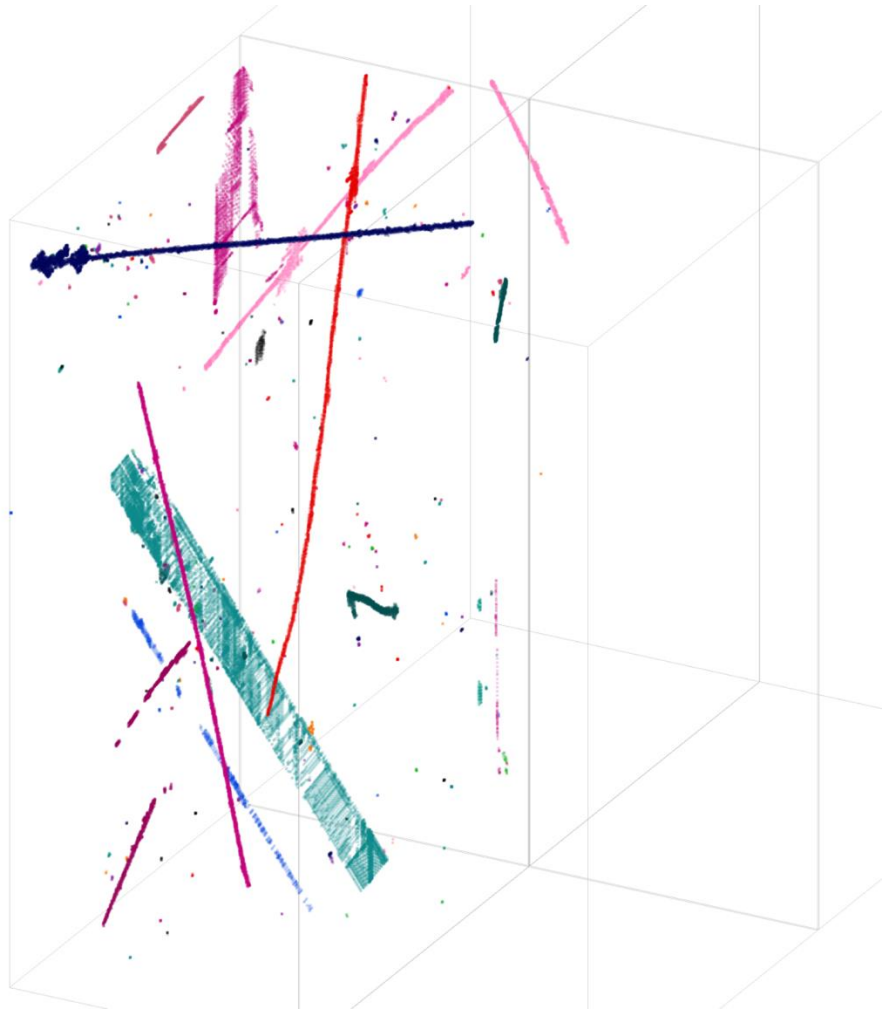# Update for imaging validation
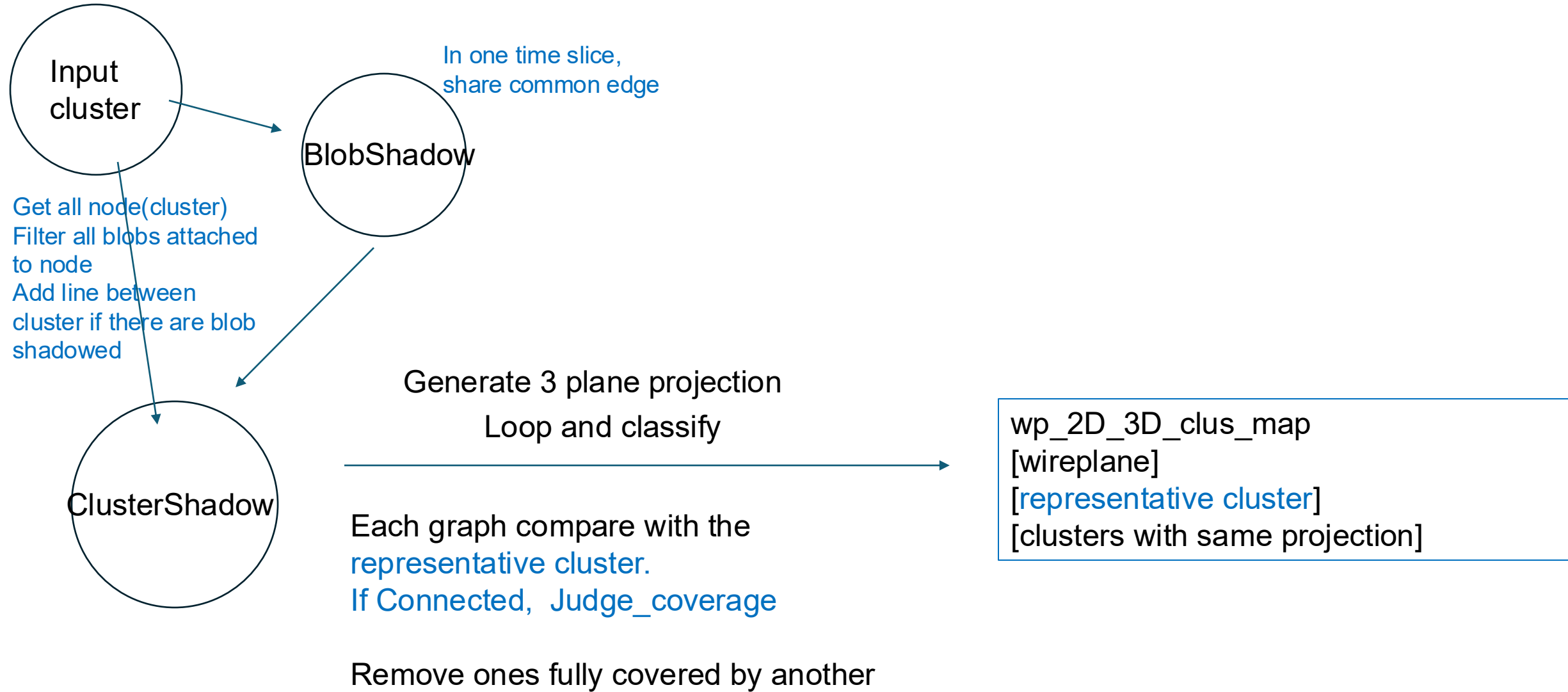
Xuyang Ning

Ghost track

https://www.phy.bnl.gov/twister/bee/set/3ecc292e-5cac-49db-85fc-24bce5851e4d/event/0/

Check ProjectionDeghosting

Input cluster

BlobShadow

In one time slice,
share common edge

Get all node(cluster)
Filter all blobs attached
to node
Add line between
cluster if there are blob
shadowed

ClusterShadow

Generate 3 plane projection

Loop and classify

Each graph compare with the
representative cluster.
If Connected, Judge_coverage

Remove ones fully covered by another

wp_2D_3D_clus_map
[wireplane]
[representative cluster]
[clusters with same projection]

wp_2D_3D_clus_map
[wireplane]
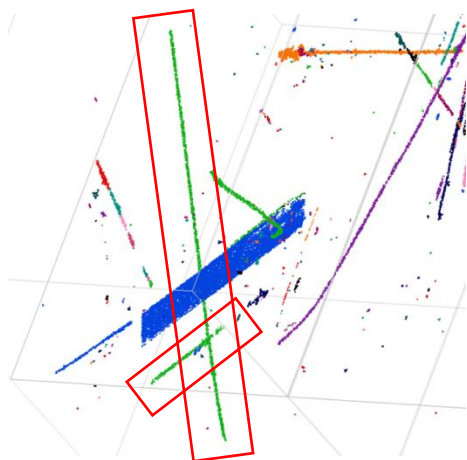[representative cluster]
[clusters with same projection]

- re-evaluates the "representative" 3D clusters for each 2D view
- judge_coverage_alt
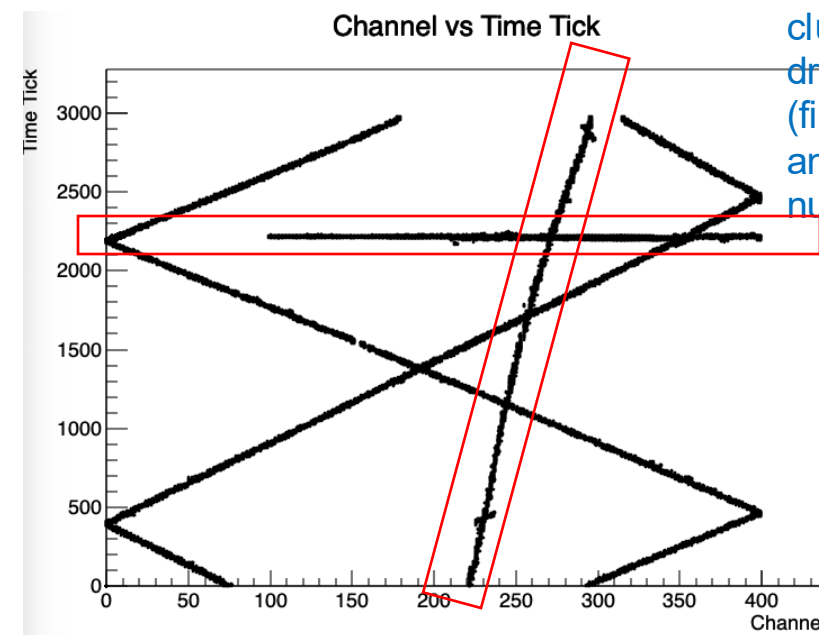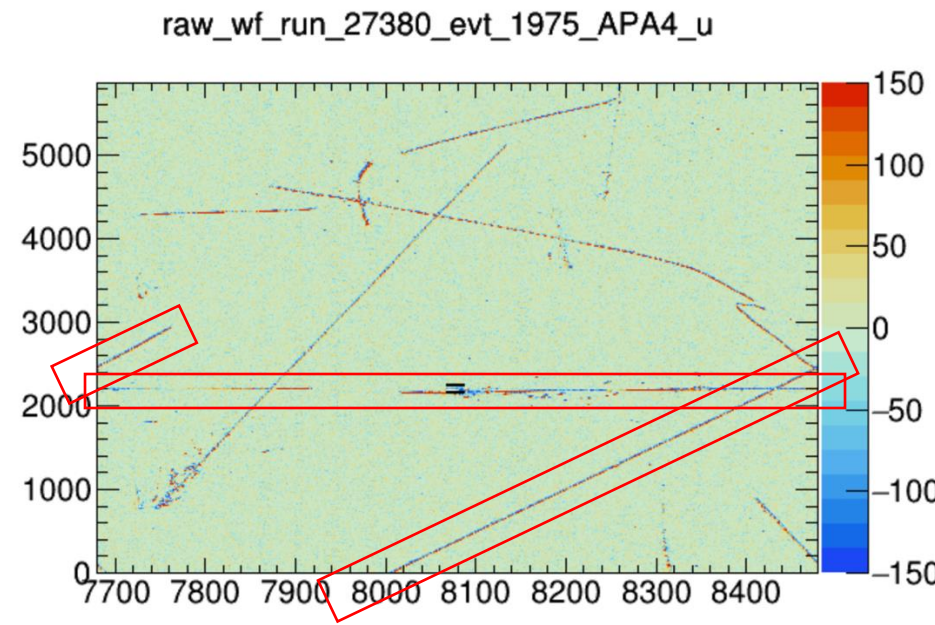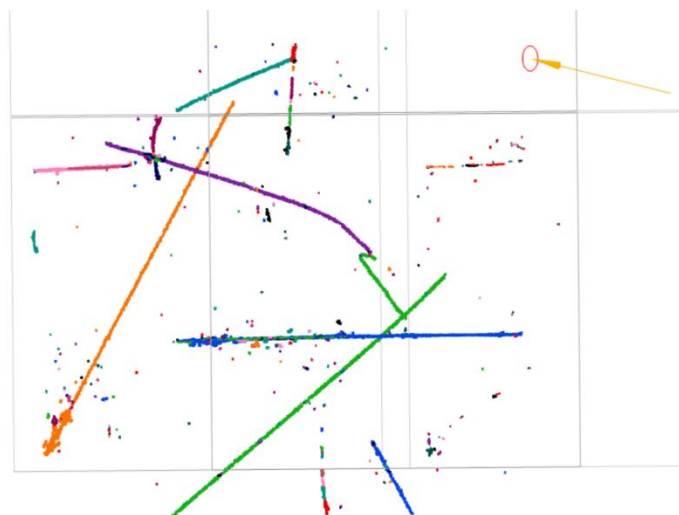- Remove one if two are found covered.

Final decision:
- If a cluster survived in one projection, its m_saved_flag++
- for a cluster whose m_saved_flag is not the max in its group, m_saved_flag_1++
- m_saved_flag - m_saved_flag_1 is used to final decision.
  - Larger means more chance to survive.
  - other detailed selection according to charge, n_time slice…
  - 0 or negative, will be removed

wp_2D_3D_clus_map
[wireplane]
[representative cluster]
[clusters with same projection]
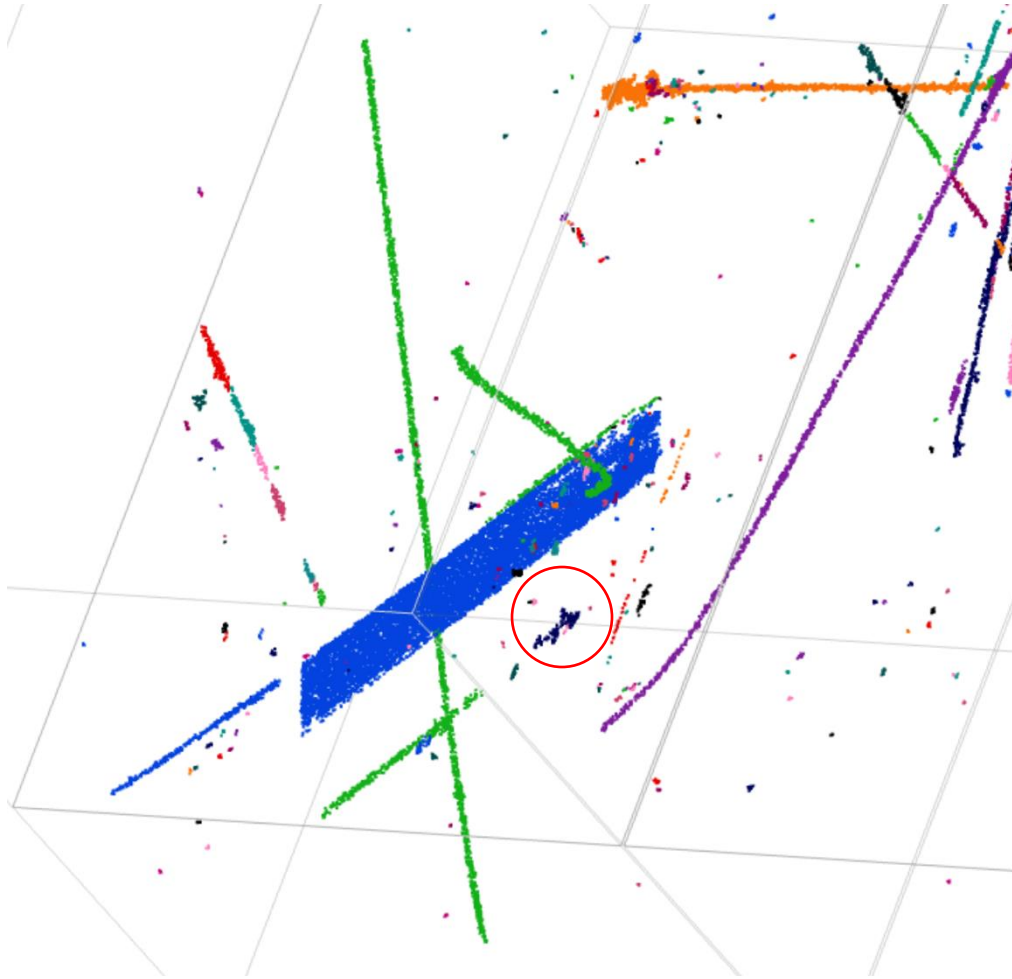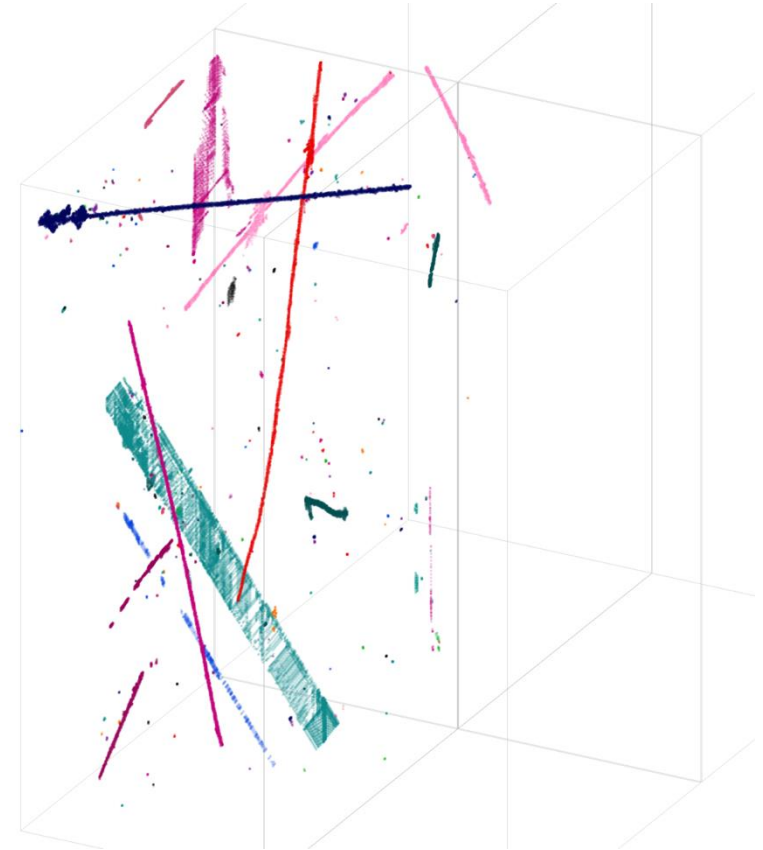
Select the target cluster
according to time slices

raw_wf_run_27380_evt_1975_APA4_u

U plane view

Print that
cluster out
draw all its blob
(first time tick
and channel
number)

Channel vs Time Tick
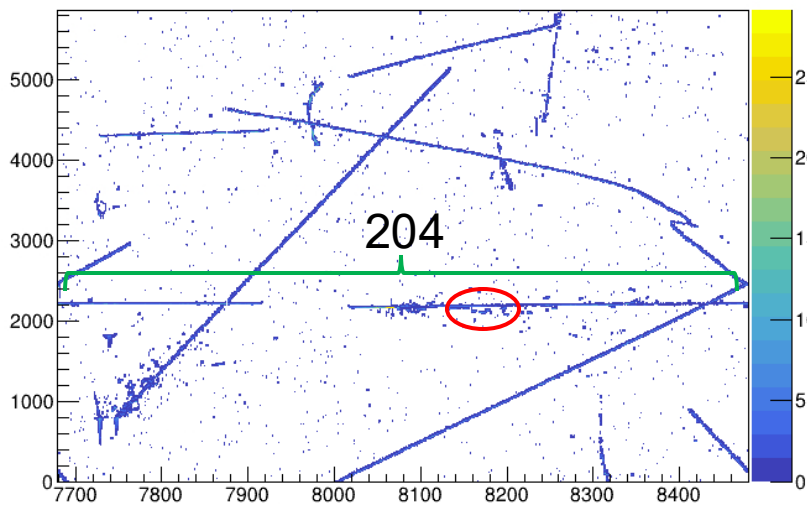
Imaging result, no 3D clustering
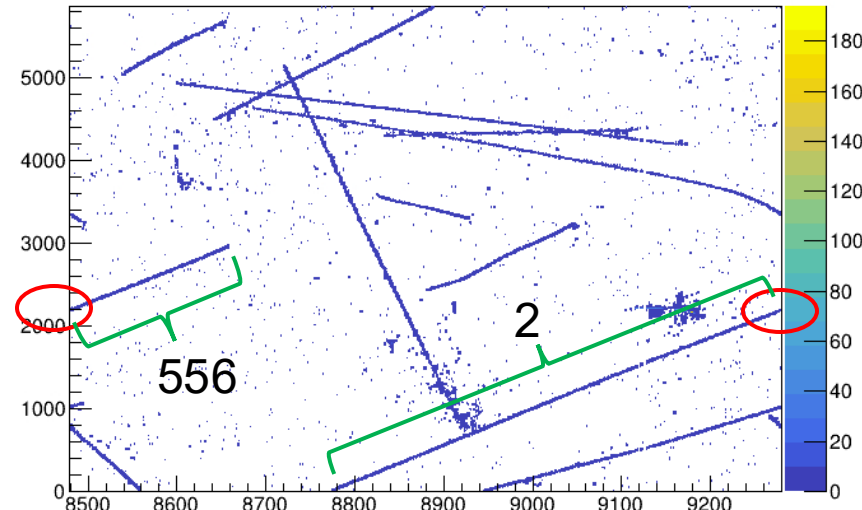
Check another ghost

imaging

3D clustering

ID tracks

- In imaging, we have 2 rounds of charge solving and projection deghosting.
- Check in second round deghosting process:
- In representative cluster:
  - Find ghost ID: (245)
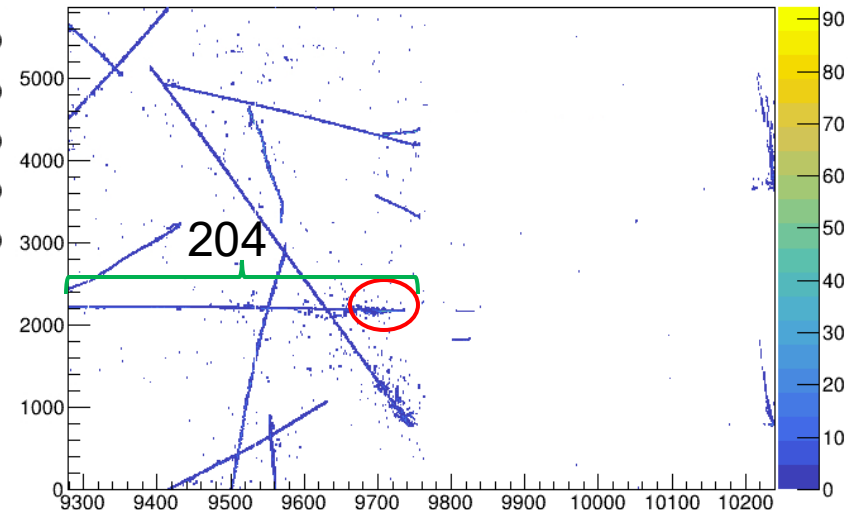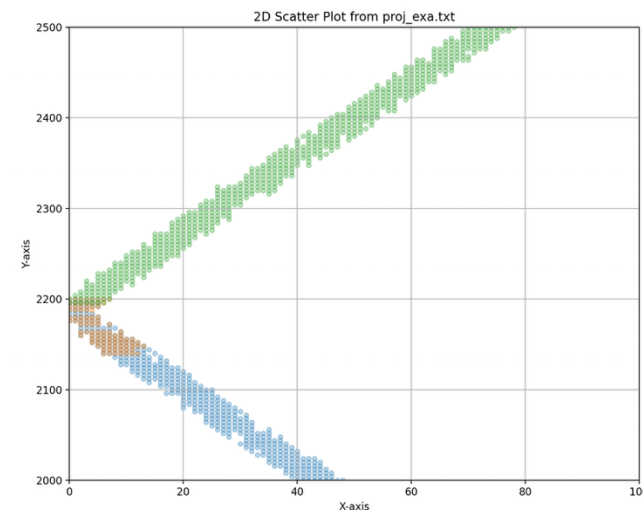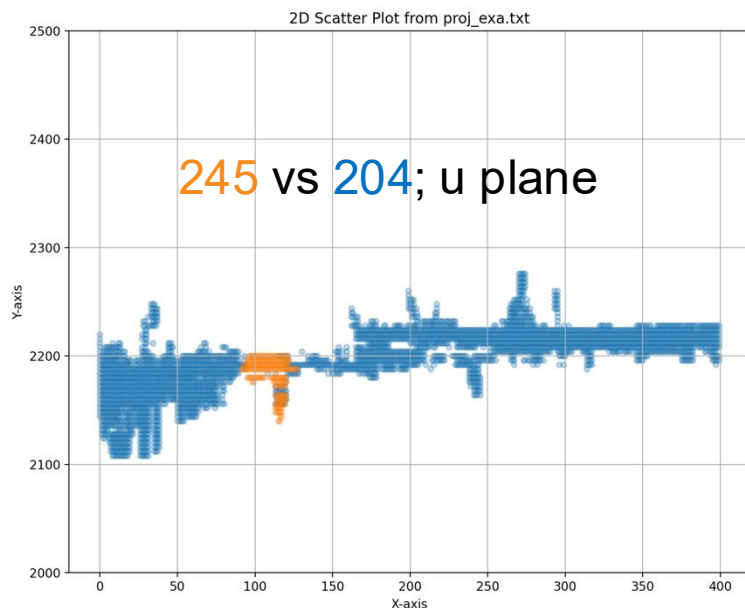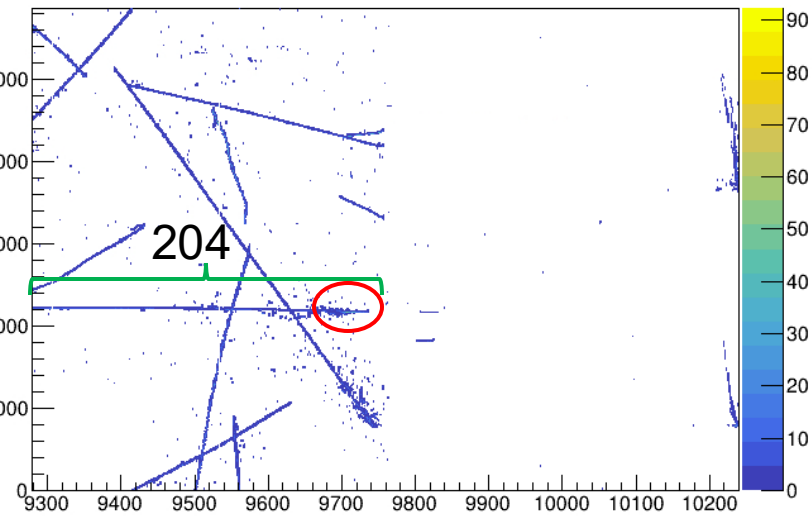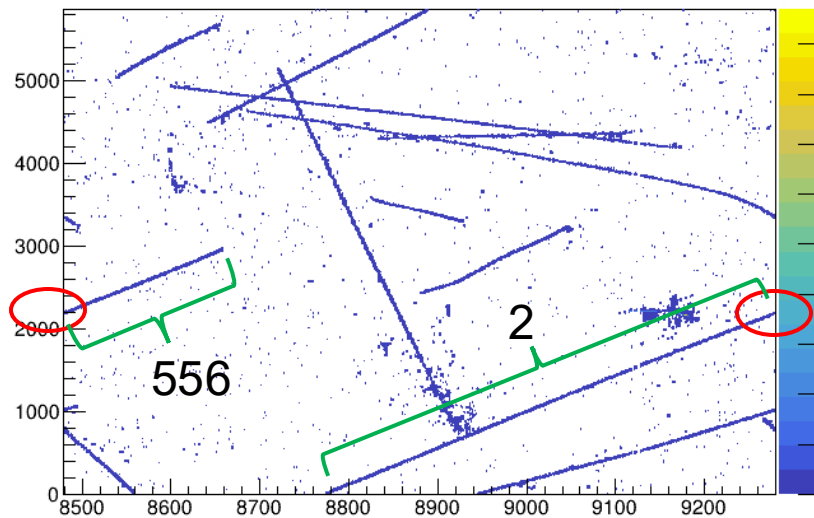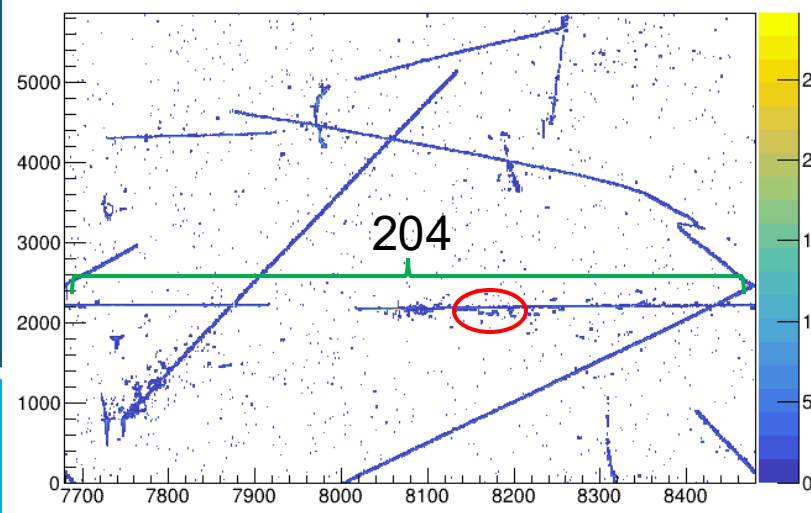 - Find possible relevant clusters: 2, 204, 556

Projection check

- Ghost ID: 245
- Possible relevant clusters: 2, 556, 204
- ID 245 is a representative in U and V, in W it is covered by 204

245 vs 204; u plane

245 vs 2 vs 556; v plane

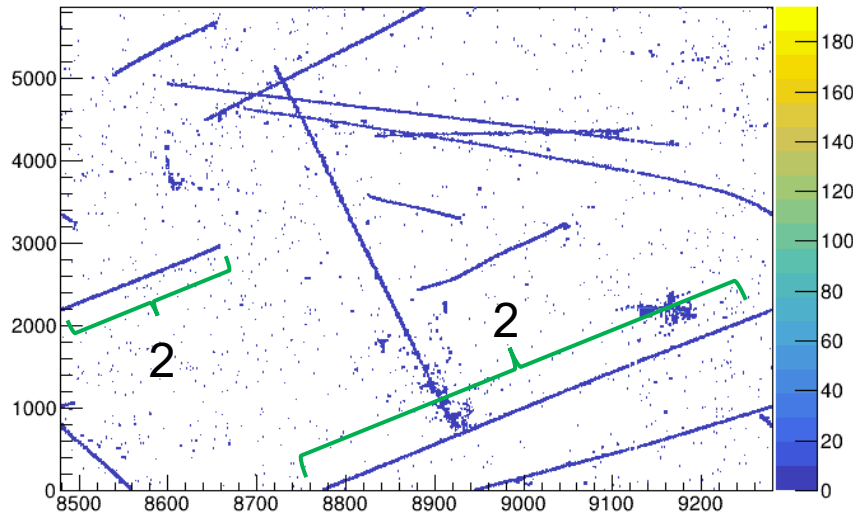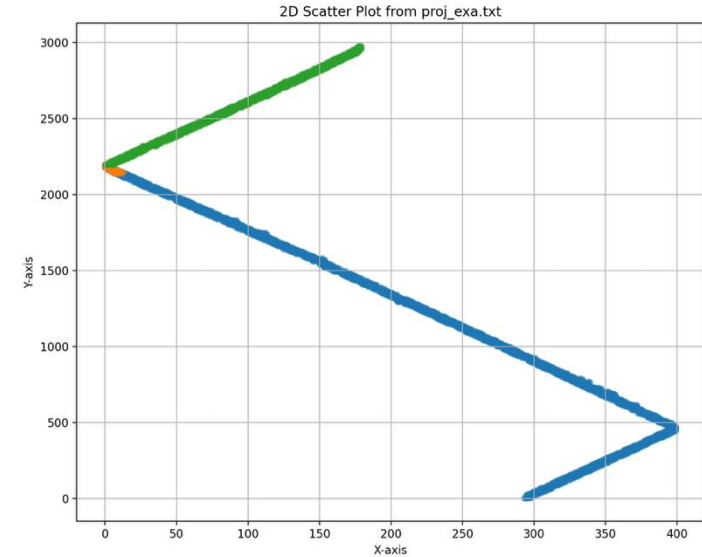final saved flag: 2 - 0
saved: 1

204

556

2

204

About two rounds projection deghosting:

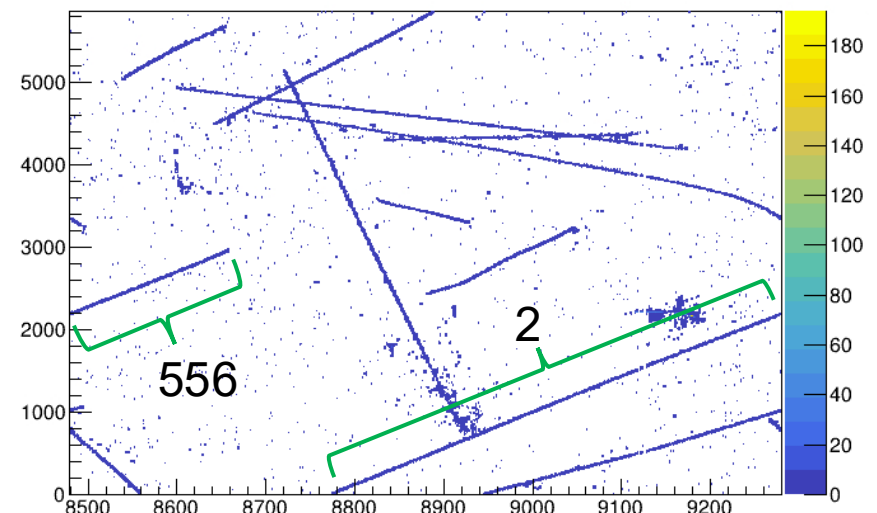In first round, this track is grouped as a whole,

In second round, this track is separated.

This separation help the ghost track survive.
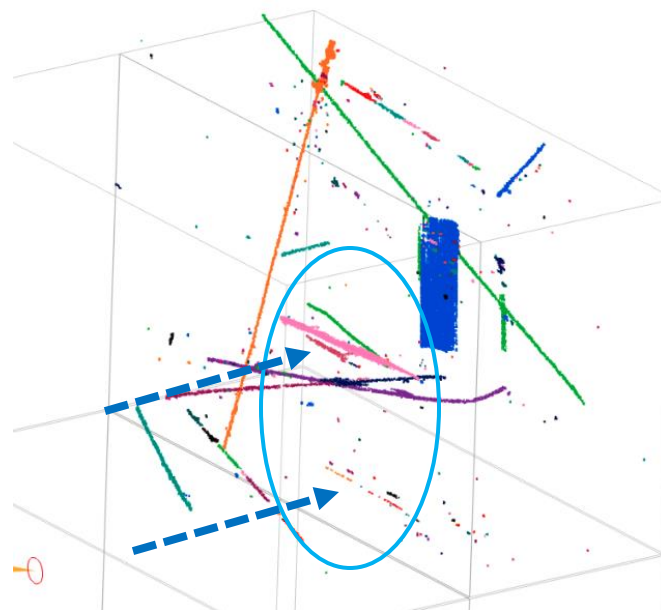

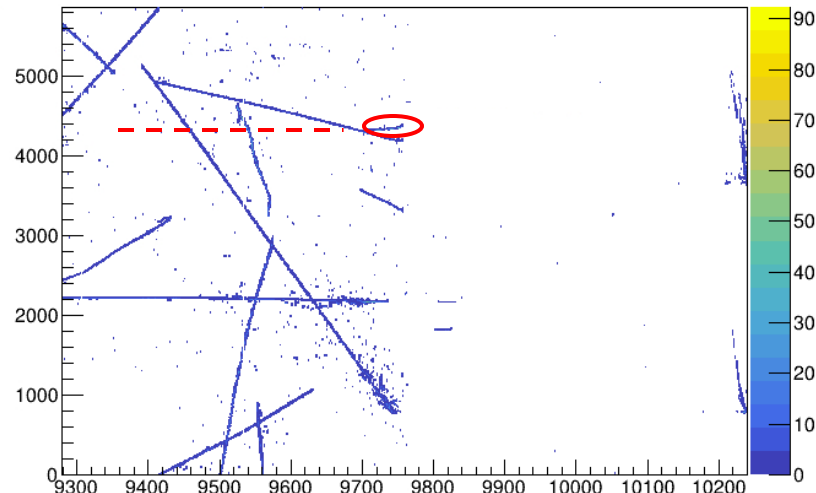2D Scatter Plot from proj_exa.txt

First round

Second round

Thoughts about ghost track
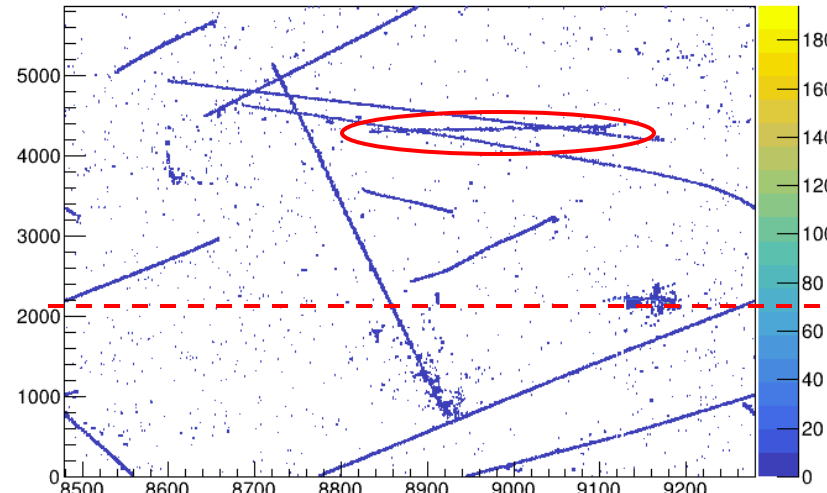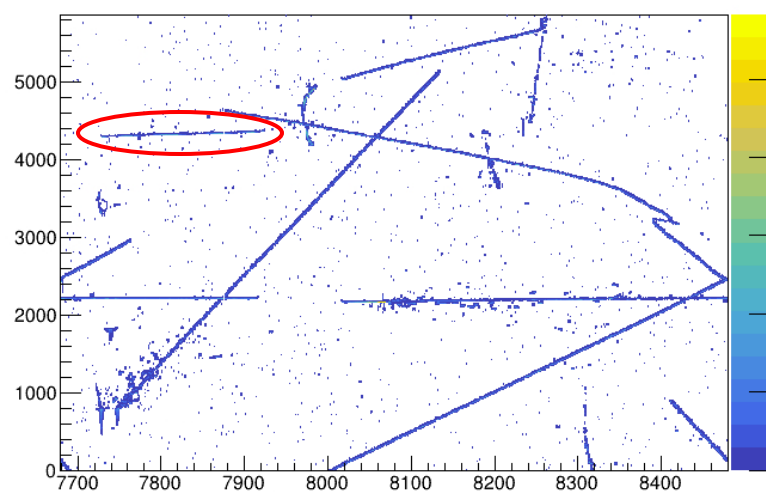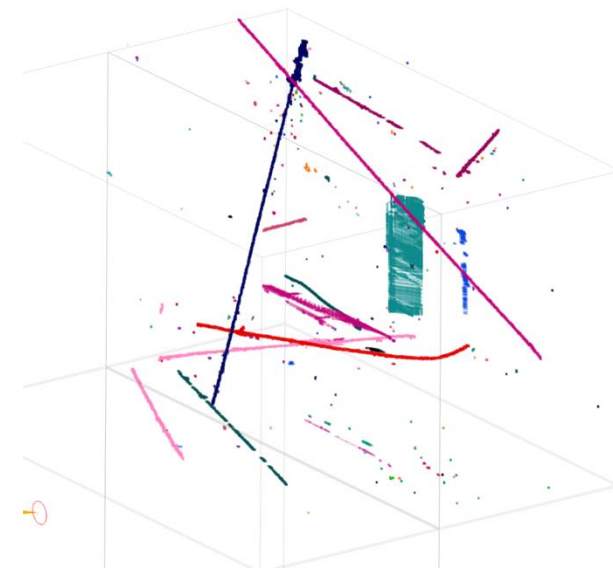
- These ghost tracks happen together with long isochronous tracks.

- Some passing points in one plane may be solved together with the isochronous tracks in other planes.

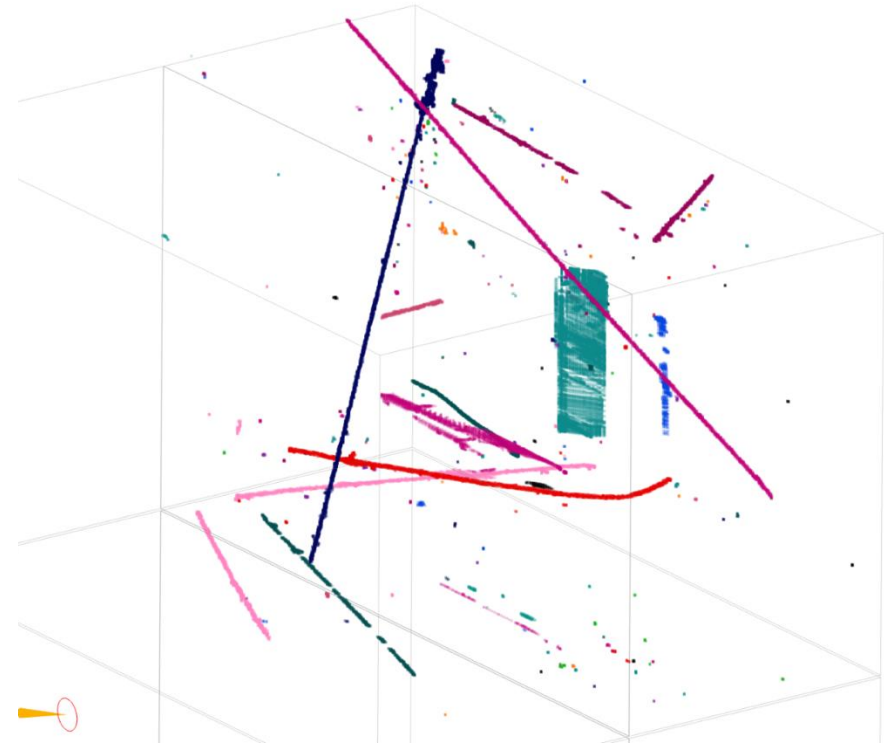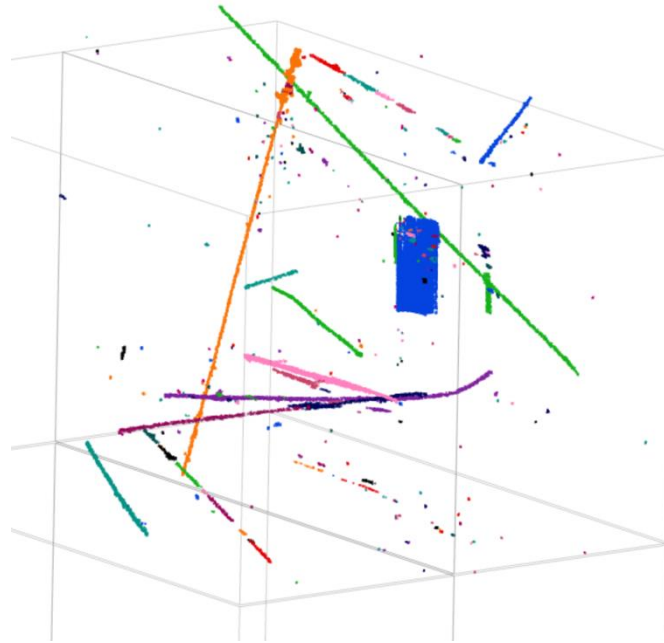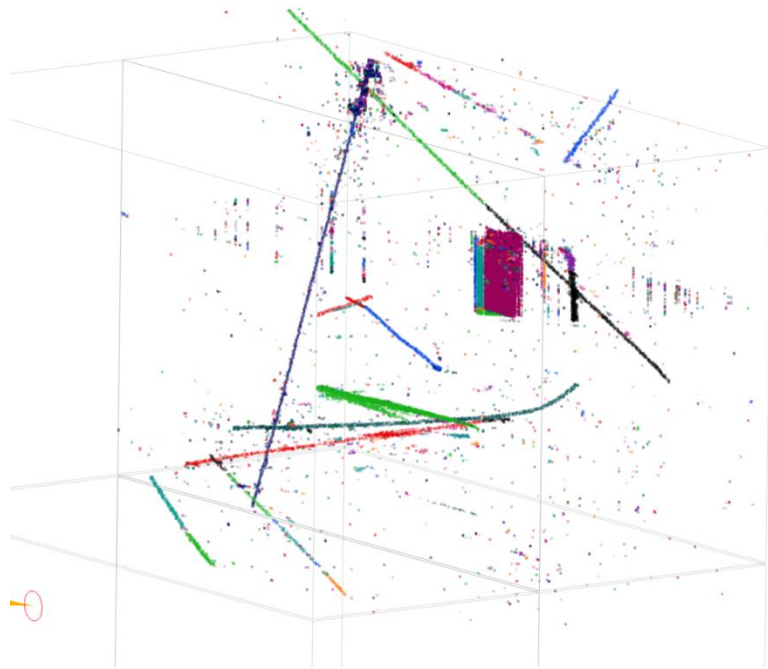- Then some coincidence might happen then the ghost track survive.

imaging

3D clustering

backup

blobGrouping
Imaging
clustering