Status of TCT test for NDL sensor
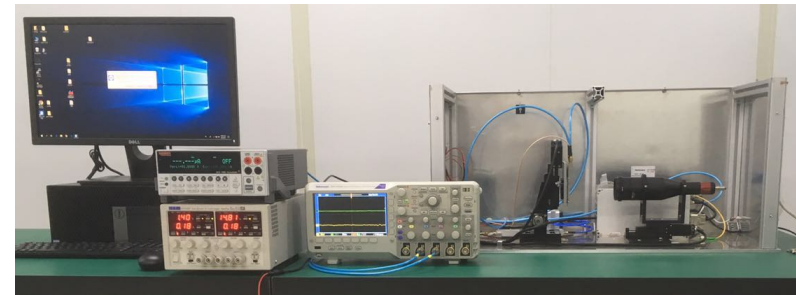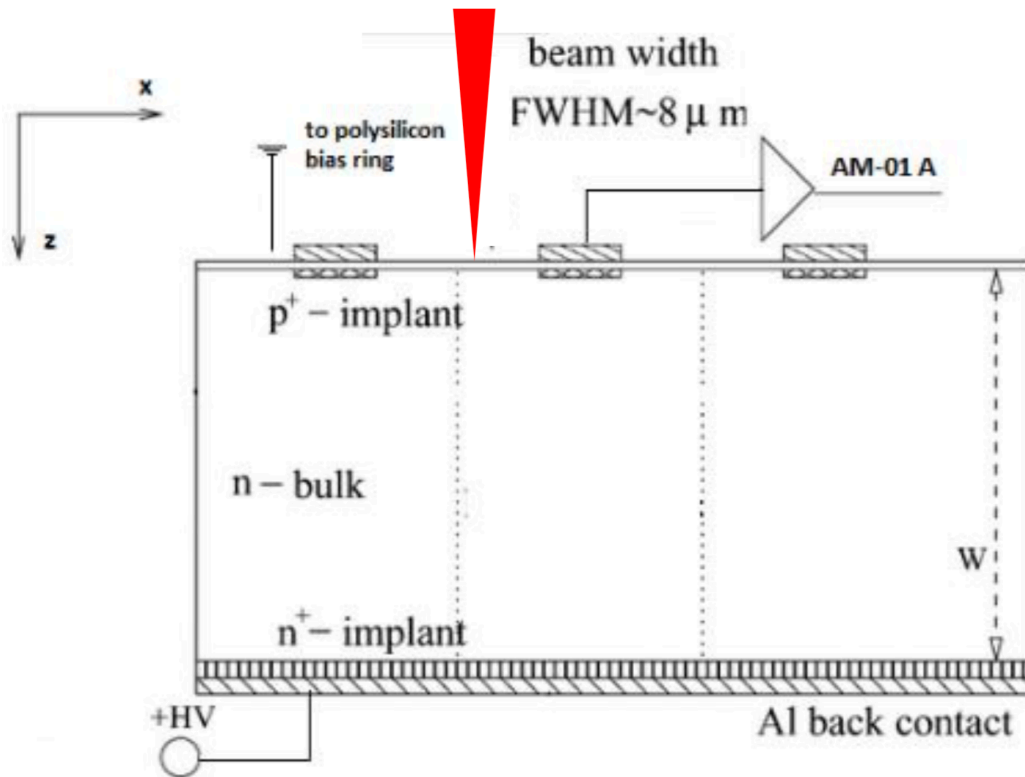
Yuzhen Yang, Suyu Xiao

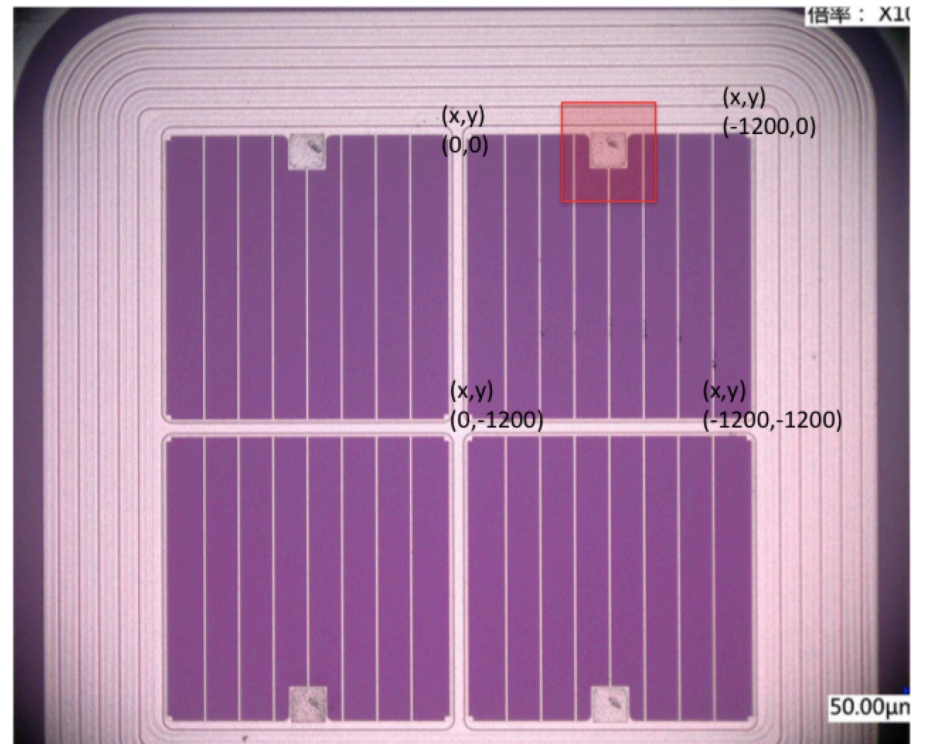Thanks Liejian, Zhijun et. al

2019.6.20
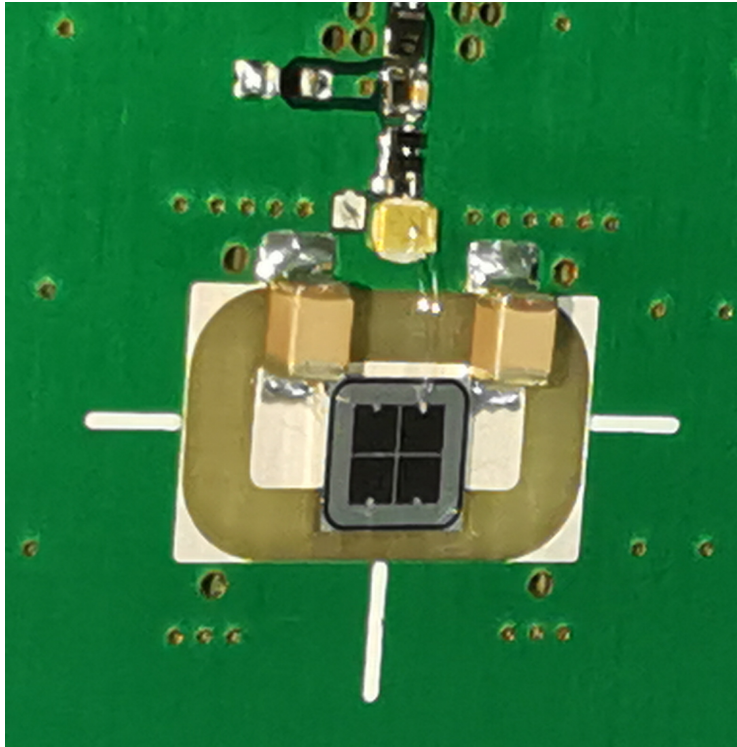
Top TCT tuning

- Transient current technique (TCT)
- To understand the irradiation effect by measuring surface and depleted zone
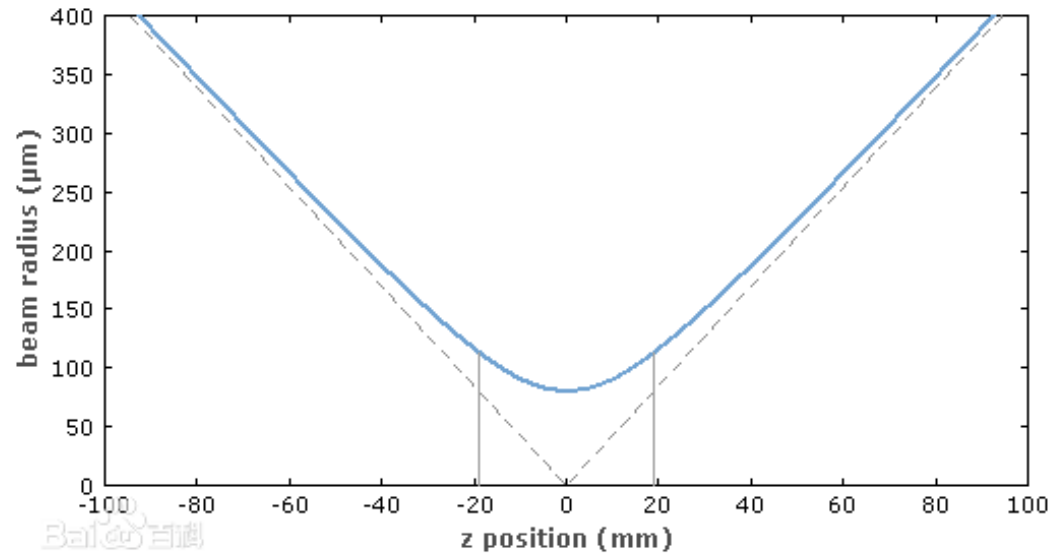

beam width
FWHM~8 μm

AM-01 A

to polysilicon bias ring

p^+ − implant

n − bulk

W

n^+ − implant

+HV

Al back contact

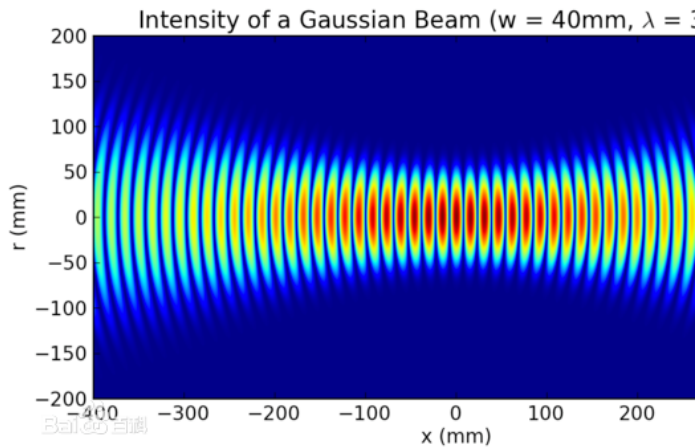- Finish wire bonding:
- NDL BV60, BV170
- HPK W18-SE5
- NDL-9, NDL-10 (2 pcs), NDL-5

NDL BV60

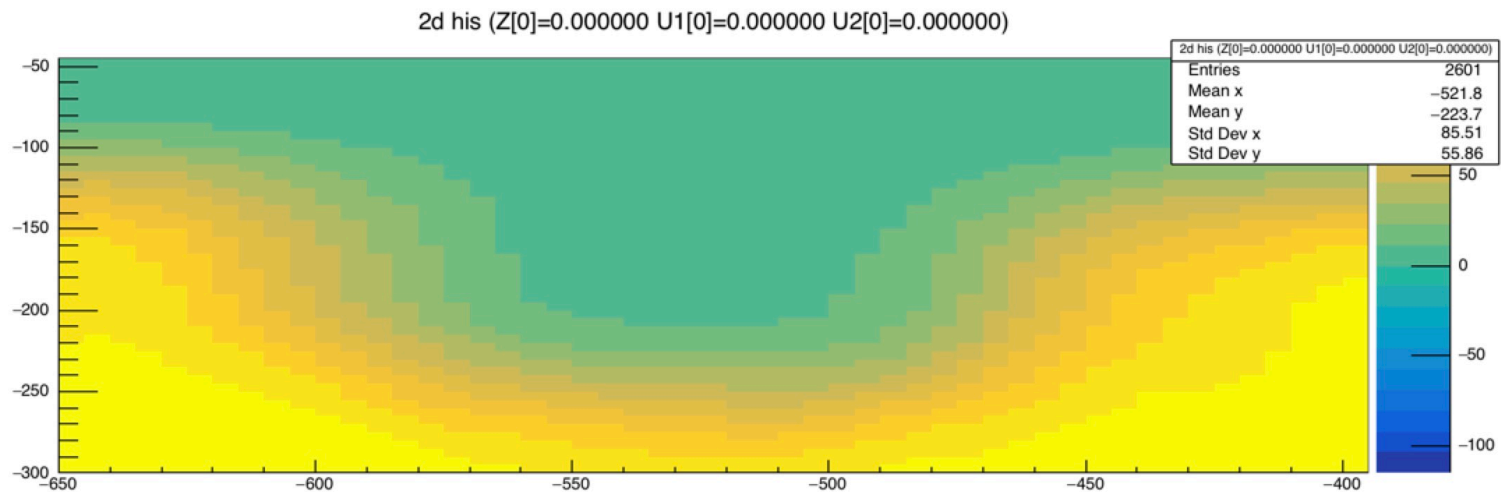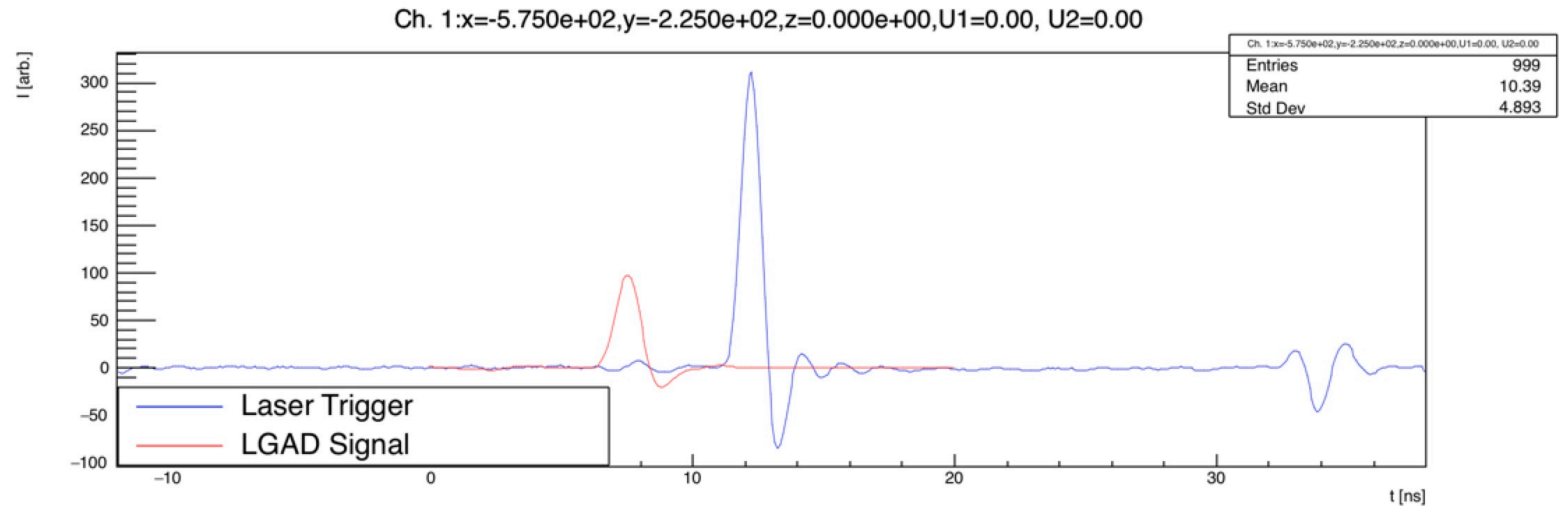http://particulars.si/TCTAnalyse/TCTAnalyse-Downloads.html

Gaussian Beam

So need to adjust z as focus distance.

Scan xy surface

Ch. 1:x=-5.750e+02,y=-2.250e+02,z=0.000e+00,U1=0.00, U2=0.00

Ch. 1:x=-5.750e+02,y=-2.250e+02,z=0.000e+00,U1=0.00, U2=0.00	
Entries	999
Mean	10.39
Std Dev	4.893

2d his (Z[0]=0.000000 U1[0]=0.000000 U2[0]=0.000000)

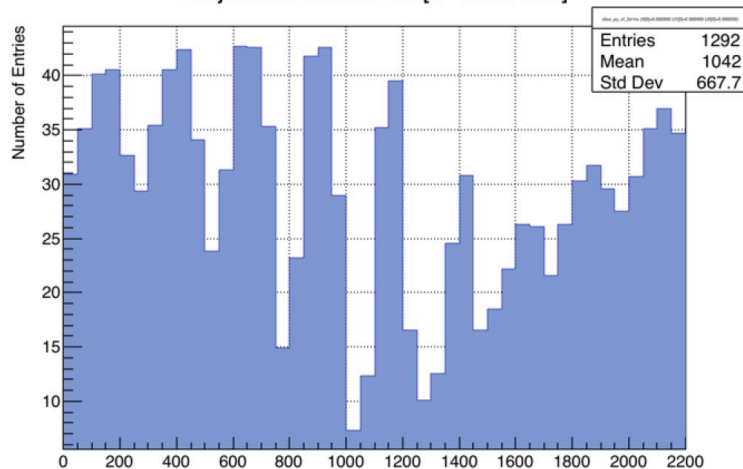| 2d his (Z[0]=0.000000 U1[0]=0.000000 U2[0]=0.000000)	
Entries	2601
Mean x	−521.8
Mean y	−223.7
Std Dev x	85.51
Std Dev y	55.86

Scan yz surface for focus

2d his (X[0]=-999.999023 U1[0]=0.000000 U2[0]=0.000000)

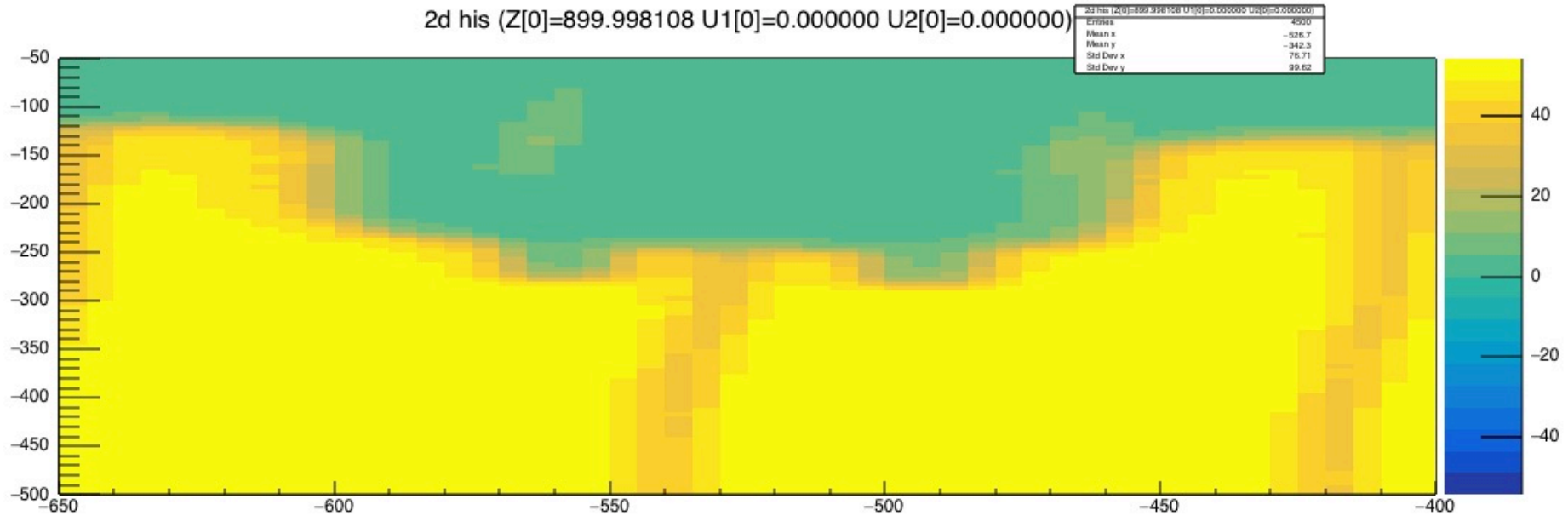| 2d his (X[0]=-999.999023 U1[0]=0.000000 U2[0]=0.000000)	
Entries	1600
Mean x	−290.5
Mean y	−74.47
Std Dev x	42.1
Std Dev y	572.7
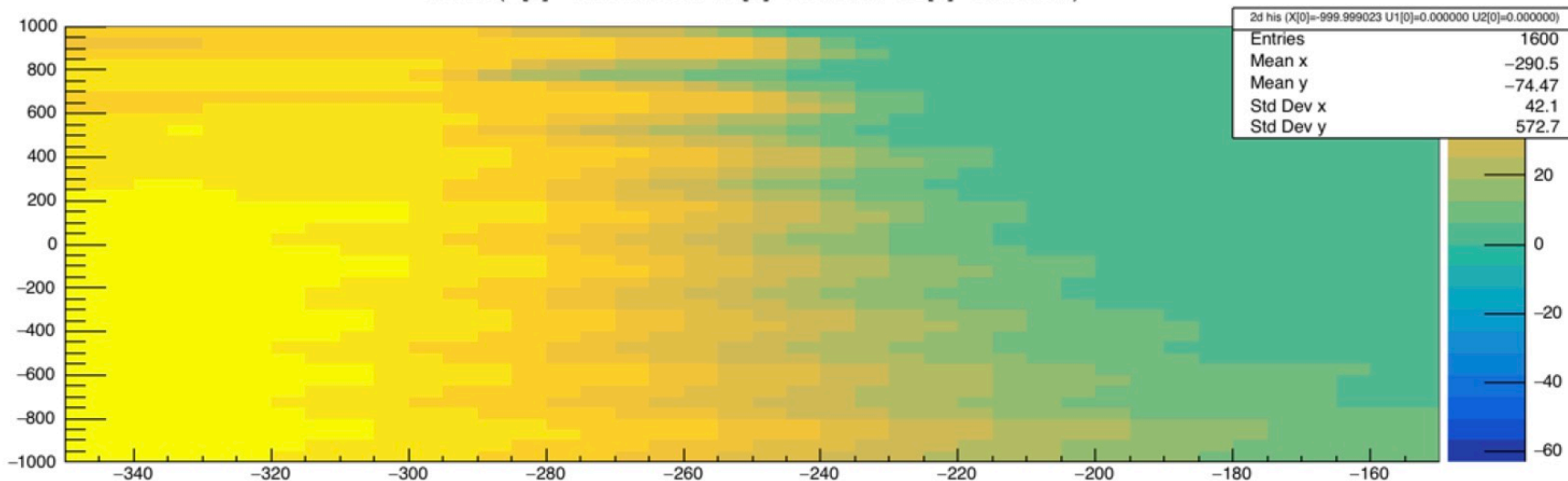
ProjectionY of binx=28 [x=-265..-260]

Entries	1292
Mean	1042
Std Dev	667.7

ProjectionX of biny=21 [y=1000.000000..1050.000000]

Entries	473
Mean	−301.6
Std Dev	23.14
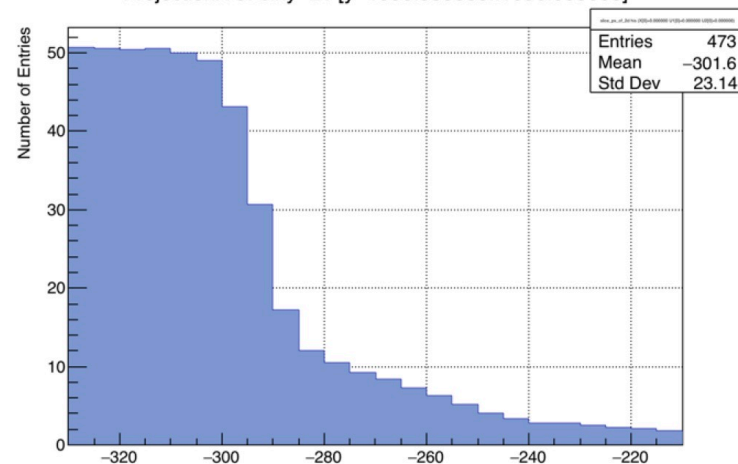
Scan xy surface with focus of laser

2d his (Z[0]=899.998108 U1[0]=0.000000 U2[0]=0.000000)
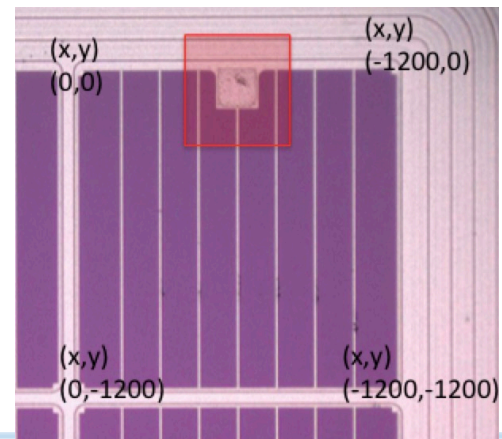
Plan

- Scan the whole input surface of NDL sensor

- Setup the edge-TCT