High/Low Gain Study

--Zhen Wang, Zixun Xu, Yukun Shi, Hongbin Diao

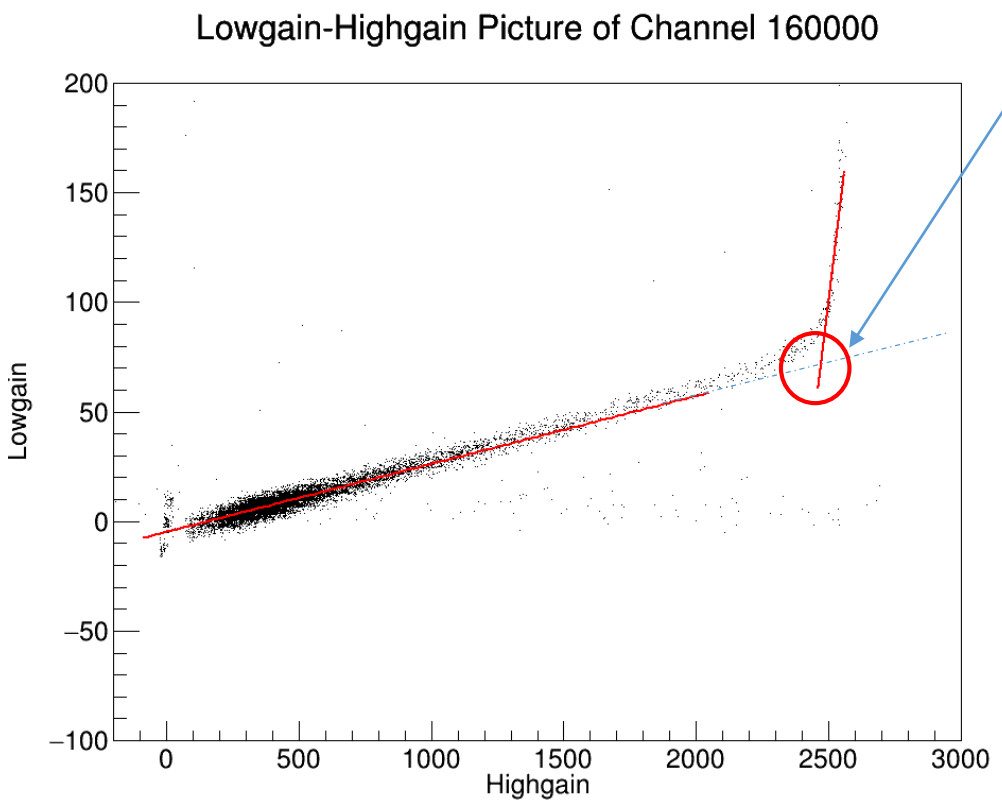
Targets

- Ratio between high gain and low gain.
- Saturation threshold of high gain.
- Check overall channel quality.

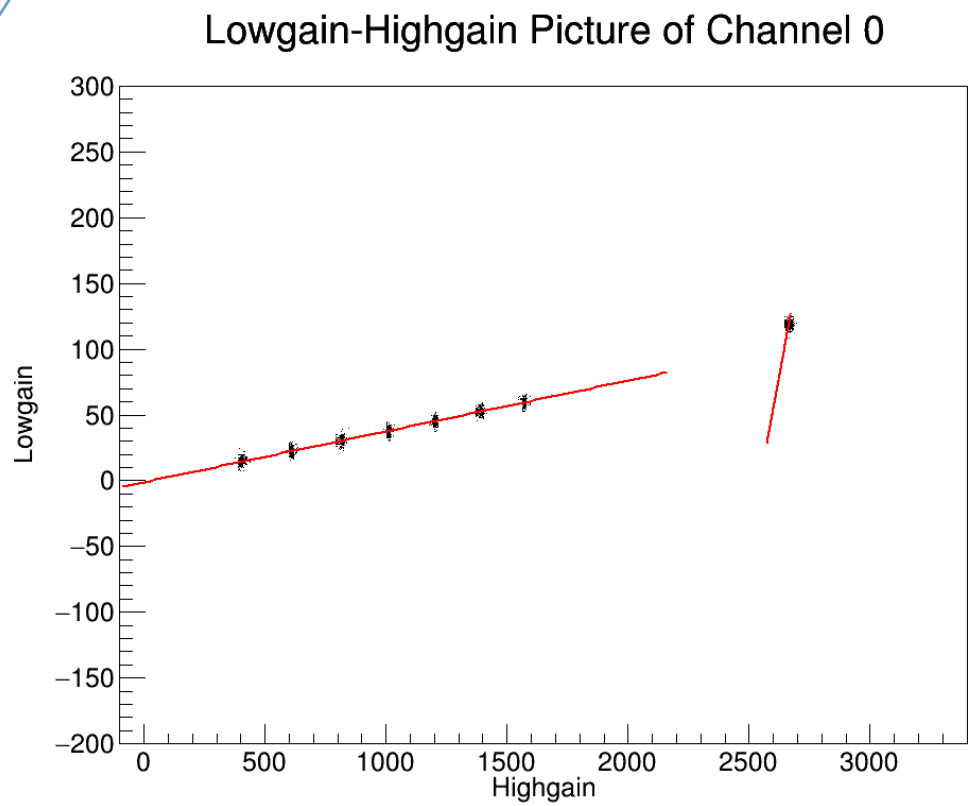
Performance

Unit [ADC]

Saturation of high gain

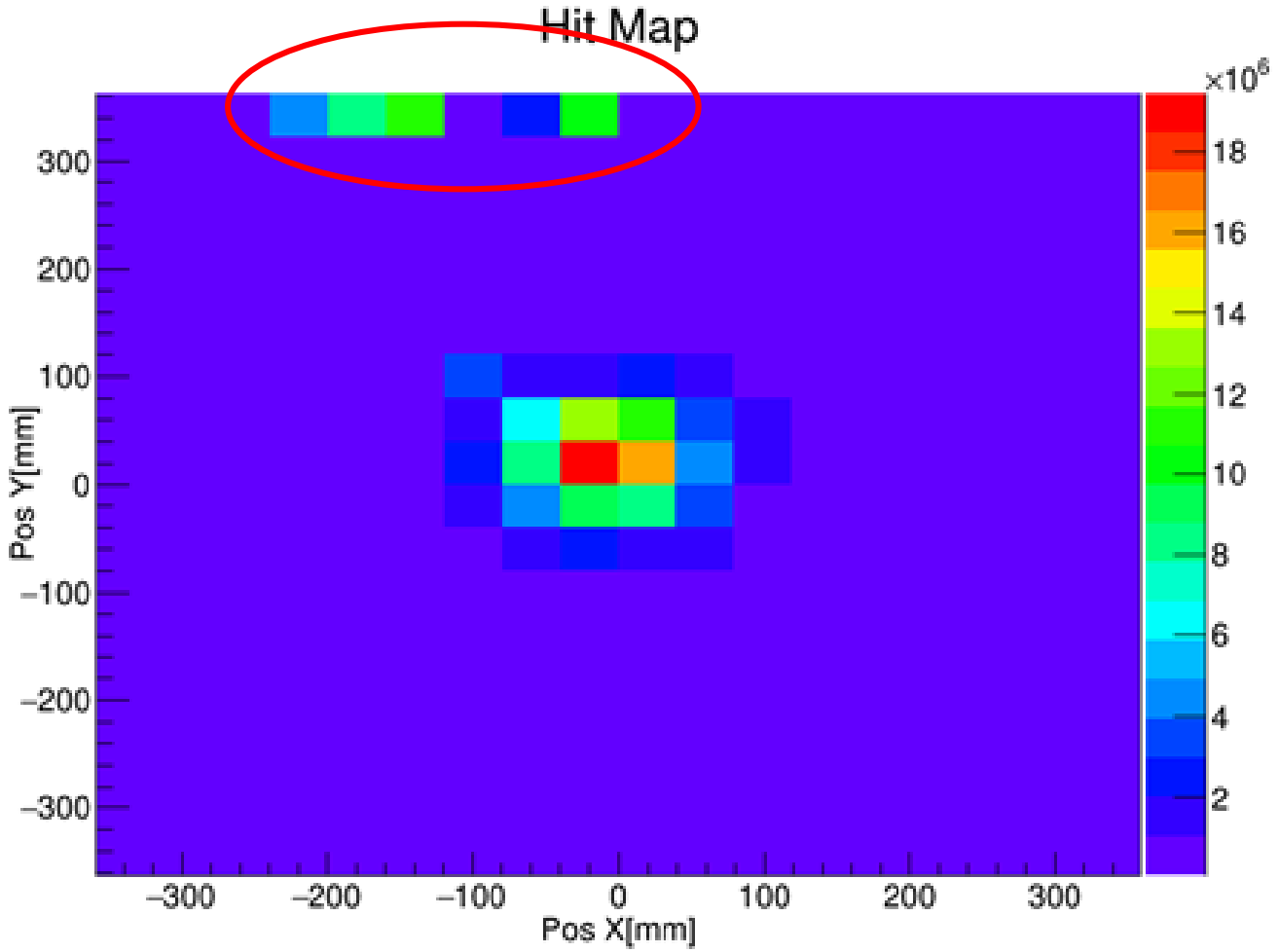


Muon data



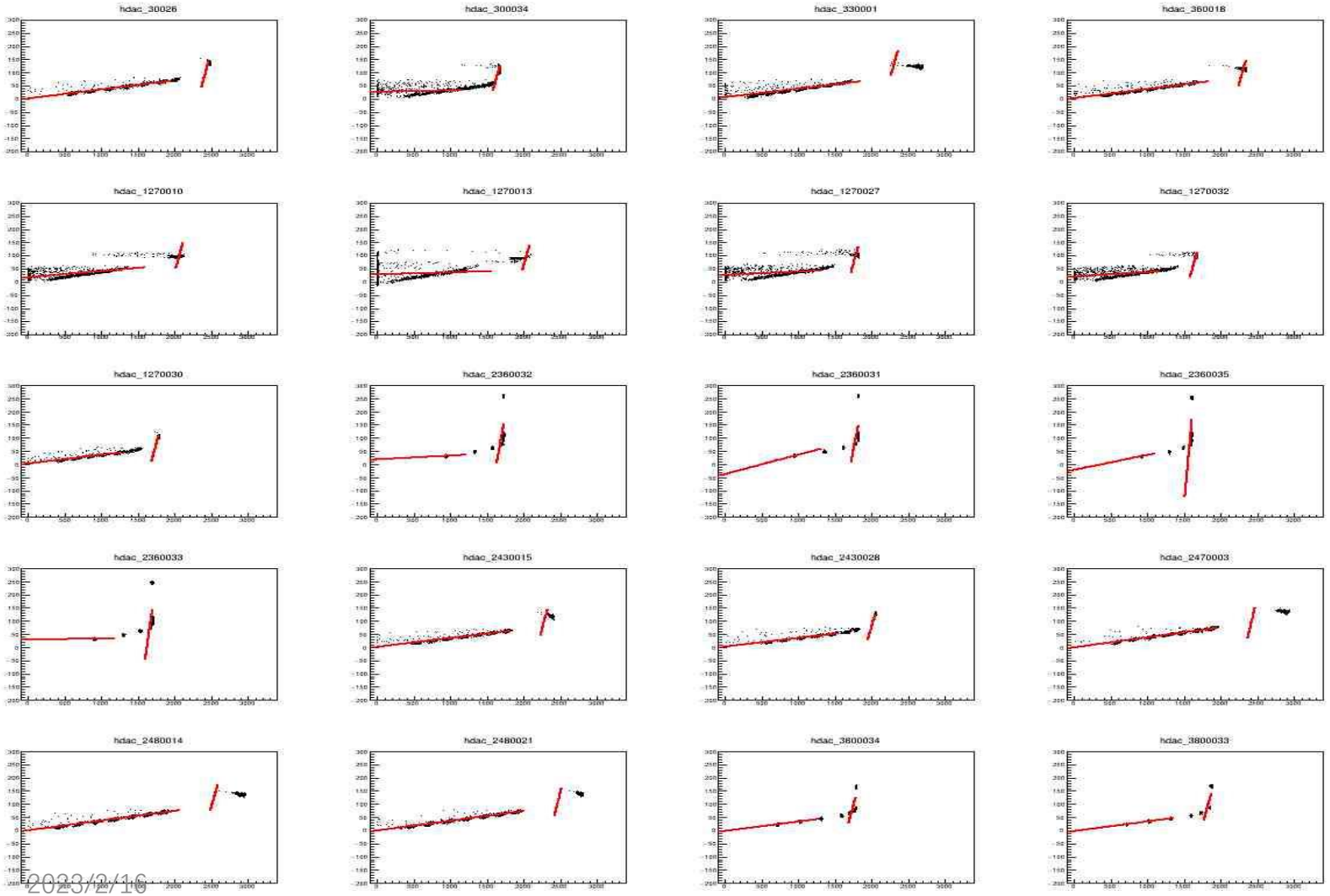
Dac calibration

Light leak



chip1:0 1 2 chip2: 11 12 15

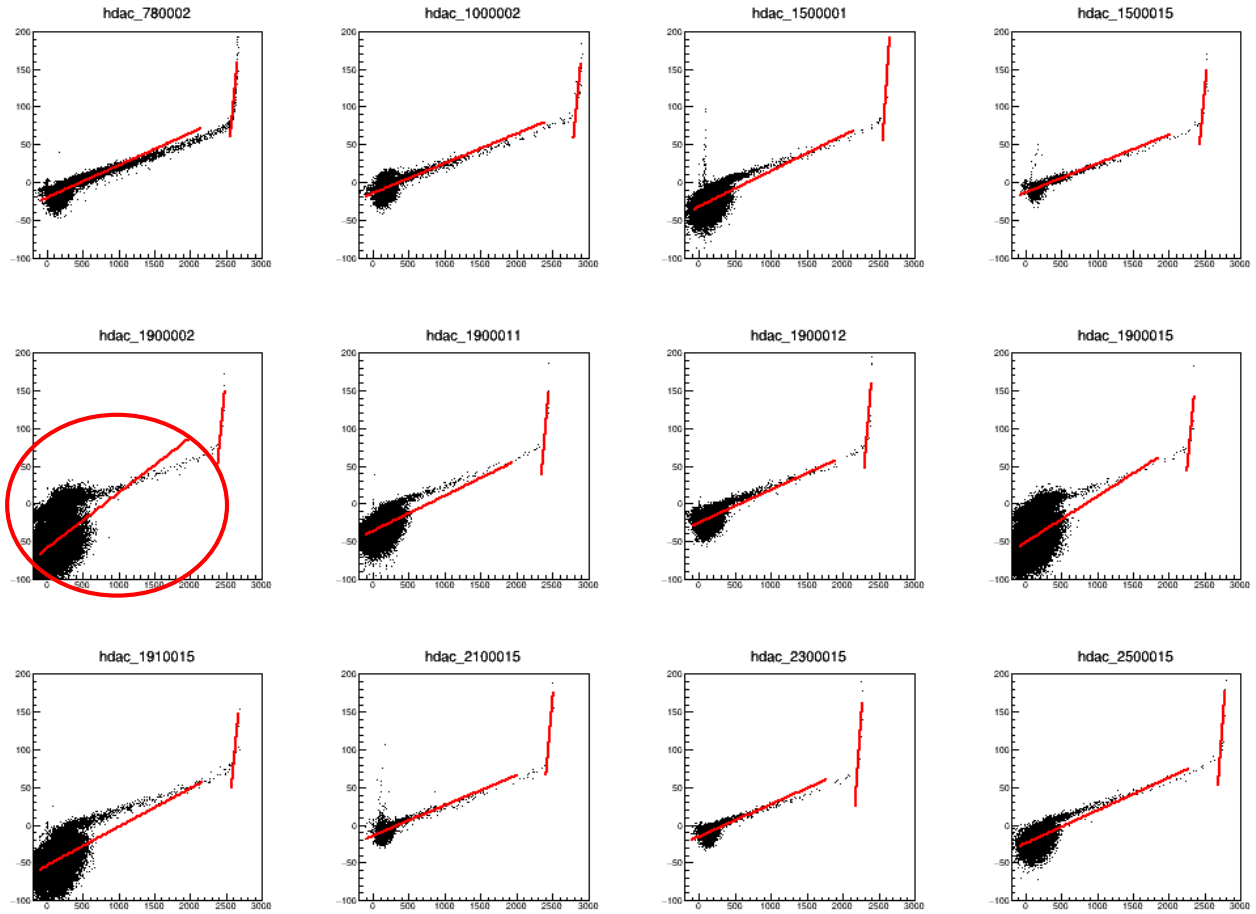
Problematic types --DAC



Ration of bad channels

20/12960 (0.154%)

Problematic types -- Mu

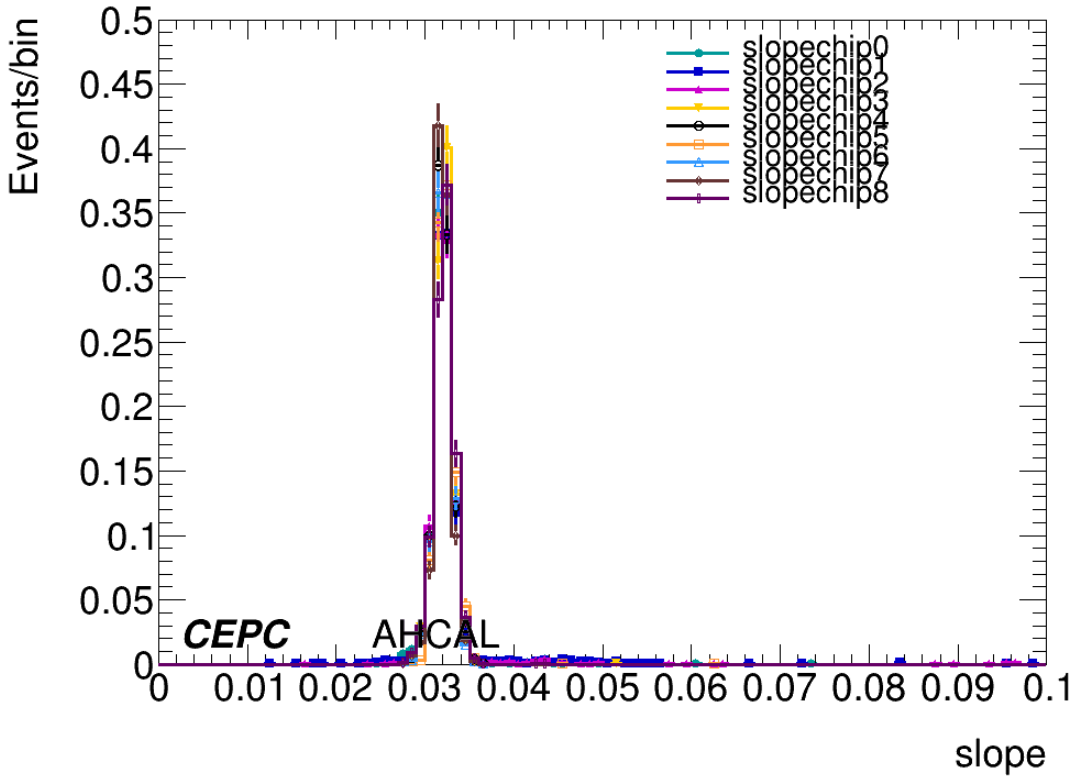


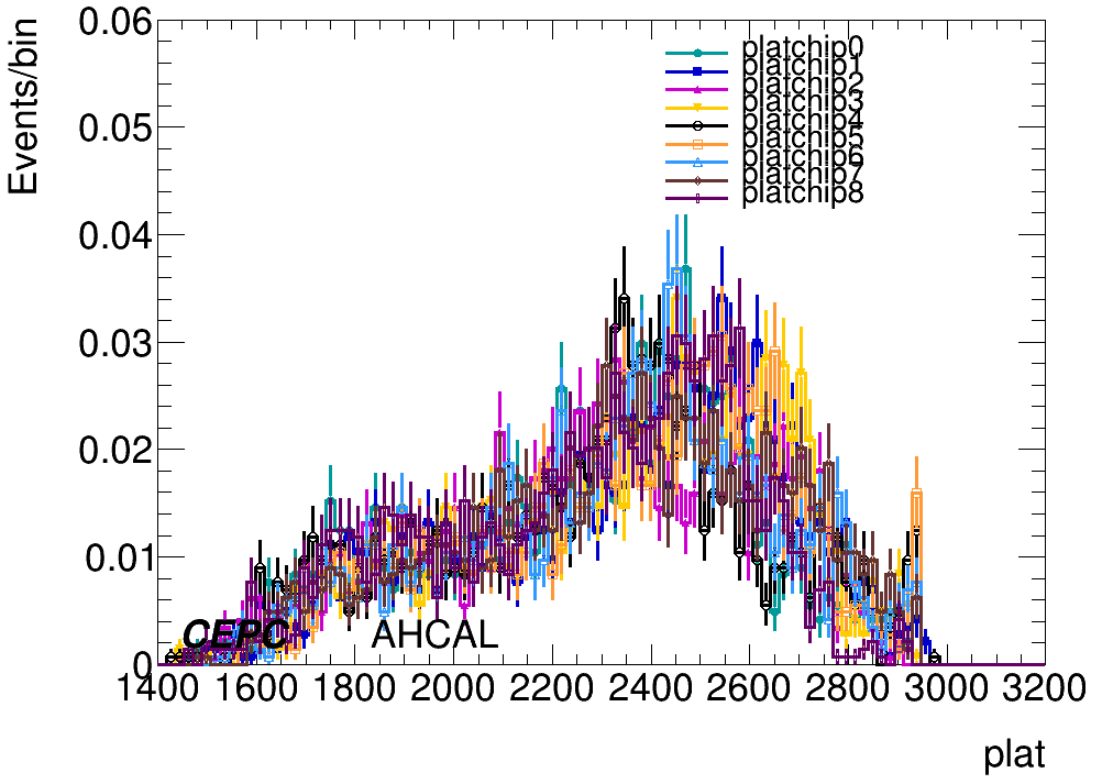
225 bad channels (including light leak) ~1.7%

33 bad channels (excluding light leak) ~0.26%

Noise at different places

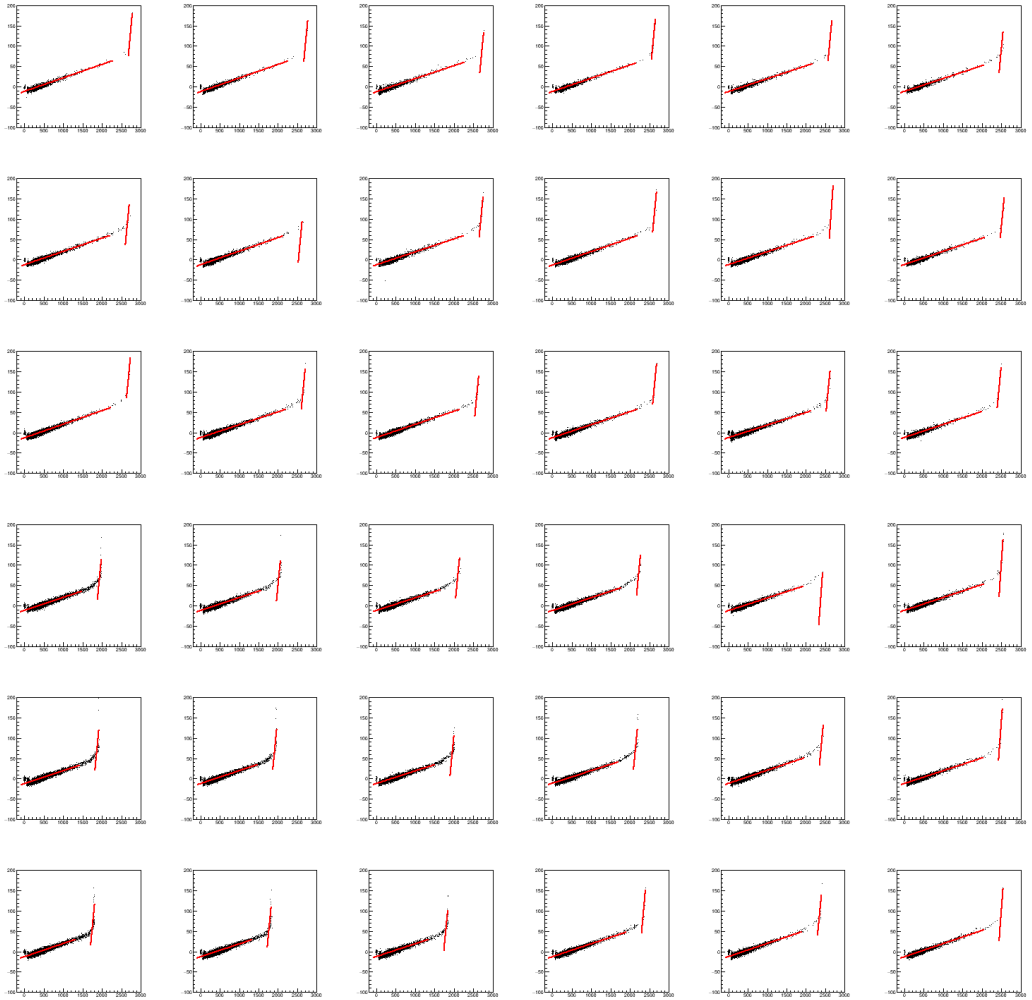
Muon calib performance



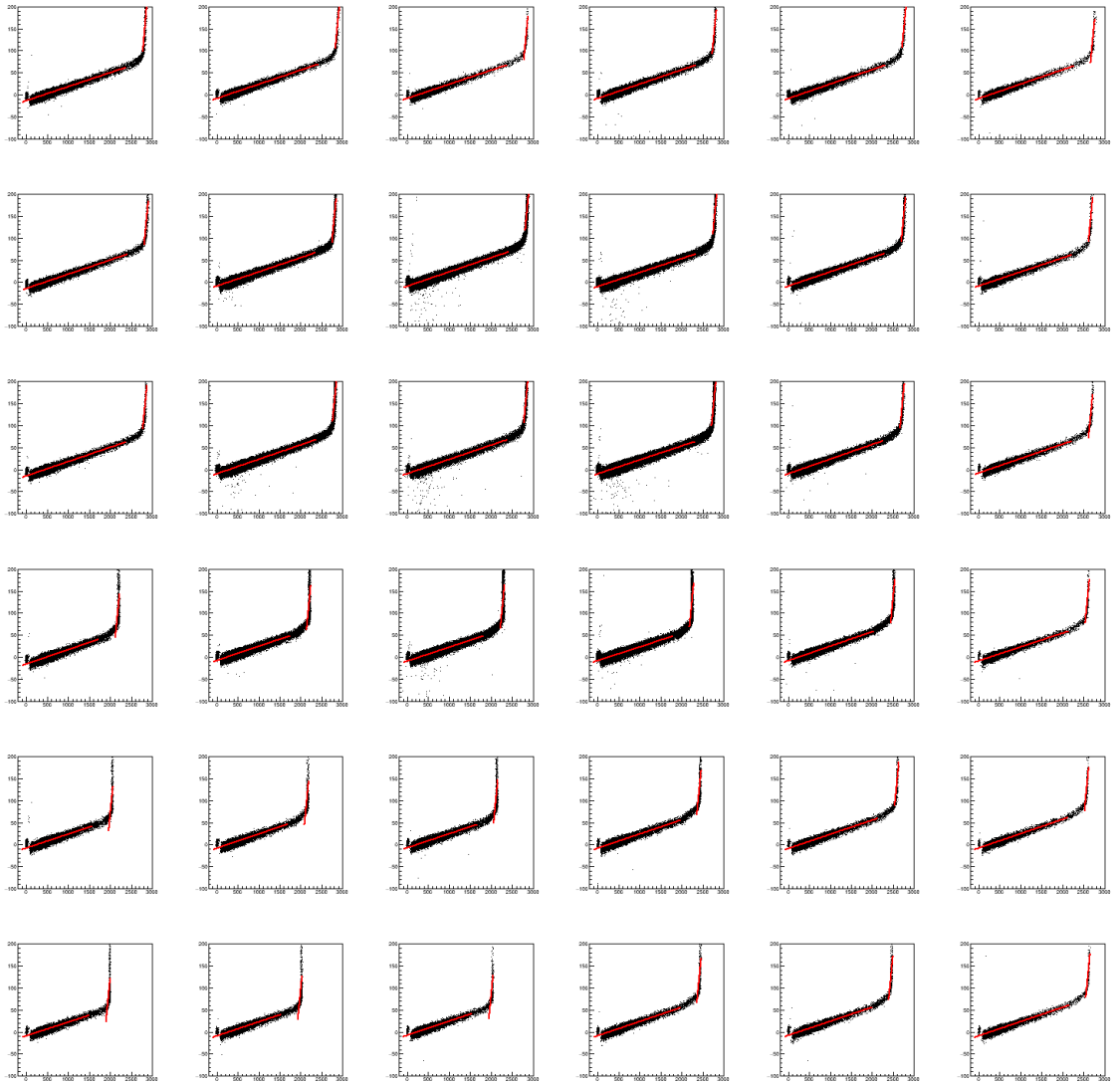


Different chips have similar slopes and saturation platforms

Chip Performance

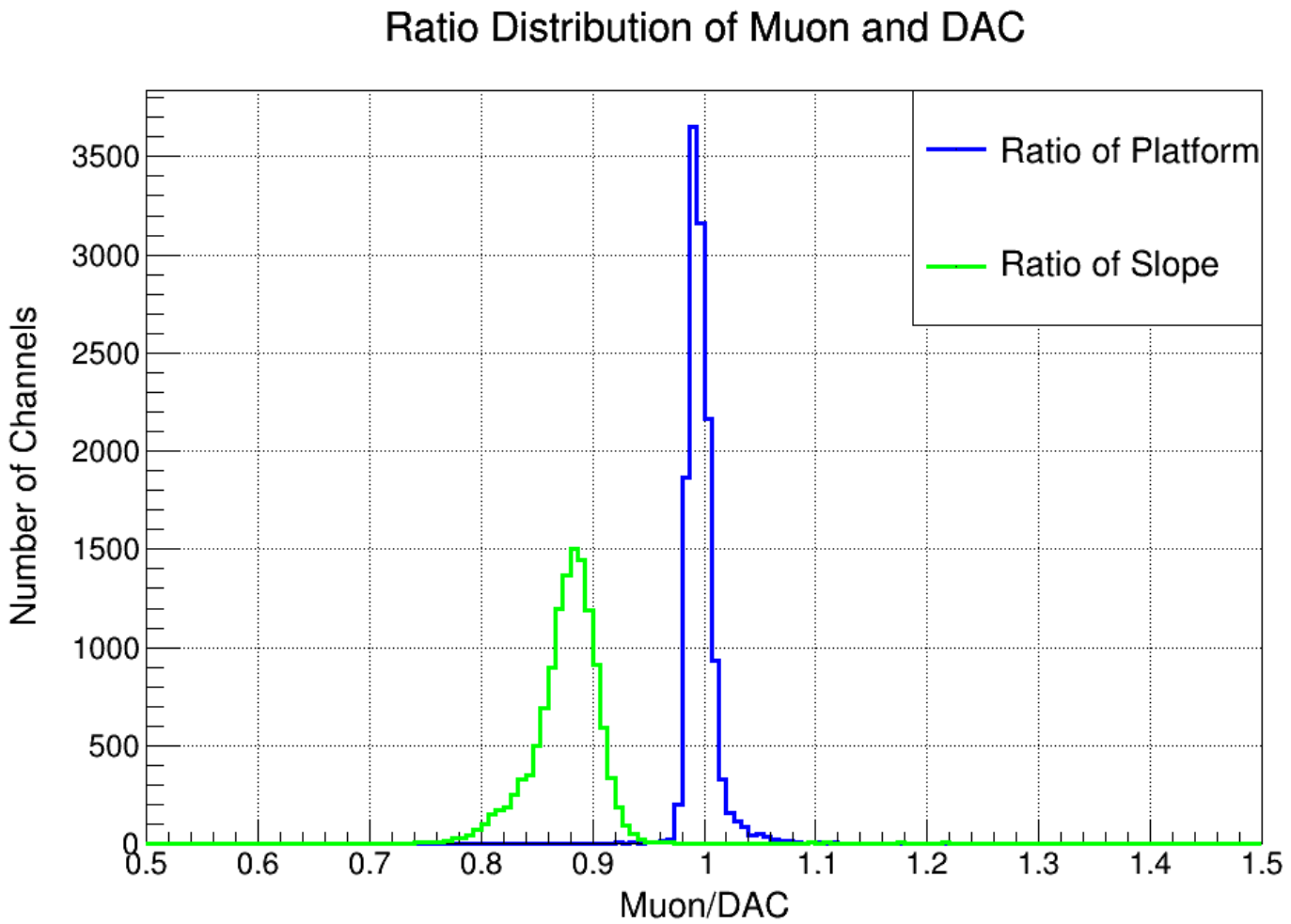


Layer0 Chip0



Layer20 Chip4

Ratio between DAC and Muon



Saturation of high gain is similar

L/H ratio is different between DAC and muon calibration

Conclusion

- Different chips have similar slopes and saturation plats.
- DAC calibration bad channel ratio ~ 0.15%
- Beam test muon calibration bad channel ratio ~0.26% (1.7%)
- Provide L/H ratio and saturation platform to Yukun

Backup

All bad channels in beam test muon data