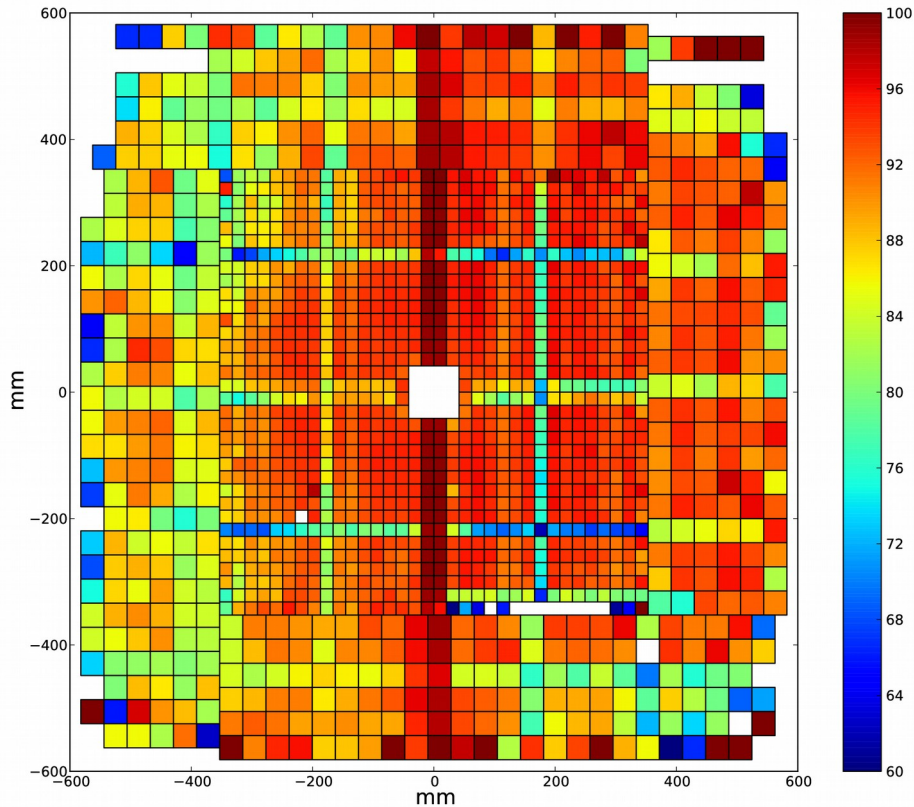


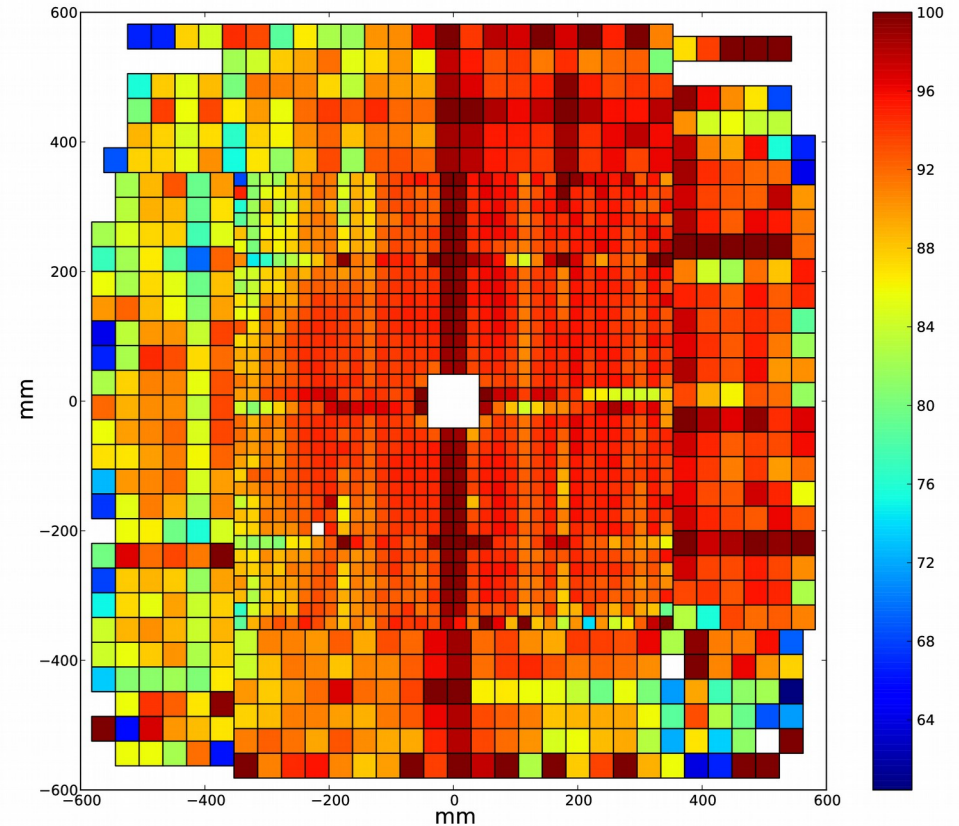
# Efficiency map before and after correction

Before correction



Original efficiency map

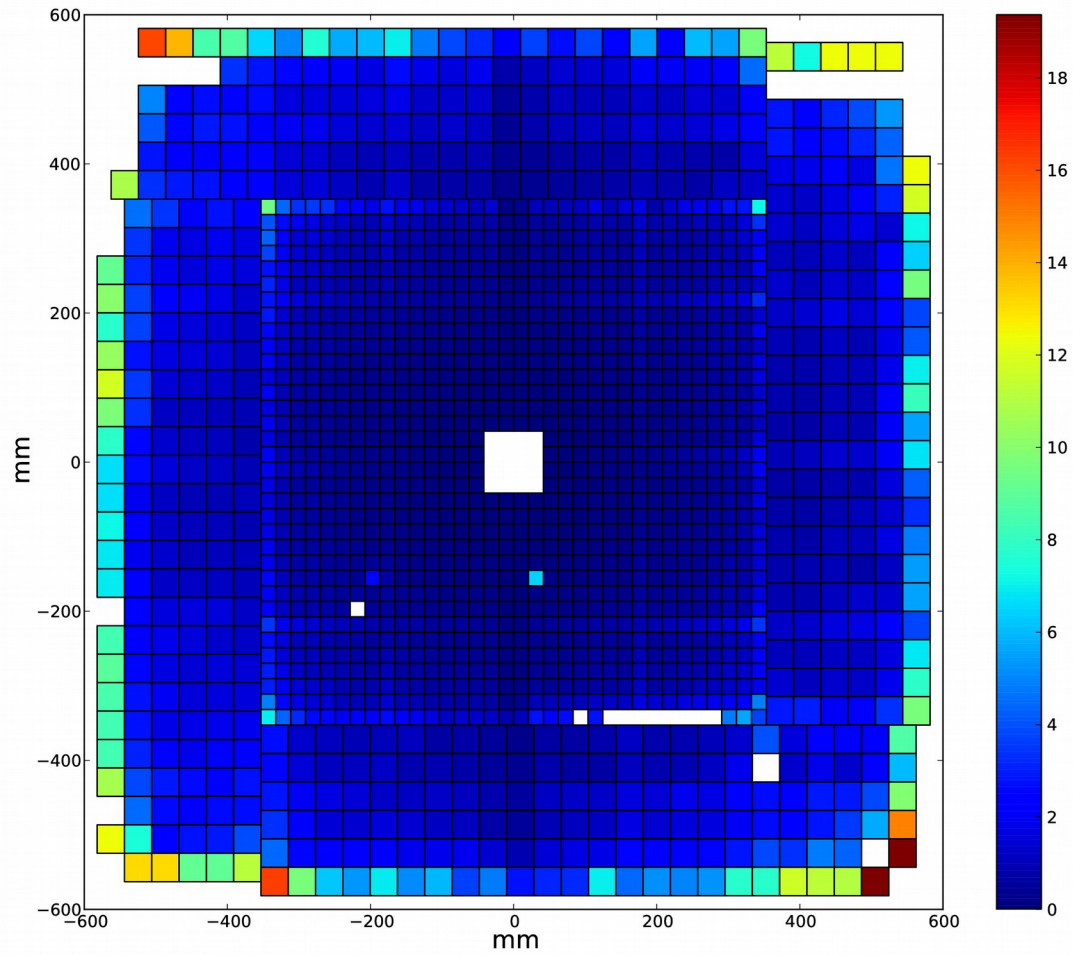
After correction



efficiency map after correction the drop introduced by spacer and accident dead area

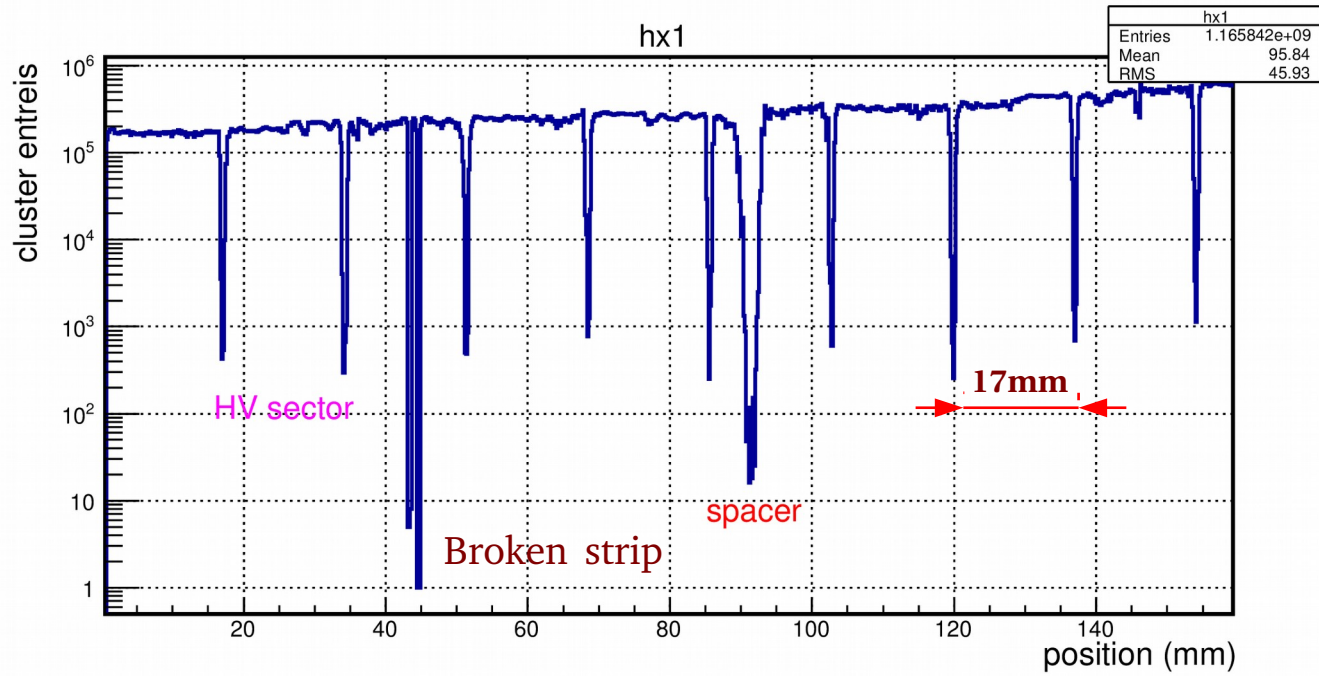
- Sector size follow HyCal module size
- Chamber 2 is more efficient than chamber 1
- Y direction is more uniform than X direction, this is b/c X direction has high voltage sectors (not yet corrected)
- In each sector, spacer can drop efficiency by 10% ~ 20%, High Voltage sector can drop by 1%~2%
- Average: 93.5% (before correction)

# Efficiency statistical error map

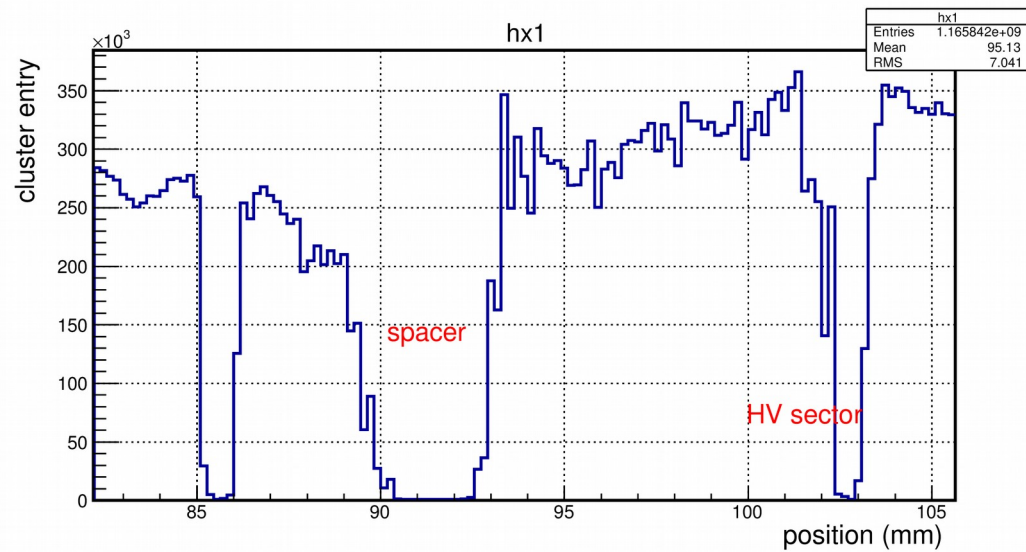


Ref: <https://arxiv.org/abs/physics/0701199v1>

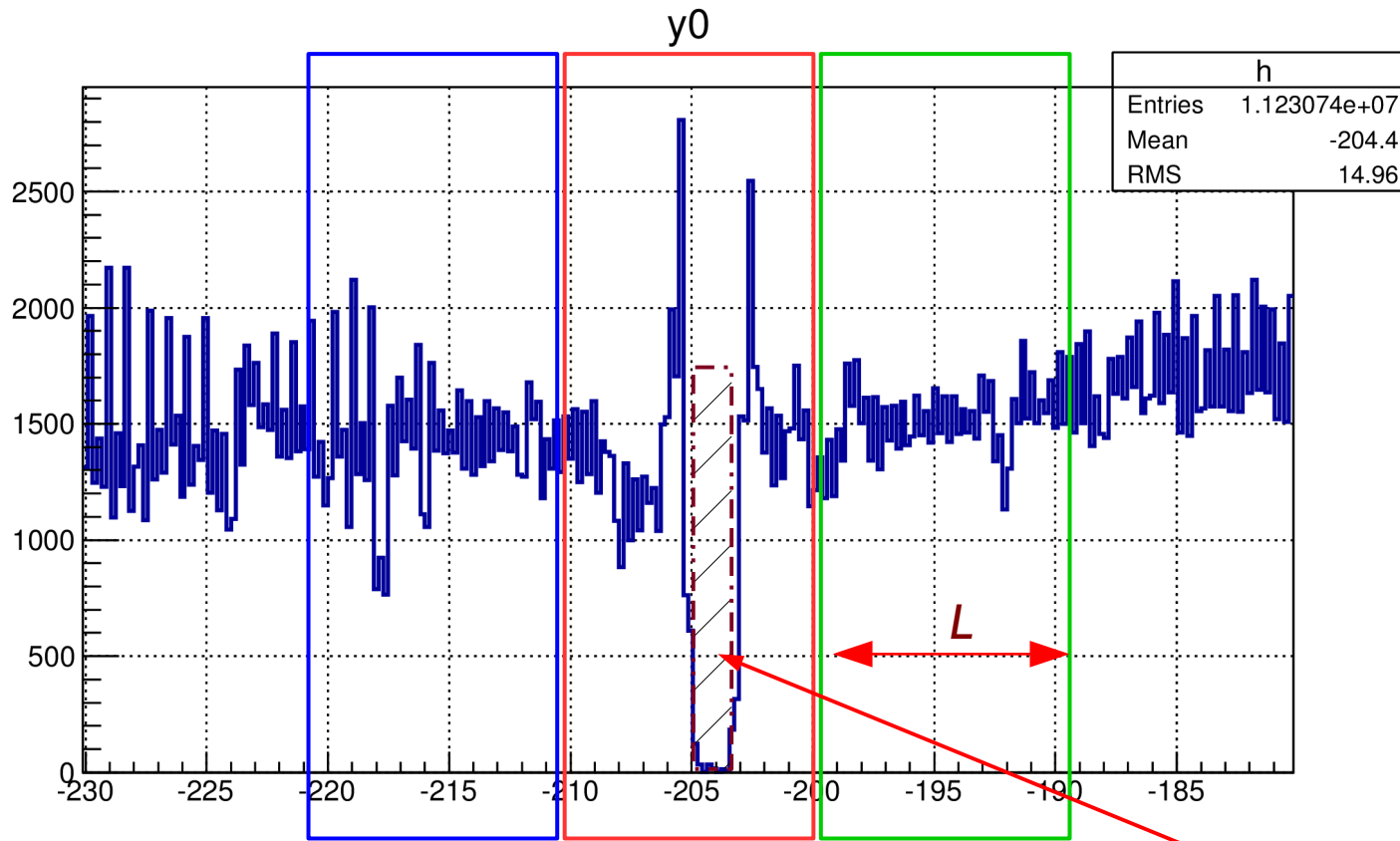
# Count drops



# X side cluster distribution



# Correction of the efficiency drop from spacer – Y direction



Effective/average width

Cluster entry integral:

$$I_{left} = 76866$$

$$I_{middle} = 62085$$

$$I_{right} = 80819$$

$$\epsilon_{drop} = 1 - \frac{I_{middle}}{(I_{left} + I_{right})/2} = 21.25\%$$

$$\langle width \rangle = L \cdot \epsilon_{drop}$$