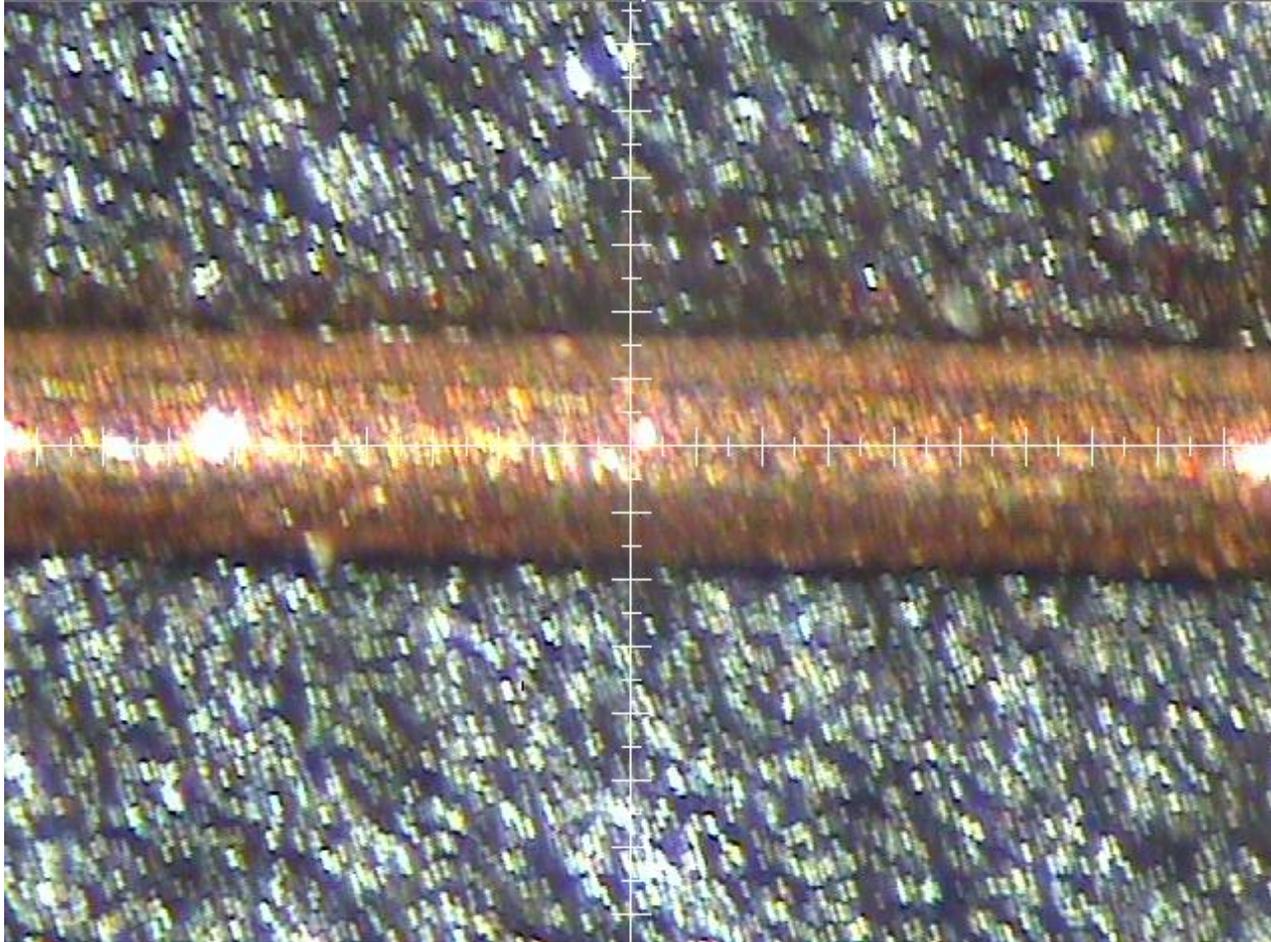
10 $\mu\text{m}\phi$ コリメータを使った結晶方位測定

測定装置 CMF-RAPID(リガク)

入射角度 60deg.

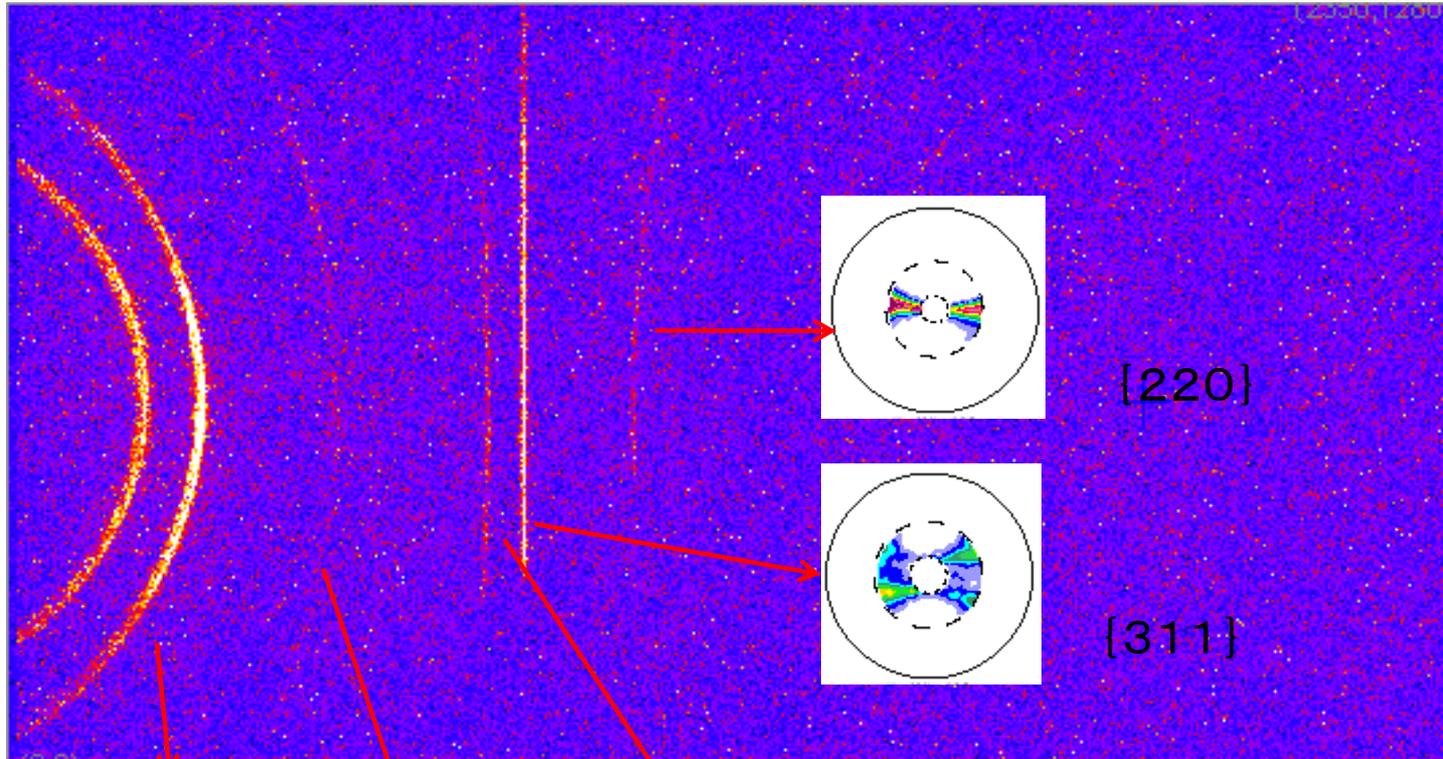
FT 3min.

Goodfellowより購入のCu-Wire



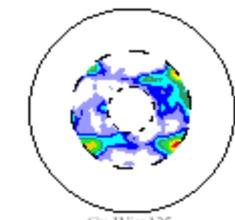
IPデータから極点図作成

ワイヤー側面の広角入射でビームの広がりを抑える。

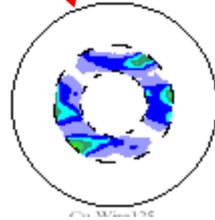


[220]

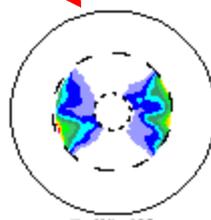
{311}



{331}



{400}

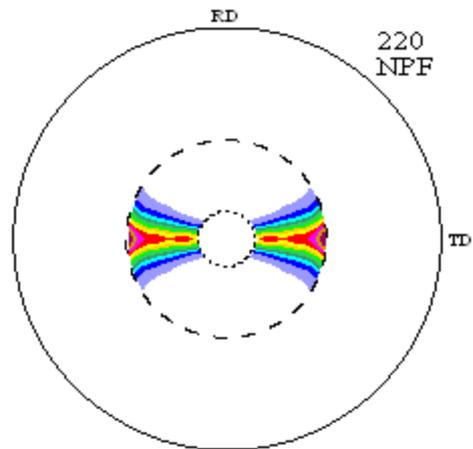


{222}

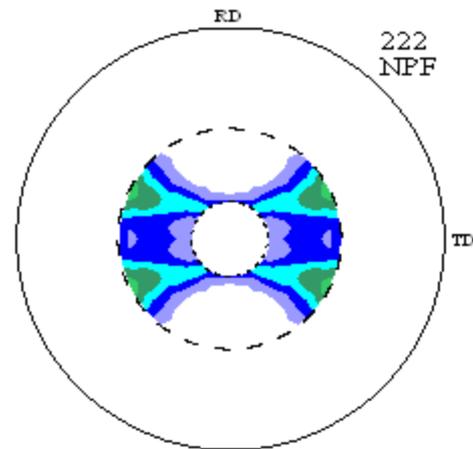
広角測定では、極点図の中心は測定出来ません。

ODF解析を行えば全極点図計算が可能

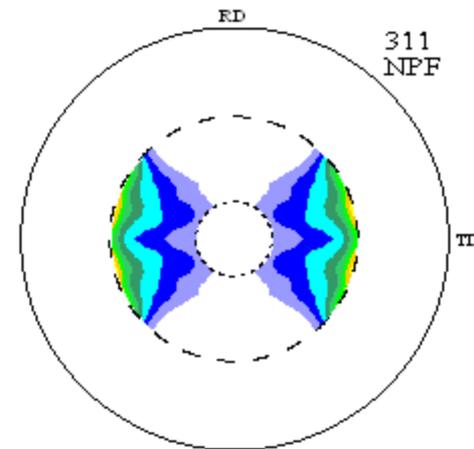
極点図 (Defocus補正済み)



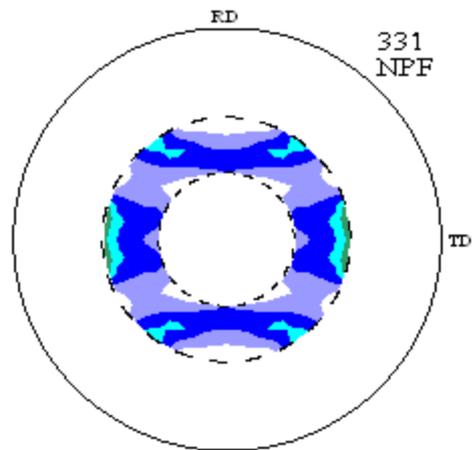
Cu-Wire125



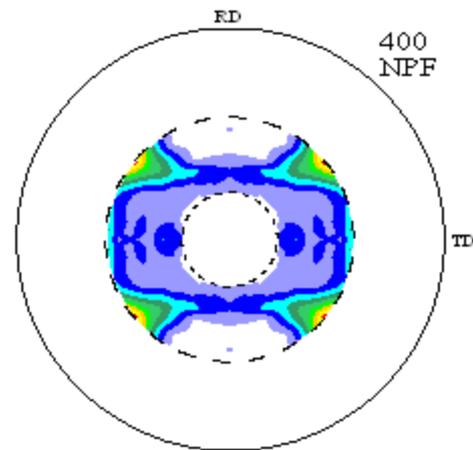
Cu-Wire125



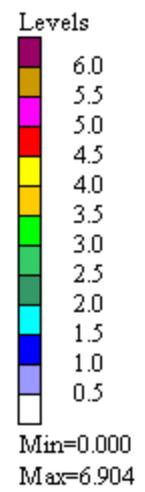
Cu-Wire125



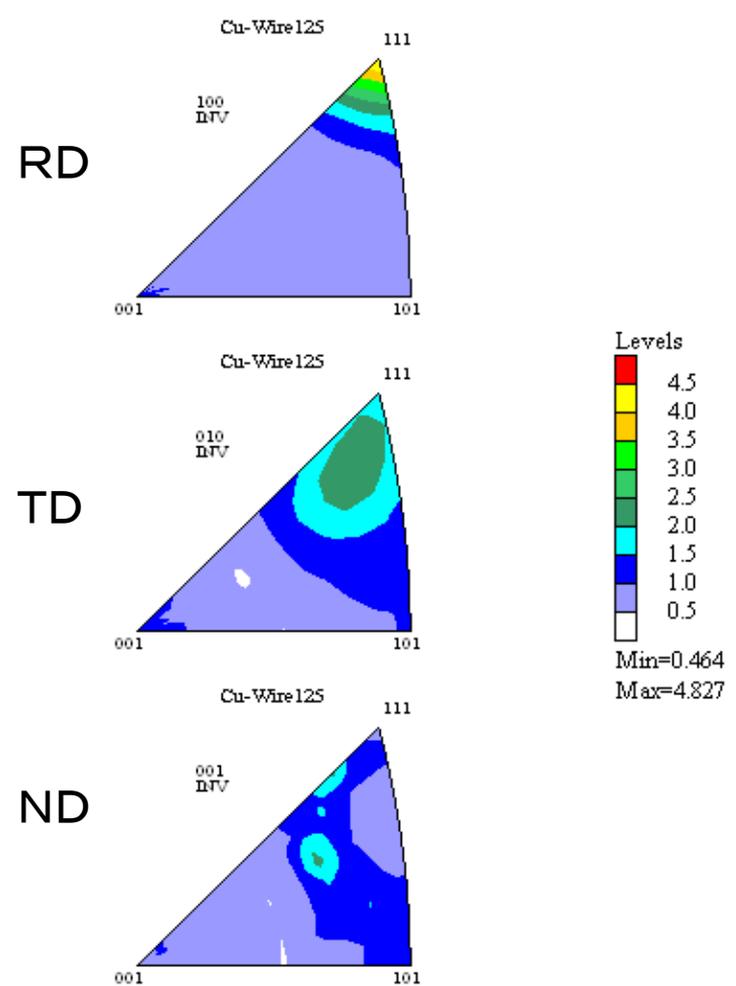
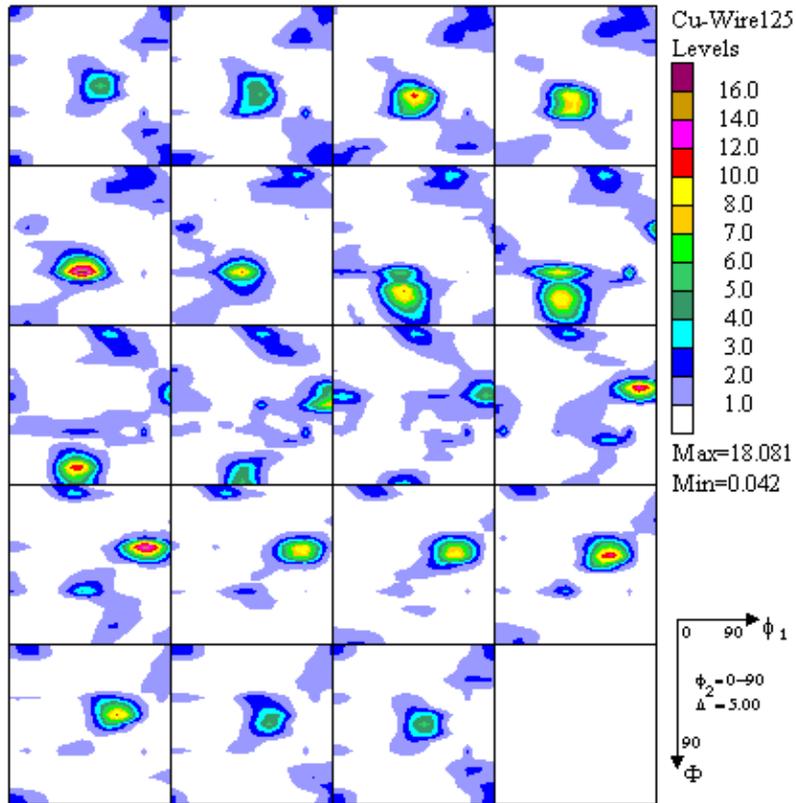
Cu-Wire125



Cu-Wire125



ODF解析



RD逆極点図から圧延方向が $\langle 111 \rangle$ であることが分かります。

ODF結晶方位位置平均極密度

Project : Cu-wire125

Sample : Cu-Wire125

Orientation Type

Symmetry : O-Cubic

Job : 1

Orientations in Basic Region

No	Orientation Type Name	ODF (average)
1	{ 4 11 7 } < 1 -1 1 >	11.918
2	{ 2 1 3 } < -1 -1 1 >	9.906
3	{ 1 1 0 } < 1 -1 1 >	4.926
4	{ 1 1 2 } < 1 1 -1 > copper	4.479
5	{ 7 5 4 } < -1 -9 13 >	3.118
6	{ 0 0 1 } < 1 0 0 > cube	2.789
7	{ 2 1 3 } < -3 -6 4 > S-3	2.663
8	{ 1 3 2 } < 6 -4 3 > S-1	2.663
9	{ 2 3 1 } < 3 -4 6 > S-2	2.663
10	{ 2 3 1 } < -3 4 -6 > S-4	2.663
11	{ 1 1 3 } < 1 -1 0 >	1.781
12	{ 1 1 2 } < 1 -1 0 >	1.282
13	{ 1 1 1 } < -1 -1 2 >	1.241
14	{ 1 2 2 } < 2 -2 1 >	0.862
15	{ 1 1 0 } < 1 -1 2 > brass	0.814
16	{ 1 2 3 } < 4 1 -2 >	0.791
17	{ 1 2 3 } < 4 1 -2 > R	0.791
18	{ 1 1 1 } < 0 1 -1 >	0.671
19	{ 3 2 3 } < 1 -3 1 >	0.549
20	{ 0 1 3 } < 1 0 0 >	0.445
21	{ 81.63, 65.58, 65.00 } Cursor !!!	0.391
22	{ 5 2 5 } < 1 -5 1 >	0.278
23	{ 0 0 1 } < 1 1 0 >	0.259
24	{ 1 1 0 } < 0 0 1 > goss	0.247
25	{ 2 3 3 } < 0 1 -1 >	0.195
26	{ 1 0 1 } < 5 2 -5 >	0.180

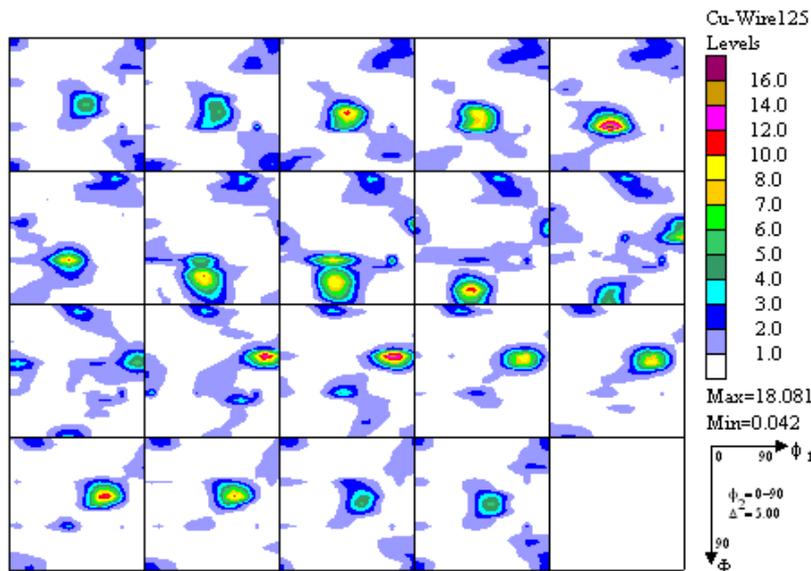
(HKL)[UVW]	φ_1	Φ	φ_2	ODF
[1 1 0][5 -5 2]	15.8	90.0	45.0	0.181
[0 1 1][2 -5 5]	74.2	45.0	0.0	0.180
[1 0 1][-5 -2 5]	74.2	45.0	90.0	0.180

ND方向は複数計算されている。

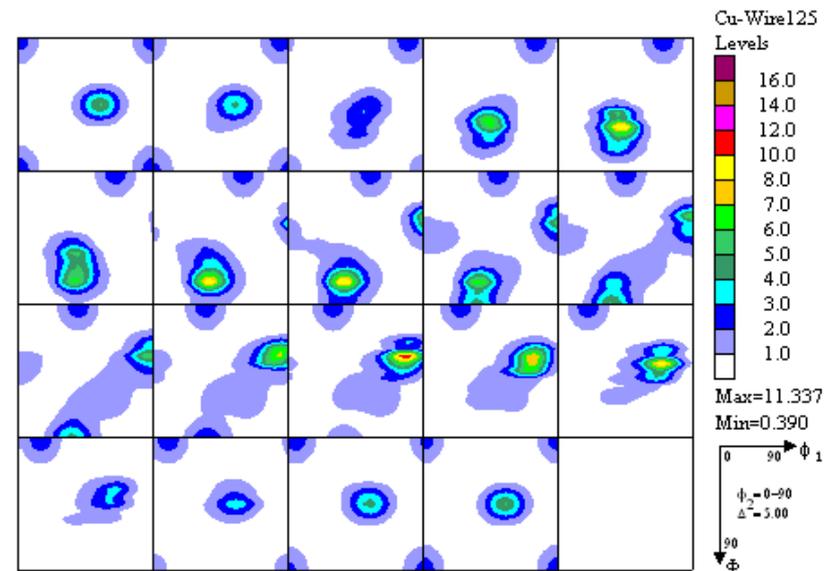
VolumeFraction計算と計算ODF

No	Texture Component	On	Distribution	FWHM ϕ_1	FWHM ϕ_2	FWHM ϕ_3	Volume Fraction
1	[4 11 7] <-1 -1 1>	<input checked="" type="checkbox"/>	Gauss	27.0	21.4	23.8	7 %
2	[2 1 3] <-1 -1 1>	<input checked="" type="checkbox"/>	Gauss	16.0	8.0	17.0	15 %
3	[1 1 0] <-1 -1 1>	<input checked="" type="checkbox"/>	Gauss	21.1	16.2	19.1	10 %
4	[1 1 2] <-1 -1 1> copper	<input checked="" type="checkbox"/>	Gauss	19.3	23.4	21.1	7 %
5	[7 5 4] <-1 -9 13>	<input checked="" type="checkbox"/>	Gauss	19.3	19.7	21.6	7 %
6	[0 0 1] <1 0 0> cube	<input checked="" type="checkbox"/>	Gauss	20.1	25.0	18.9	5 %
7	[2 1 3] <-3 -6 4> S-3	<input checked="" type="checkbox"/>	Gauss	21.9	22.4	25.7	7 %
8	[1 1 3] <1 -1 0>	<input checked="" type="checkbox"/>	Gauss	24.1	22.4	26.4	1 %
9	[1 1 2] <1 -1 0>	<input checked="" type="checkbox"/>	Gauss	23.4	25.8	20.9	1 %
10	[1 1 1] <-1 -1 2>	<input checked="" type="checkbox"/>	Gauss	30.6	18.8	22.9	1 %

主方位は{213} <111> 15%
副方位は{110} <111> 10%



極点図から計算ODF



VolumeFractionから計算ODF

入力極点図の体積分率から計算した極点図

