Shinshu Activities

For scecal

T.Takeshita

Nov2020

Preparation for Test Beam at DESY

Establish two EBUs

One with bottom read out strips

Another with center dimple strips

One super layer to be fit into Chinese slot

Cosmic ray test

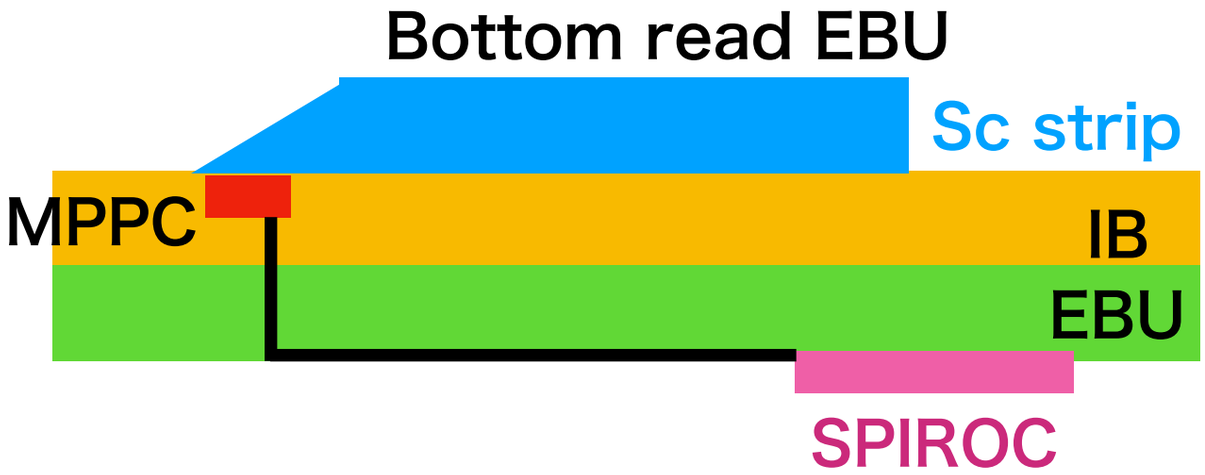
Study of surface treatment of dimple

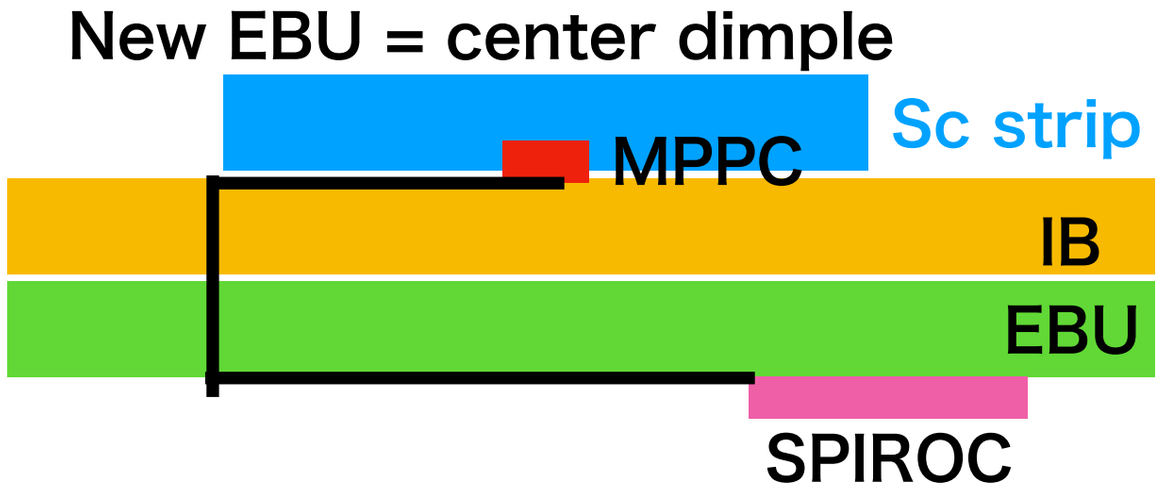
Once extraction molding processed, the surface will become like polished

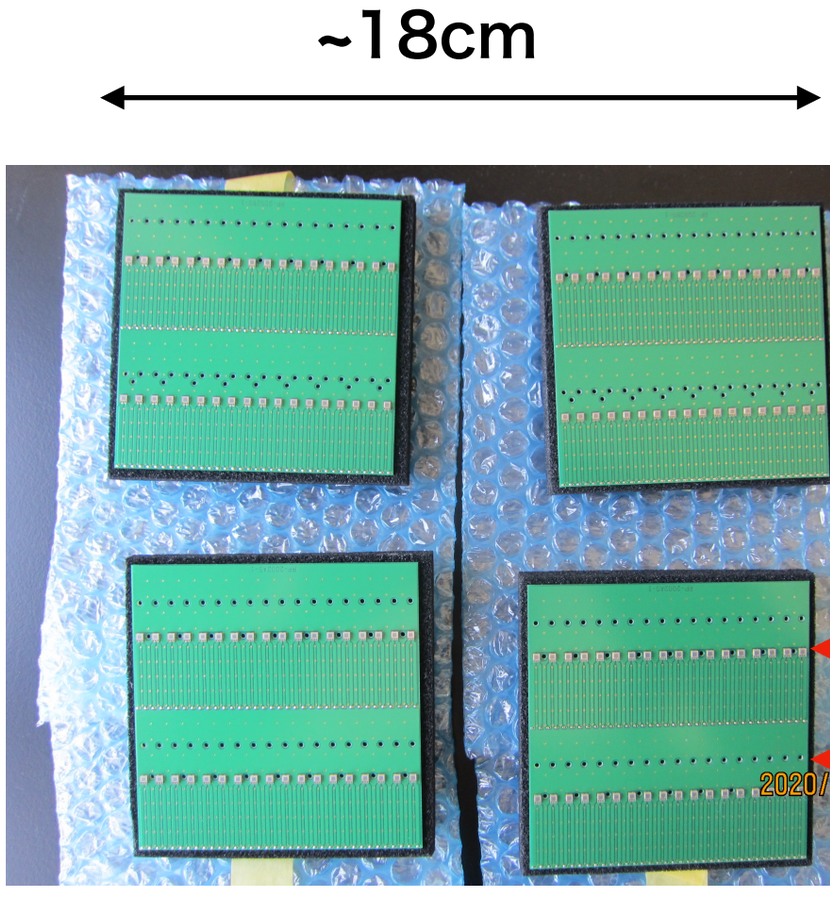
However, it seems to be better uniformity with some roughness

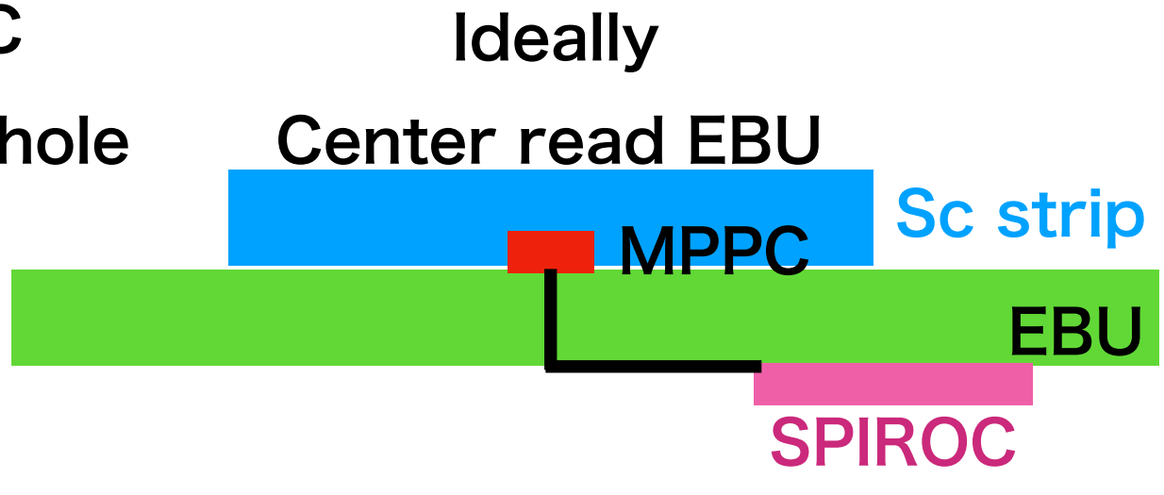
Intermediate board

- For new EBUs
- A connection board (IB) from side read position
- To center dimple location



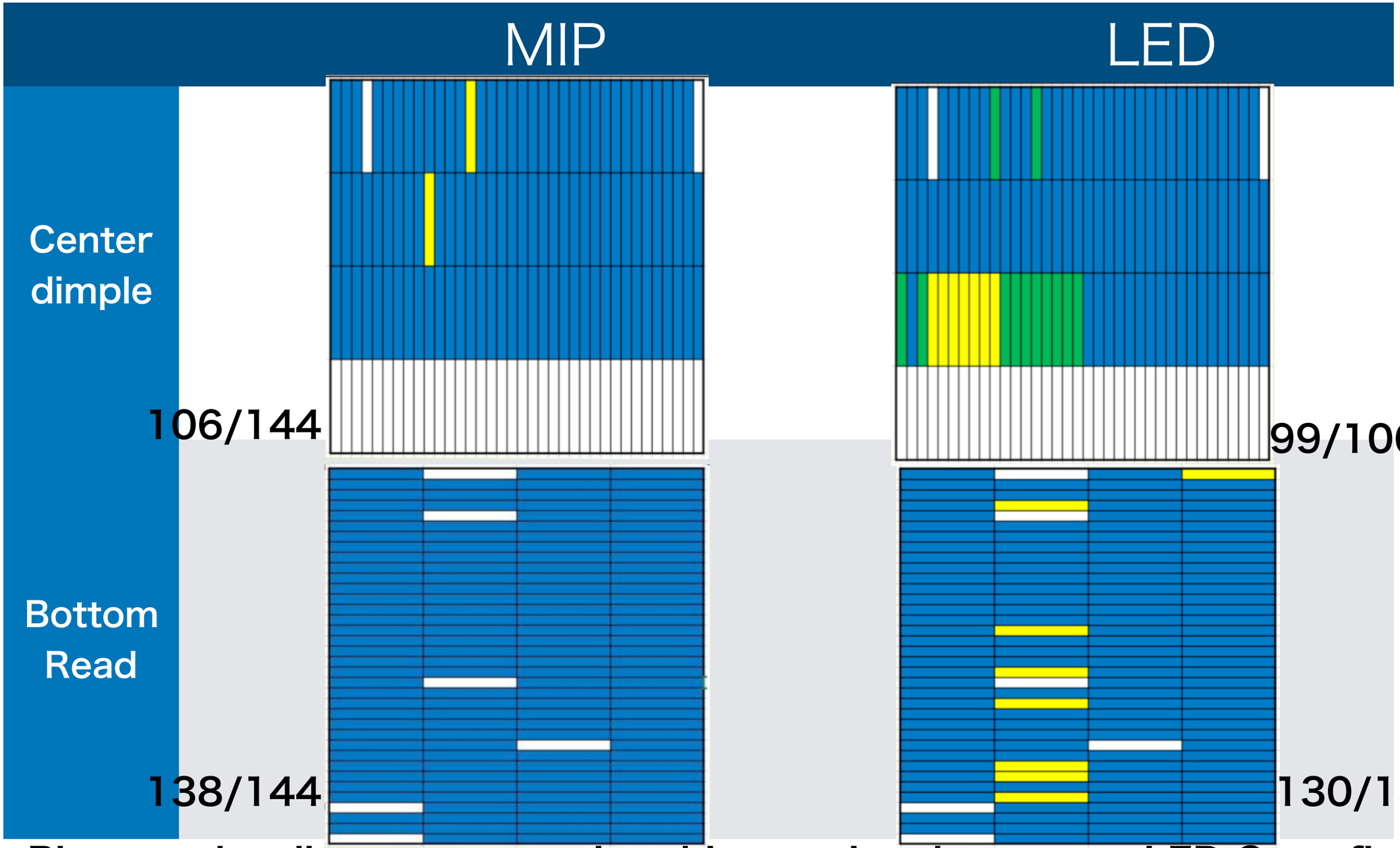






Preparation for BT

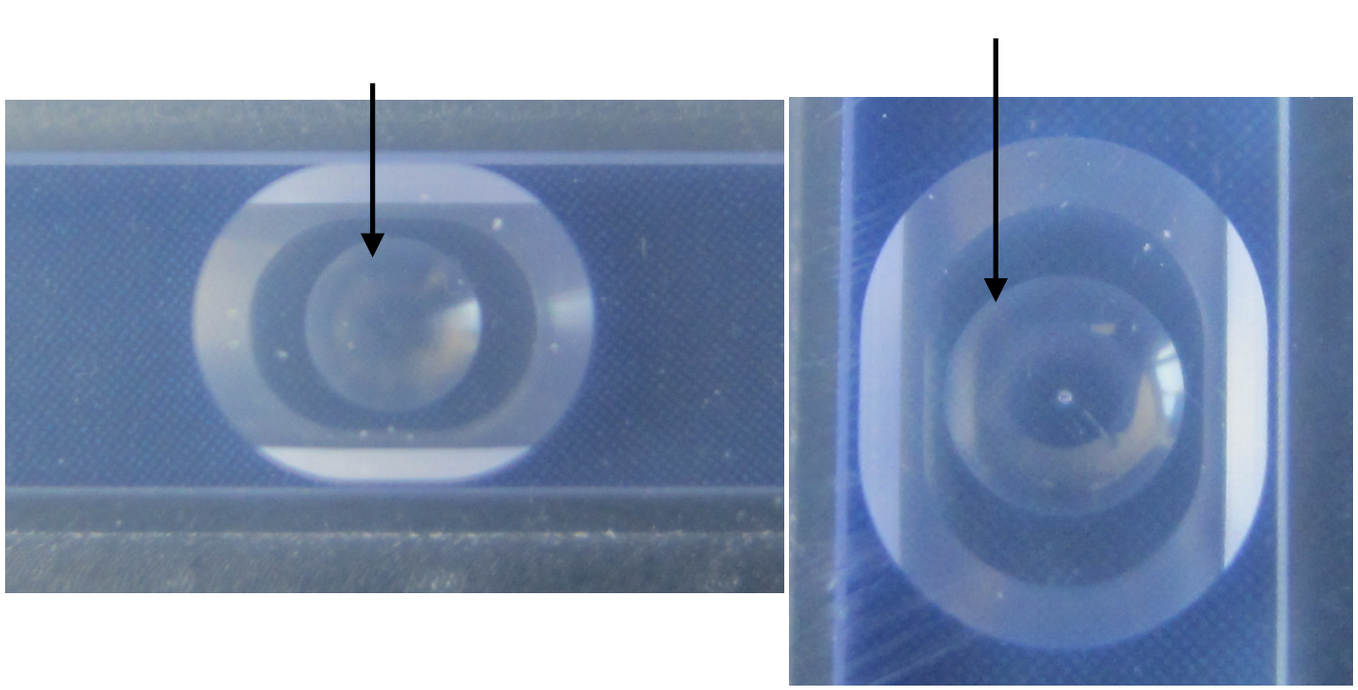
- Tuning has been carried out with two EBUs
- LED and MIP calibrations



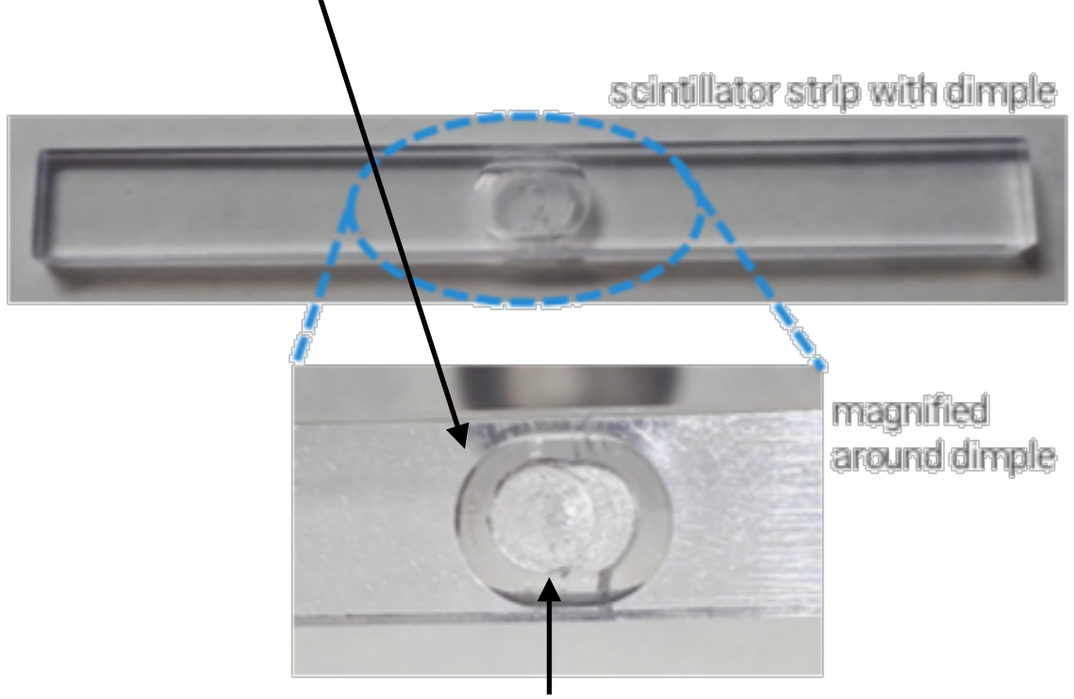
Blue:good, yellow:programatic, white:no signal green: LED Gaus fitting

Surface treatment at dimple

- USTC's dimple is rather rough
- Shinshu dimple shape with
- Rough and Smooth



Center dimple by company T

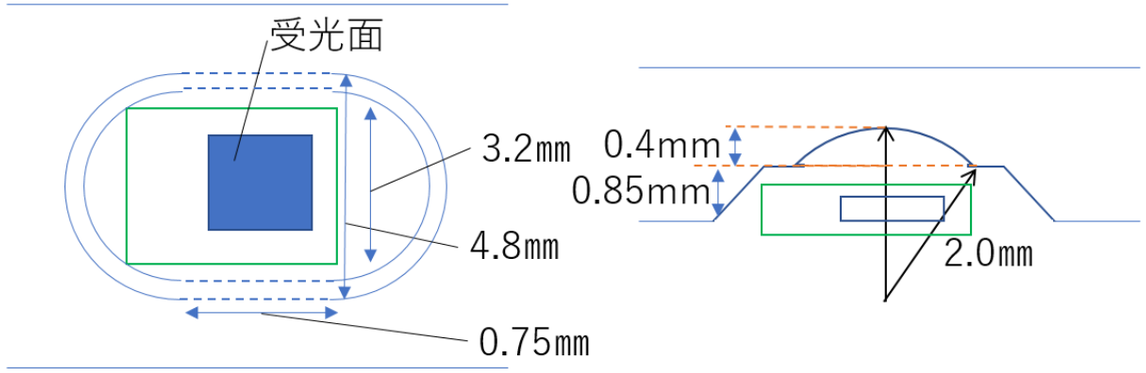


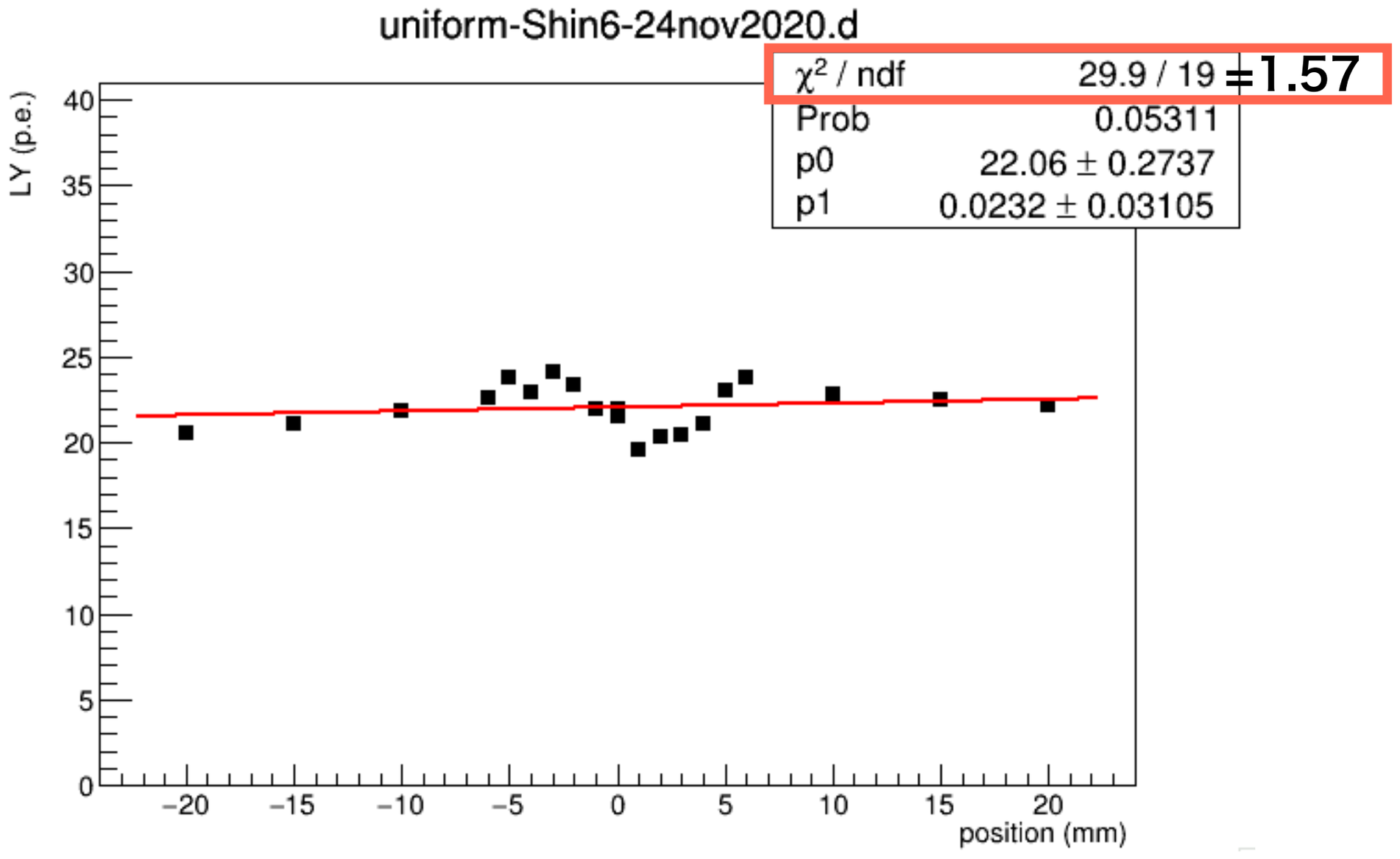
USTC dimple

Make it rougher and measure

Shinshu dimple strip

- Uniformity
- good with Kai^2/ndf =1.6

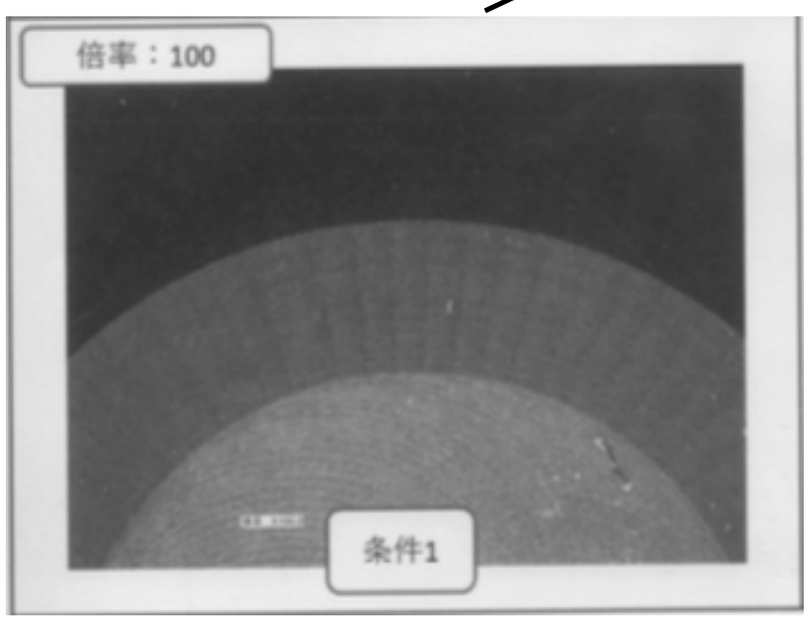


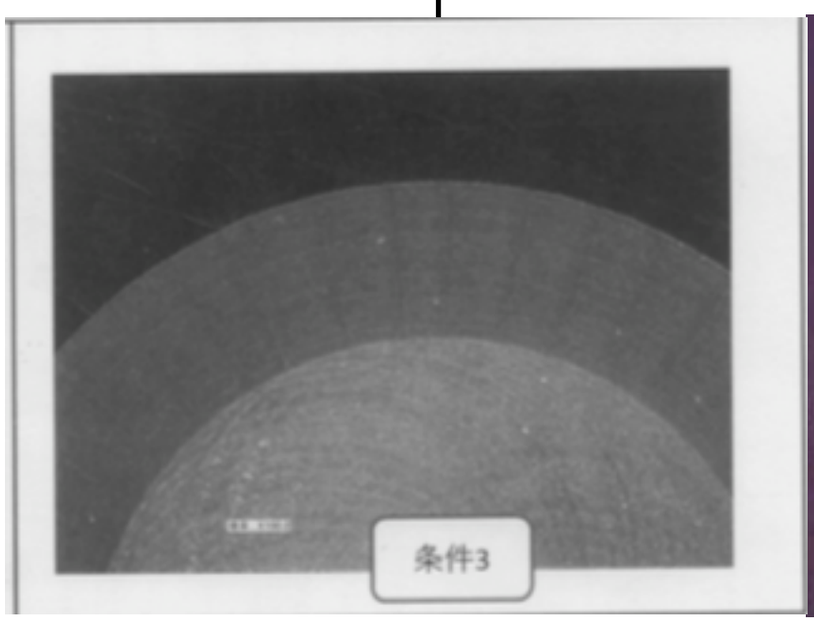


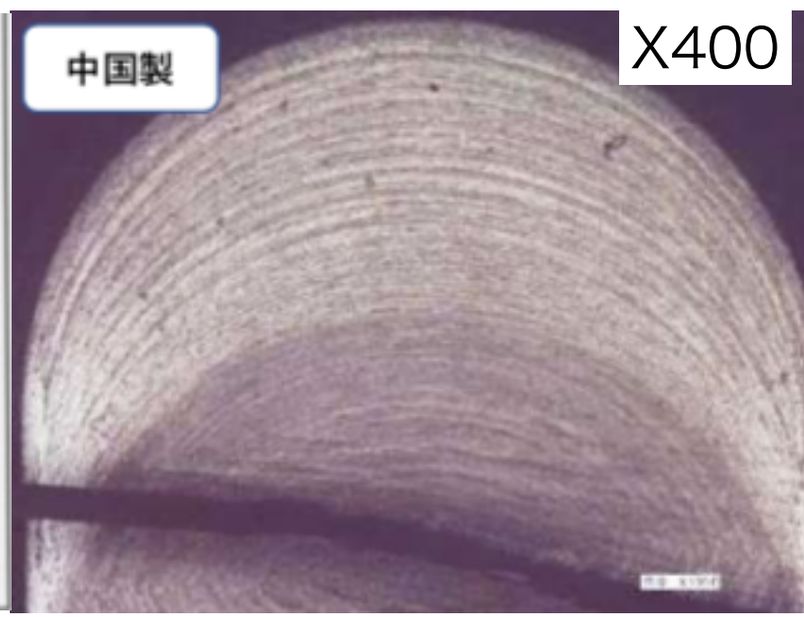
Surface treatment at dimple

- USTC's strip is rather rough with simple dimple
- Simple dimple shape with different treatment

Name	0 (smooth)	1 (rough)	3 (rough)	4 (rough)	5 (rough)
Rotation speed	Fastest	Fastest	Fast	Slow	Slower
Moving speed	Slow	Slow	Fast	Fast	Fast

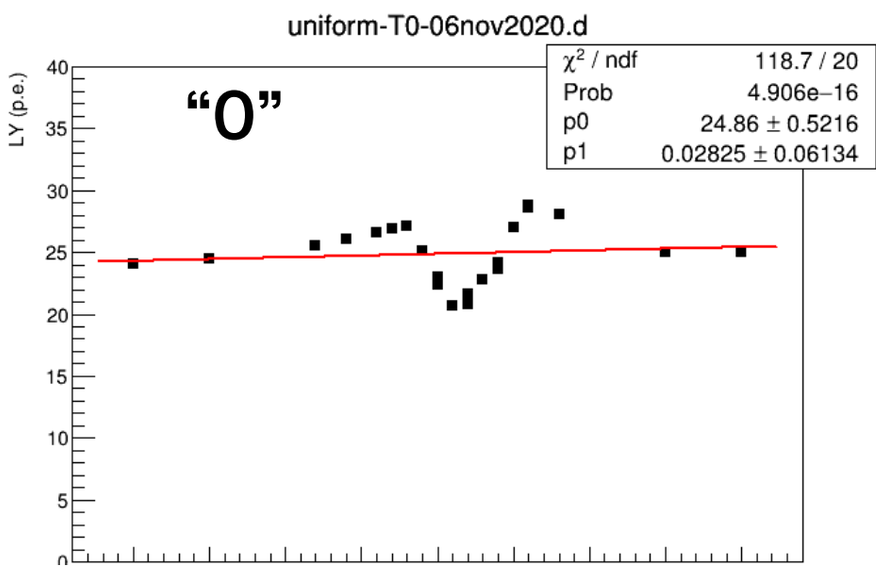


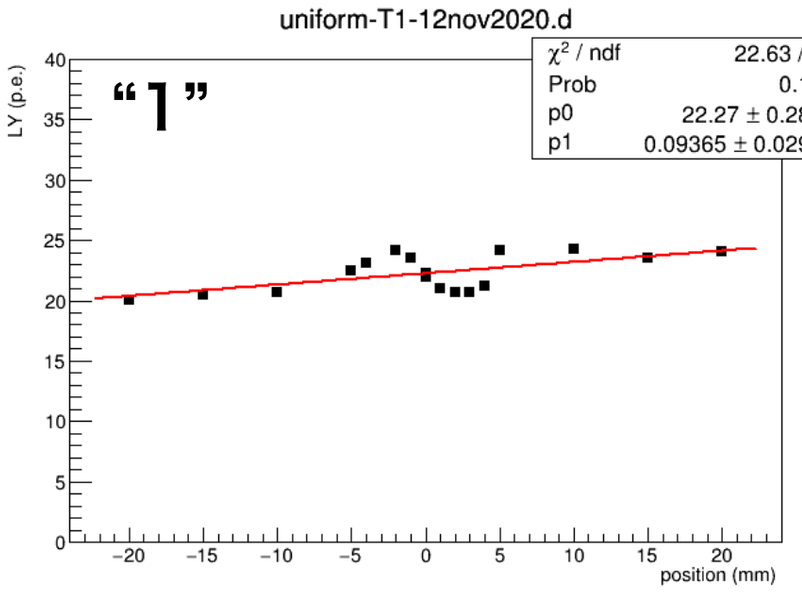


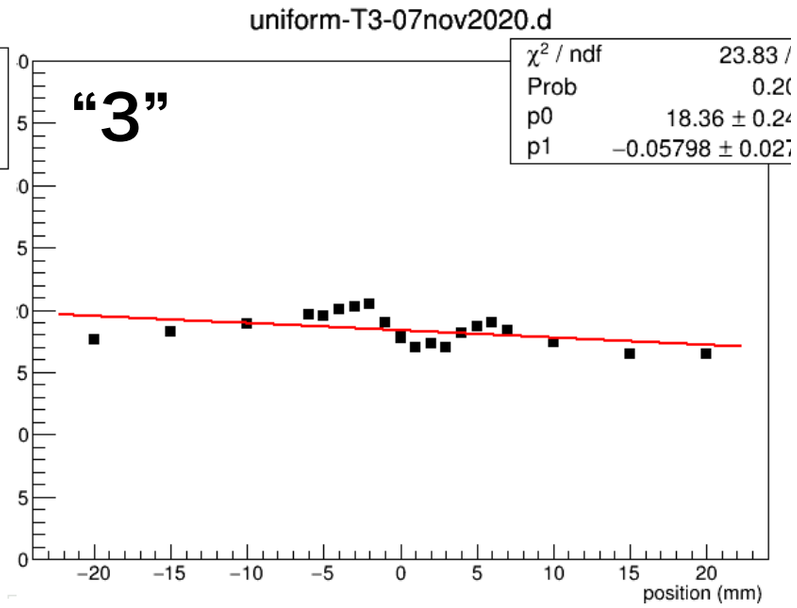


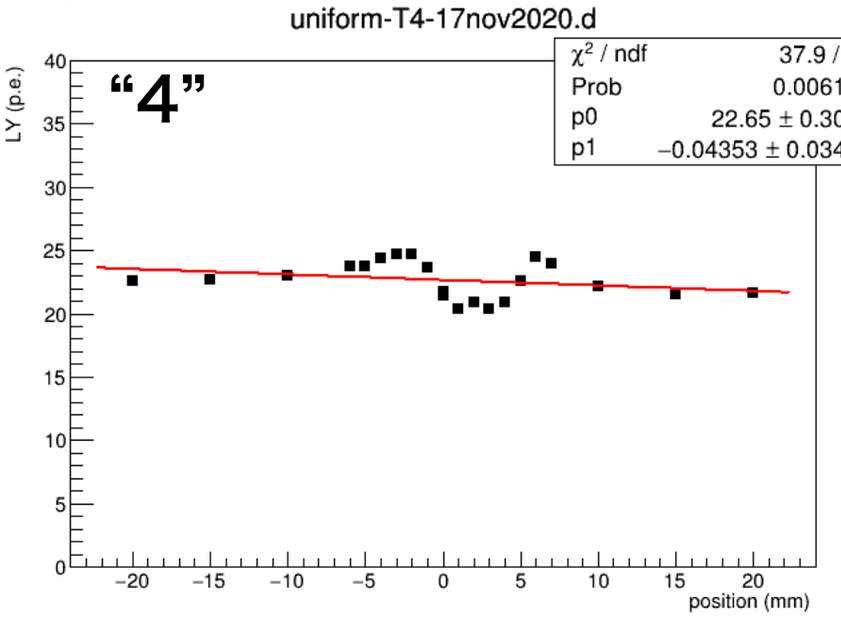
Uniformity

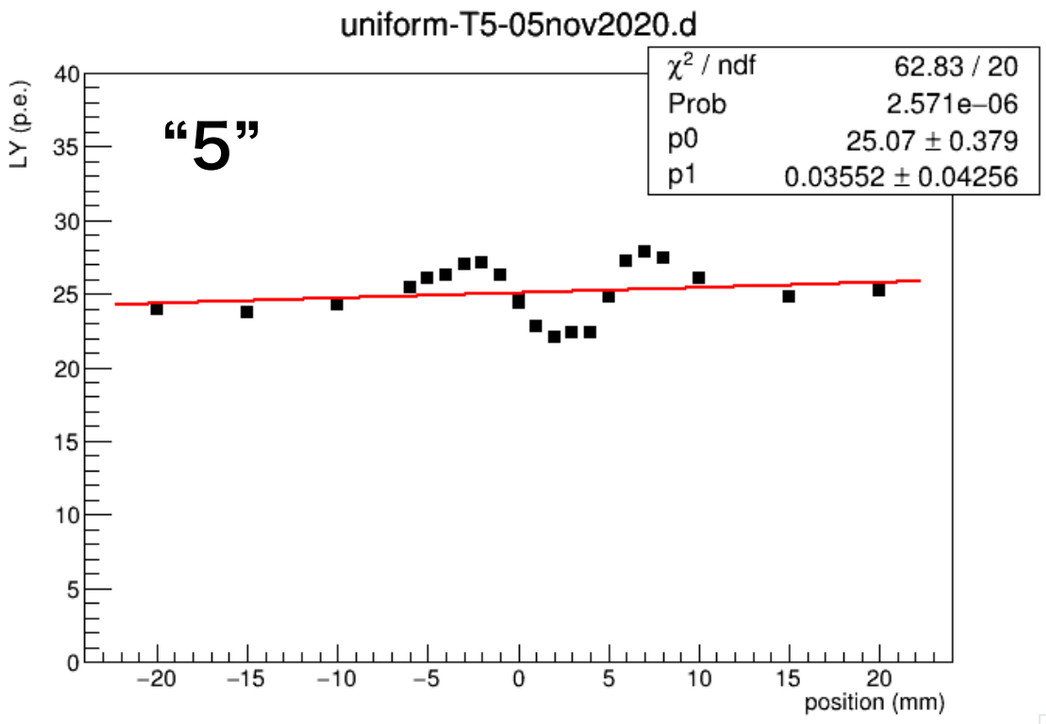
- For 0,1,3,4 &5
- Depending on surface treatment

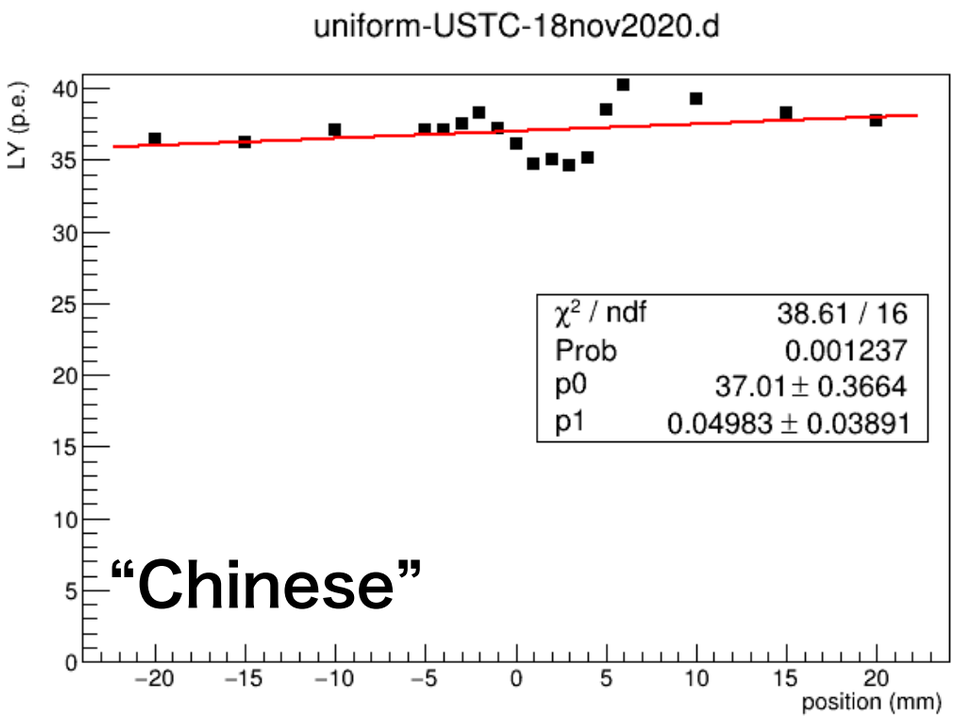






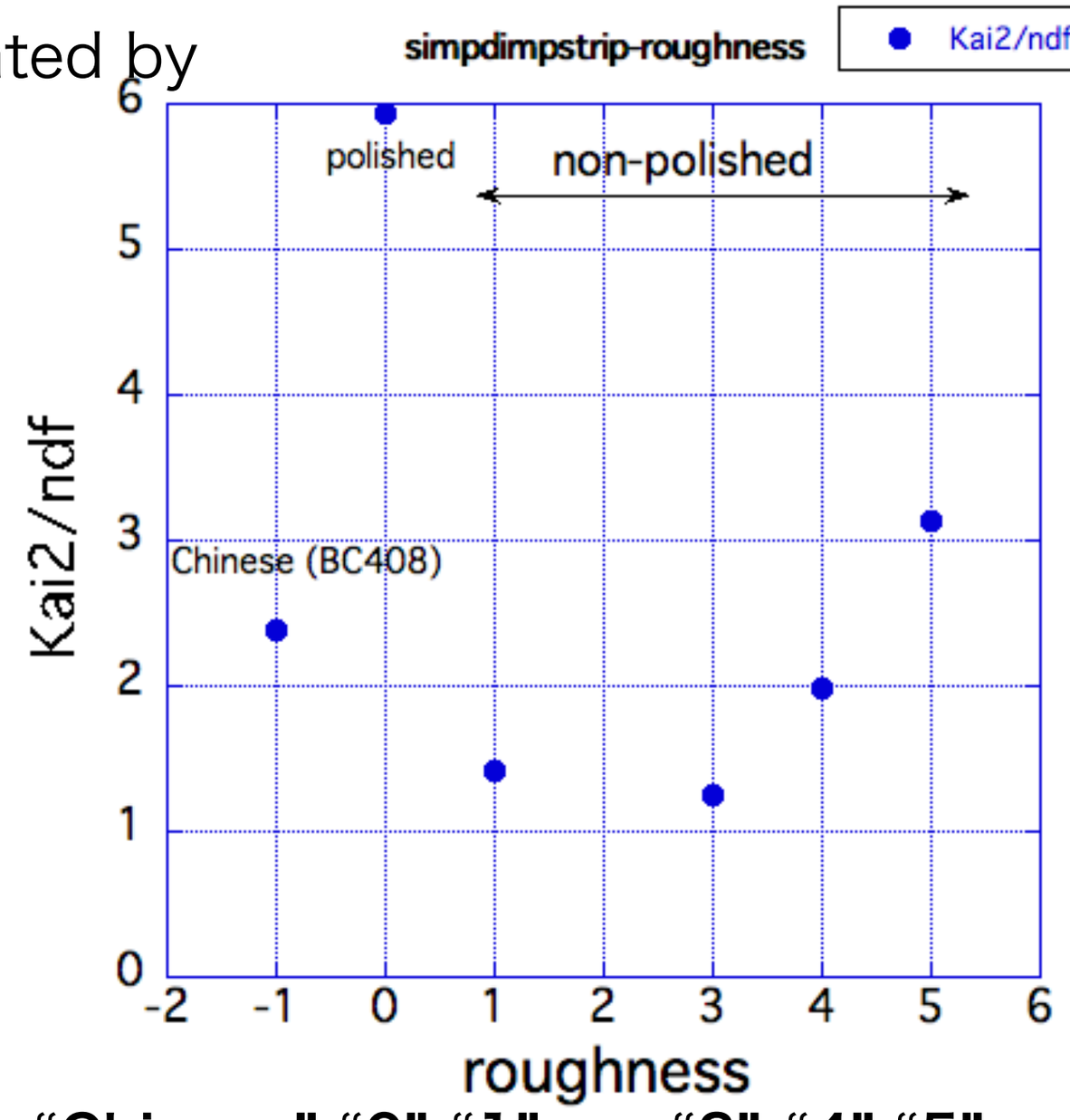






Uniformity cont.

- For 0,1,3,4 &5
- Depending on surface treatment
- Results are shown with Kai^2/ndf
- Left right asymmetry will be compensated by
- Fitting a linear line and taking Kai^2/ndf
- Roughness = “1” and “3” are good
- As well as Shinshu-dimple

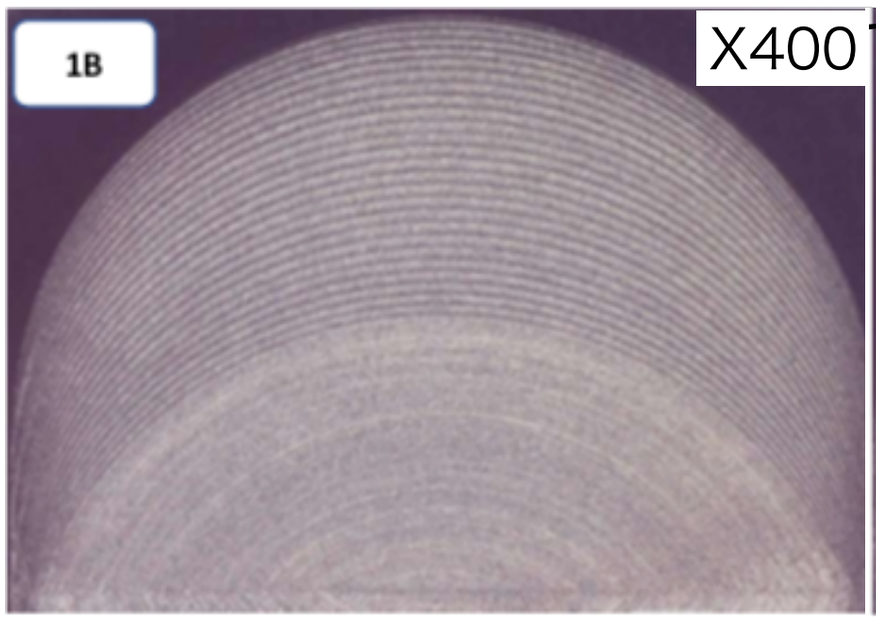


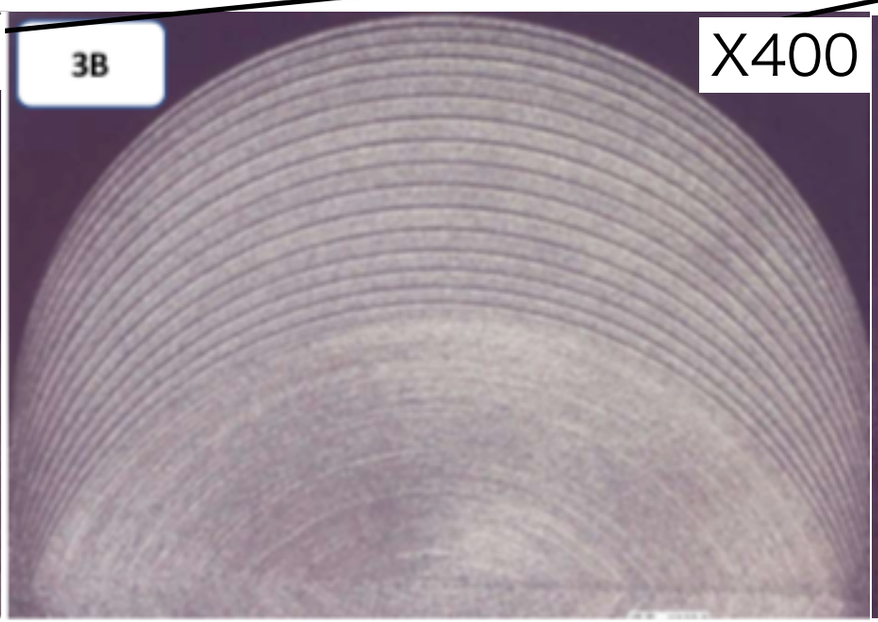
“Chinese” “0” “1” “3” “4” “5”

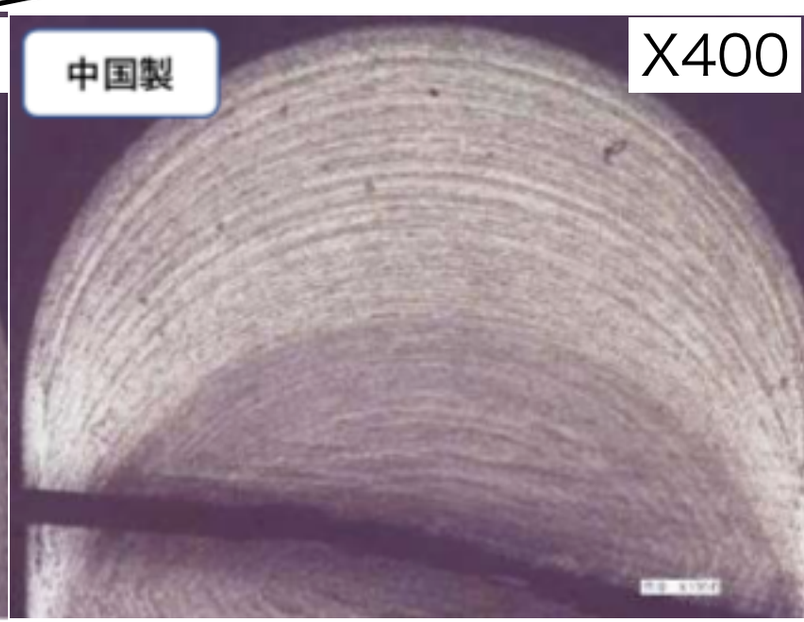
Surface treatment II

- Surface treatment has been drilled with 2mm ϕ
- Strip manufacturer fabricated drill with 3mm ϕ
- Which is suitable for our dimple with one way drilling
- Like Chinese dimple
- We will compare 4 strips
- We will compare with G4 sim

Name	1 (rough)	3 (rough)
Drill-A	Fastest	Fast
Drill-B	Slow	Fast







Simple dimple drawing