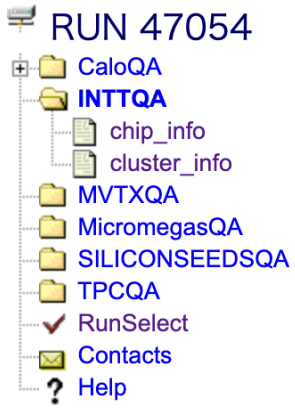
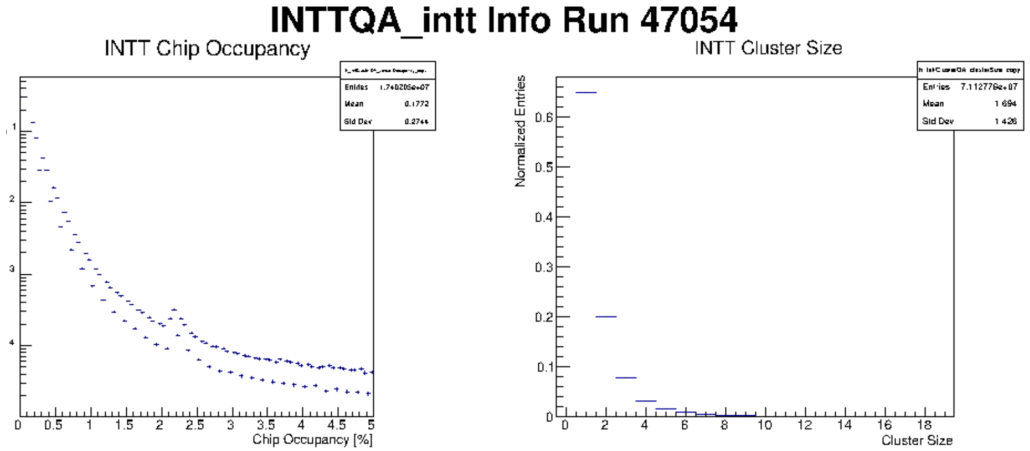
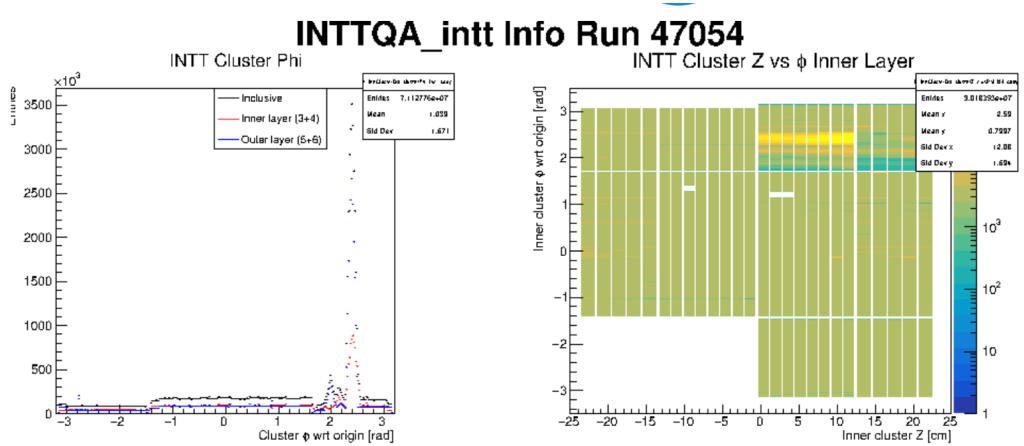
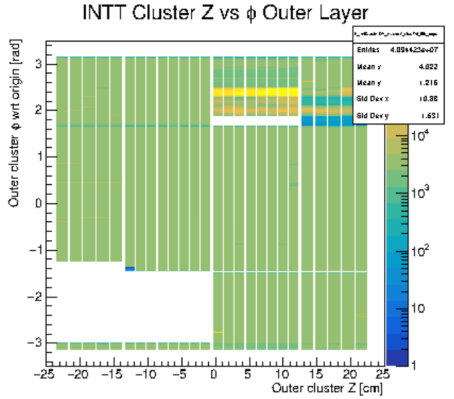
Offline QA

Offline QA (Run2024 website)







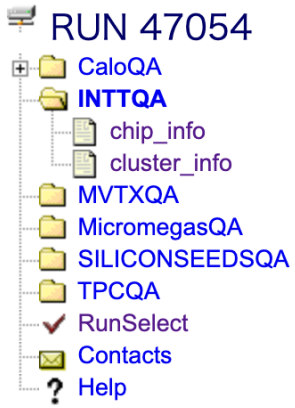


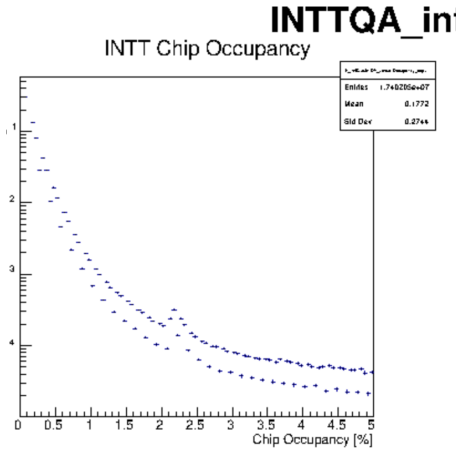
We have offline QA plots run by run

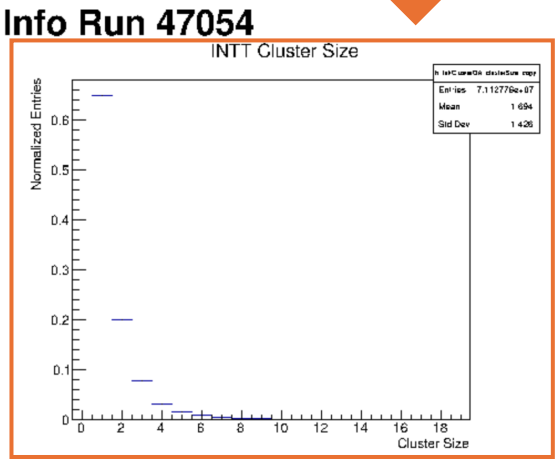
Making **reference plots** is ongoing

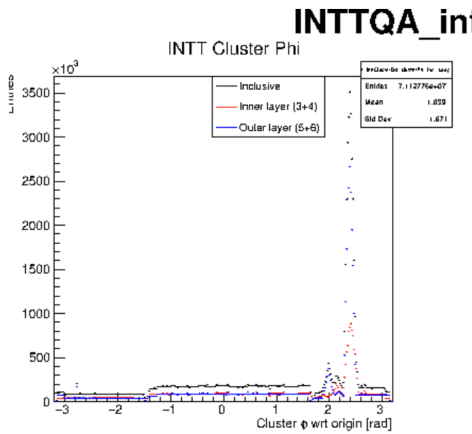
Offline QA (Run2024 website)

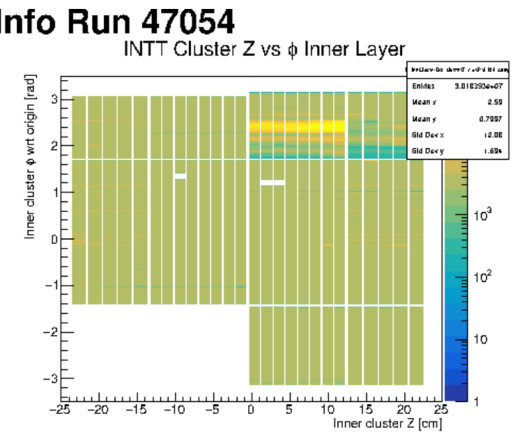
This time

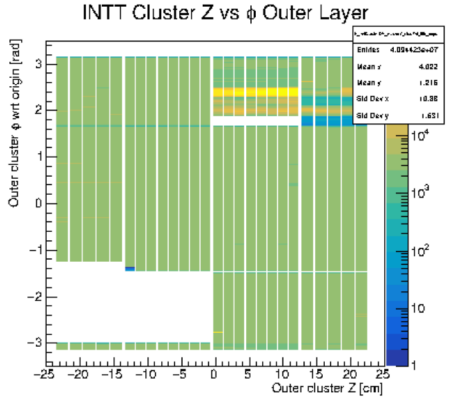








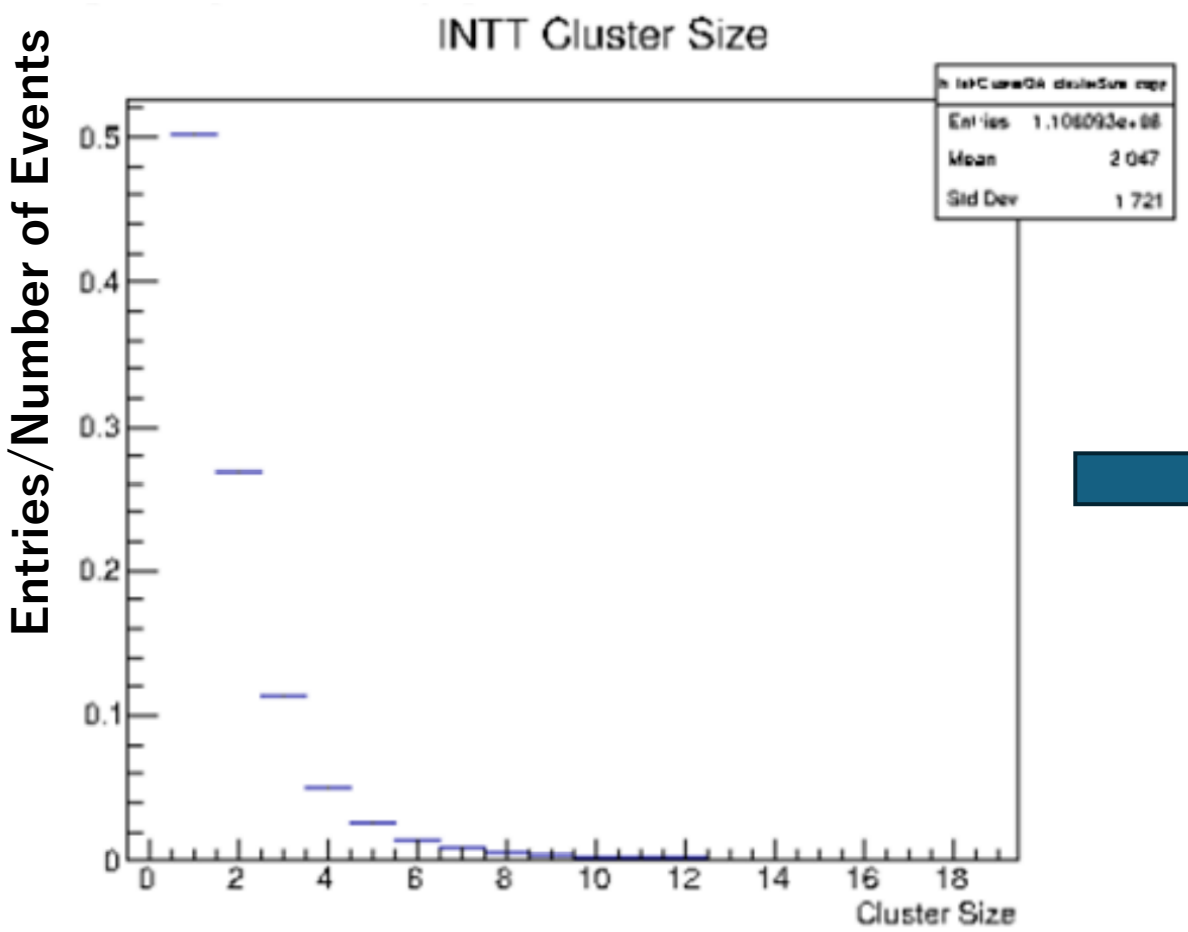


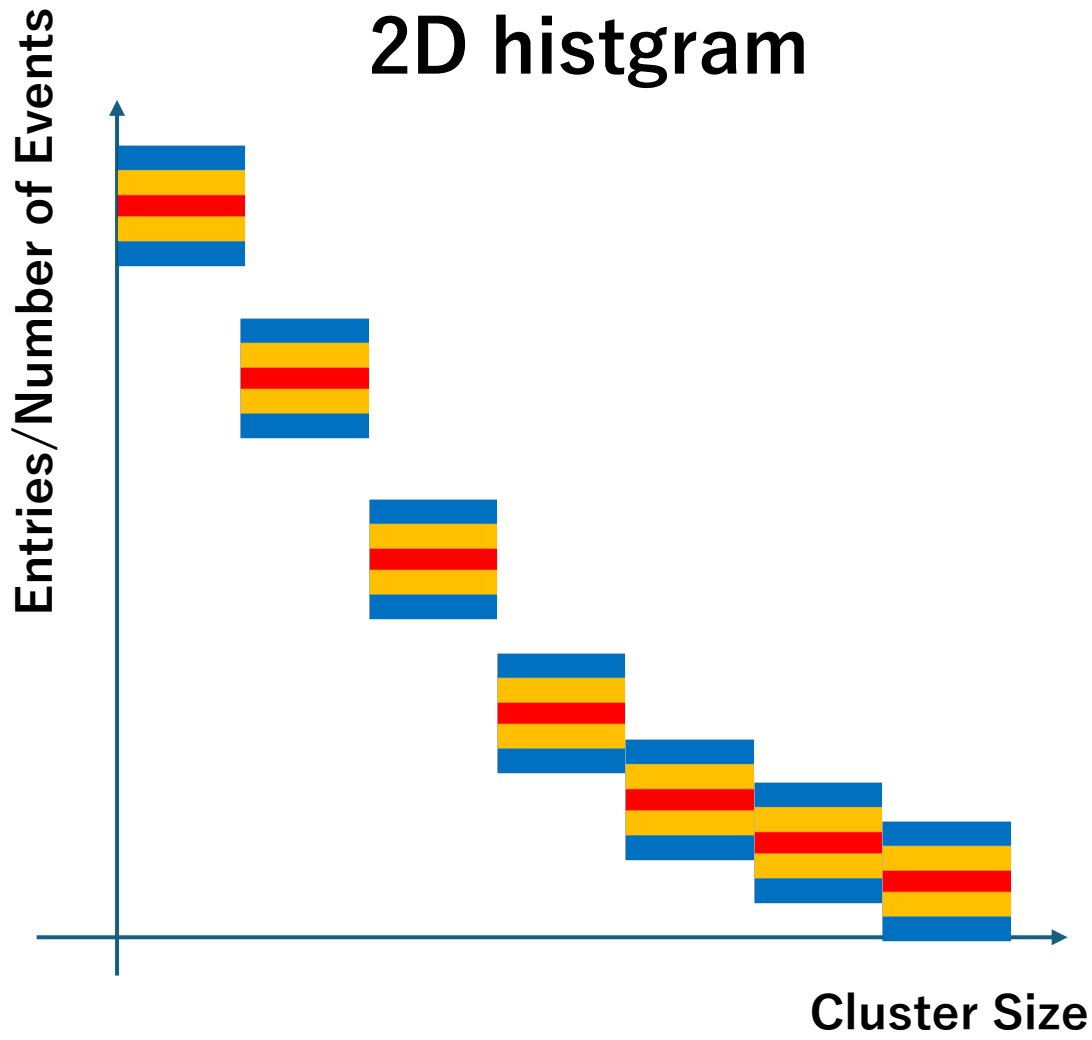


We have offline QA plots run by run

Making **reference plots** is ongoing

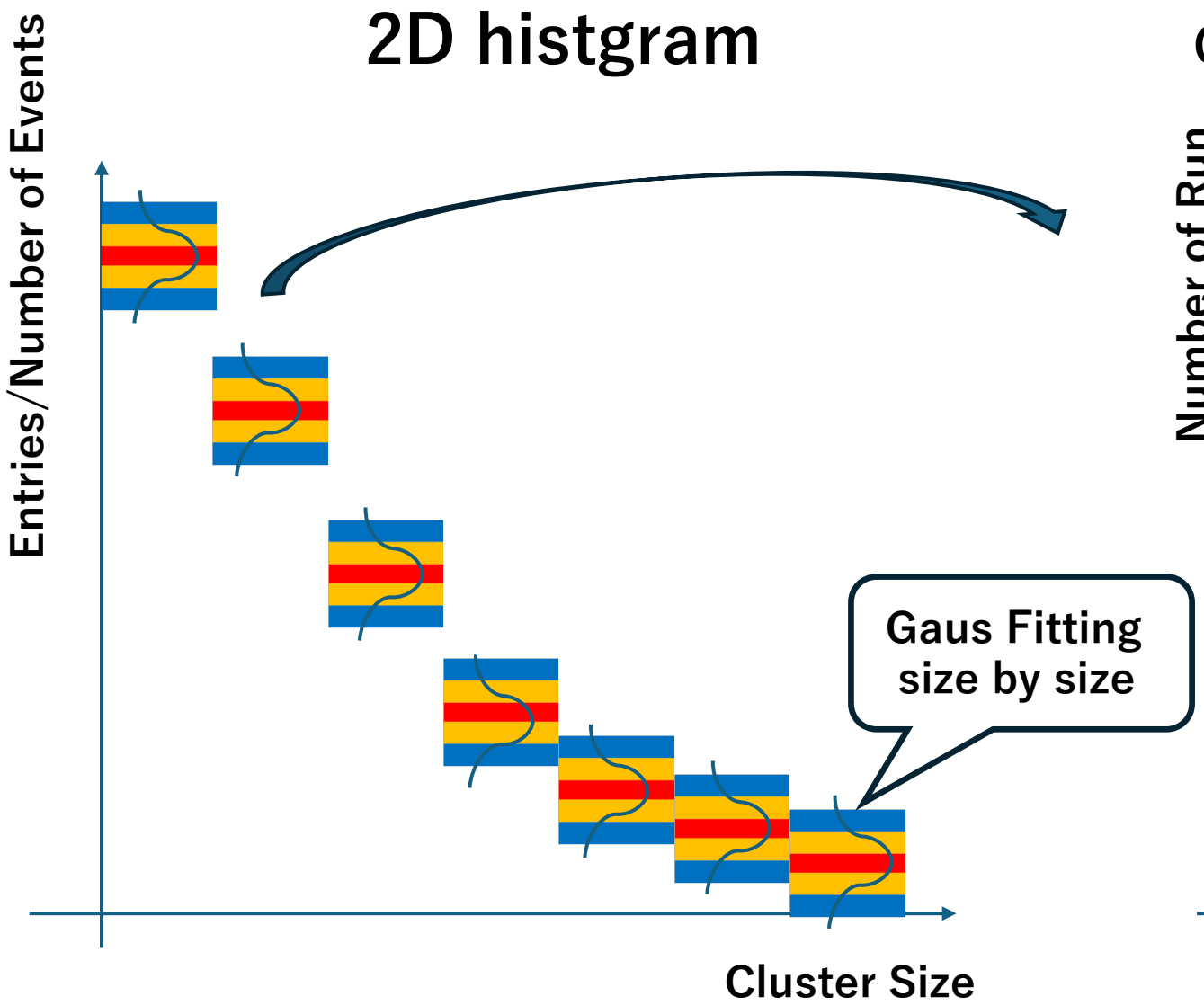
How to decide what is good Run(cluster size) ①

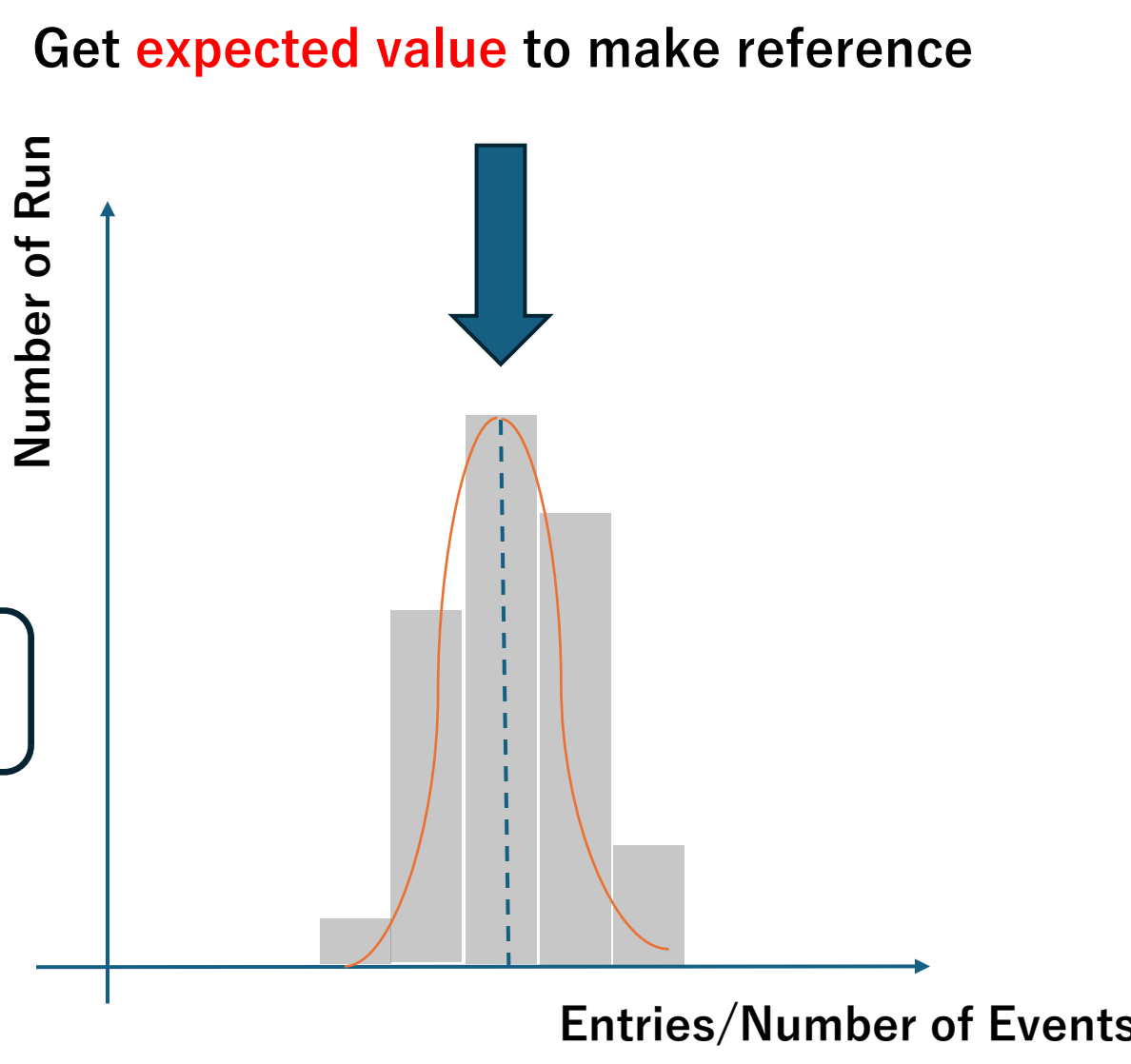




ChenWei and jeain helped me to get idea. **Thank you!!**

How to decide what is good Run(cluster size) ②





Rootfile of cluster (offline QA)

/sphenix/data/data02/sphnxpro/clusterhist/

```
[-bash-4.2$ cd /sphenix/data/data02/sphnxpro/clusterhist/
[-bash-4.2$ ls
 fast                    run_00045300_00045400  run_00046100_00046200      run_00047000_00047100  run_00047800_00047900  run_00048600_00048700  run_00049400_00049500  run_00050500_00050600
 run_00044400_00044500   run_00045400_00045500  run_00046400_00046500      run_00047100_00047200  run_00047900_00048000  run_00048700_00048800  run_00049600_00049700  run_00050600_00050700
 run_00044500_00044600   run_00045500_00045600  run_00046500_00046600      run_00047200_00047300  run_00048000_00048100  run_00048800_00048900  run_00049700_00049800
 run_00044600_00044700   run_00045600_00045700  run_00046600_00046700      run_00047300_00047400  run_00048100_00048200  run_00048900_00049000  run_00049900_00050000
 run_00044700_00044800   run_00045700_00045800  run_00046600_00046700.old  run_00047400_00047500  run_00048200_00048300  run_00049000_00049100  run_00050000_00050100
 run_00045000_00045100   run_00045800_00045900  run_00046700_00046800      run_00047500_00047600  run_00048300_00048400  run_00049100_00049200  run_00050200_00050300
 run_00045100_00045200   run_00045900_00046000  run_00046800_00046900      run_00047600_00047700  run_00048400_00048500  run_00049200_00049300  run_00050300_00050400
 run_00045200_00045300   run_00046000_00046100  run_00046900_00047000      run_00047700_00047800  run_00048500_00048600  run_00049300_00049400  run_00050400_00050500
 -bash-4.2$
```

Run_00048000_00048100

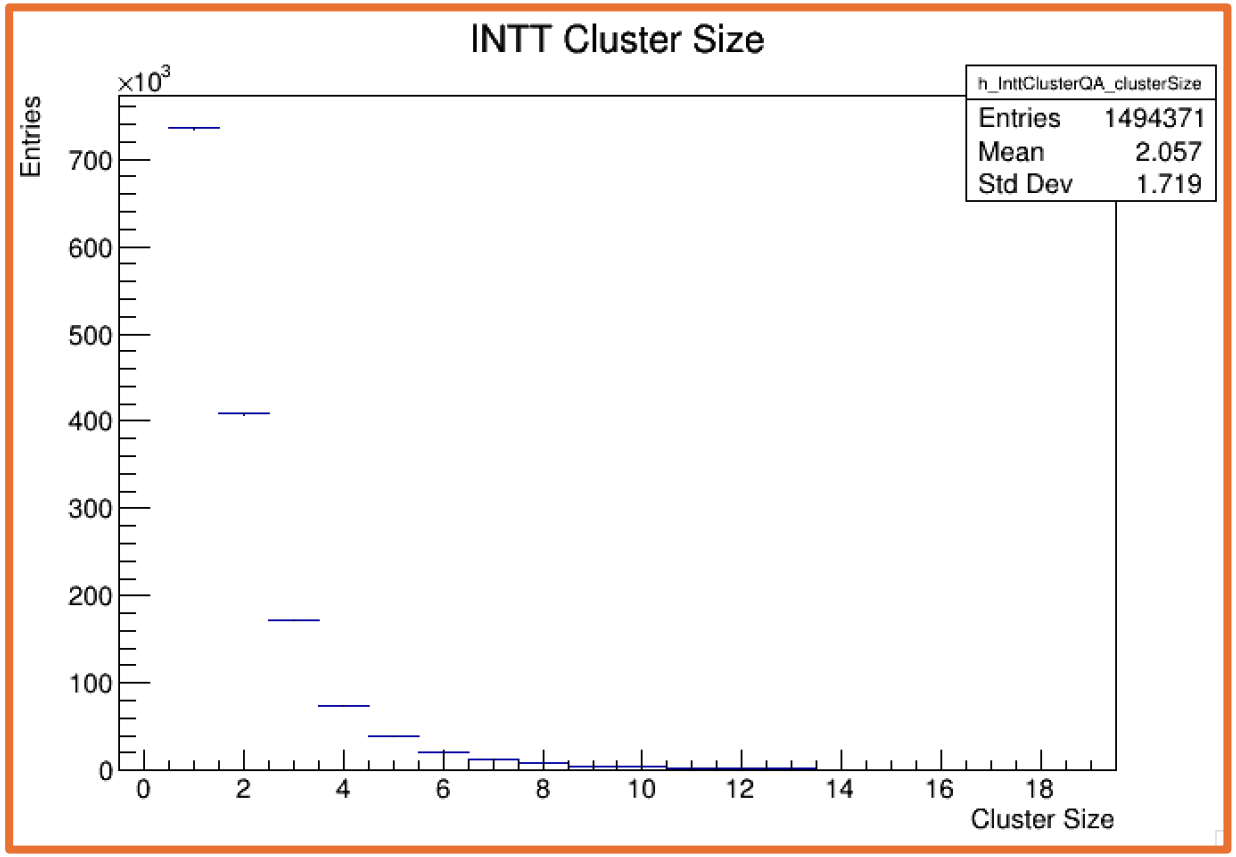
```
[-bash-4.2$ ls *48000*
HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00000.root  HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00024.root  HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00048.root
HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00001.root  HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00025.root  HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00049.root
HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00002.root  HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00026.root  HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00050.root
HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00003.root  HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00027.root  HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00051.root
HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00004.root  HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00028.root  HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00052.root
HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00005.root  HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00029.root  HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00053.root
HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00006.root  HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00030.root  HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00054.root
HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00007.root  HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00031.root  HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00055.root
HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00008.root  HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00032.root  HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00056.root
HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00009.root  HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00033.root  HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00057.root
HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00010.root  HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00034.root  HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00058.root
HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00011.root  HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00035.root  HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00059.root
HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00012.root  HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00036.root  HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00060.root
HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00013.root  HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00037.root  HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00061.root
HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00014.root  HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00038.root  HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00062.root
HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00015.root  HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00039.root  HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00063.root
HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00016.root  HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00040.root  HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00064.root
HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00017.root  HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00041.root  HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00065.root
HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00018.root  HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00042.root  HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00066.root
HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00019.root  HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00043.root  HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00067.root
HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00020.root  HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00044.root  HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00068.root
HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00021.root  HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00045.root  HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00069.root
HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00022.root  HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00046.root  HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00070.root
HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00023.root  HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00047.root
```

Rootfile of cluster (offline QA)

```
root [0]
Attaching file HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00021.root as _file0...
(TFile *) 0x1c69f70
root [1] .ls
TFile**         HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00021.root   Created by QA_HISTOS
 TFile*         HIST_DST_TRKR_CLUSTER_run2pp_new_2024p004-00048000-00021.root   Created by QA_HISTOS
  KEY: TH1F     h_InttClusterQA_clusterPhi_incl;1       INTT Cluster Phi
  KEY: TH1F     h_InttClusterQA_clusterPhi_l34;1        INTT Cluster Phi
  KEY: TH1F     h_InttClusterQA_clusterPhi_l56;1        INTT Cluster Phi
  KEY: TH1F     h_InttClusterQA_clusterSize;1   INTT Cluster Size
  KEY: TH2F     h_InttClusterQA_clusterZ_clusPhi_l34;1  INTT Cluster Z vs Cluster Phi
  KEY: TH2F     h_InttClusterQA_clusterZ_clusPhi_l56;1  INTT Cluster Z vs Cluster Phi
  KEY: TH1F     h_InttClusterQA_sensorOccupancy;1       INTT Sensor Occupancy
  KEY: TH2F     h_MicromegasClusterQA_ncluspertile0_0;1 Micromegas clusters per tile
  KEY: TH2F     h_MicromegasClusterQA_ncluspertile0_1;1 Micromegas clusters per tile
  KEY: TH2F     h_MicromegasClusterQA_ncluspertile0_2;1 Micromegas clusters per tile
  KEY: TH2F     h_MicromegasClusterQA_ncluspertile0_3;1 Micromegas clusters per tile
  KEY: TH2F     h_MicromegasClusterQA_ncluspertile0_4;1 Micromegas clusters per tile
  KEY: TH2F     h_MicromegasClusterQA_ncluspertile0_5;1 Micromegas clusters per tile
  KEY: TH2F     h_MicromegasClusterQA_ncluspertile0_6;1 Micromegas clusters per tile
  KEY: TH2F     h_MicromegasClusterQA_ncluspertile0_7;1 Micromegas clusters per tile
  KEY: TH2F     h_MicromegasClusterQA_ncluspertile1_0;1 Micromegas clusters per tile
  KEY: TH2F     h_MicromegasClusterQA_ncluspertile1_1;1 Micromegas clusters per tile
  KEY: TH2F     h_MicromegasClusterQA_ncluspertile1_2;1 Micromegas clusters per tile
  KEY: TH2F     h_MicromegasClusterQA_ncluspertile1_3;1 Micromegas clusters per tile
  KEY: TH2F     h_MicromegasClusterQA_ncluspertile1_4;1 Micromegas clusters per tile
  KEY: TH2F     h_MicromegasClusterQA_ncluspertile1_5;1 Micromegas clusters per tile
  KEY: TH2F     h_MicromegasClusterQA_ncluspertile1_6;1 Micromegas clusters per tile
  KEY: TH2F     h_MicromegasClusterQA_ncluspertile1_7;1 Micromegas clusters per tile
  KEY: TH1F     h_MvtxClusterQA_chipOccupancy;1 MVTX Chip Occupancy
  KEY: TH2F     h_MvtxClusterQA_clusSize_nCLus;1        MVTX Cluster Size vs Number of Clusters
  KEY: TH1F     h_MvtxClusterQA_clusterPhi_incl;1       MVTX Cluster Phi
  KEY: TH1F     h_MvtxClusterQA_clusterPhi_l0;1 MVTX Cluster Phi
  KEY: TH1F     h_MvtxClusterQA_clusterPhi_l1;1 MVTX Cluster Phi
  KEY: TH1F     h_MvtxClusterQA_clusterPhi_l2;1 MVTX Cluster Phi
  KEY: TH1F     h_MvtxClusterQA_clusterSize;1   MVTX Cluster Size
  KEY: TH2F     h_MvtxClusterQA_clusterZ_clusPhi_l0;1   MVTX Cluster Z vs Phi
  KEY: TH2F     h_MvtxClusterQA_clusterZ_clusPhi_l1;1   MVTX Cluster Z vs Phi
  KEY: TH2F     h_MvtxClusterQA_clusterZ_clusPhi_l2;1   MVTX Cluster Z vs Phi
  KEY: TH1I     h_MvtxClusterQA_strobeTiming;1  MVTX Strobe Timing per Hit
  KEY: TH1F     h_TpcClusterQA_clusedge_0;1     TPC hits on edge region_0
  KEY: TH1F     h_TpcClusterQA_clusedge_1;1     TPC hits on edge region_1
  KEY: TH1F     h_TpcClusterQA_clusedge_2;1     TPC hits on edge region_2
  KEY: TH1F     h_TpcClusterQA_clusoverlap_0;1  TPC clus overlap region_0
  KEY: TH1F     h_TpcClusterQA_clusoverlap_1;1  TPC clus overlap region_1
  KEY: TH1F     h_TpcClusterQA_clusoverlap_2;1  TPC clus overlap region_2
  KEY: TH1F     h_TpcClusterQA_clusxposition_side0_0;1  TPC cluster x position side 0 region_0
  KEY: TH1F     h_TpcClusterQA_clusxposition_side0_1;1  TPC cluster x position side 0 region_1
  KEY: TH1F     h_TpcClusterQA_clusxposition_side0_2;1  TPC cluster x position side 0 region_2
  KEY: TH1F     h_TpcClusterQA_clusxposition_side1_0;1  TPC cluster x position side 1 region_0
  KEY: TH1F     h_TpcClusterQA_clusxposition_side1_1;1  TPC cluster x position side 1 region_1
  KEY: TH1F     h_TpcClusterQA_clusxposition_side1_2;1  TPC cluster x position side 1 region_2
  KEY: TH1F     h_TpcClusterQA_clusyposition_side0_0;1  TPC cluster y position side 0 region_0
  KEY: TH1F     h_TpcClusterQA_clusyposition_side0_1;1  TPC cluster y position side 0 region_1
  KEY: TH1F     h_TpcClusterQA_clusyposition_side0_2;1  TPC cluster y position side 0 region_2
  KEY: TH1F     h_TpcClusterQA_clusyposition_side1_0;1  TPC cluster y position side 1 region_0
  KEY: TH1F     h_TpcClusterQA_clusyposition_side1_1;1  TPC cluster y position side 1 region_1
  KEY: TH1F     h_TpcClusterQA_clusyposition_side1_2;1  TPC cluster y position side 1 region_2
  KEY: TH1F     h_TpcClusterQA_cluszposition_side0_0;1  TPC cluster z position side 0 region_0
  KEY: TH1F     h_TpcClusterQA_cluszposition_side0_1;1  TPC cluster z position side 0 region_1
  KEY: TH1F     h_TpcClusterQA_cluszposition_side0_2;1  TPC cluster z position side 0 region_2
  KEY: TH1F     h_TpcClusterQA_cluszposition_side1_0;1  TPC cluster z position side 1 region_0
  KEY: TH1F     h_TpcClusterQA_cluszposition_side1_1;1  TPC cluster z position side 1 region_1
  KEY: TH1F     h_TpcClusterQA_cluszposition_side1_2;1  TPC cluster z position side 1 region_2
  KEY: TH2F     h_TpcClusterQA_hit_positions;1  Histogram of hit x y positions
  KEY: TH1F     h_TpcClusterQA_hitz_positions_side0;1   Histogram of hit z positions side=0
  KEY: TH1F     h_TpcClusterQA_hitz_positions_side1;1   Histogram of hit z positions side=1
  KEY: TH2F     h_TpcClusterQA_ncluspersector;1 TPC Clusters per event per sector
  KEY: TH1F     h_TpcClusterQA_phisize_side0_0;1        TPC (side 0) cluster #phi size region_0
  KEY: TH1F     h_TpcClusterQA_phisize_side0_1;1        TPC (side 0) cluster #phi size region_1
  KEY: TH1F     h_TpcClusterQA_phisize_side0_2;1        TPC (side 0) cluster #phi size region_2
  KEY: TH1F     h_TpcClusterQA_phisize_side1_0;1        TPC (side 1) cluster #phi size region_0
  KEY: TH1F     h_TpcClusterQA_phisize_side1_1;1        TPC (side 1) cluster #phi size region_1
  KEY: TH1F     h_TpcClusterQA_phisize_side1_2;1        TPC (side 1) cluster #phi size region_2
  KEY: TH1F     h_TpcClusterQA_rphi_error_0;1   TPC r#Delta#phi error region_0
  KEY: TH1F     h_TpcClusterQA_rphi_error_1;1   TPC r#Delta#phi error region_1
  KEY: TH1F     h_TpcClusterQA_rphi_error_2;1   TPC r#Delta#phi error region_2
  KEY: TH2F     h_TpcClusterQA_stotal_clusters;1        TPC clusters per hitsetkey
  KEY: TH1F     h_TpcClusterQA_z_error_0;1      TPC z error region_0
  KEY: TH1F     h_TpcClusterQA_z_error_1;1      TPC z error region_1
  KEY: TH1F     h_TpcClusterQA_z_error_2;1      TPC z error region_2
  KEY: TH1F     h_TpcClusterQA_zsize_0;1        TPC cluster z size region_0
  KEY: TH1F     h_TpcClusterQA_zsize_1;1        TPC cluster z size region_1
  KEY: TH1F     h_TpcClusterQA_zsize_2;1        TPC cluster z size region_2
```

```
KEY: TH1F     h_InttClusterQA_clusterPhi_incl;1       INTT Cluster Phi
KEY: TH1F     h_InttClusterQA_clusterPhi_l34;1        INTT Cluster Phi
KEY: TH1F     h_InttClusterQA_clusterPhi_l56;1        INTT Cluster Phi
KEY: TH1F     h_InttClusterQA_clusterSize;1   INTT Cluster Size
KEY: TH2F     h_InttClusterQA_clusterZ_clusPhi_l34;1  INTT Cluster Z vs Cluster Phi
KEY: TH2F     h_InttClusterQA_clusterZ_clusPhi_l56;1  INTT Cluster Z vs Cluster Phi
KEY: TH1F     h_InttClusterQA_sensorOccupancy;1       INTT Sensor Occupancy
```

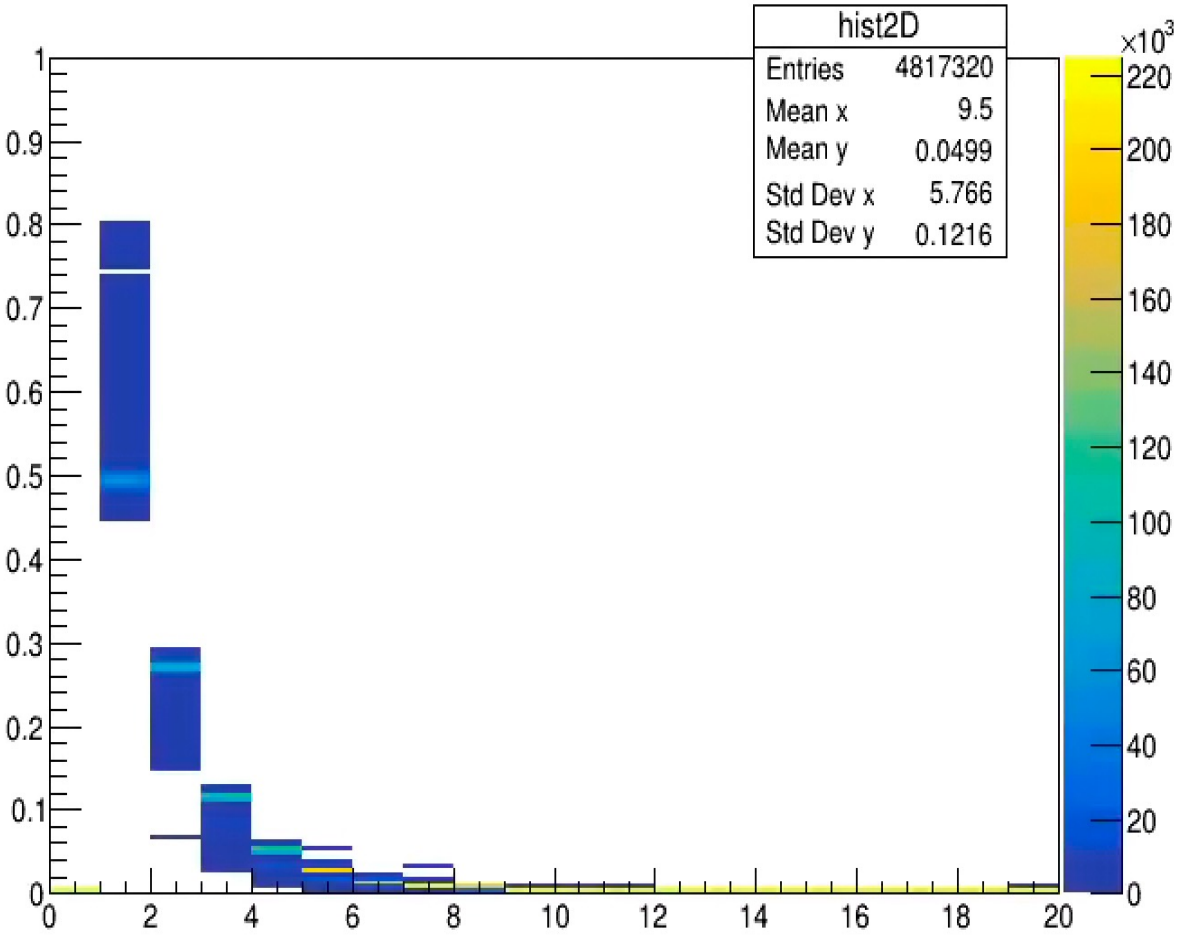
```
root [3] h_InttClusterQA_clusterSize->Draw()
Info in <TCanvas::MakeDefCanvas>:  created default TCanvas with name c1
```



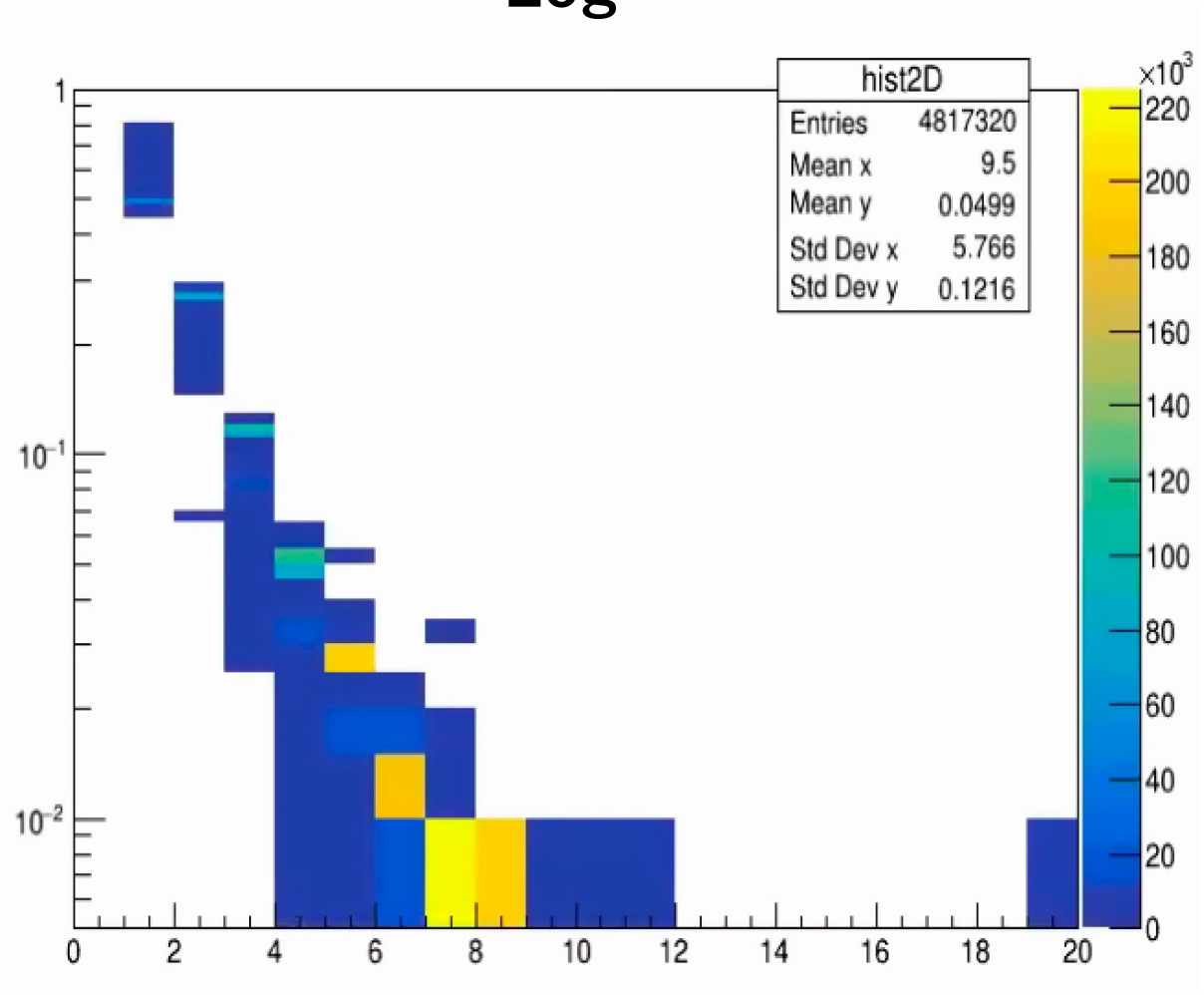
Cluster size (offline QA)

Run46400~48400 – total 4817320 files

Linear



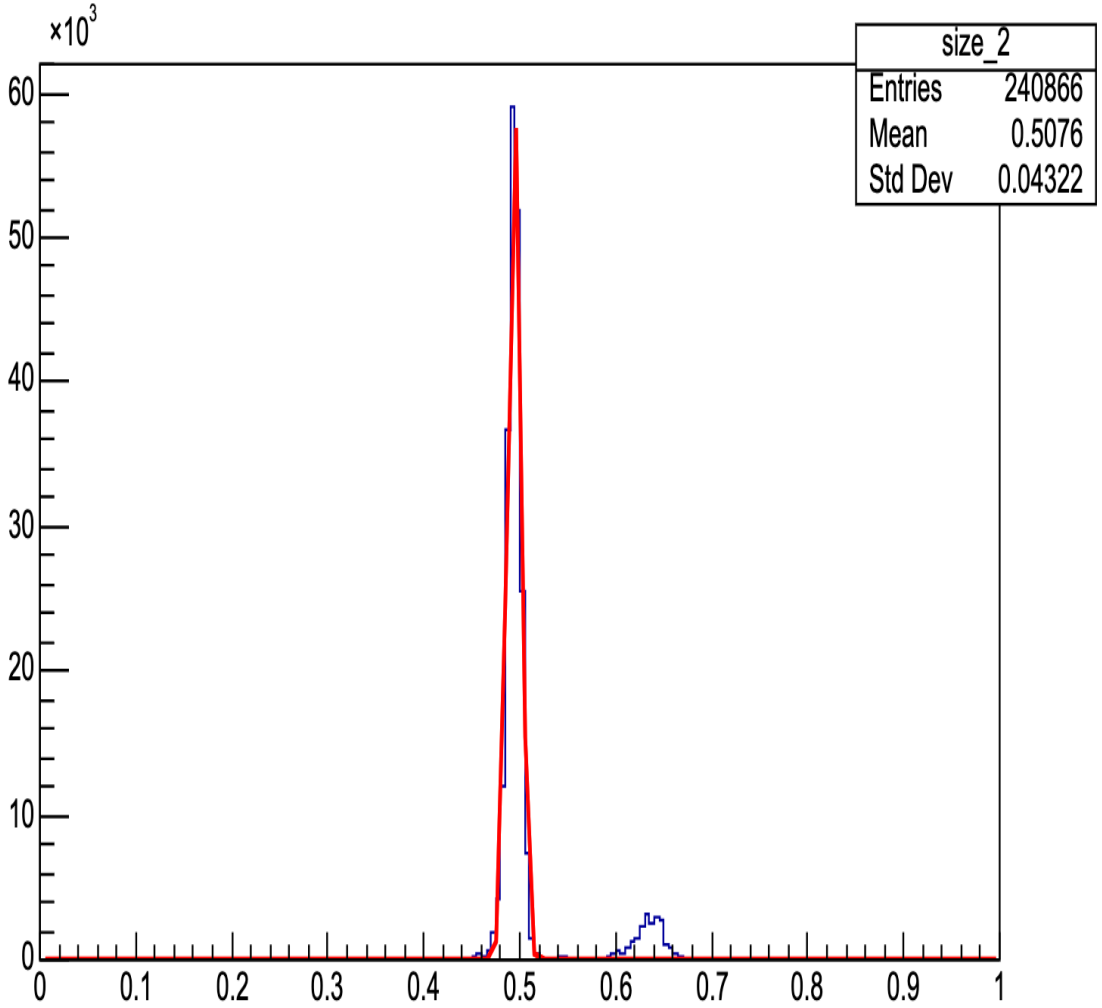
Log



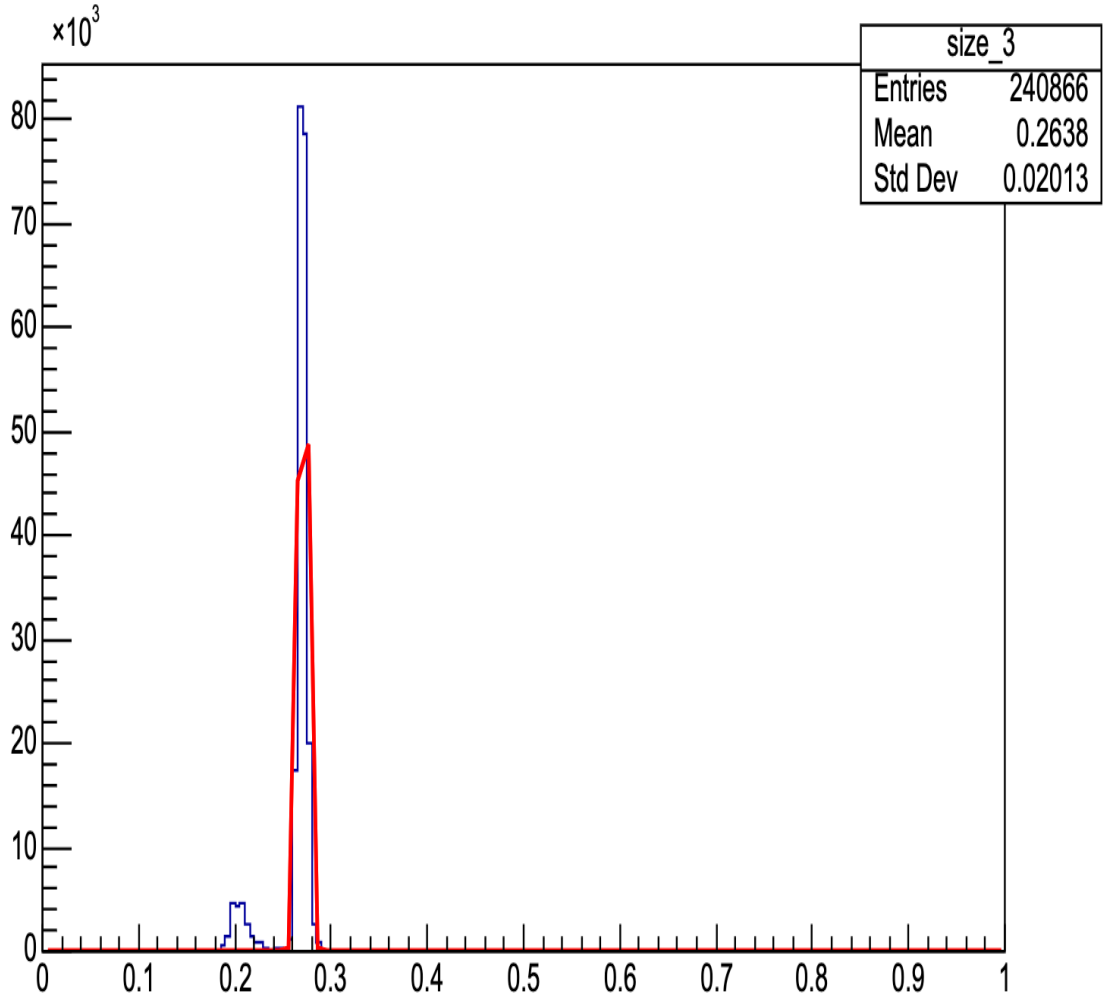
Y ：Fraction=(Entries/ all Entries)

X ：cluster size

Fitting size by size

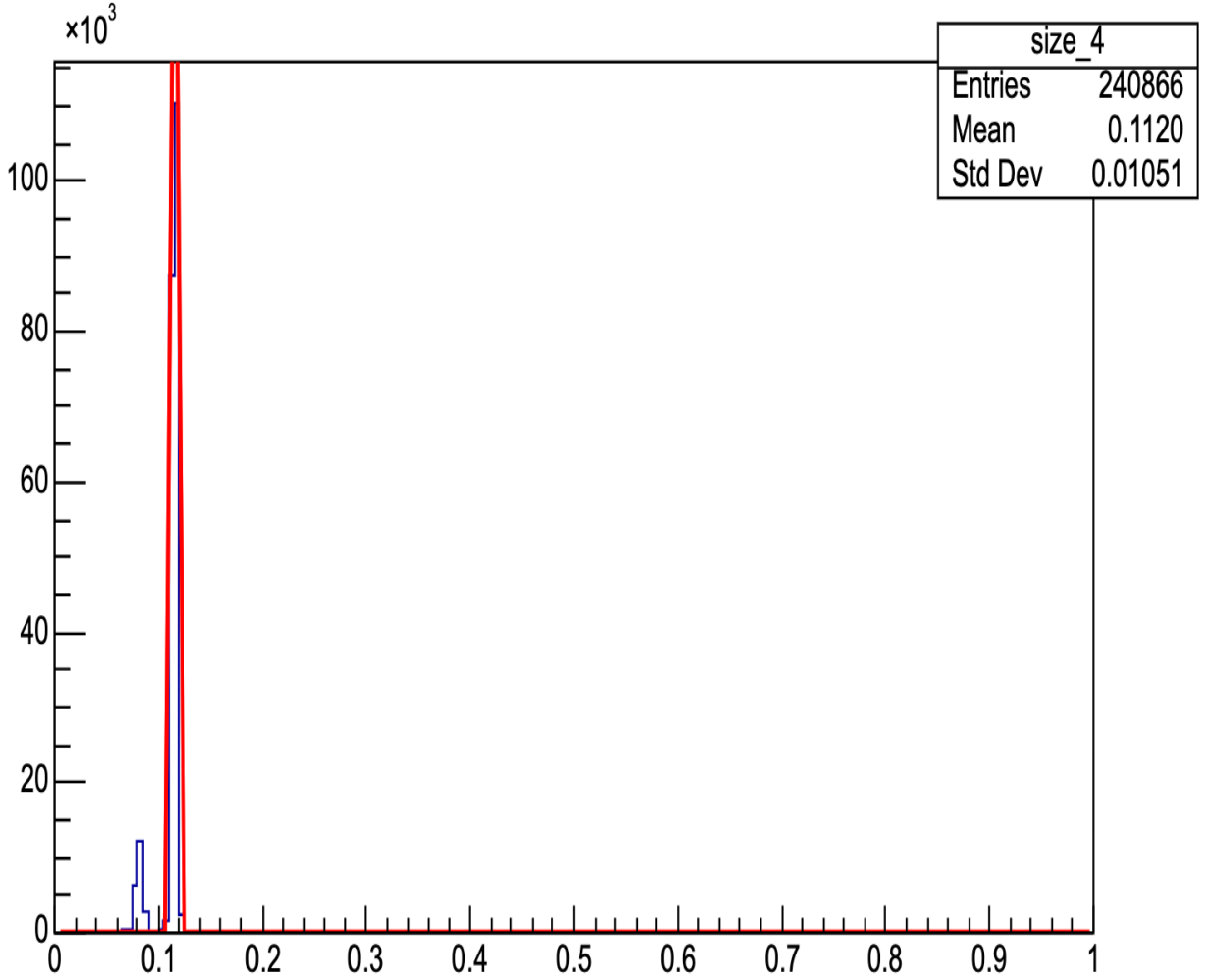


size1

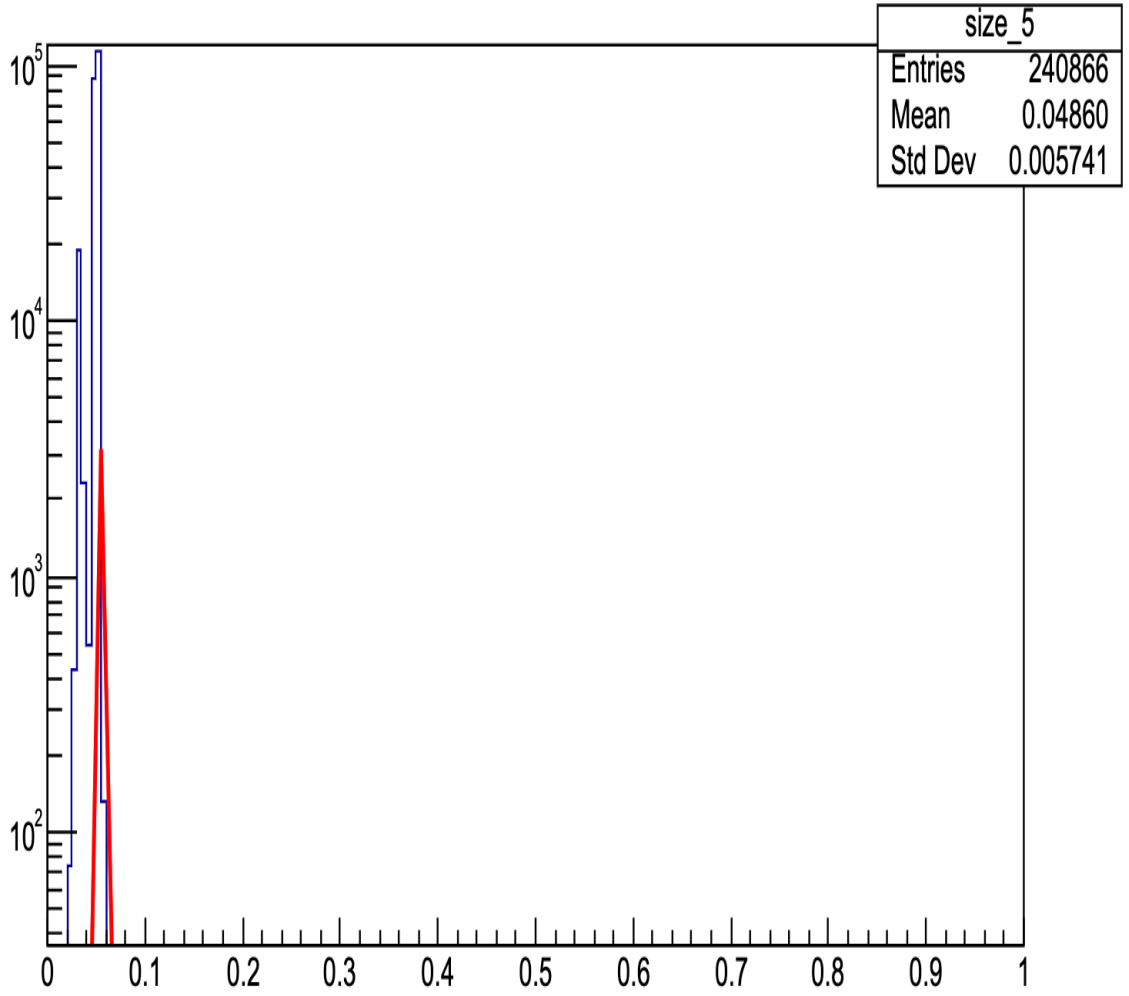


size2

Fitting size by size

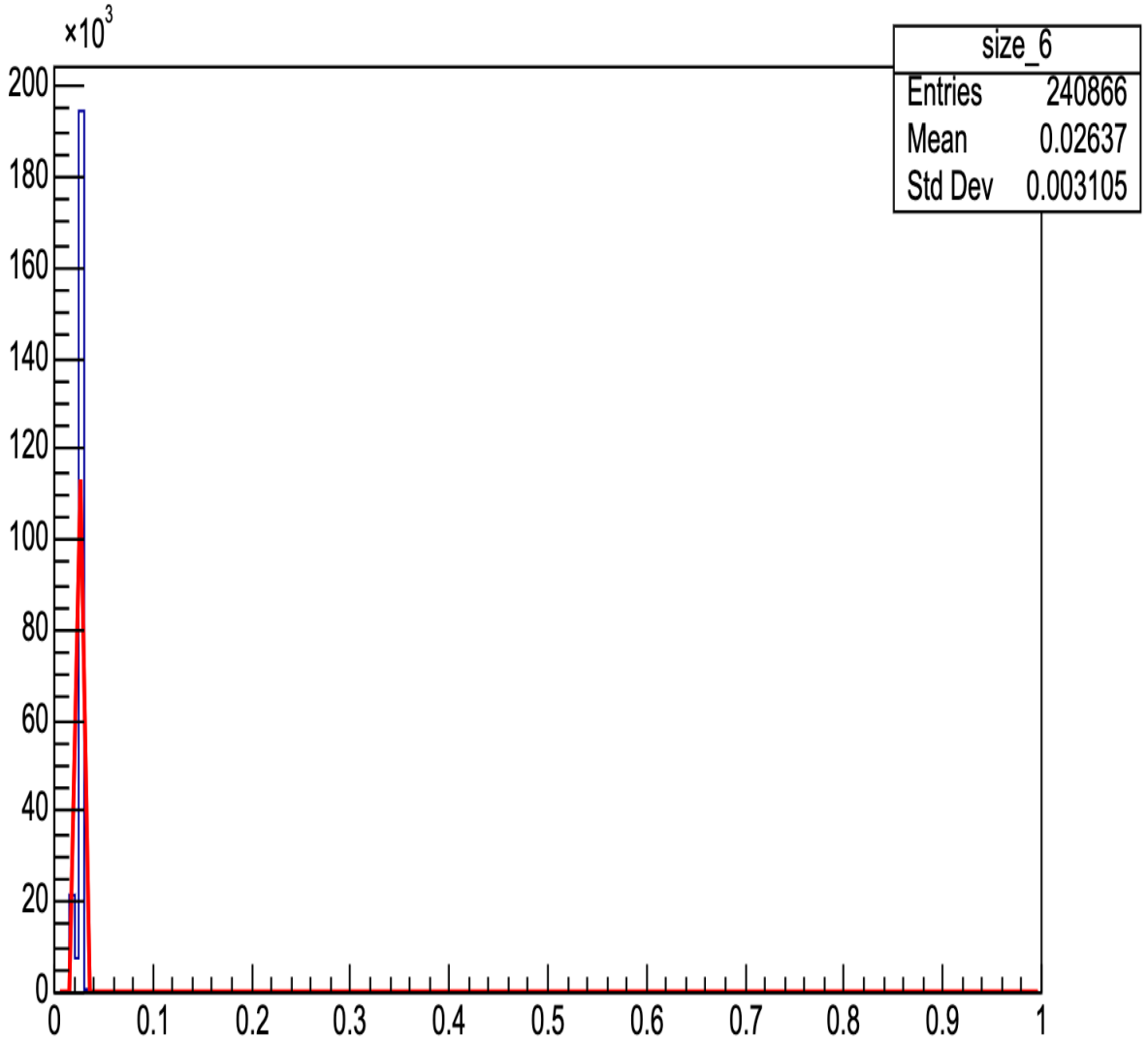


size3

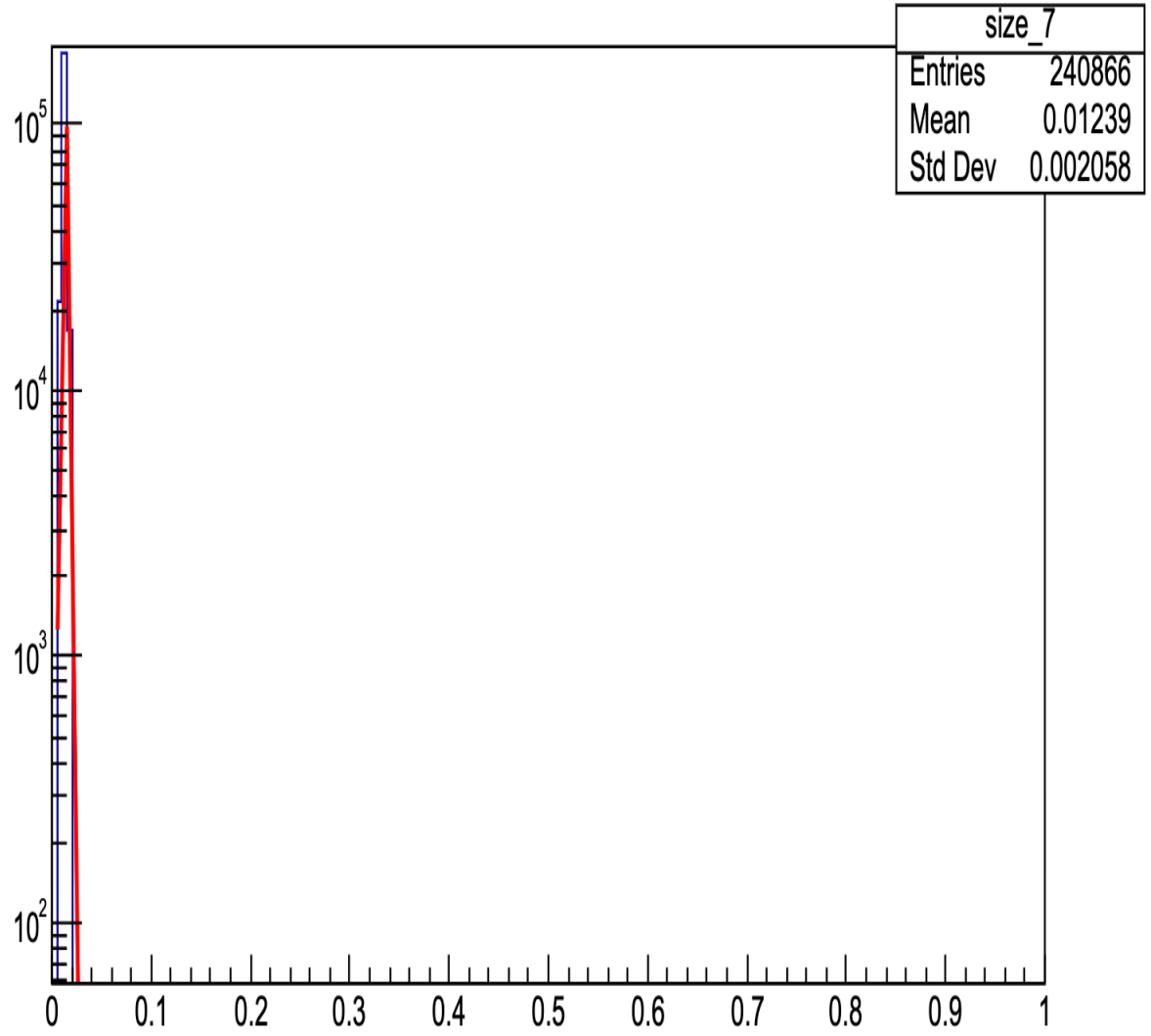


size4

Fitting size by size



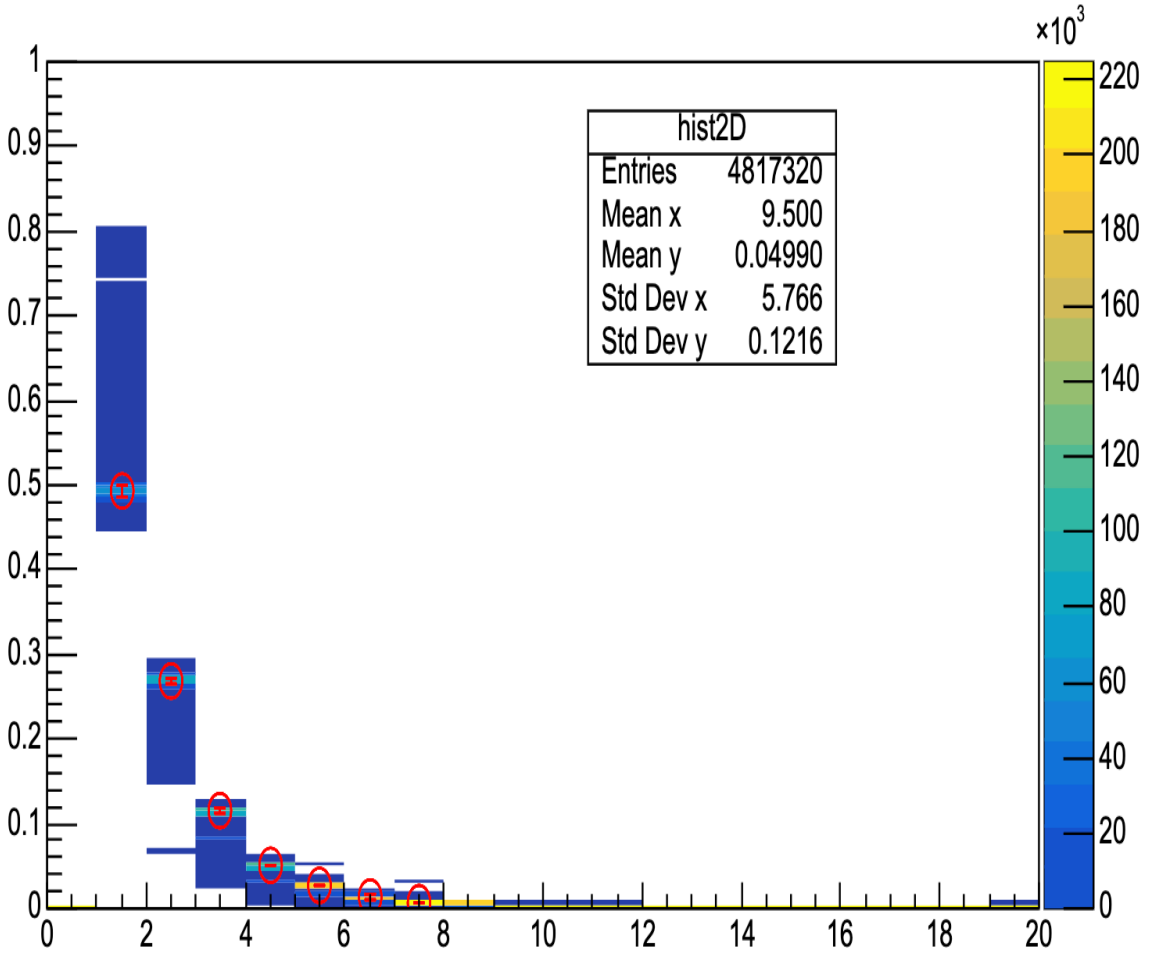
size5



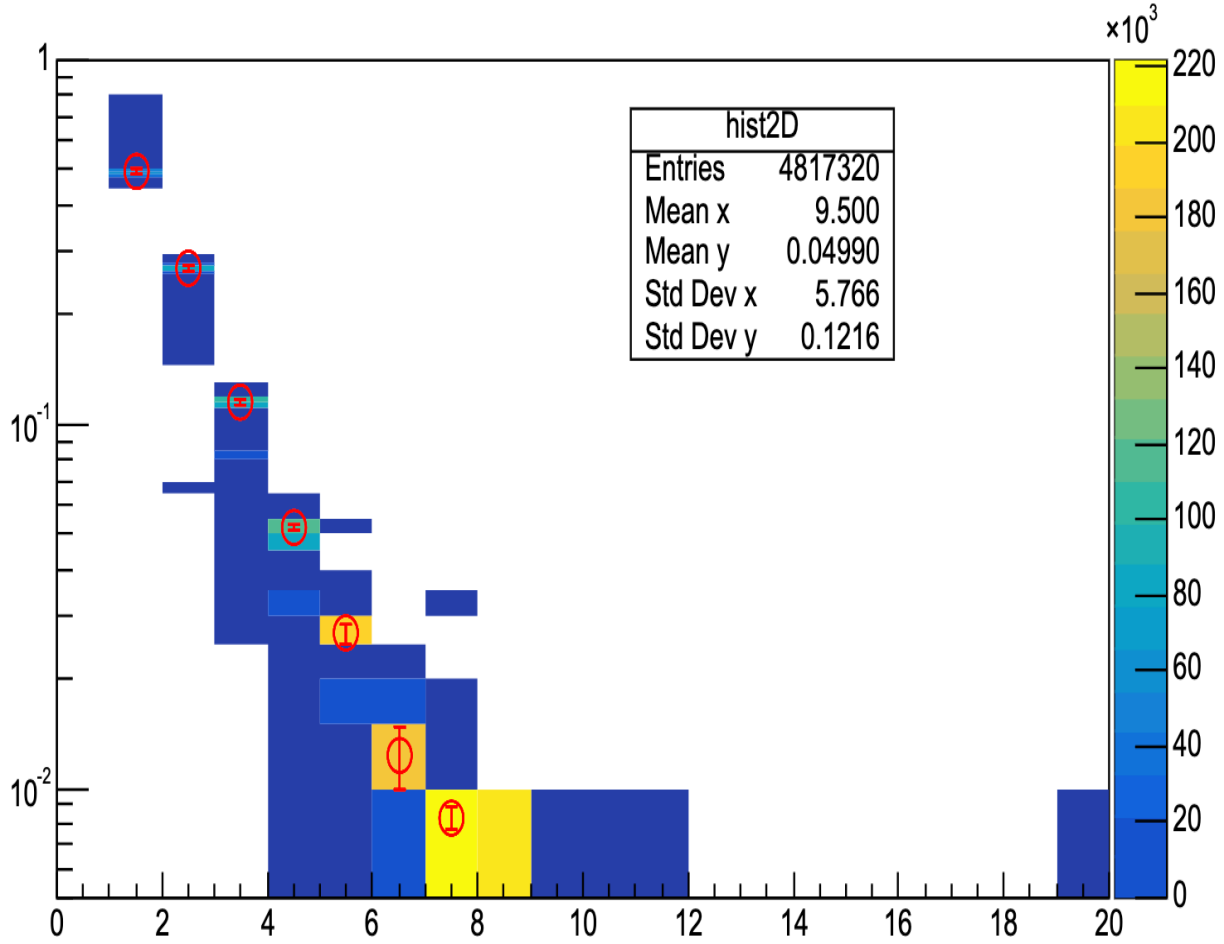
size6

Cluster size (offline QA)

Linear



Log

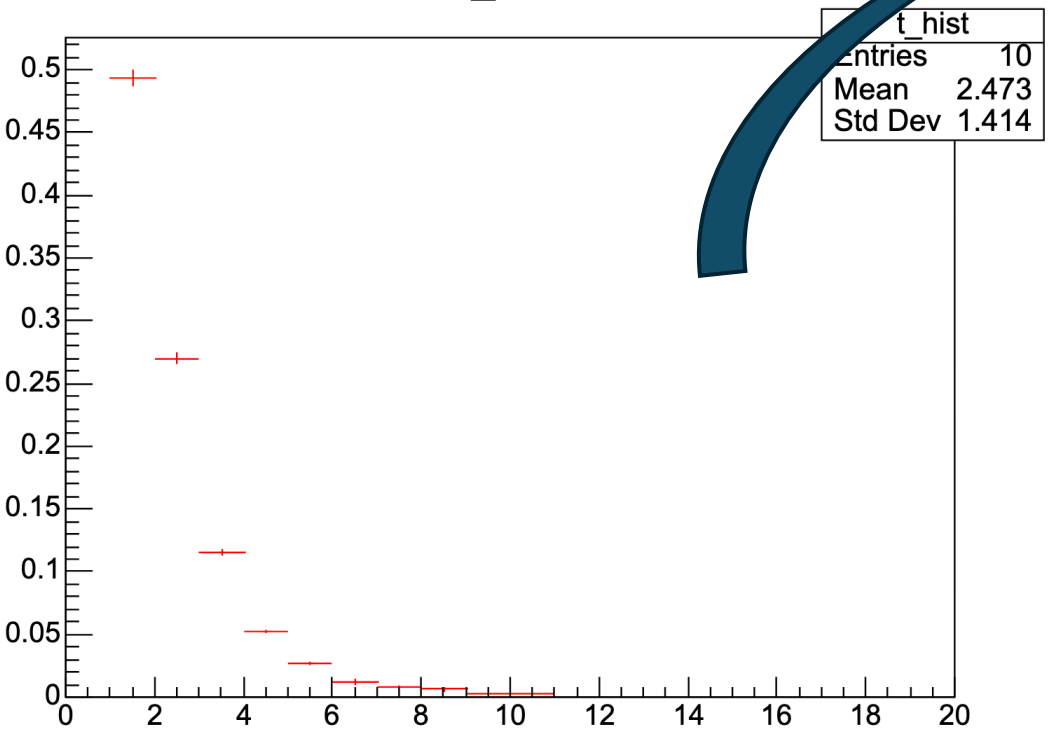


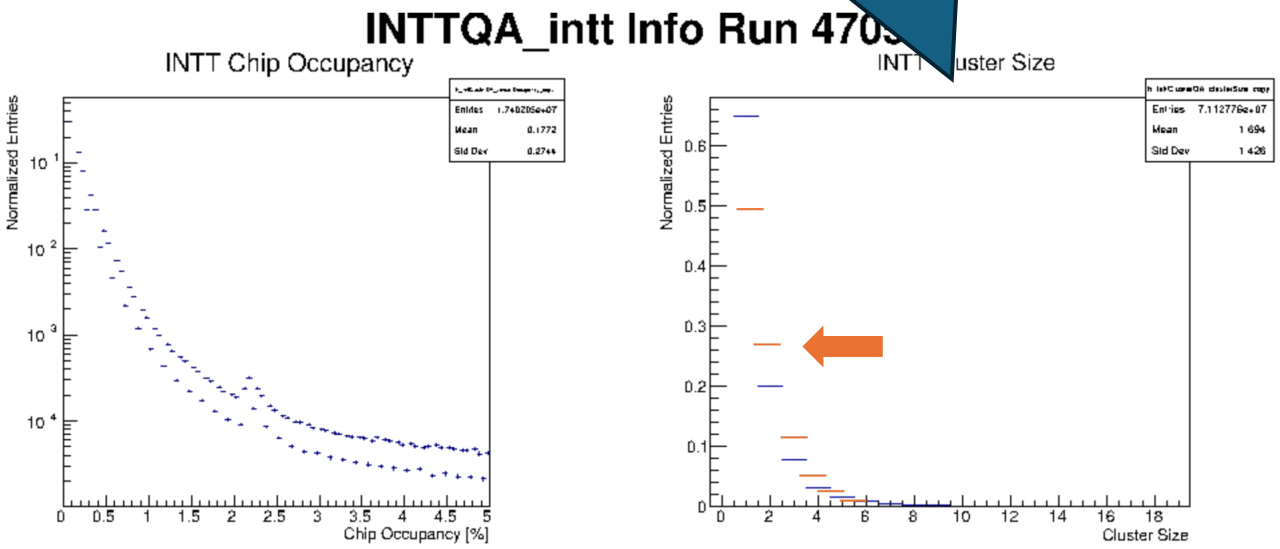
Y ：Fraction=(Entries/ all Entries)　Error Y： sigma

X ：cluster size

NEXT STEP

Reference plot





Overlapping drawing reference plot
in web site