Cracow's activities in the IFR
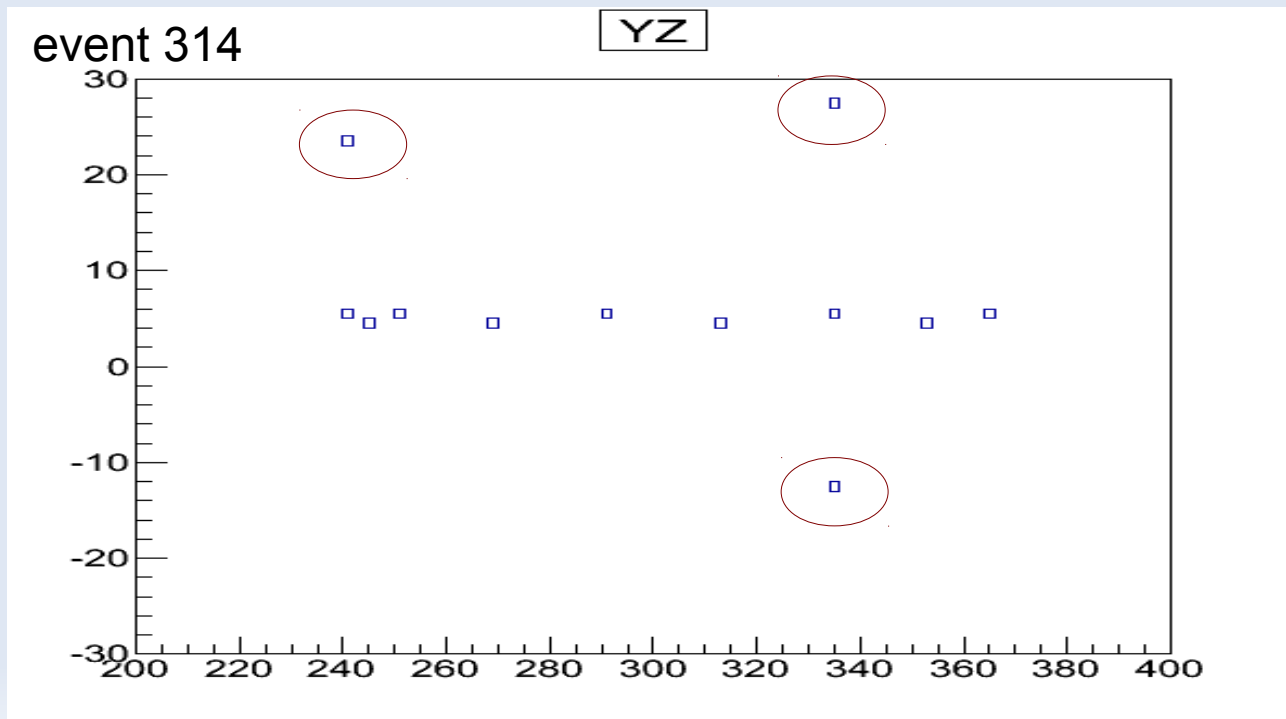

Jarosław Wiechczyński
8.09.2012

Clusterizer (Jarek Wiechczyński)

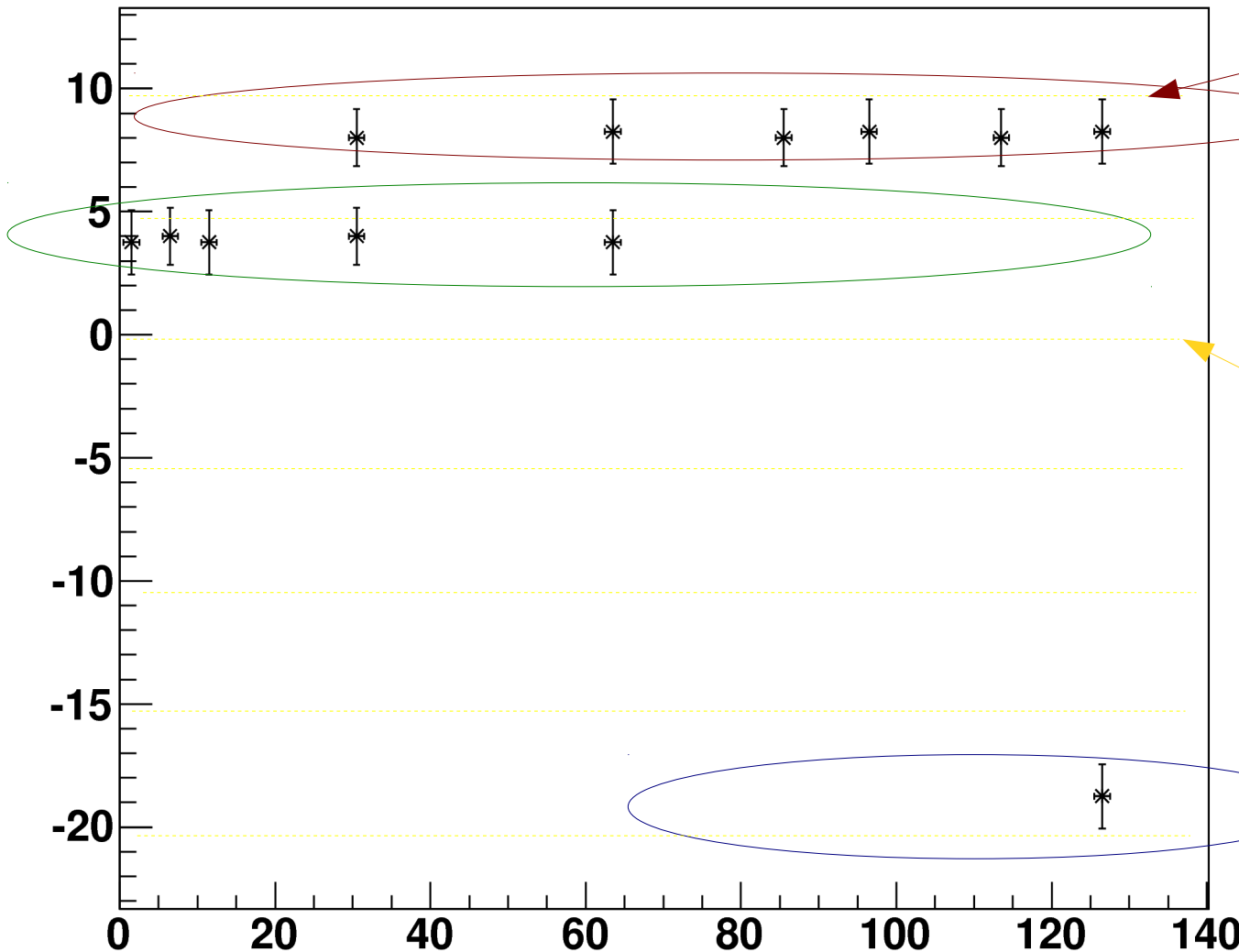Current version prepared for the purpose of the prototype data analysis to work with muon-like events

Used for removing possible background hits - recognizing the good muon track for the further fitting

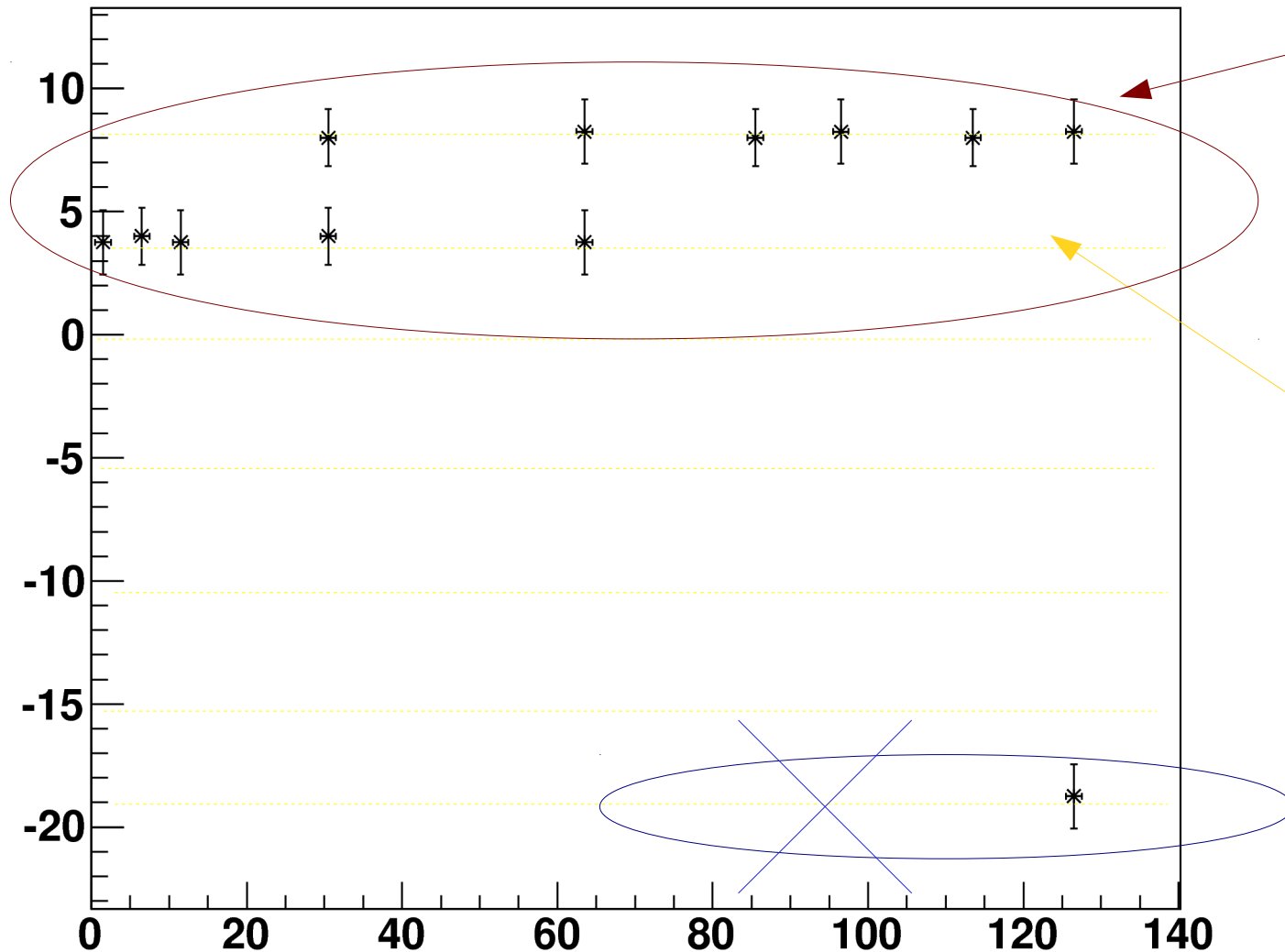Working on 1dim clusters (IFR3DCluster)
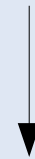
Clustering YZ plane

Clustering YZ plane
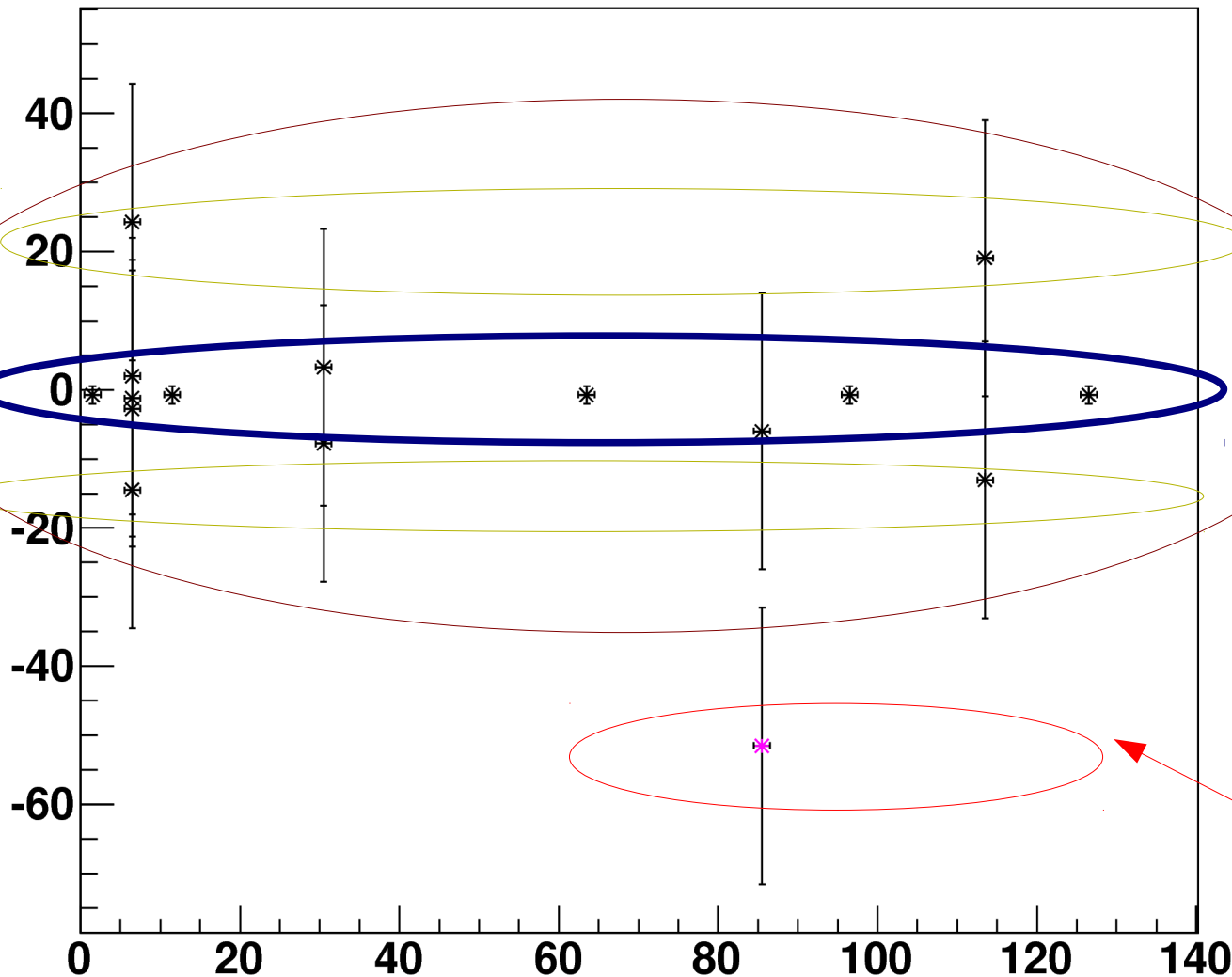
Clustering XZ plane

9: XZ
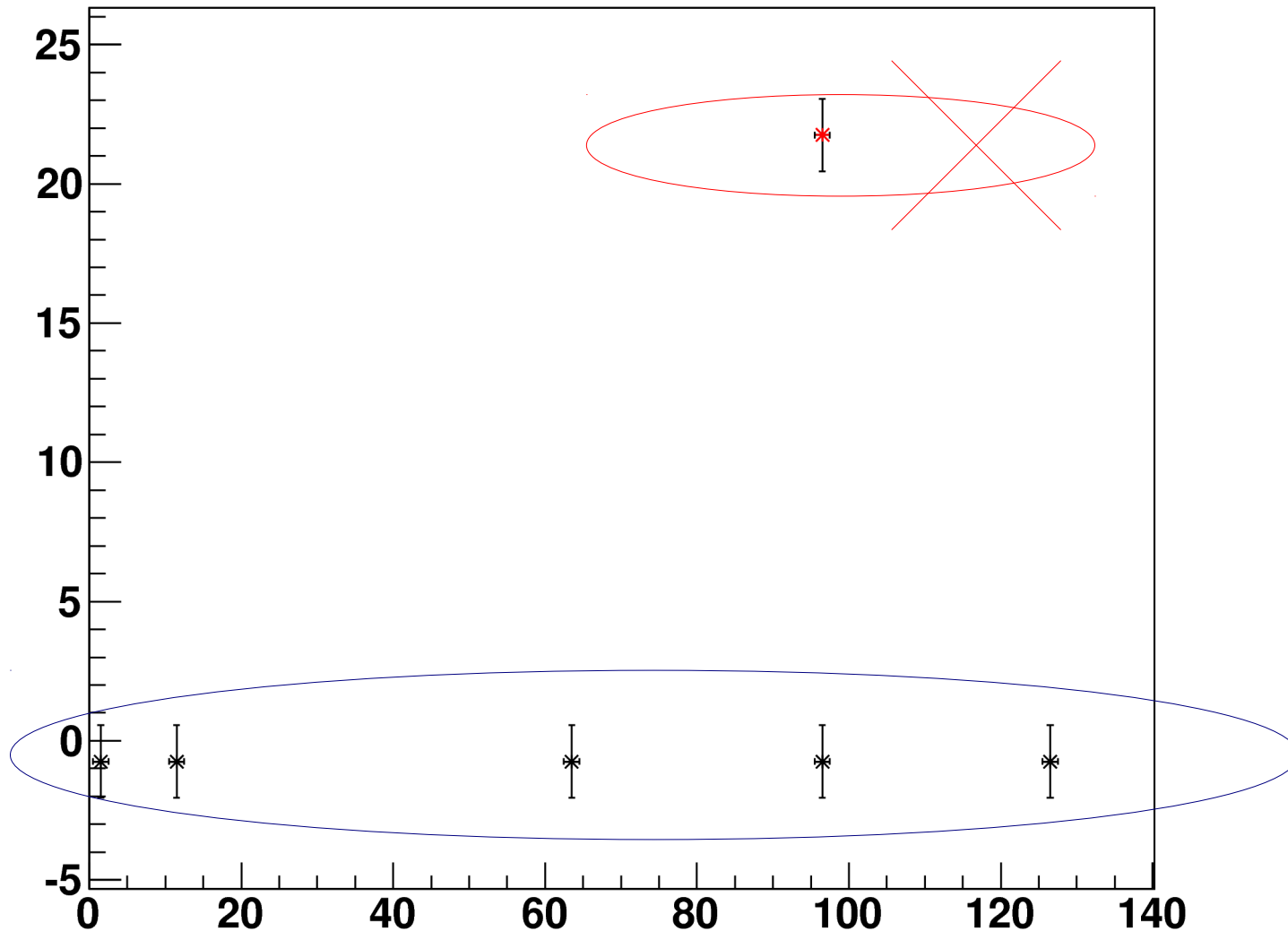
1st step:

Rejecting only BiRO bckg points

↓

Choosing the reliable BiRO track
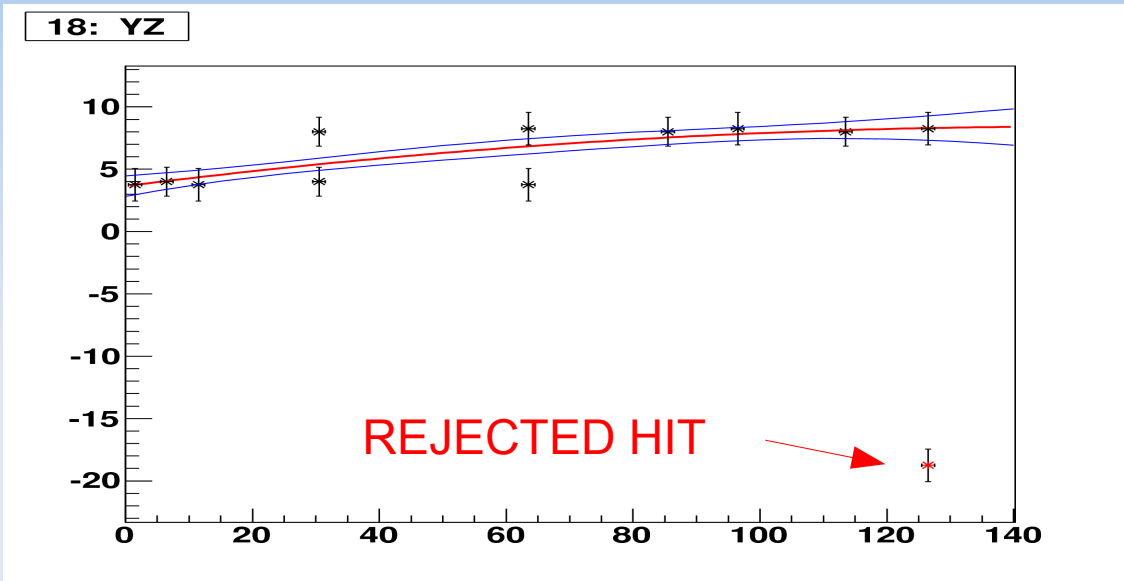
Clustering XZ plane

2nd step:

Including
TDC hits

adjacent clusters:
d < 20 cm
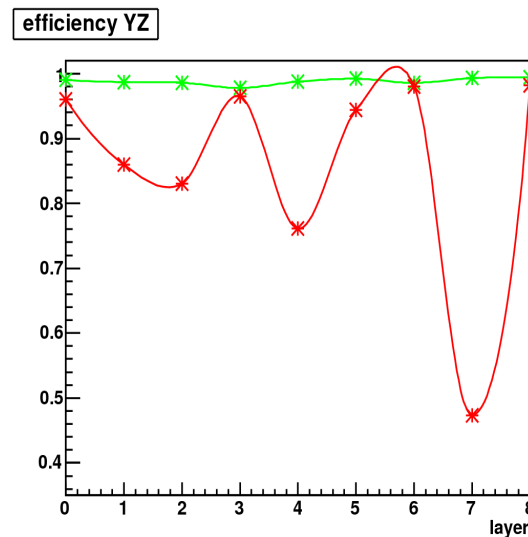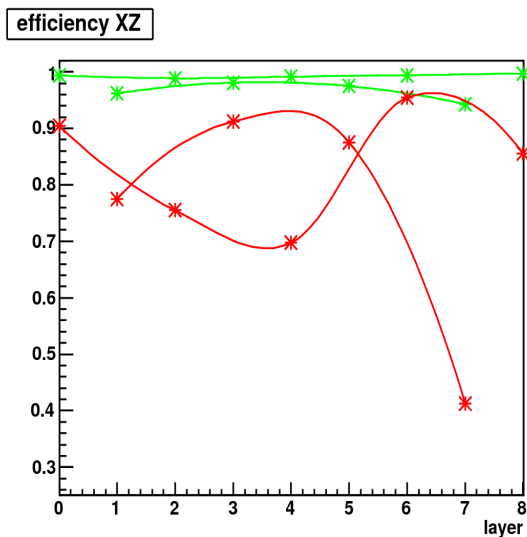→ **merged**

Initial centroids –
every 20 cm

REJECTED

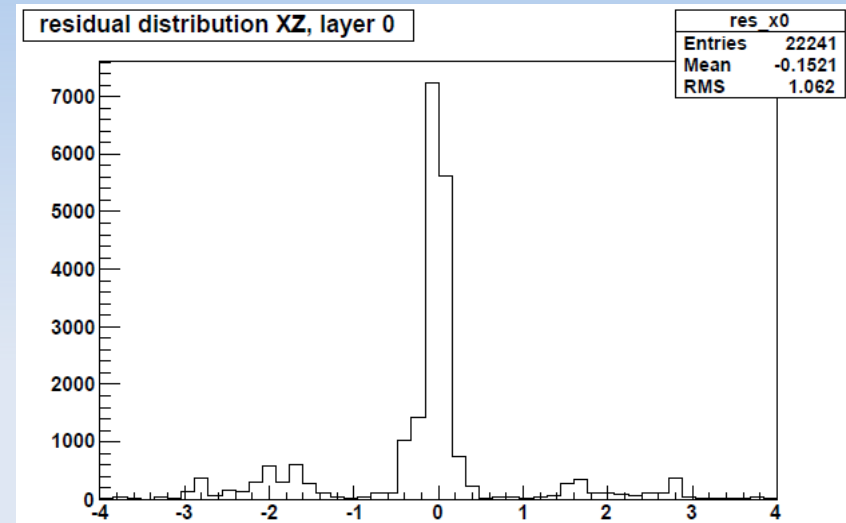# Fit, efficiency, residuals

- **Fit to the obtained muon track:**

REJECTED HIT

- **efficiency evaluation**

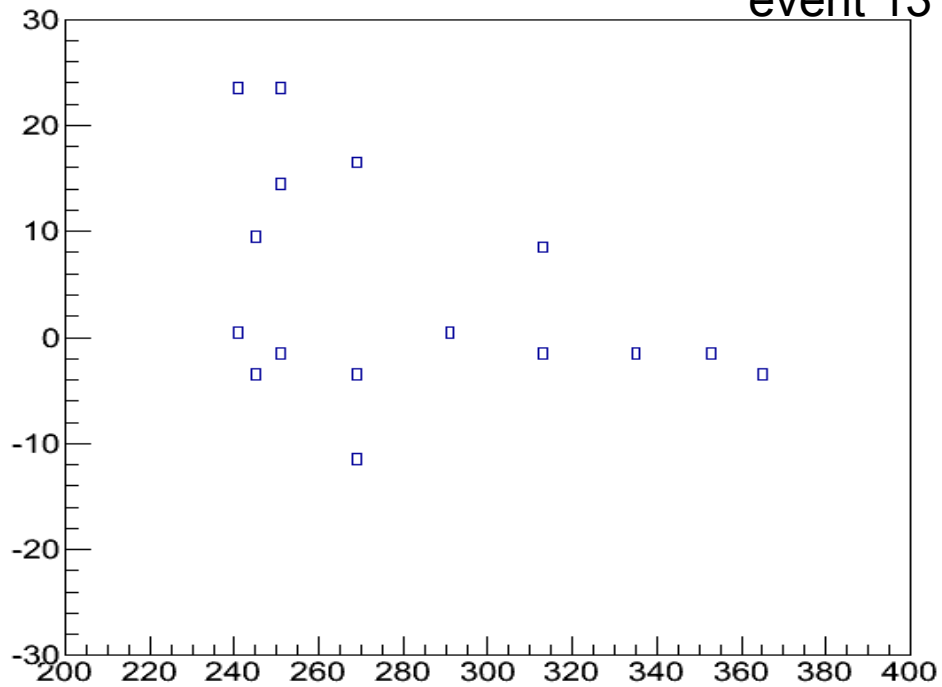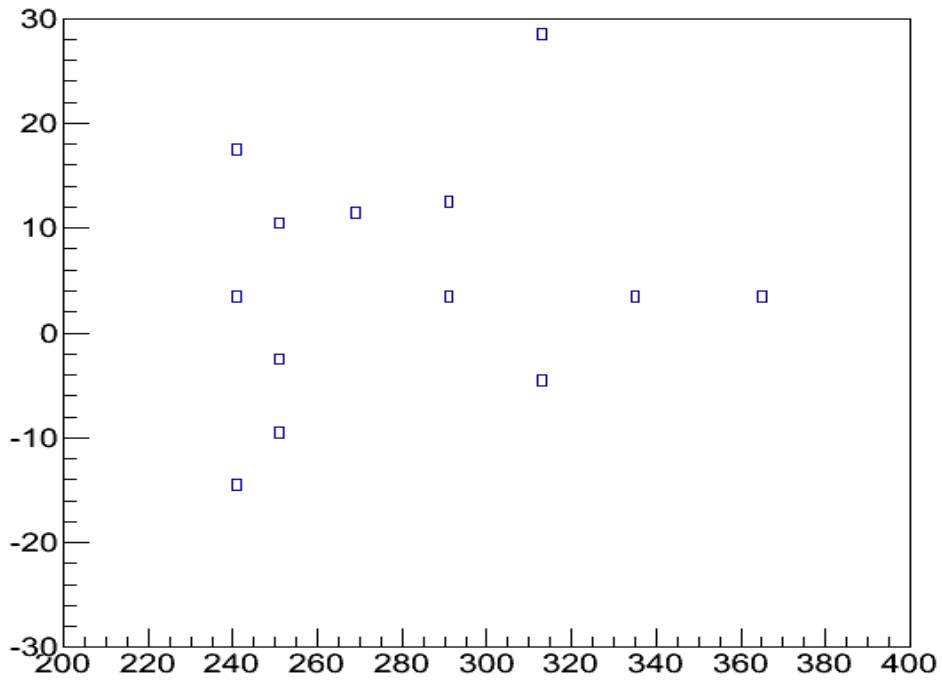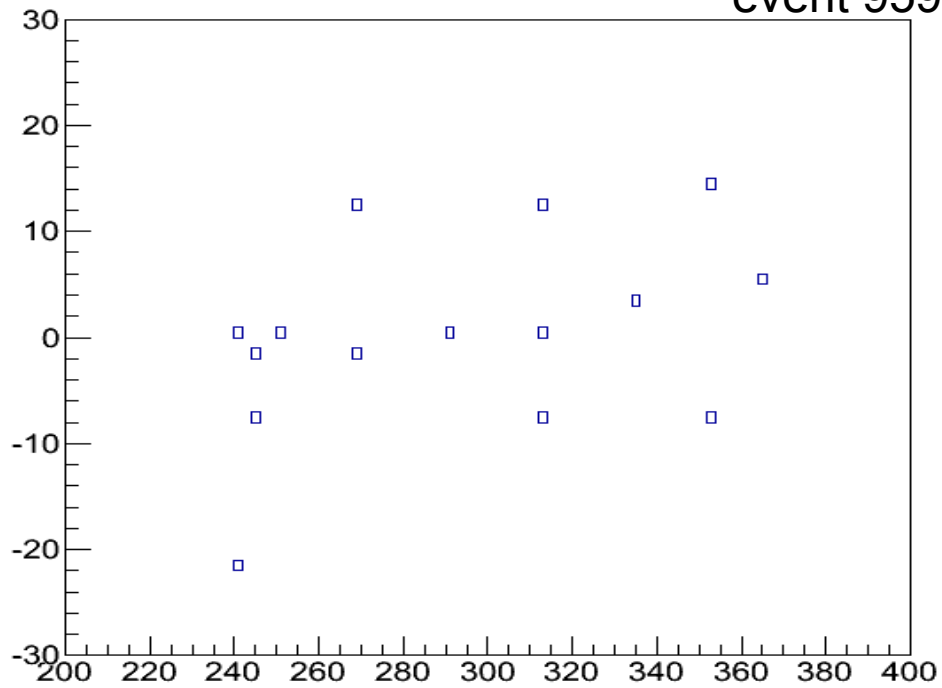
- **Example of residual distribution**
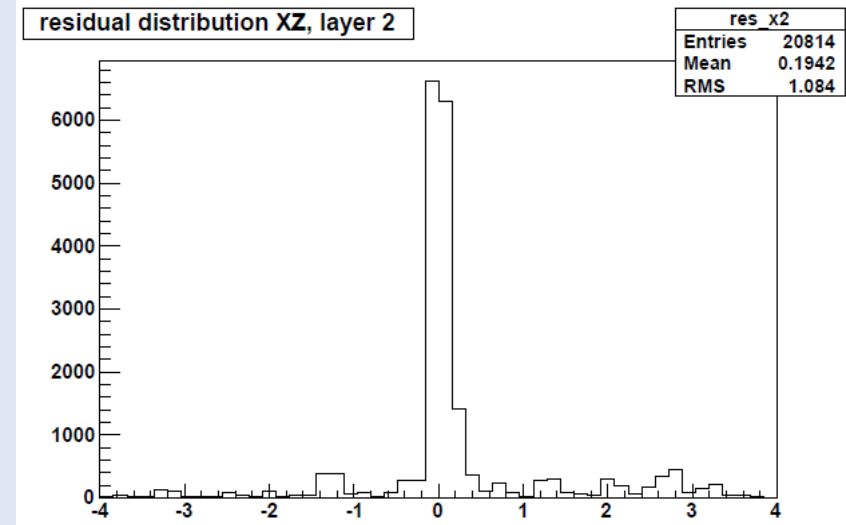
event 131
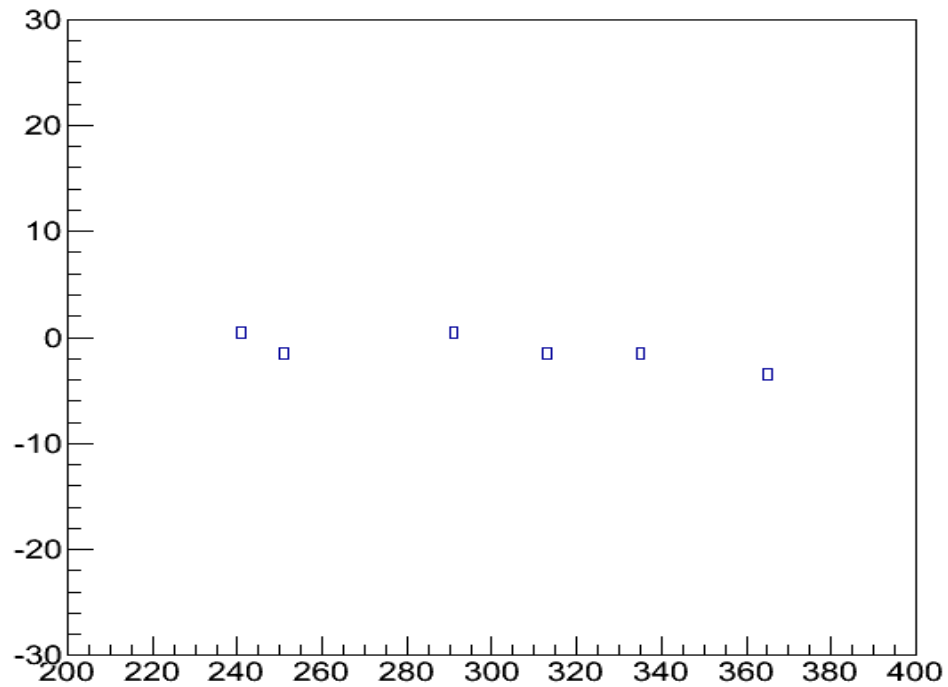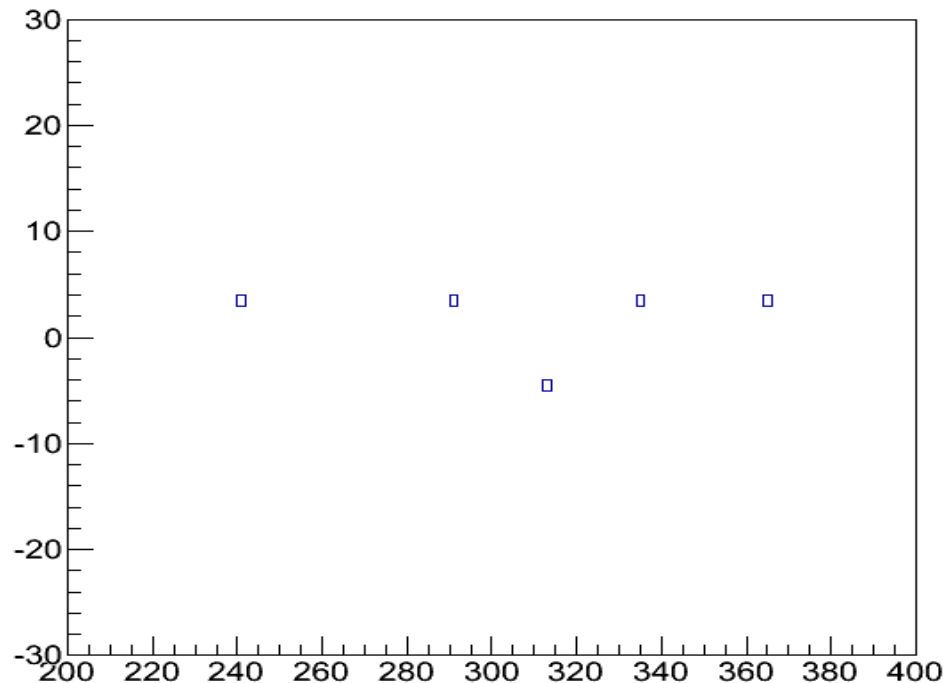
clustering
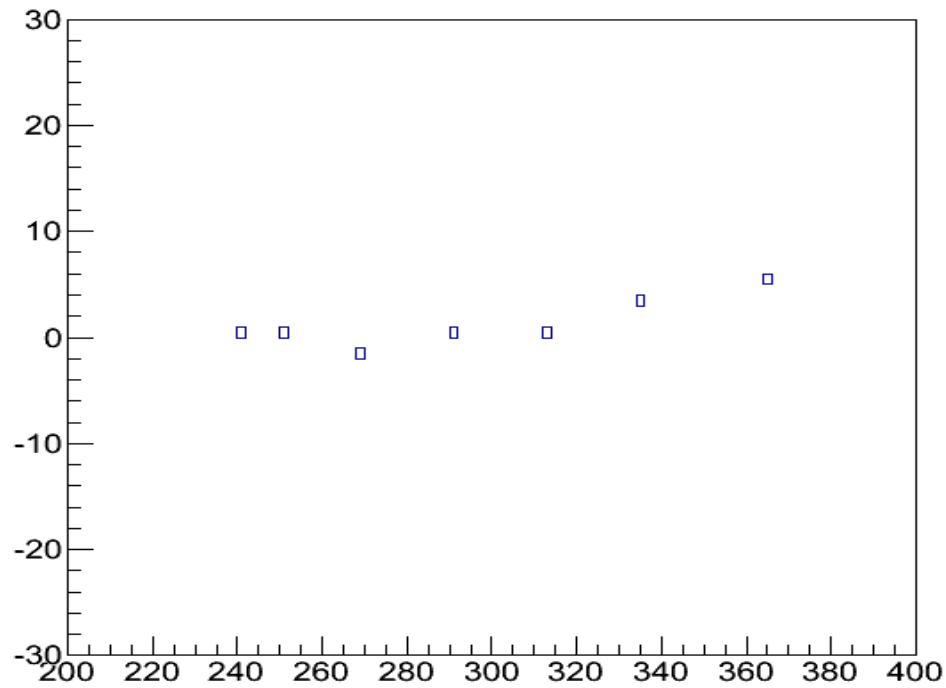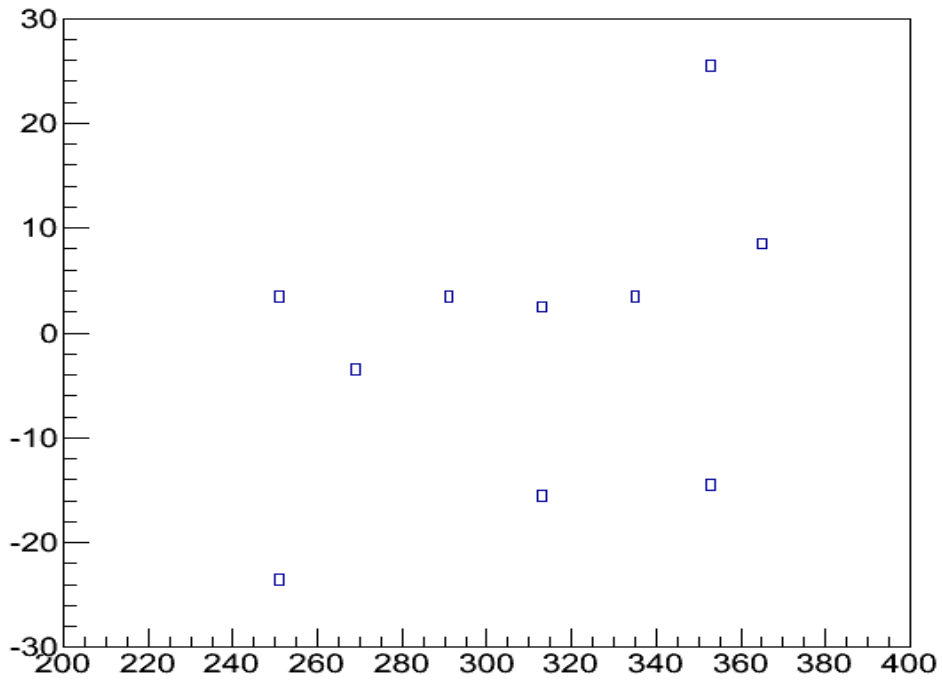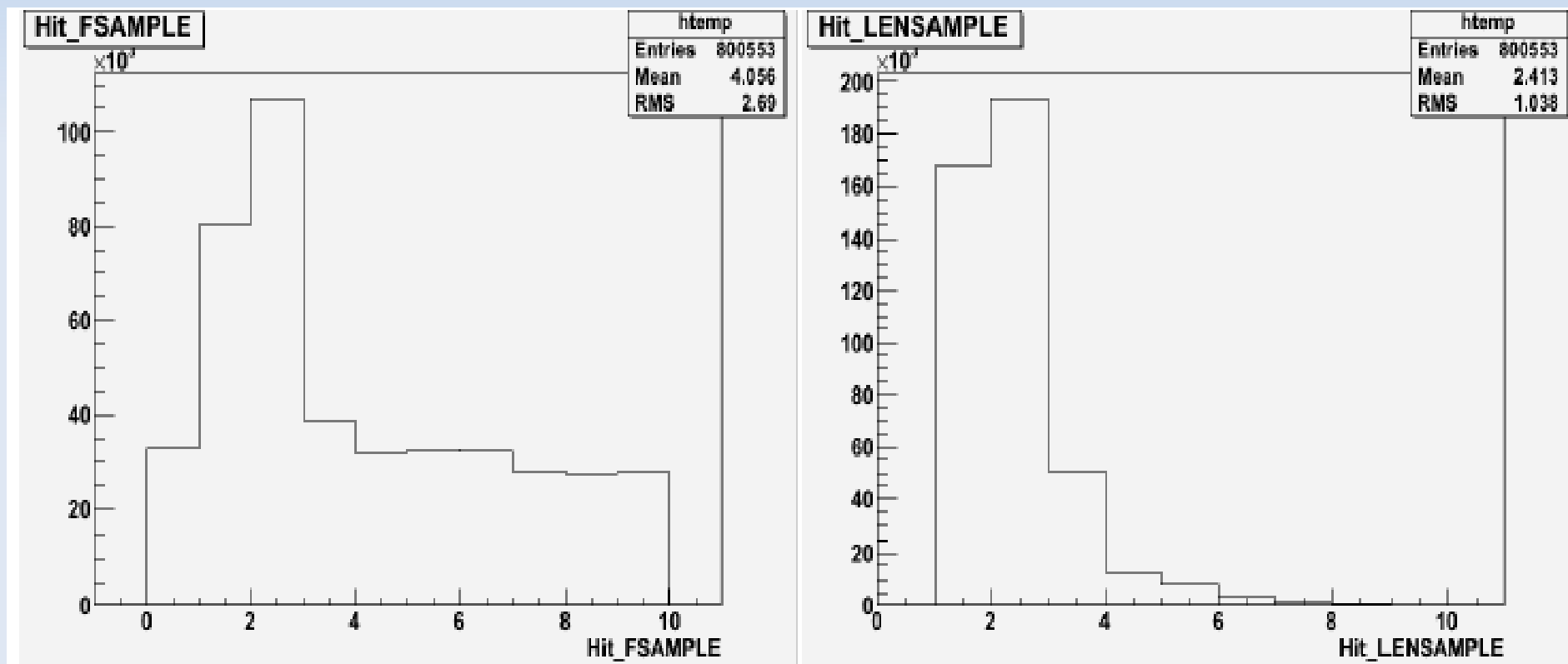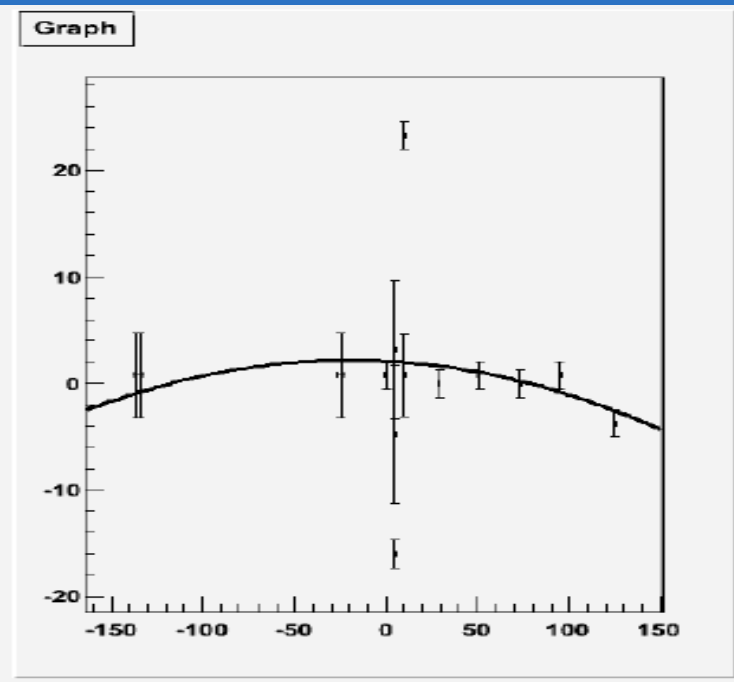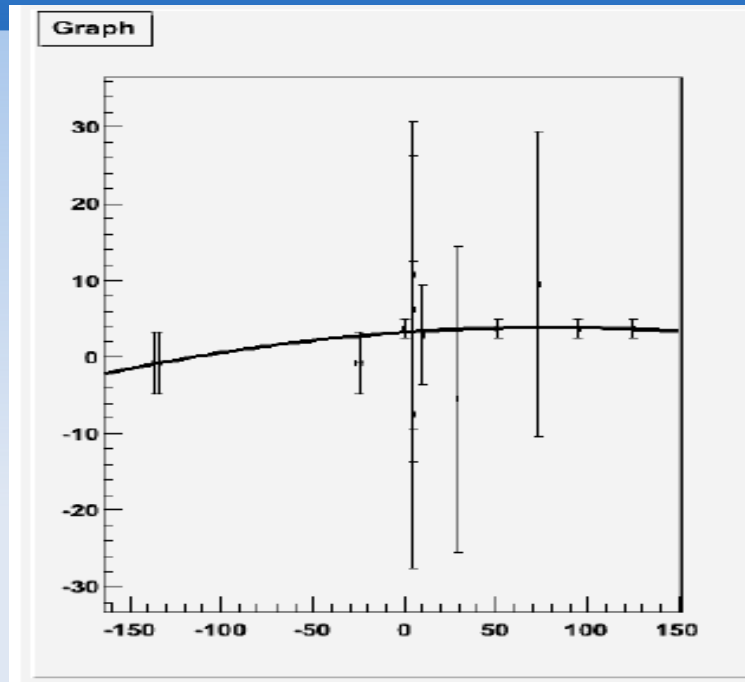
event 959

clustering
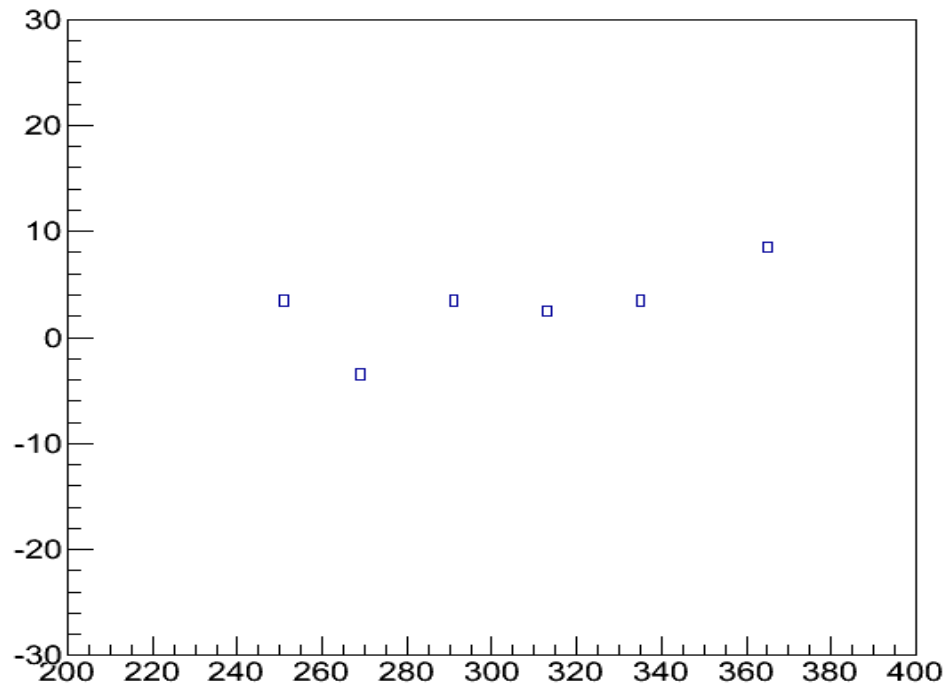
Desampler (Marcin Chrząszcz)

BIRO takes measurements 10 times.
Ex. 0011001110 – counted as two separate hits occured at 2 and 6
(Hit_FSAMPLE variable) and lasted for 2 and 3 measurements
(Hit_LENSAMPLE variable)

Valuable for recognizing pion contamination

FIT and additional information to the ntuple

- **Fitter:**

  - new branch in ntuple file with

    variables

  - fitted parameters with error,

    separately for the xz and yz view

  - chi2 of the fit on xz and yz view
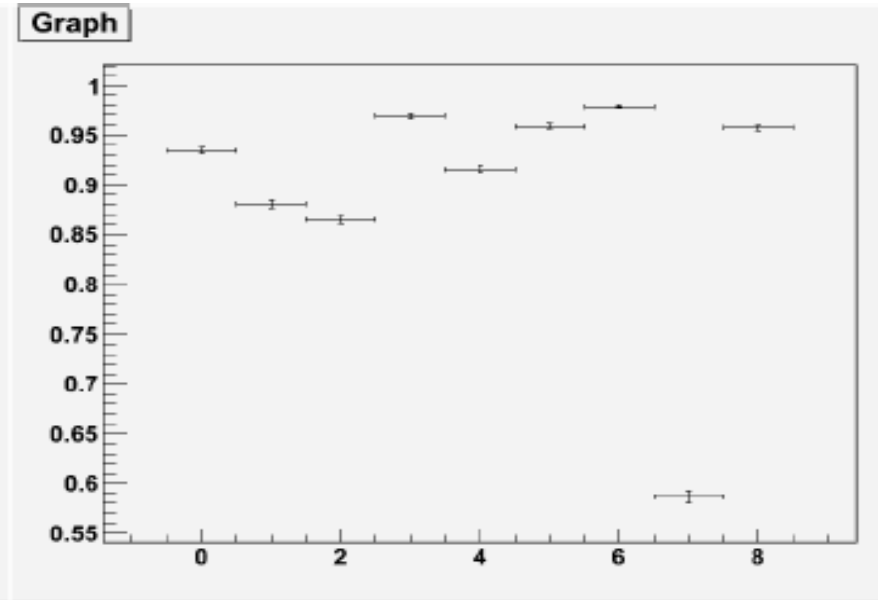
  - chi2 of the hits

global track informations:

- last activated layer

- first activated layer

- number of active layers

- continuity: (number of active layers)/(last)

- number of clusters

- total numbers of hits

Efficiency variation from run to run

RUN 475
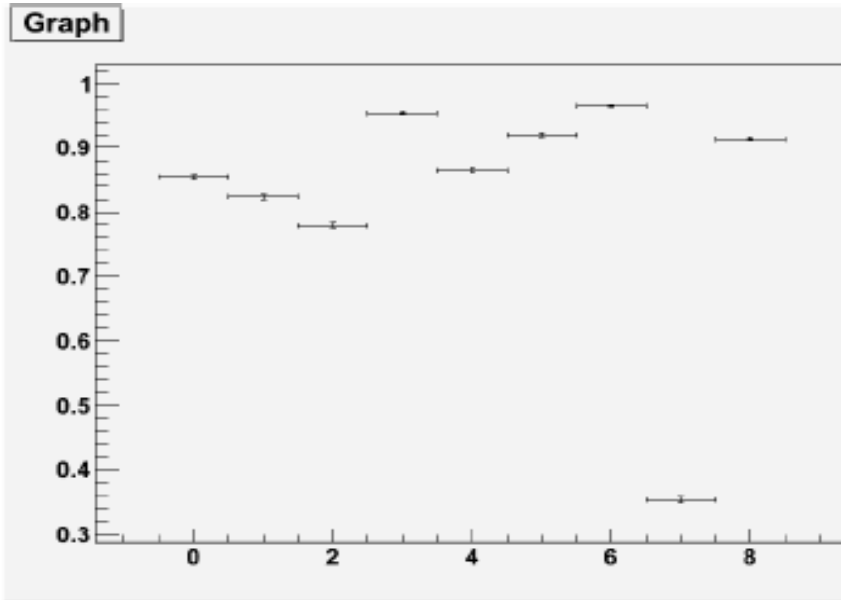
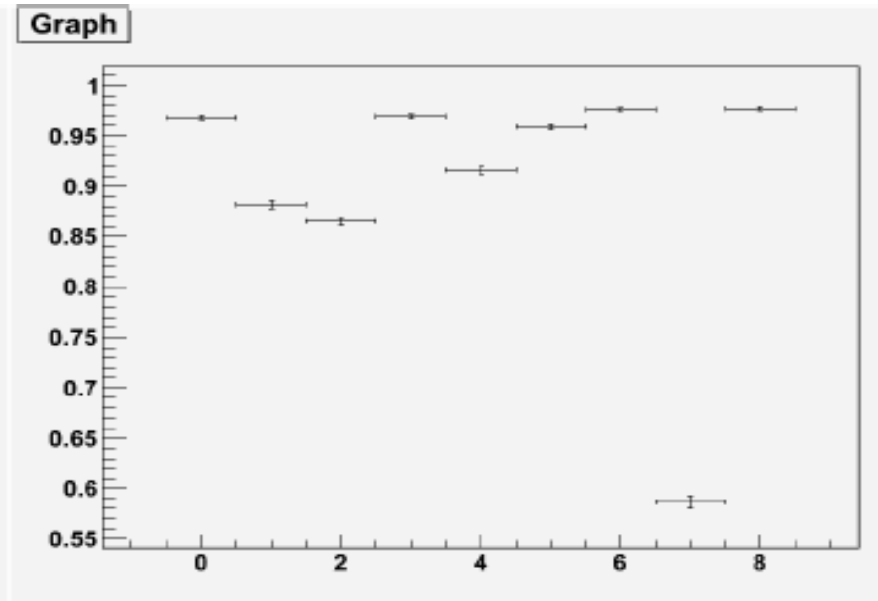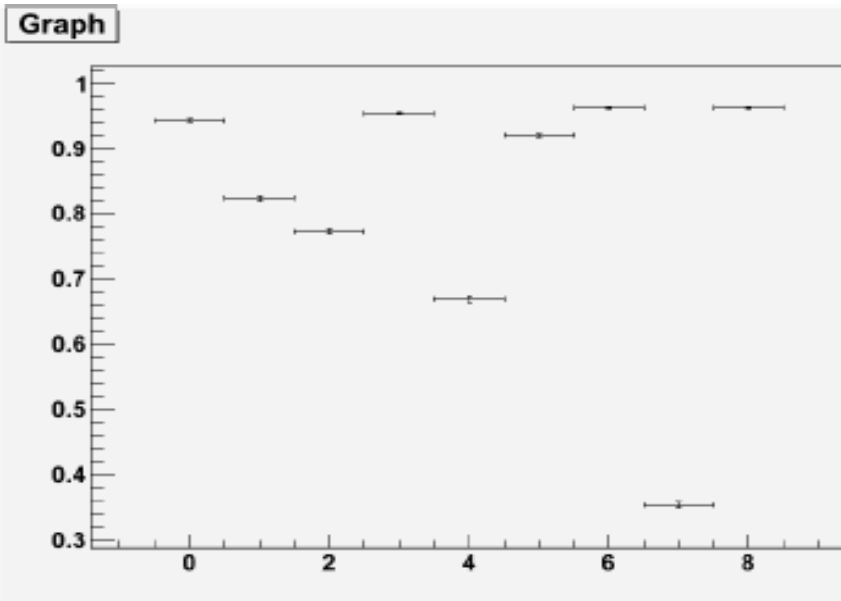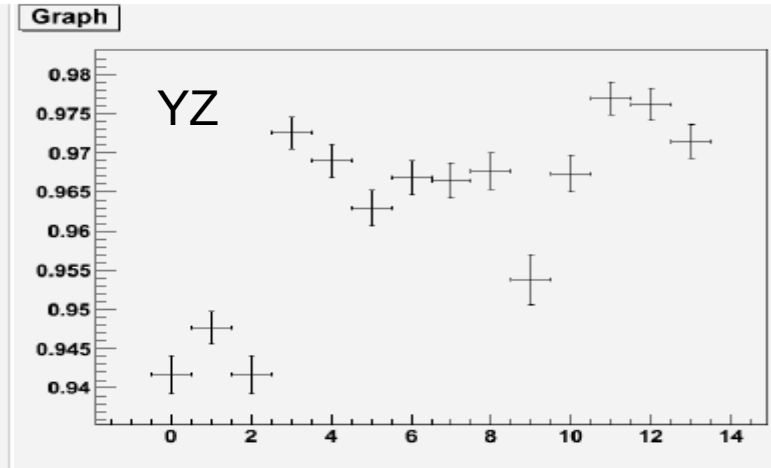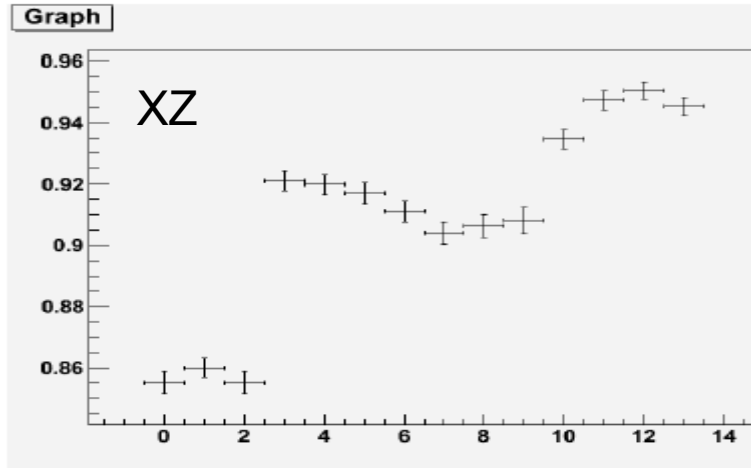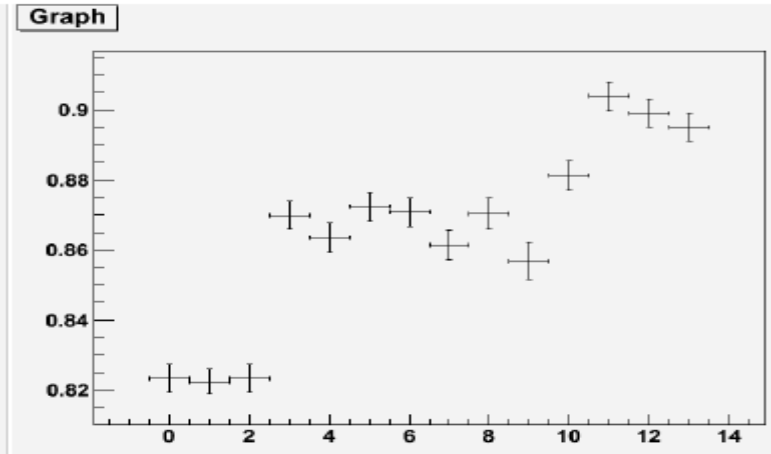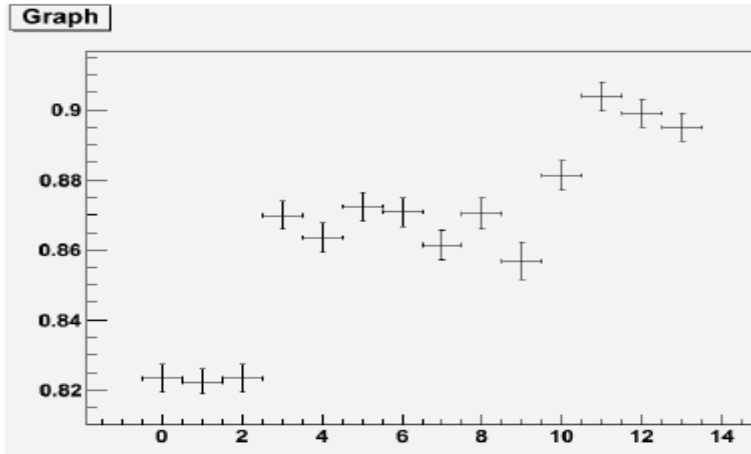RUN 515

XZ

YZ

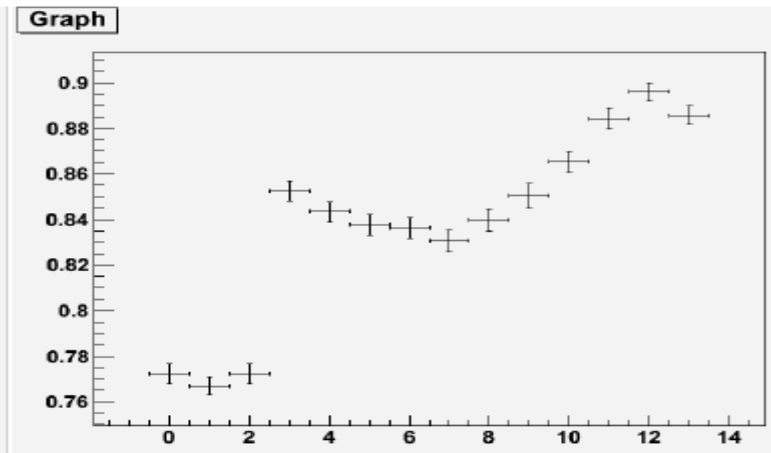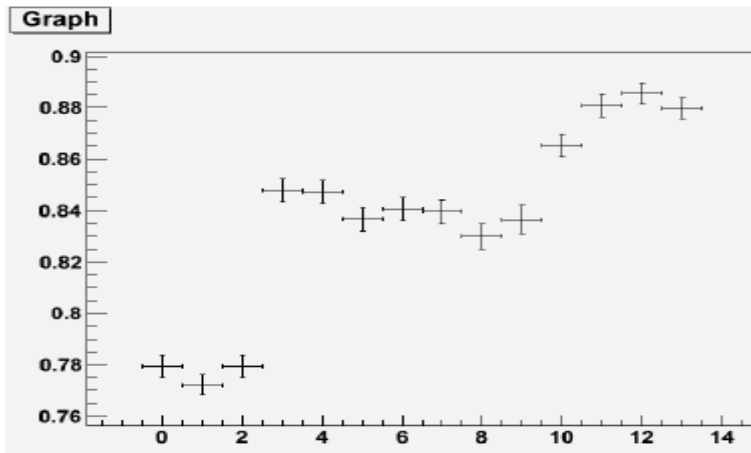# Efficiency for separate layers (14 different runs)
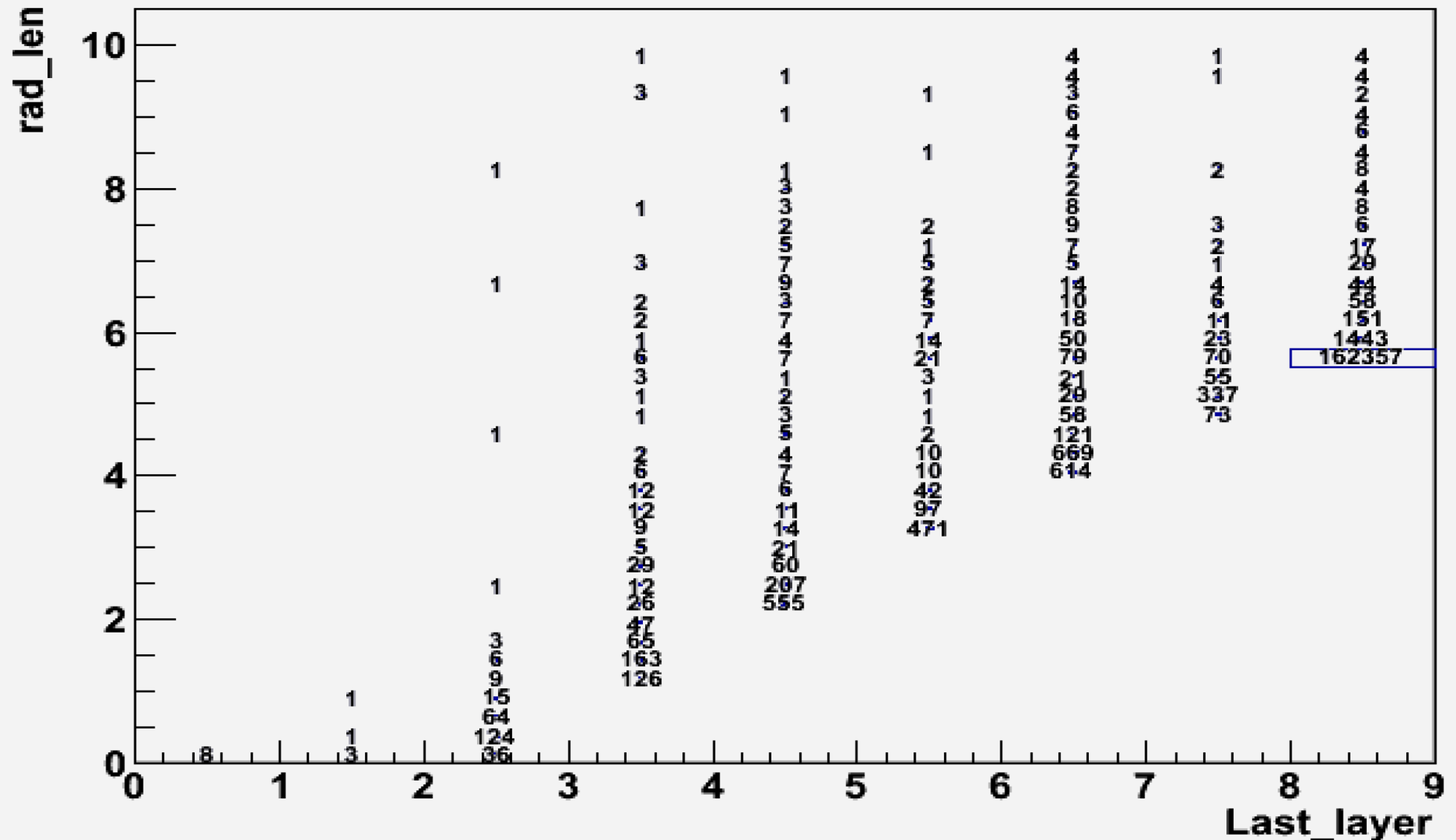

Layer 0

Layer 1

Layer 2

.
.
.
.

etc

Numbers on the X axis correspond to RUNS: 475,476,477,487,488,489,491,496,497,500,517,525,527,528

Radiation Length VS last fired layer

IFR display (Paweł Knap)

Interactive 3D visualization of the hits and tracks in the IFR detector

tools:
- ROOT (newest version)
- QT 4.7
- Graphics in OpenGL

features:
- Scaling, rotating, shifting etc... of the view
- Using the Bezier curves for the function extrapolation

IFR display (Paweł Knap)

IFR display (Paweł Knap)