Non-destructive Inspections for SC Cavities

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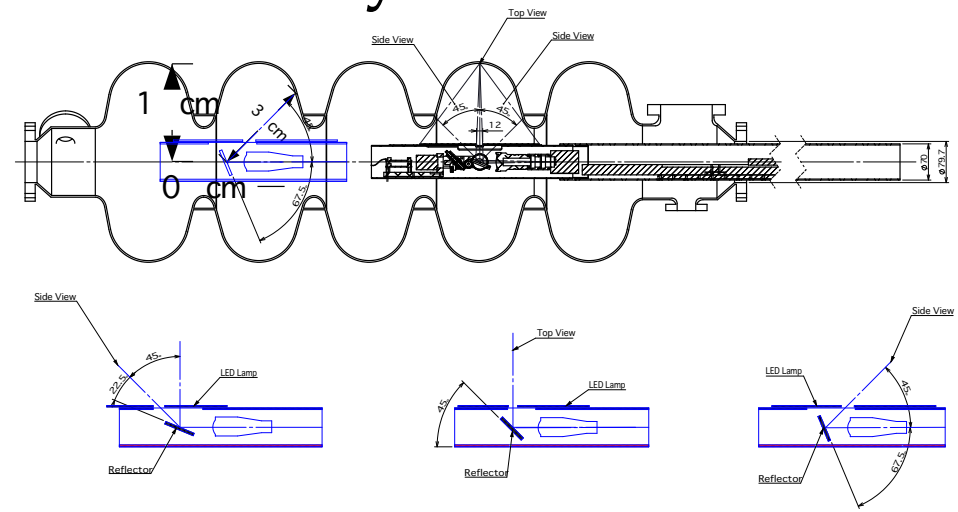
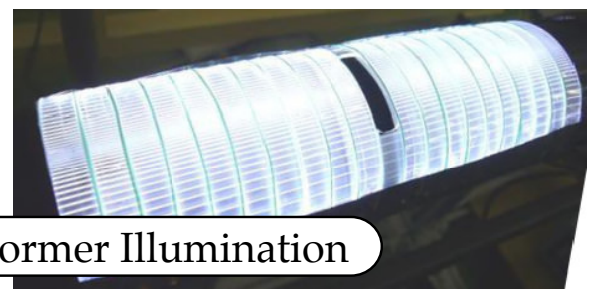
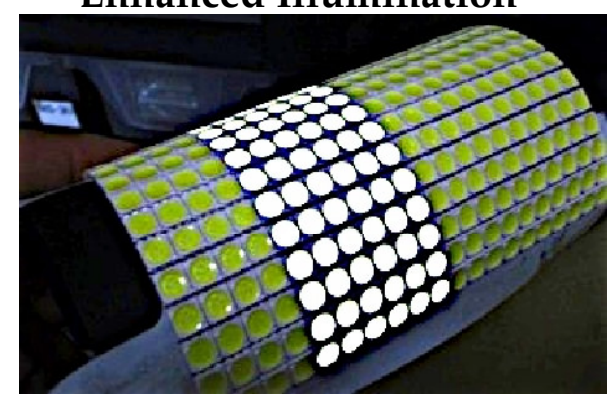
HiRes Cavity Endoscope : So called Kyoto Camera

CavCam3 for SPL Cavity





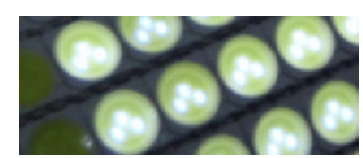
Enhanced Illumination



New version for large cavity: (Armadillo Illumination)

14 chips/line x 2 lines/strip
x 10 strips/side x 2 sides
= 560 chips!

- Enhanced Illumination for larger surface
- Better lens for longer work distance.



3 LED's/chip!

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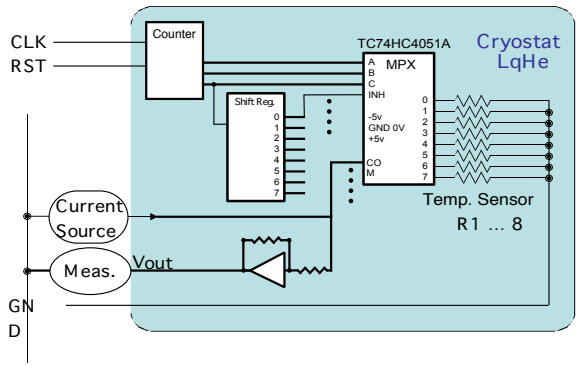
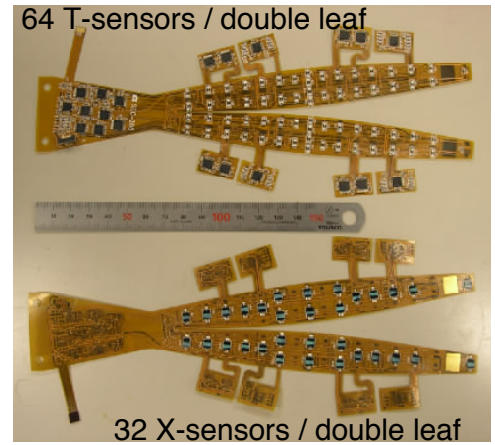
High Density T-map & X-map

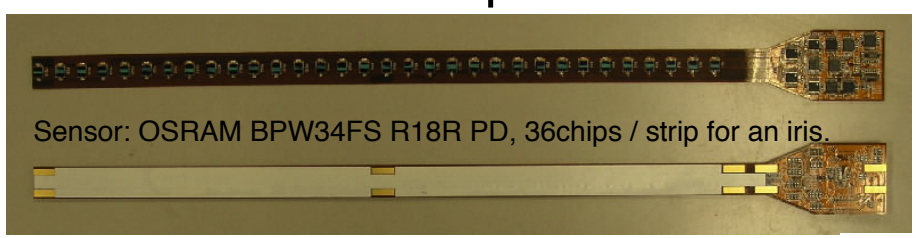
Block Diagram (T-sensors)

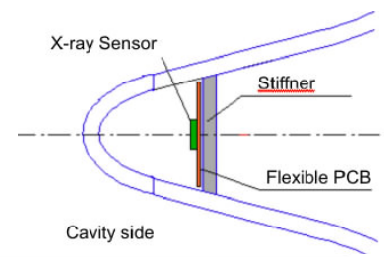




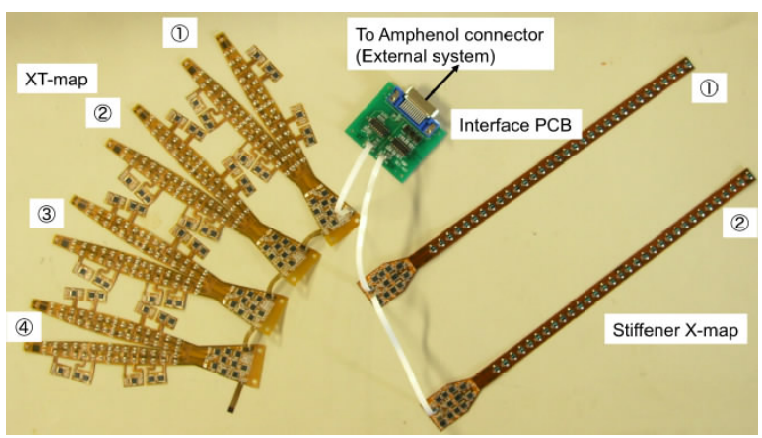
XT-map PCB

StiffenerX-map

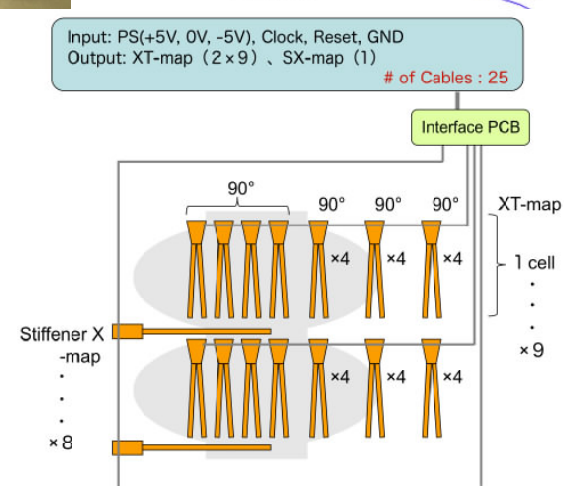




Installation



Connection Layout



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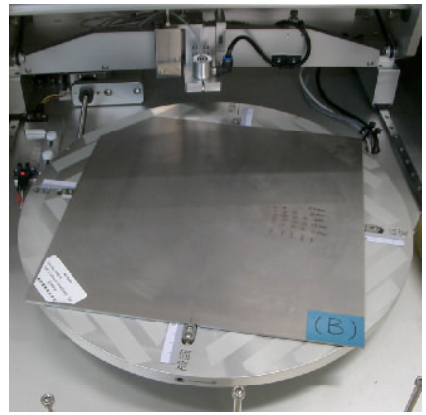
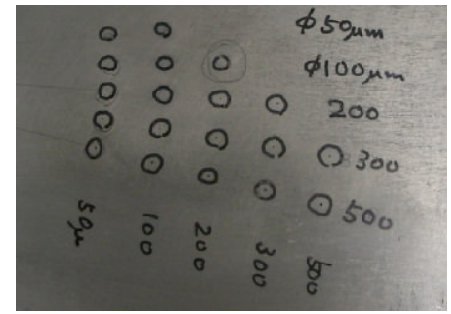
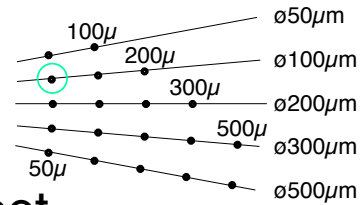
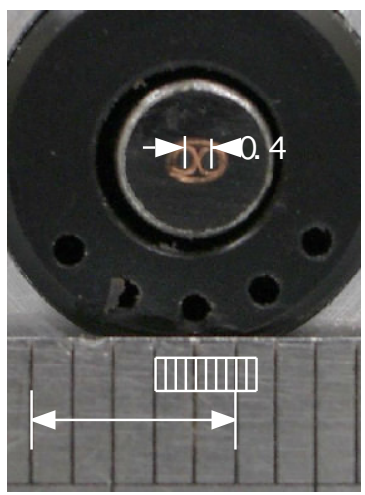
High Resolution Eddy Current Scan







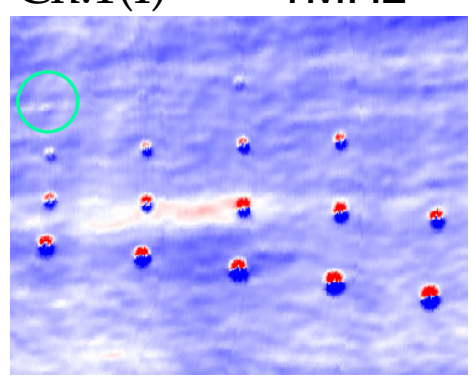
Test Holes on Nb Sheet



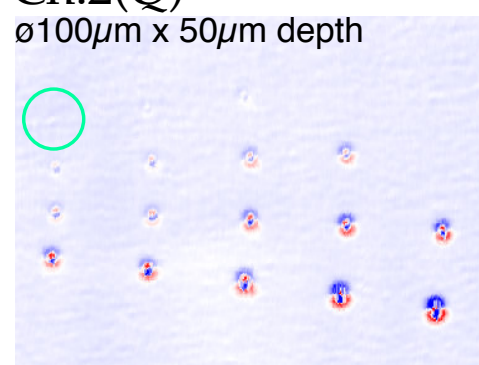
Differential probe
0.3x0.25mm with sharp tip

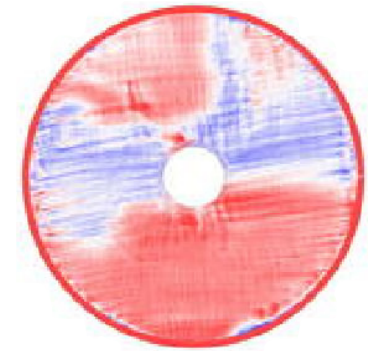
ASWAN JSAID-3X200

Ch.1(I) 1MHz Ch.2(Q)

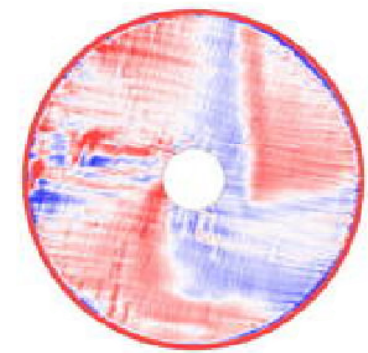


ø100μm x 50μm depth





2643-1-1.jpg



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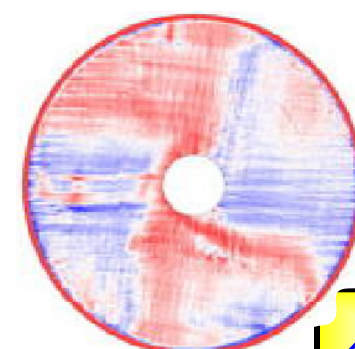

2643-4-2.jpg

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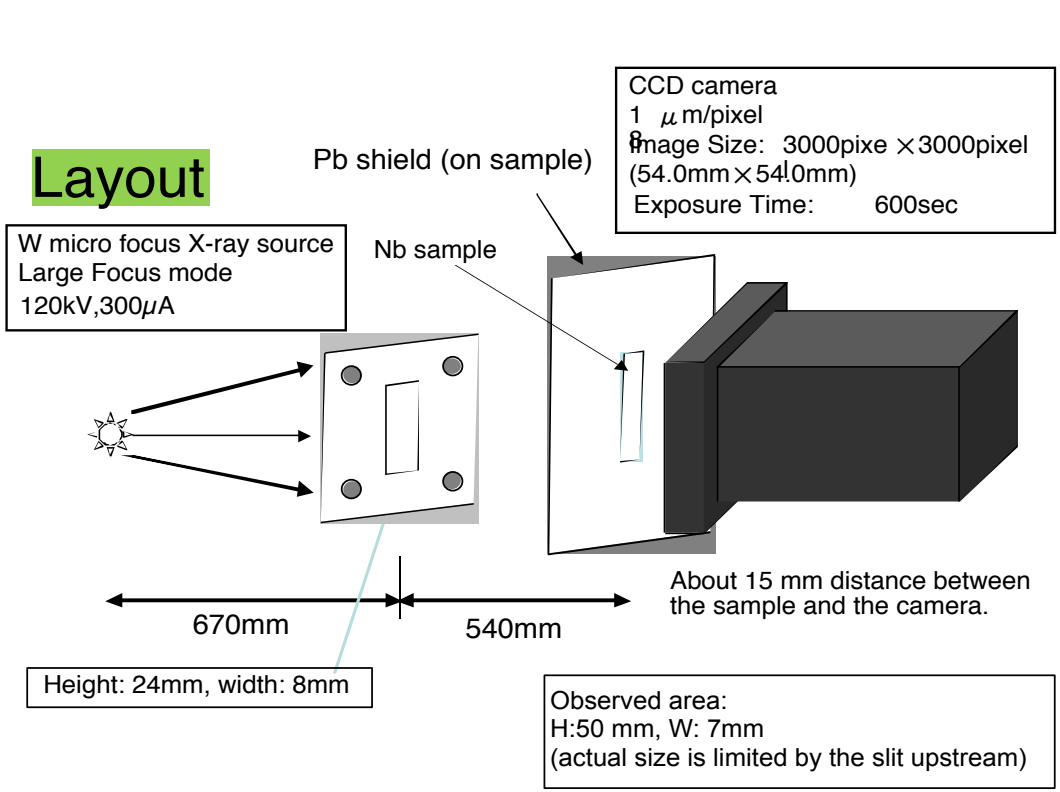
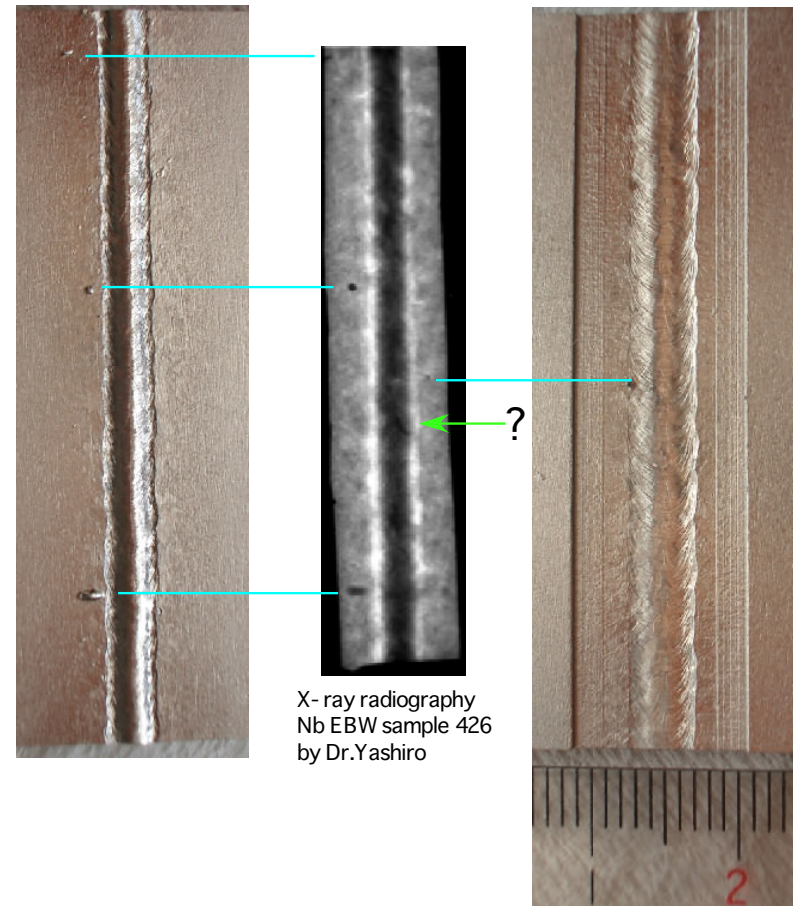
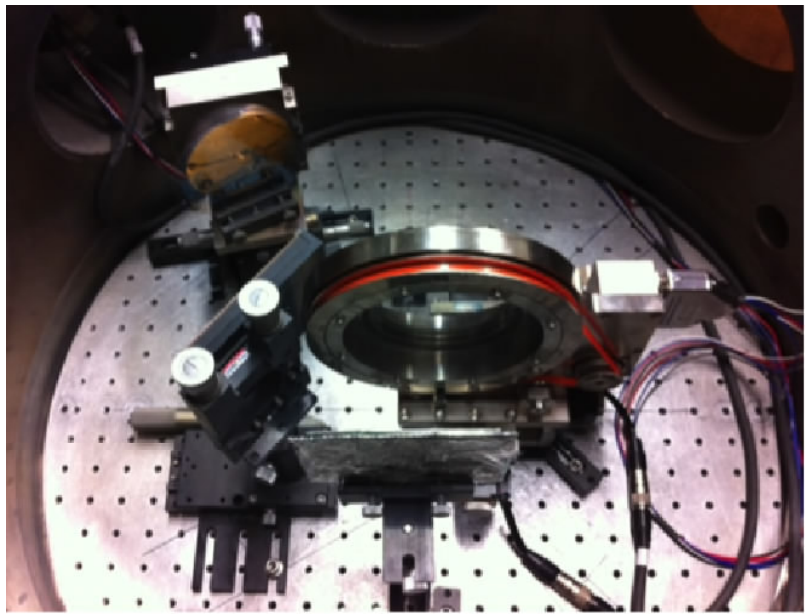
X-ray Transmission Imaging



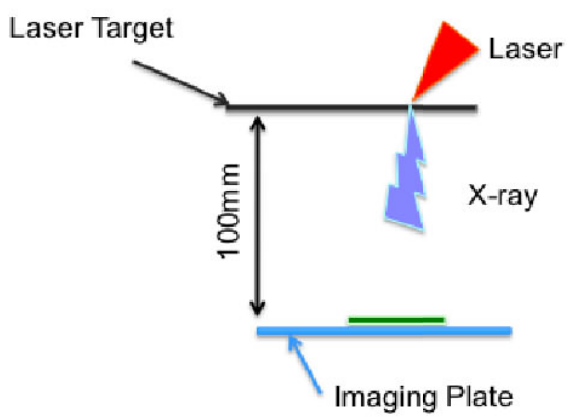


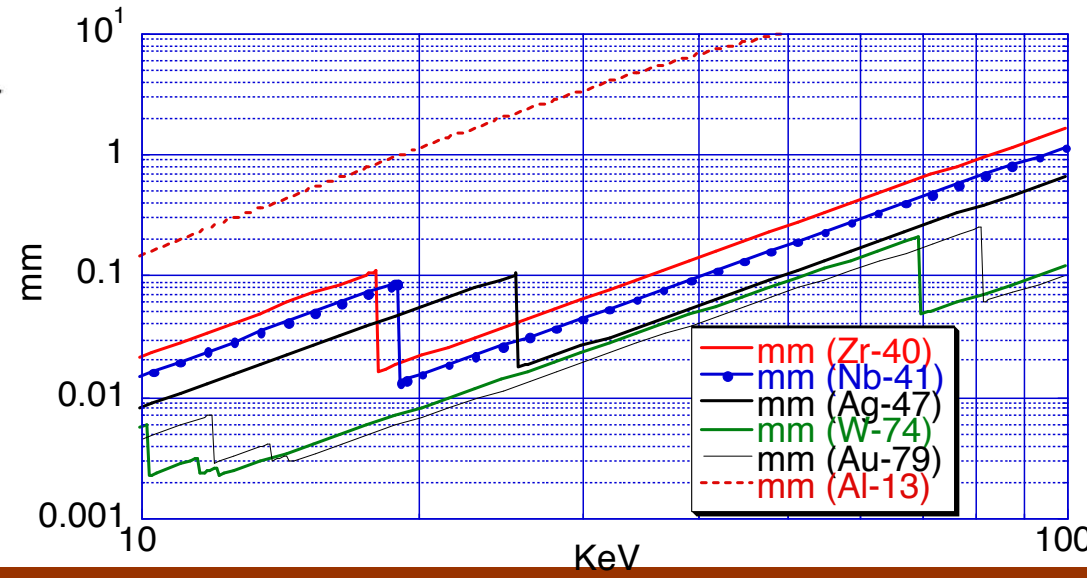
X- ray radiography
Nb EBW sample 426
by Dr.Yashiro

Laser Induced X-ray Experiment



Laser Parameter	
Wave Length	800nm
Pulse Duration	130fs
Laser Energy	300mJ
Spot Size	3um (FWHM)





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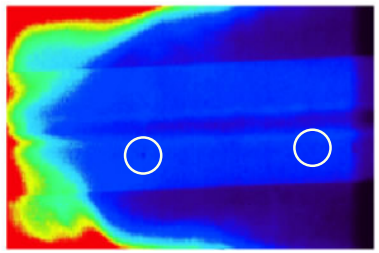
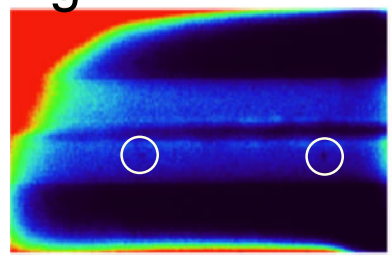
Laser Induced X-ray Experiment

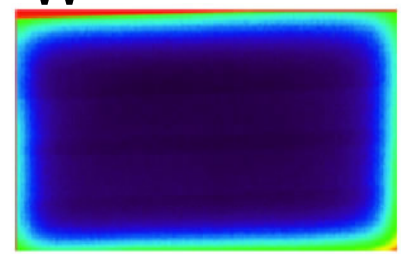
Zr



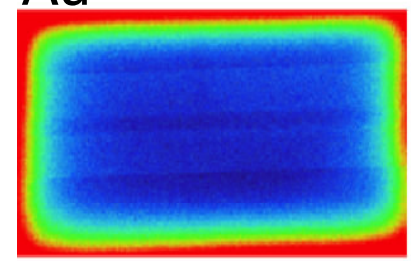
Ag



W

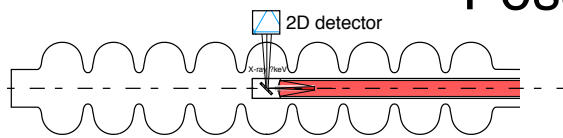


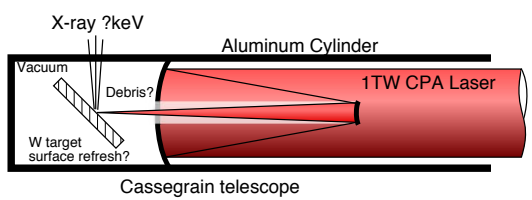
Au

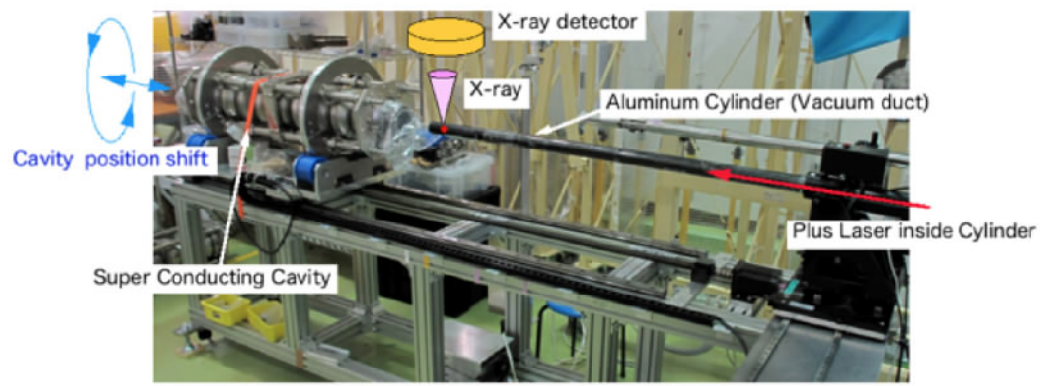


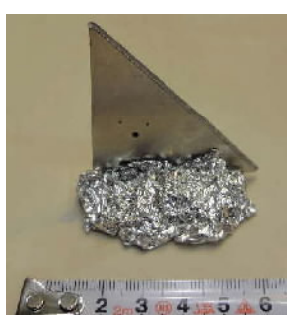
Targets (Zr, Ag) with relatively low atomic number show good result. Defect can be observed, but its contrast is not enough for the tiny void inspections.

Possible Configuration

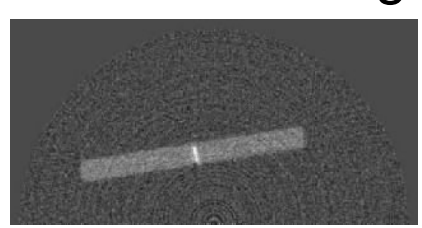




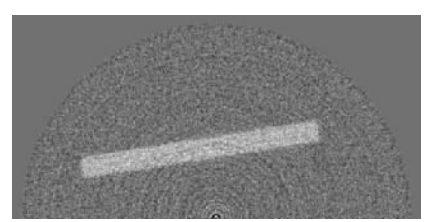




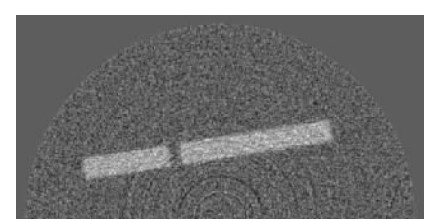
neutron CT imaging



ø0.5 Tungsten Carbide



No hole



ø1.5 hole

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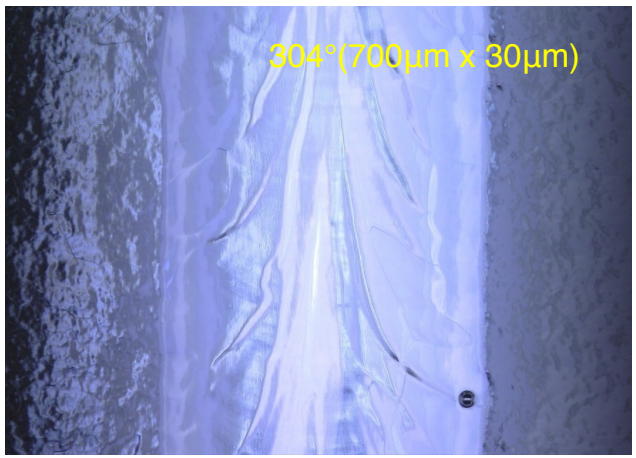
Local Micro-Grinder

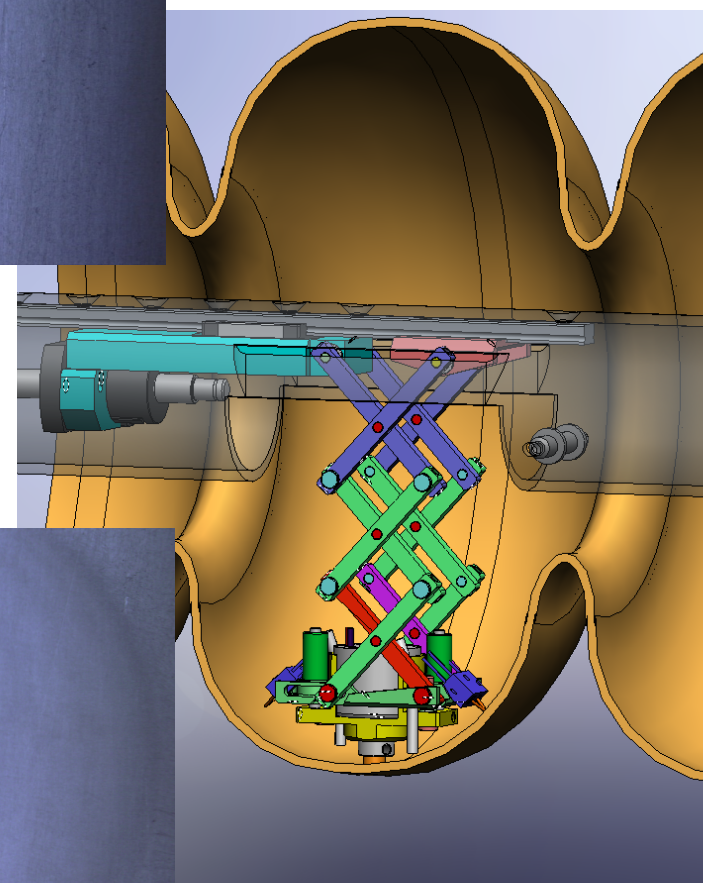
Local grinding example

after 2nd V.T.

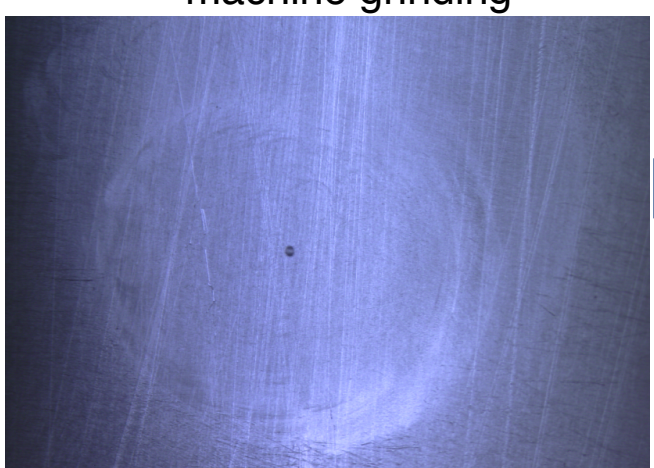


grinding by hand

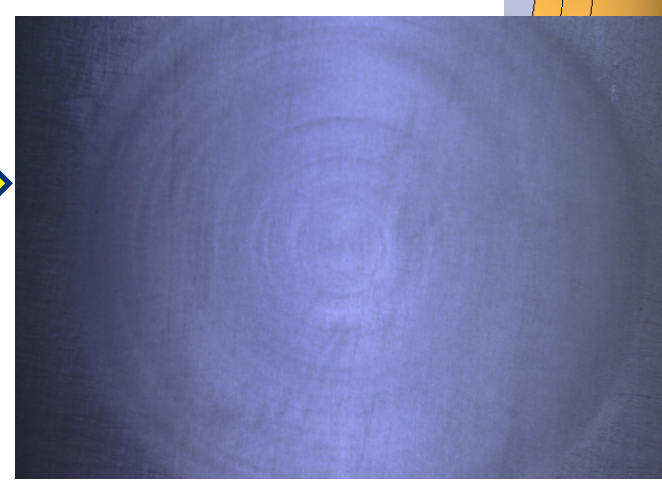
MHI-010



machine grinding



finish



Yasuchika Yamamoto

evolution of grinding @Cell #1

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