Preliminary Analysis of MIP Calibration

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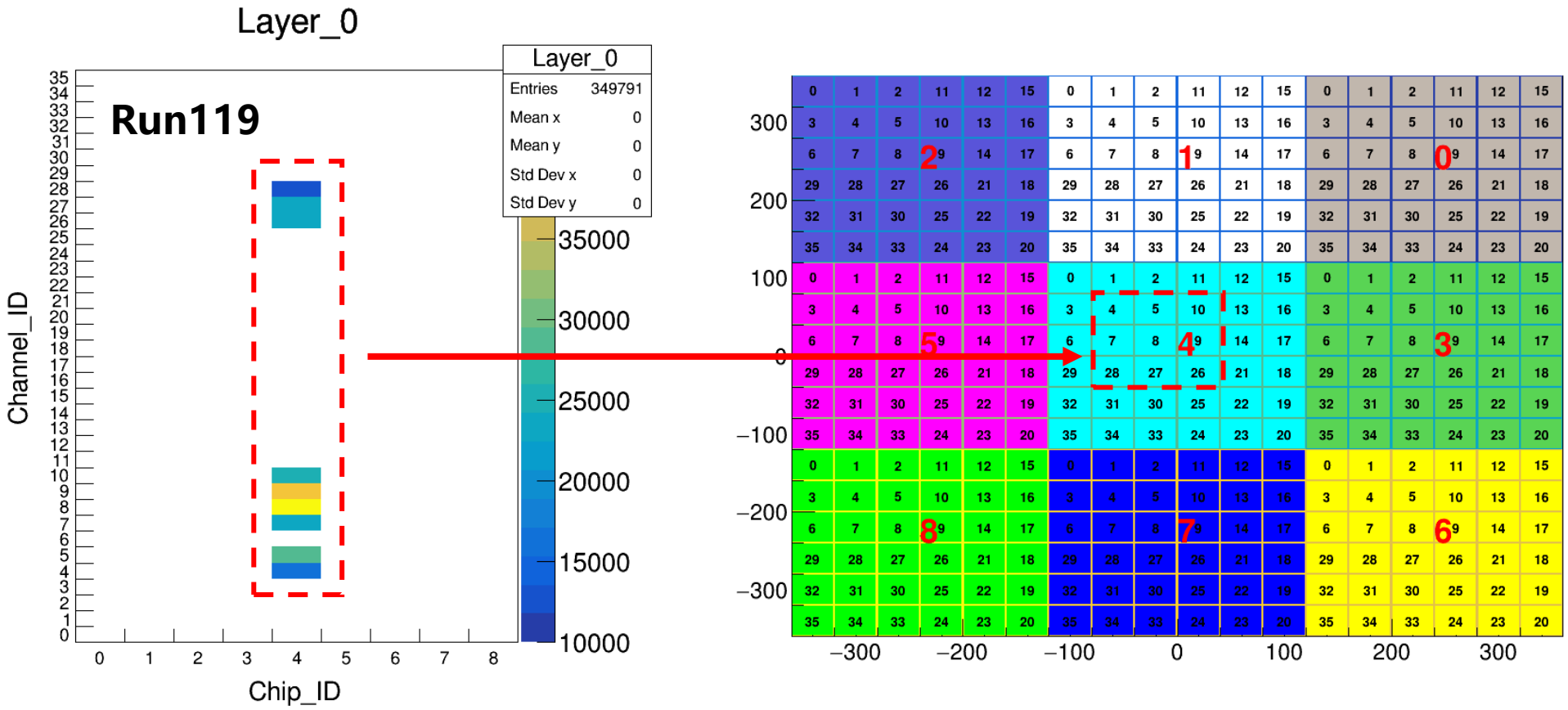
Selection of Central Channels



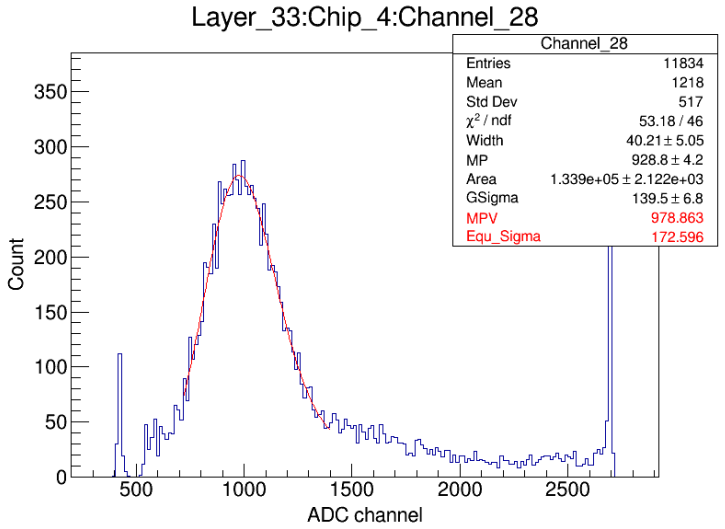
- The 9 channels with most hit number are used to preliminarily evaluate the MIP uniformity in one run
- Selected Channel_ID: {4, 5, 7, 8, 9, 10, 26, 27, 28}

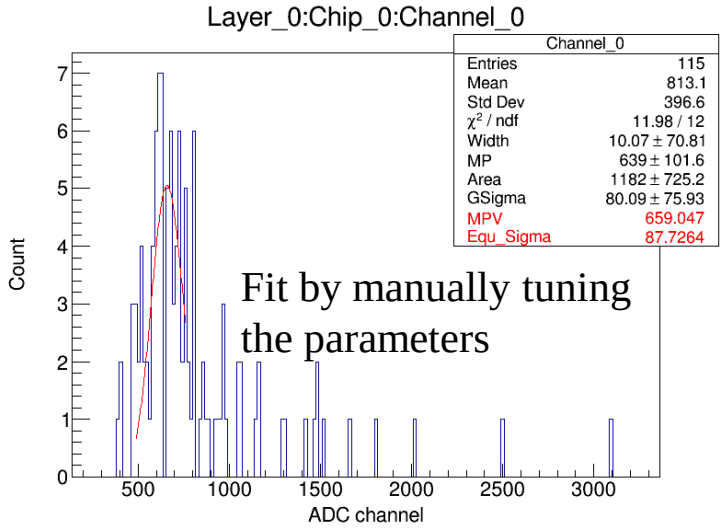
Batch Fitting with convoluted landau&gaus

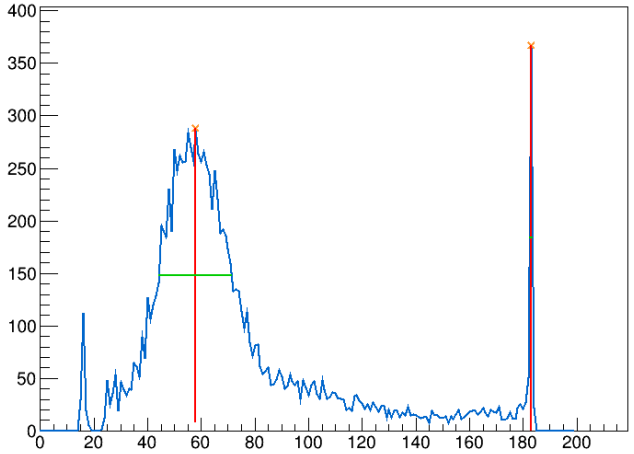
Run119

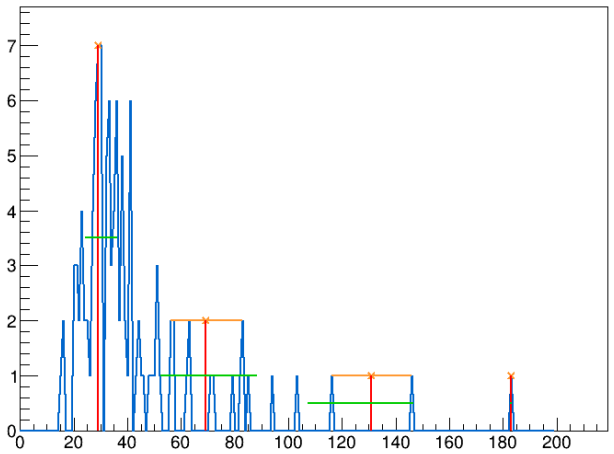
* Pedestal information is not included in original data files and can't be deducted

- Peak finding algorithm is used to find the MIP peak and initial fitting parameters
- The MIP peaks of central channels are significant enough to find and get the initial fitting parameters
- The MIP peaks of non-central channels are not significant and will be disturbed by fluctuation, which is hardly to get initial fitting parameters
- Merge of the data in all run is needed to improve the significance of MIP peaks



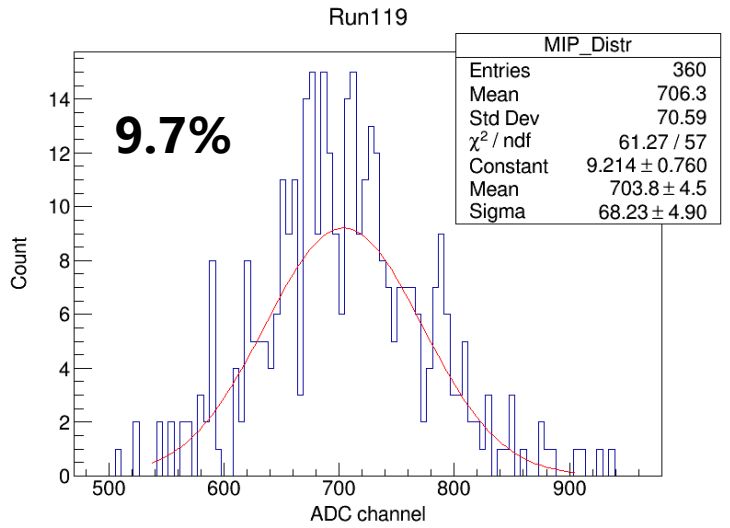


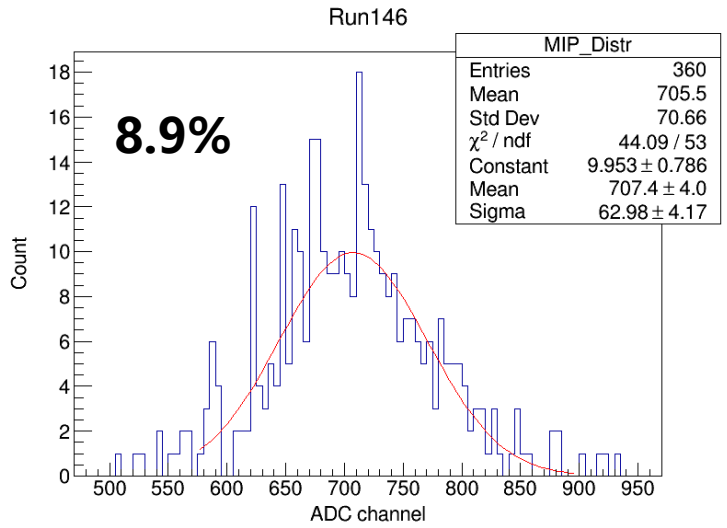


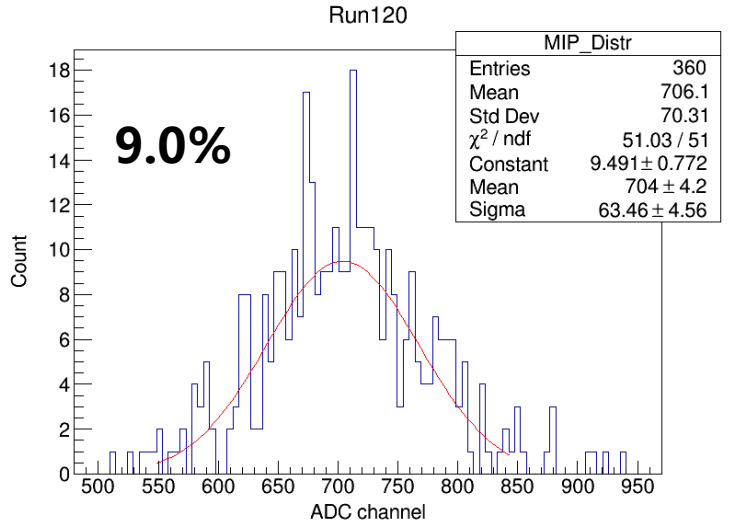


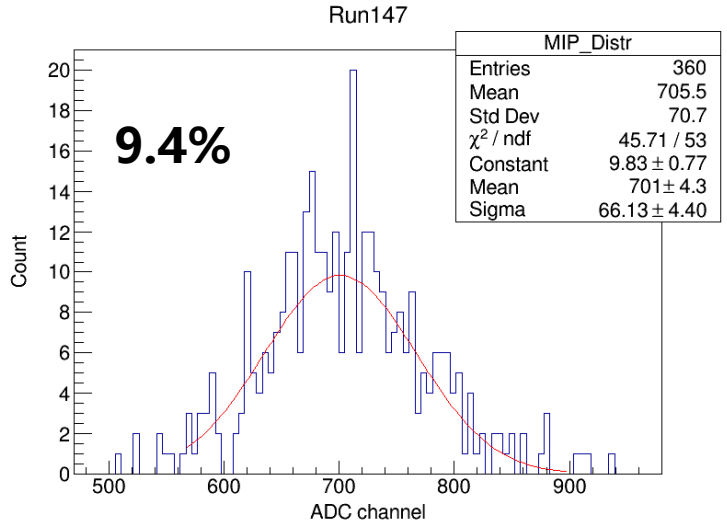
MIP Uniformity

- Non-uniformity of MIP peak position is better than 10%
- The average MIP peak position of central channels is almost same for different runs



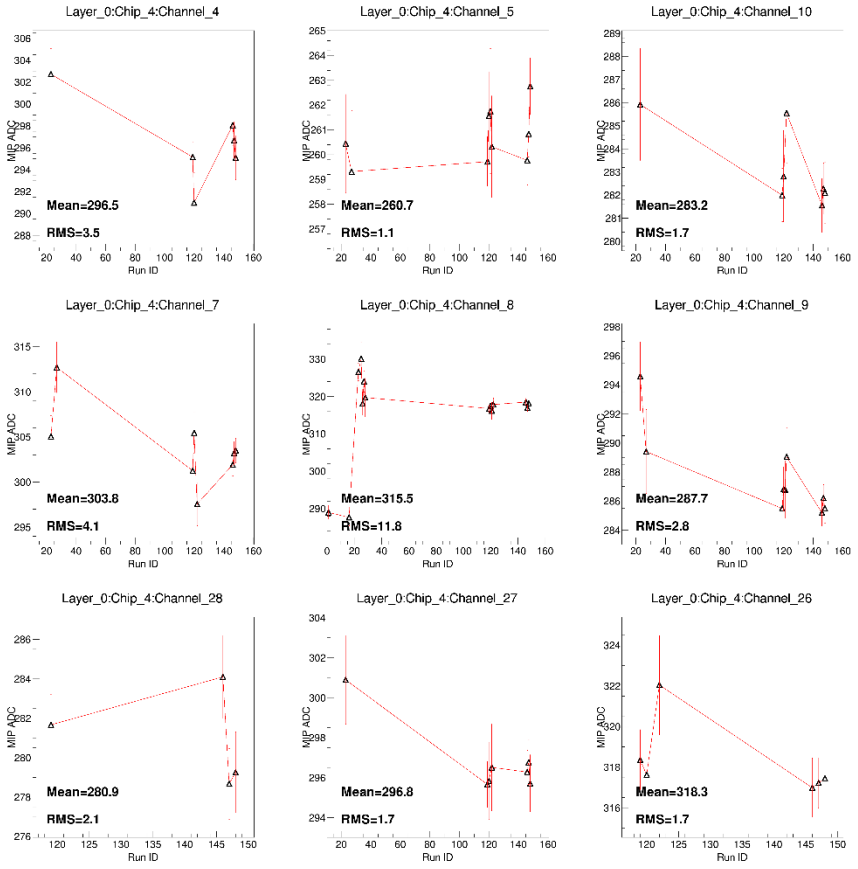




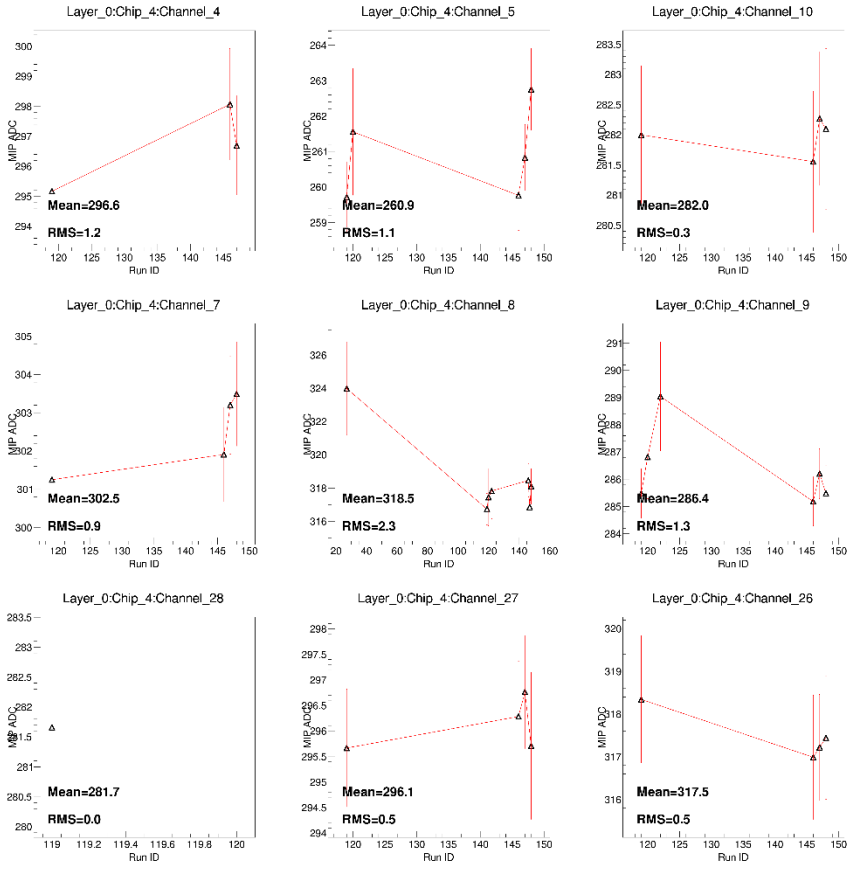


MIP Uniformity

- MIP uniformity within different run (The number of entries in each channel is used as a cut to ensure enough statistics)



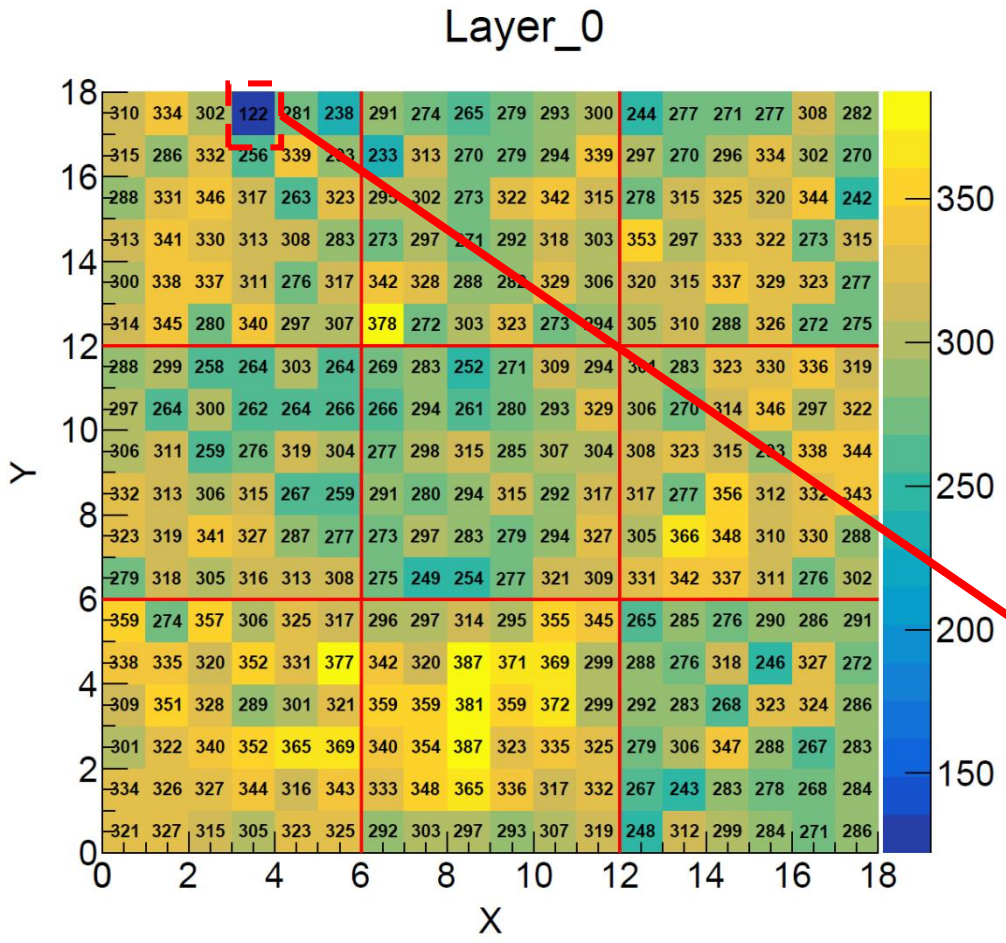
Entries>5000

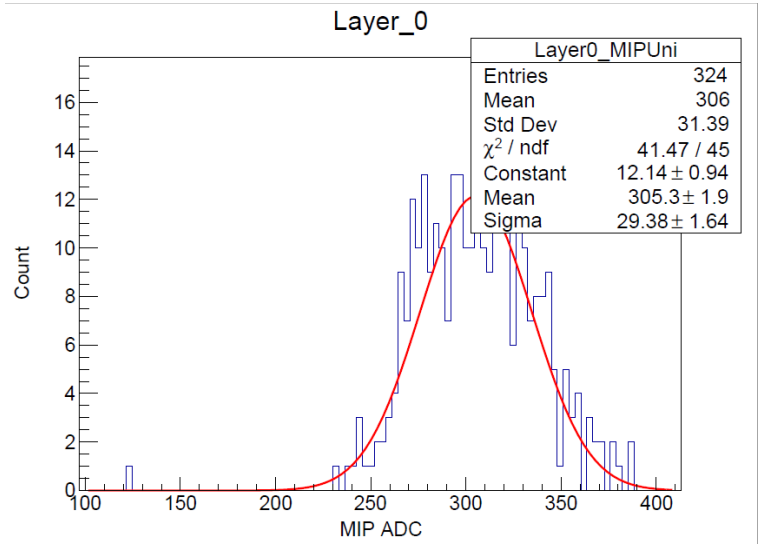


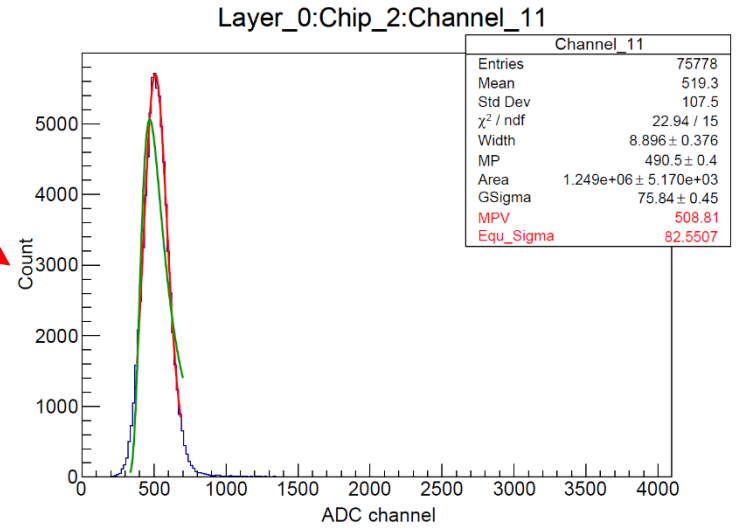
Entries>10000

MIP calibration of all channels

Data merge of all muon run



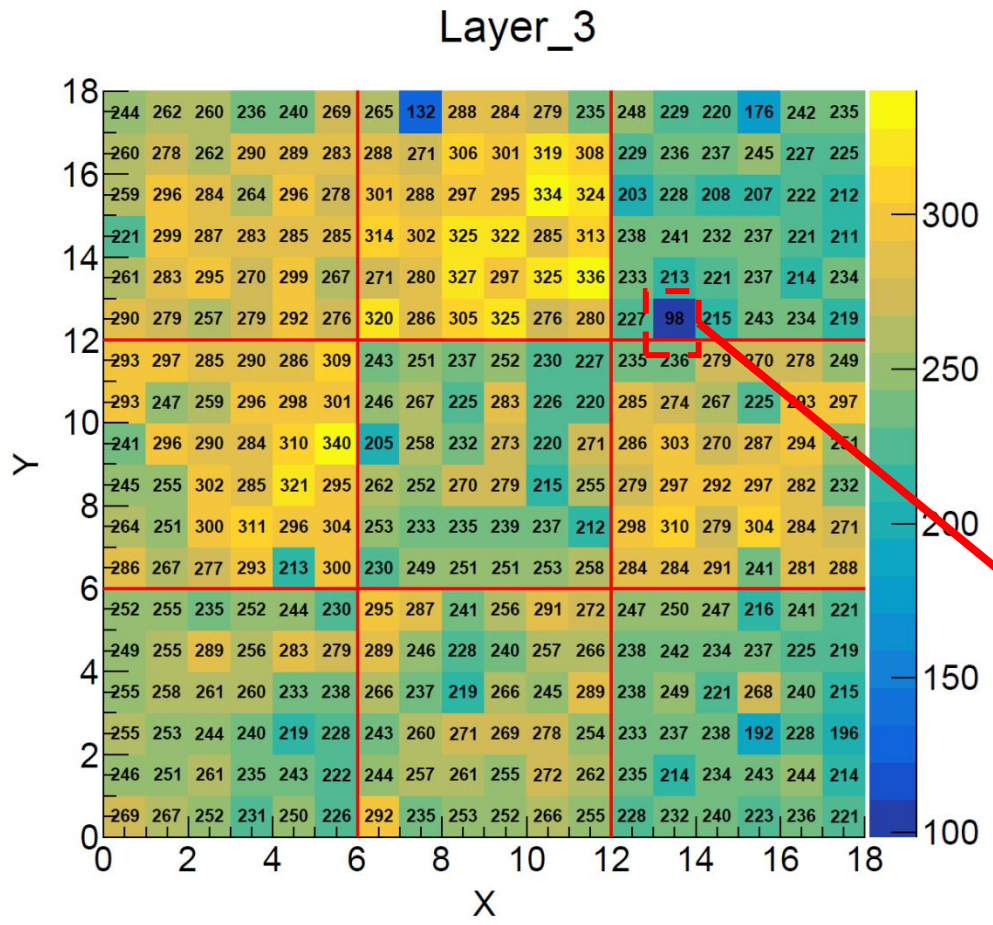


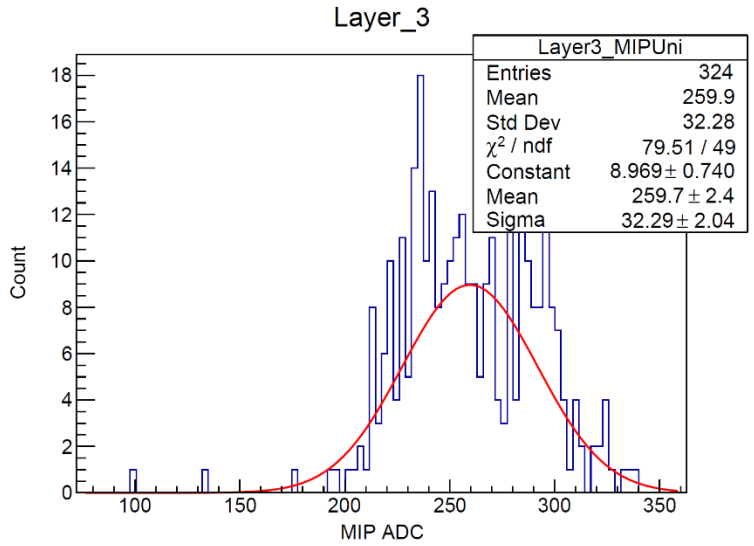


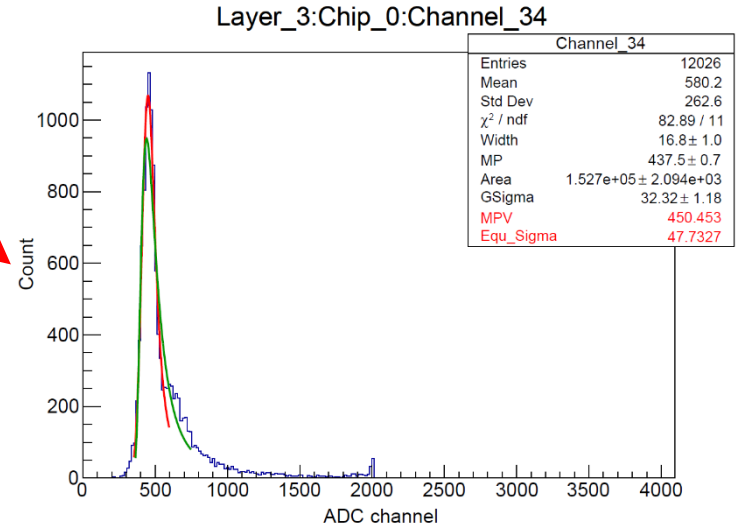
- The MIP peak are invisible

MIP calibration of all channels

Data merge of all muon run



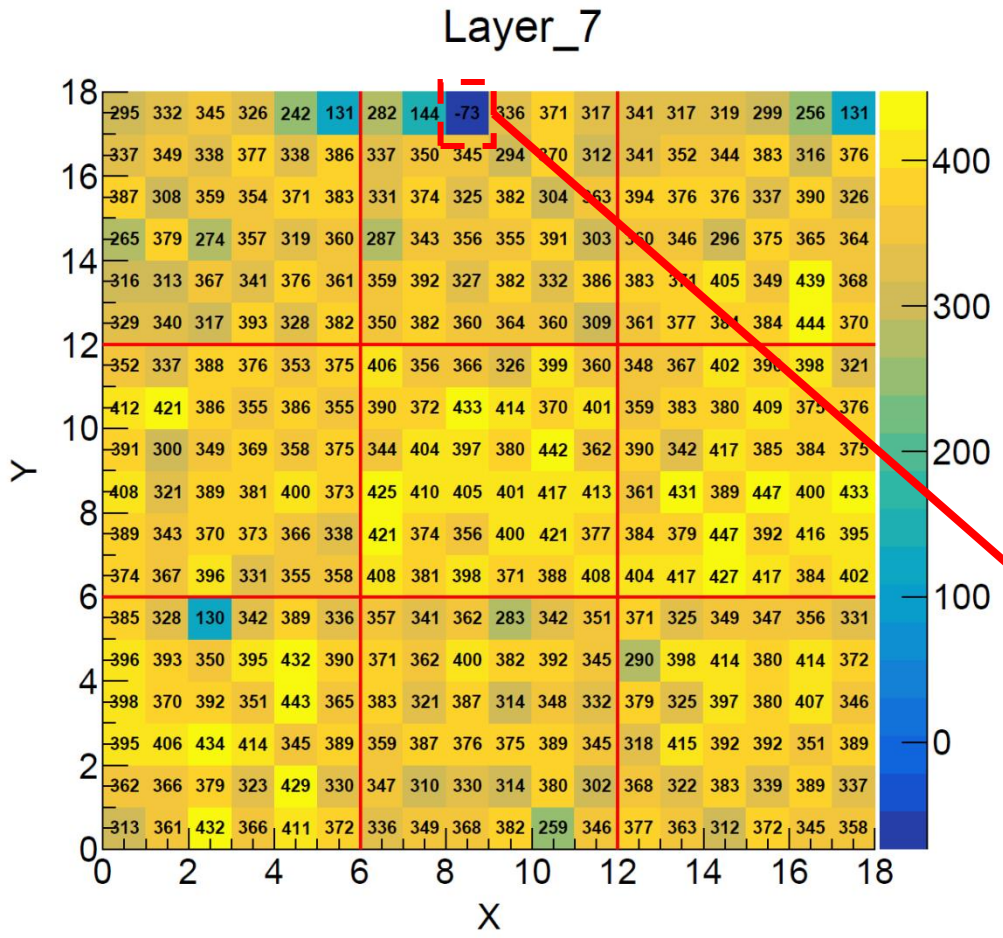


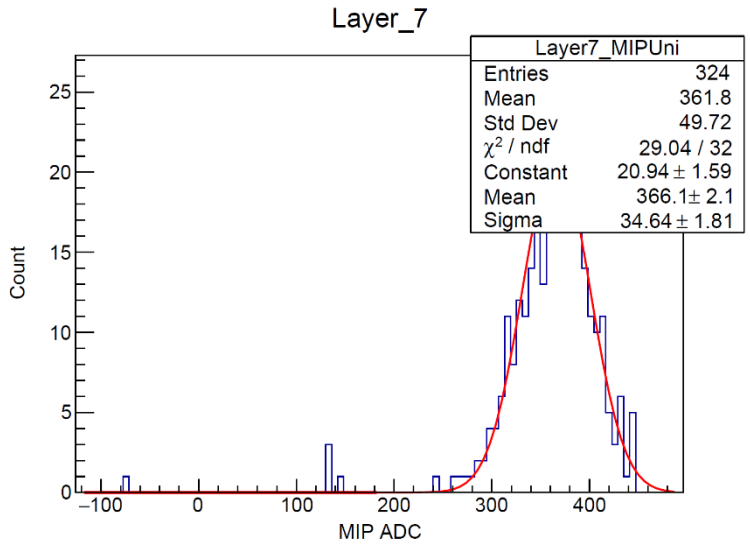


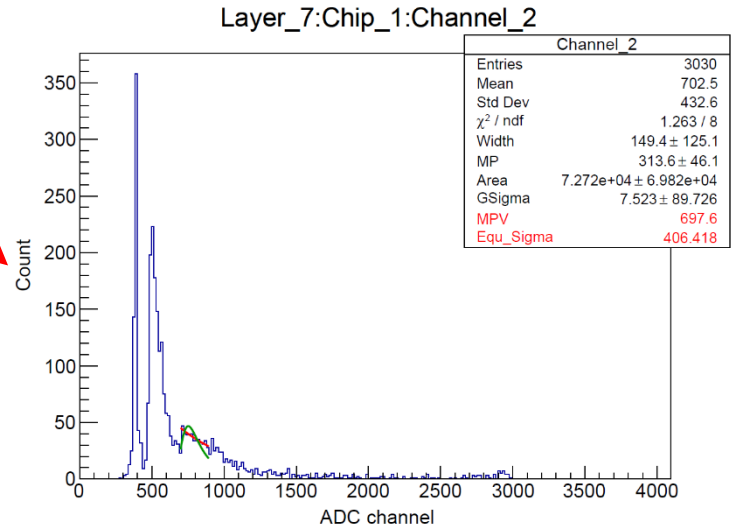
- The significance of MIP peak is very poor

MIP calibration of all channels

Data merge of all muon run



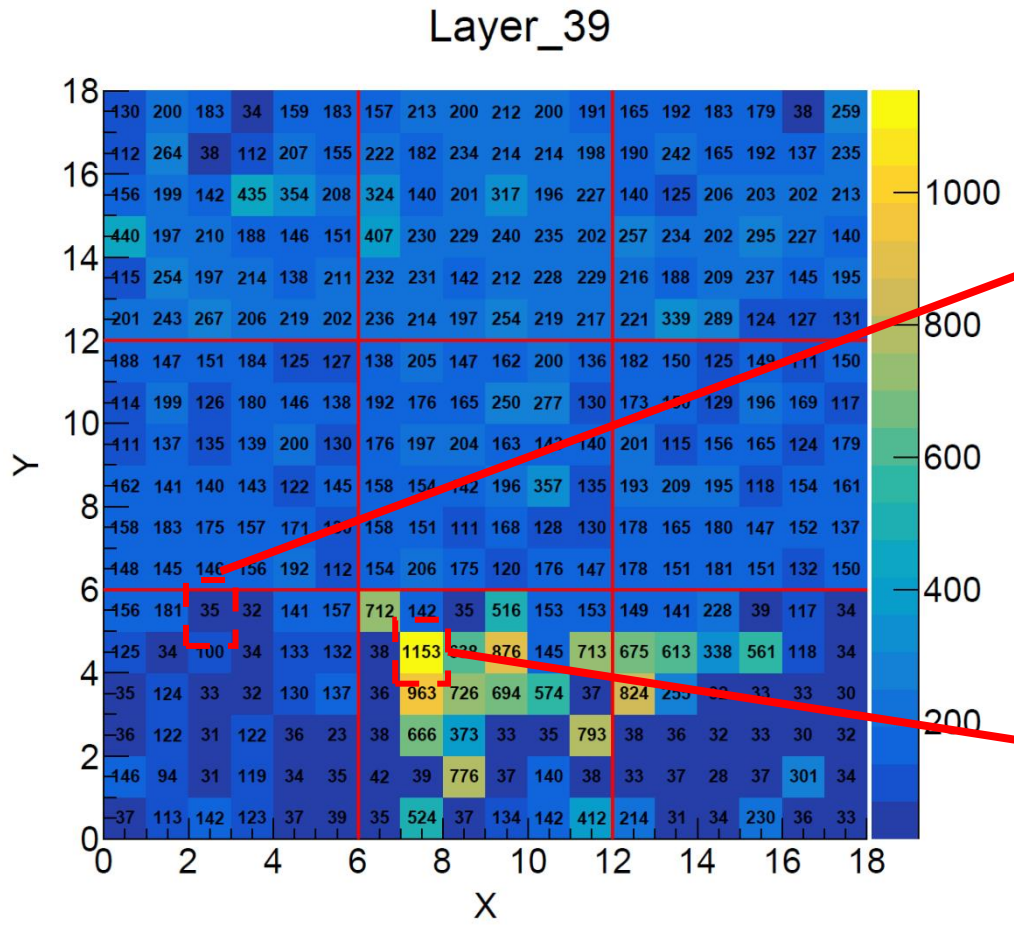


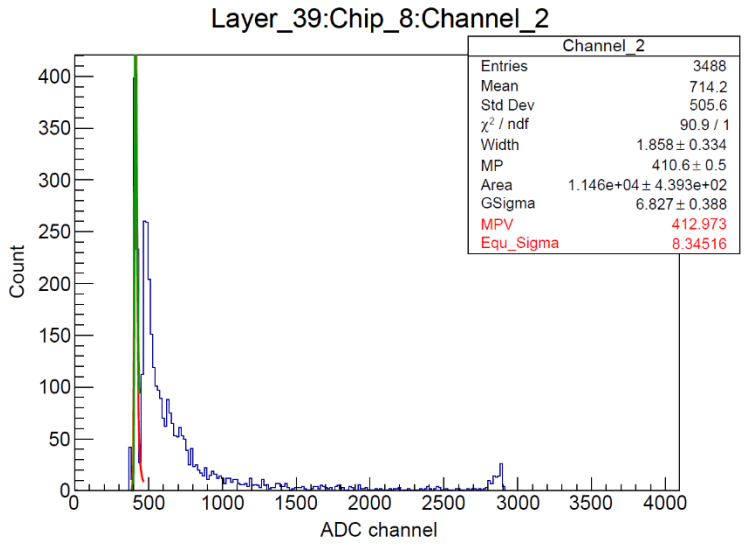


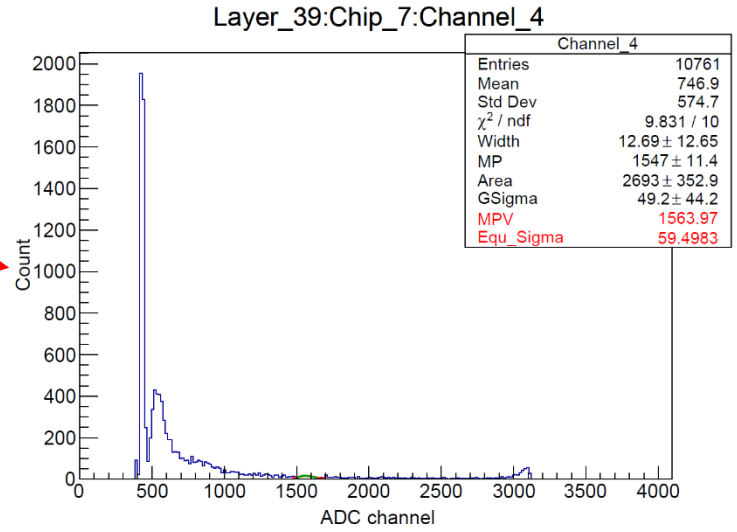
- Some unexpected noise peaks disturb the search of MIP signal

MIP calibration of all channels

Data merge of all muon run







- Some noise peaks with larger width disturb the search of MIP signal

MIP calibration of all channels

- Some discussion
  - Temperature correction for all channels in each run
  - Use the mean MIP ADC of the chip to represent the channels with abnormal MIP value