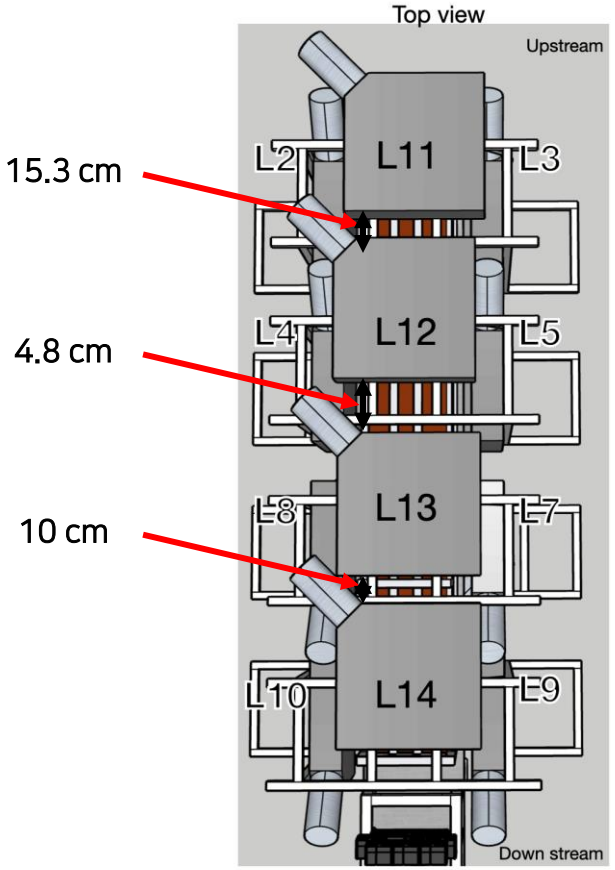
# Leakage Counter Calibration

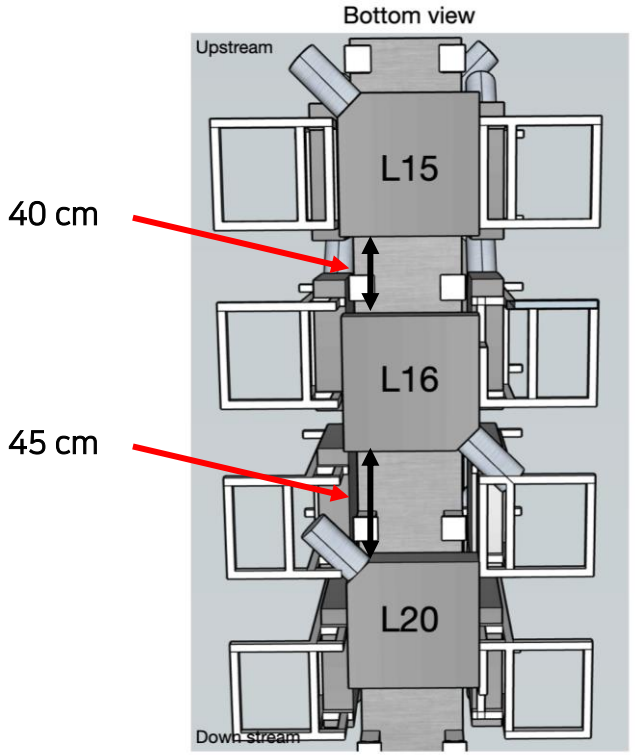
## Leakage Counter install

- Got leakage counter calibration run (Run# 10503, 10505, 10507, 10509)

- Calibrated with 160 GeV mu+, 5000 evts per position. (Top, Bottom, Left, Right)

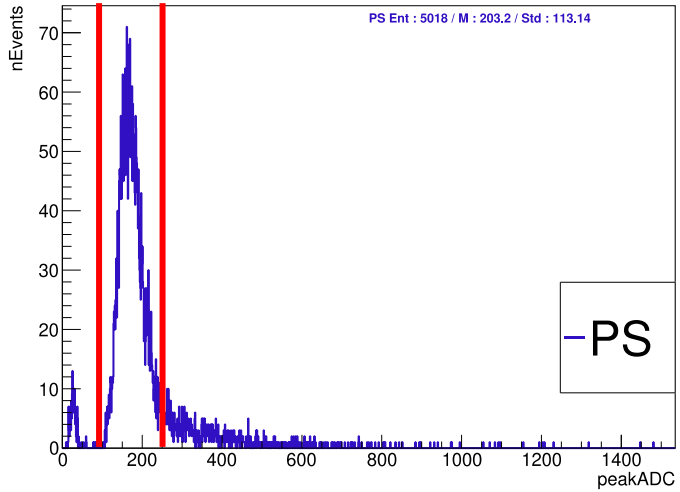
- Measured distance between leakage counters, and the height position of LCs.

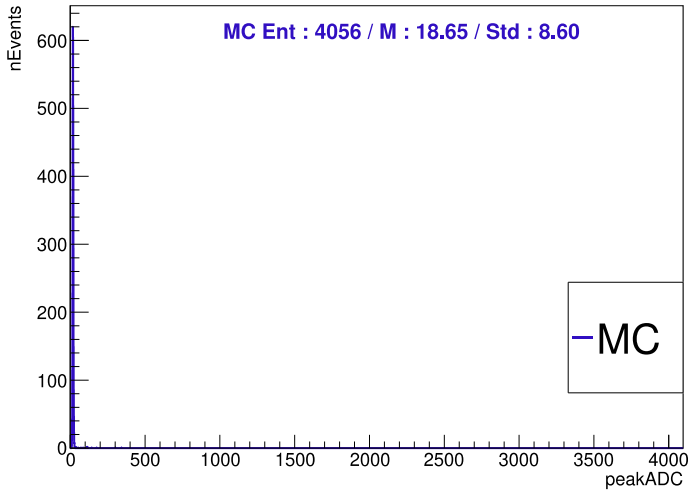


# Leakage Counter Calibration

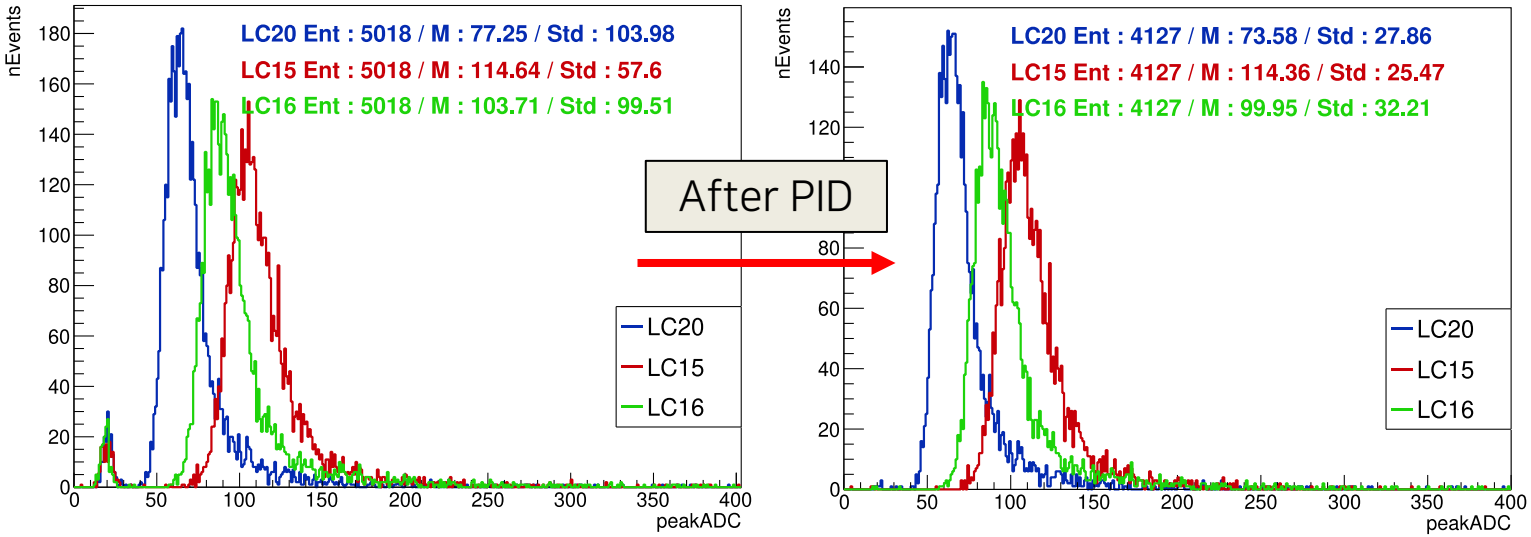
## Particle Identification




- For particle identification, applied cut for PS, **100 < (Peak ADC) < 250**

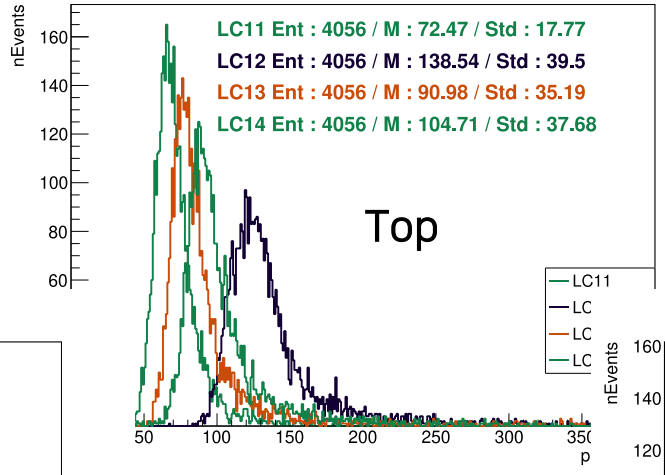
- No MC signal was found, due to beam incline.

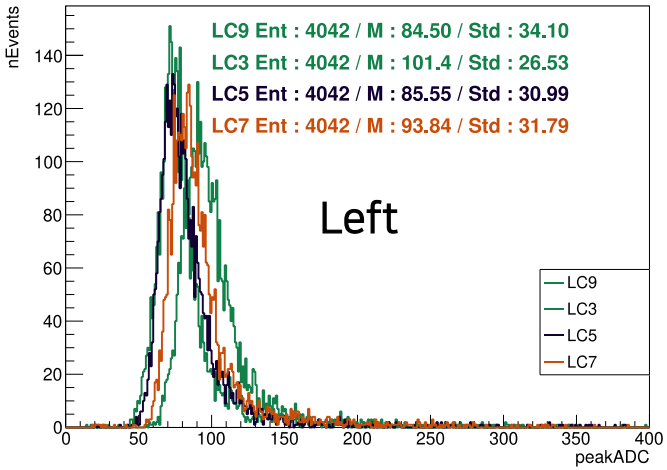


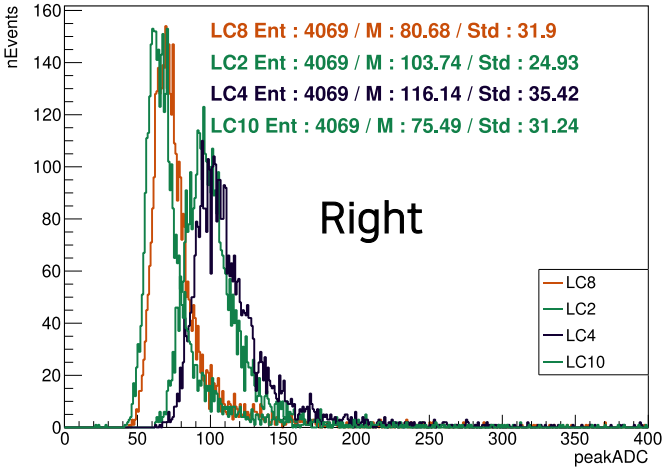
# Leakage Counter Calibration

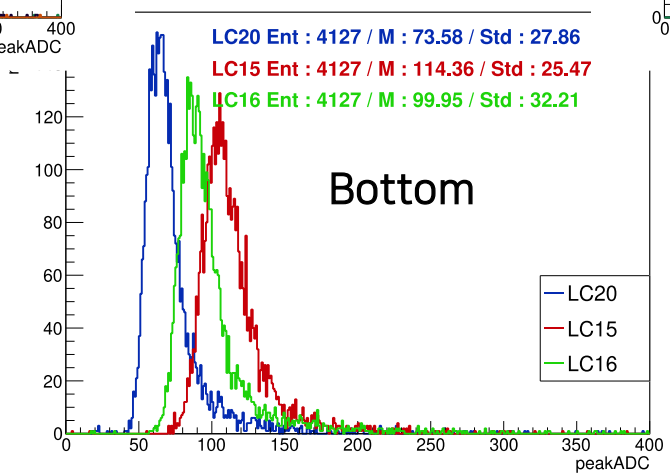
## Particle Identification

After PID



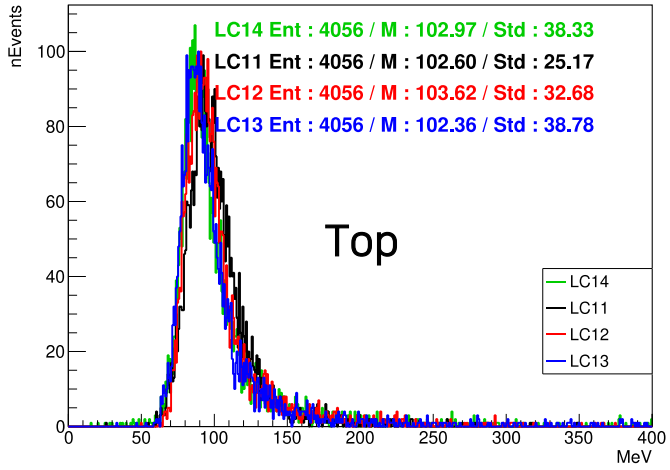



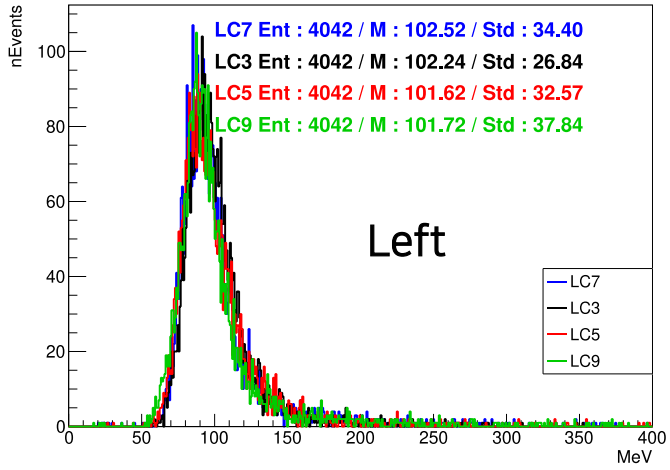



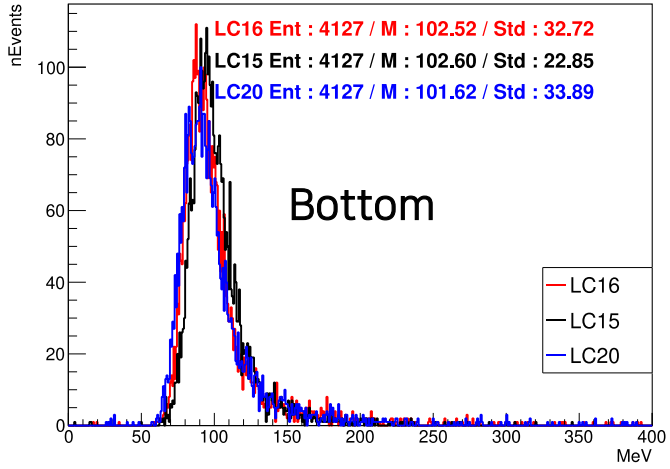
# Leakage Counter Calibration
## Calibration

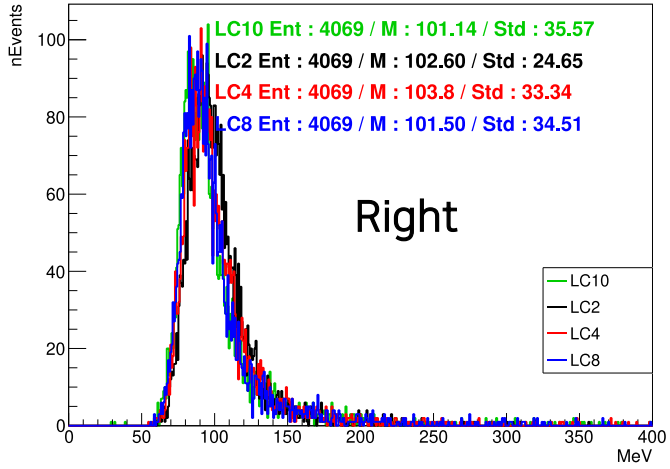
- Polystyrene minimum ionization : 2.052 MeV / cm (pdg)

- Total energy deposit on single LC : 2.052 MeV / cm * 50 cm = 102.6 MeV



# Leakage Counter Calibration
## Calibration

- Calibration constant & scale factor for integrated ADC results.

| LC # | Calibration Constant (MeV/intADC) |
|---|---|
| LC2 | 0.017611980 |
| LC3 | 0.020157963 |
| LC4 | 0.018407649 |
| LC5 | 0.024310031 |
| LC7 | 0.019876017 |
| LC8 | 0.023748571 |
| LC9 | 0.021884685 |

| LC # | Calibration Constant (MeV/intADC) |
|---|---|
| LC10 | 0.024175591 |
| LC11 | 0.025516295 |
| LC12 | 0.013107868 |
| LC13 | 0.022355815 |
| LC14 | 0.017476323 |
| LC15 | 0.016684636 |
| LC16 | 0.018222247 |
| LC20 | 0.023386108 |

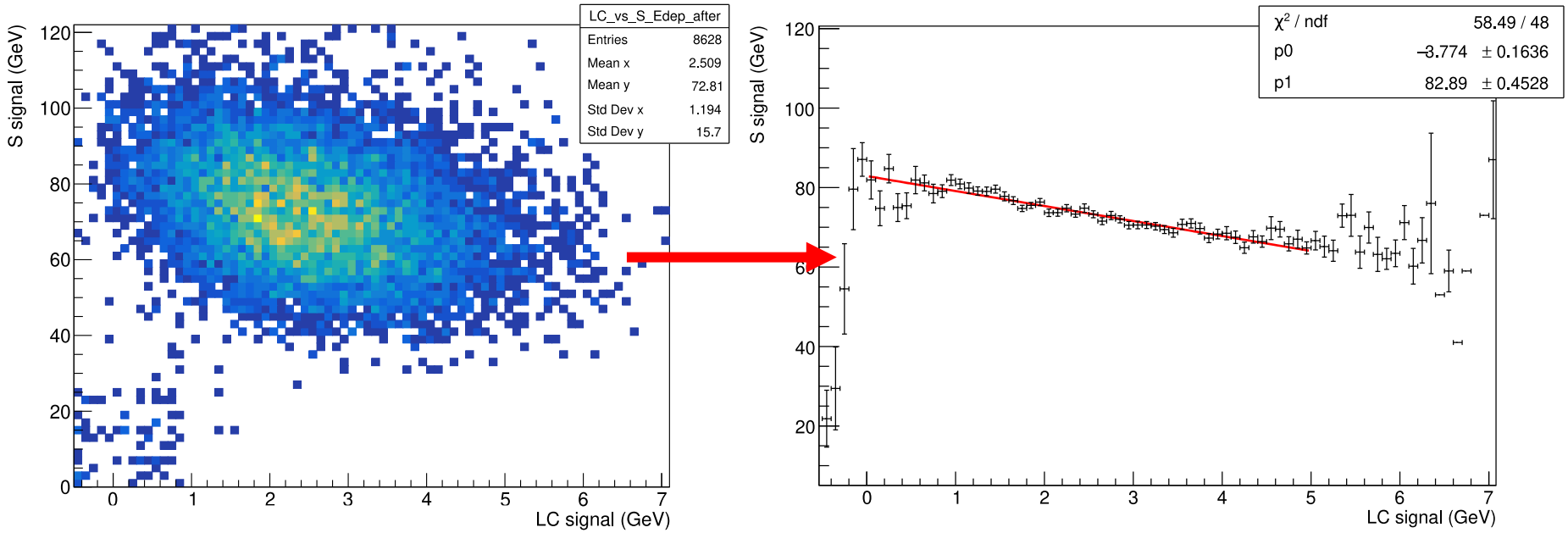
- Applied integration range : 400 ~ 600 bin

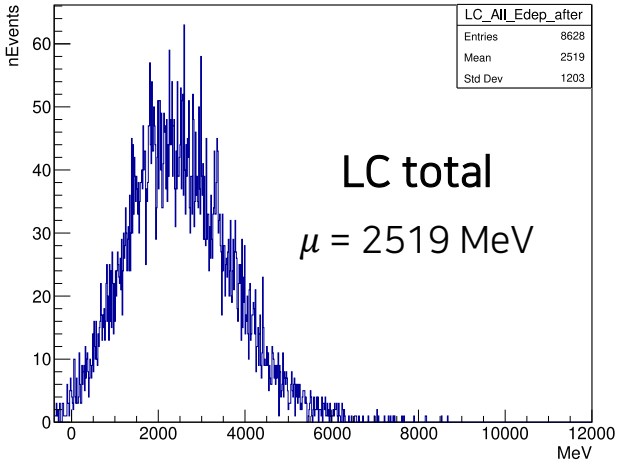
- Scale Factor : 2.50978817

# Leakage Counter Calibration

## Pion event signal

- Run# 10631, 100 GeV hadrons on M5T1 center, 50k events, integrated ADC result




- I've applied inverse cut for CC2 PID on yesterday results.
- After changing the cut, scaled average of total LC signal to 2.5 GeV
- Shows anti-correlation between LC signal & S ch. signal