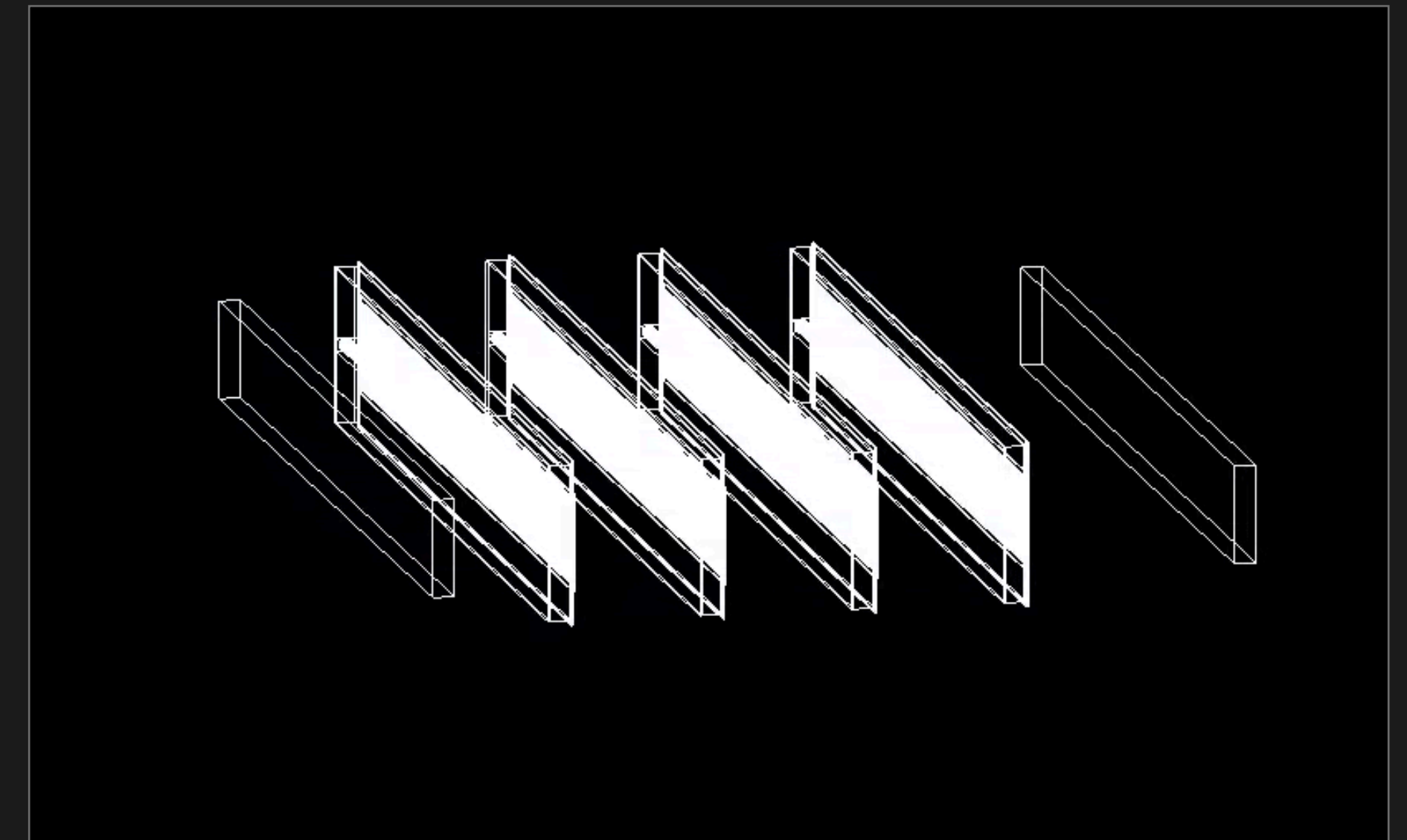
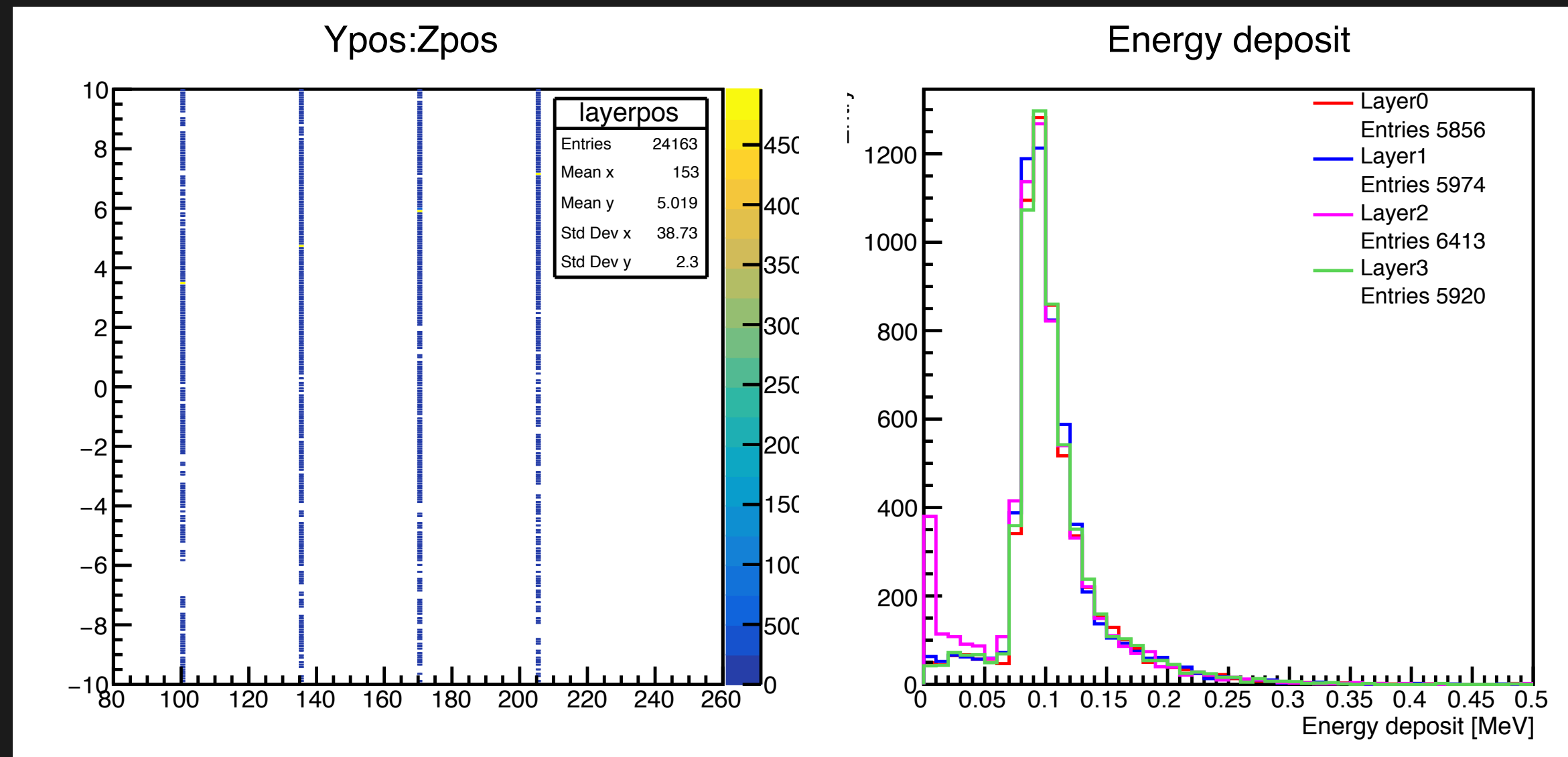
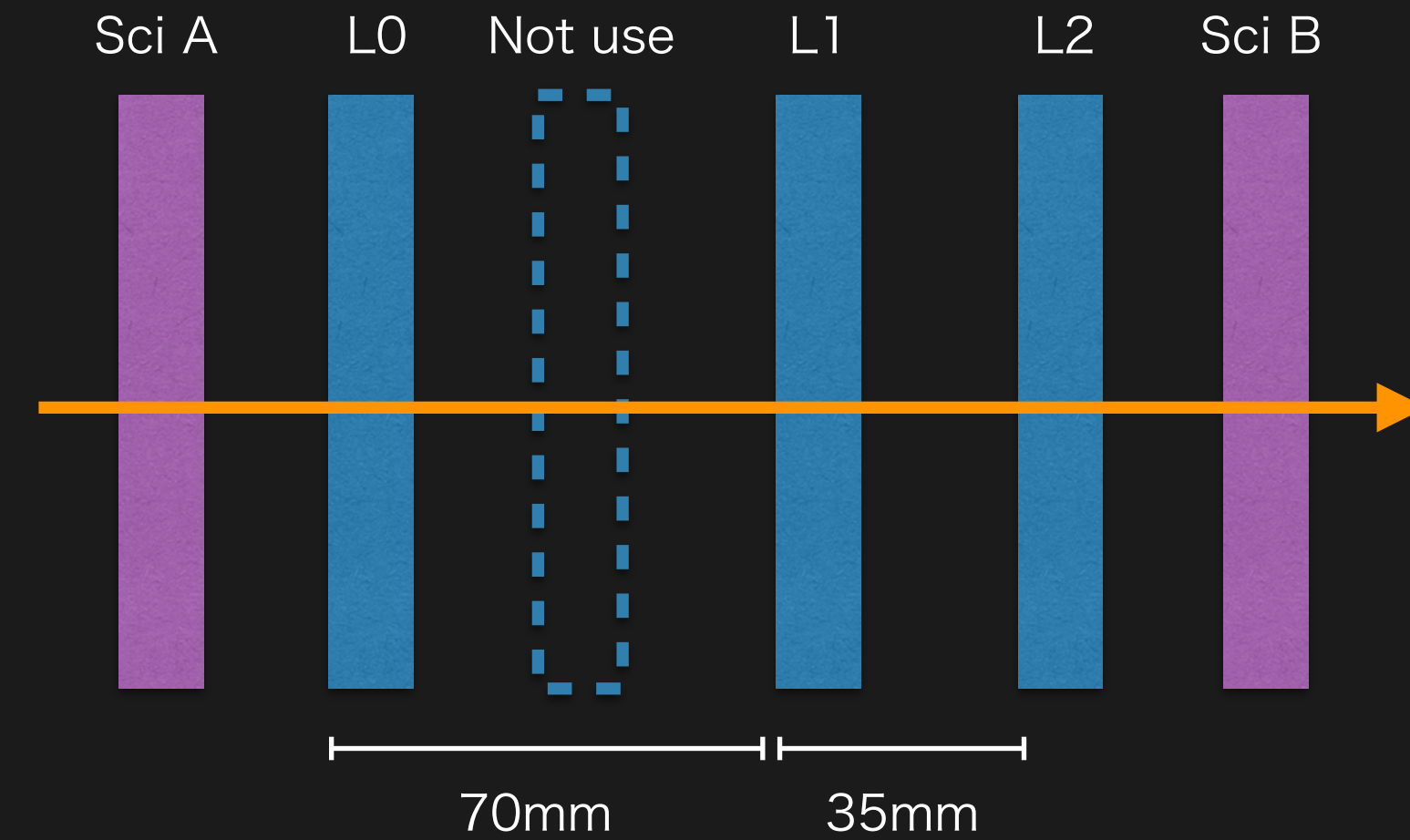


BEAM TEST SIMULATION BY GEANT4

**AYAKA SUZUKI
JAN, 2020**

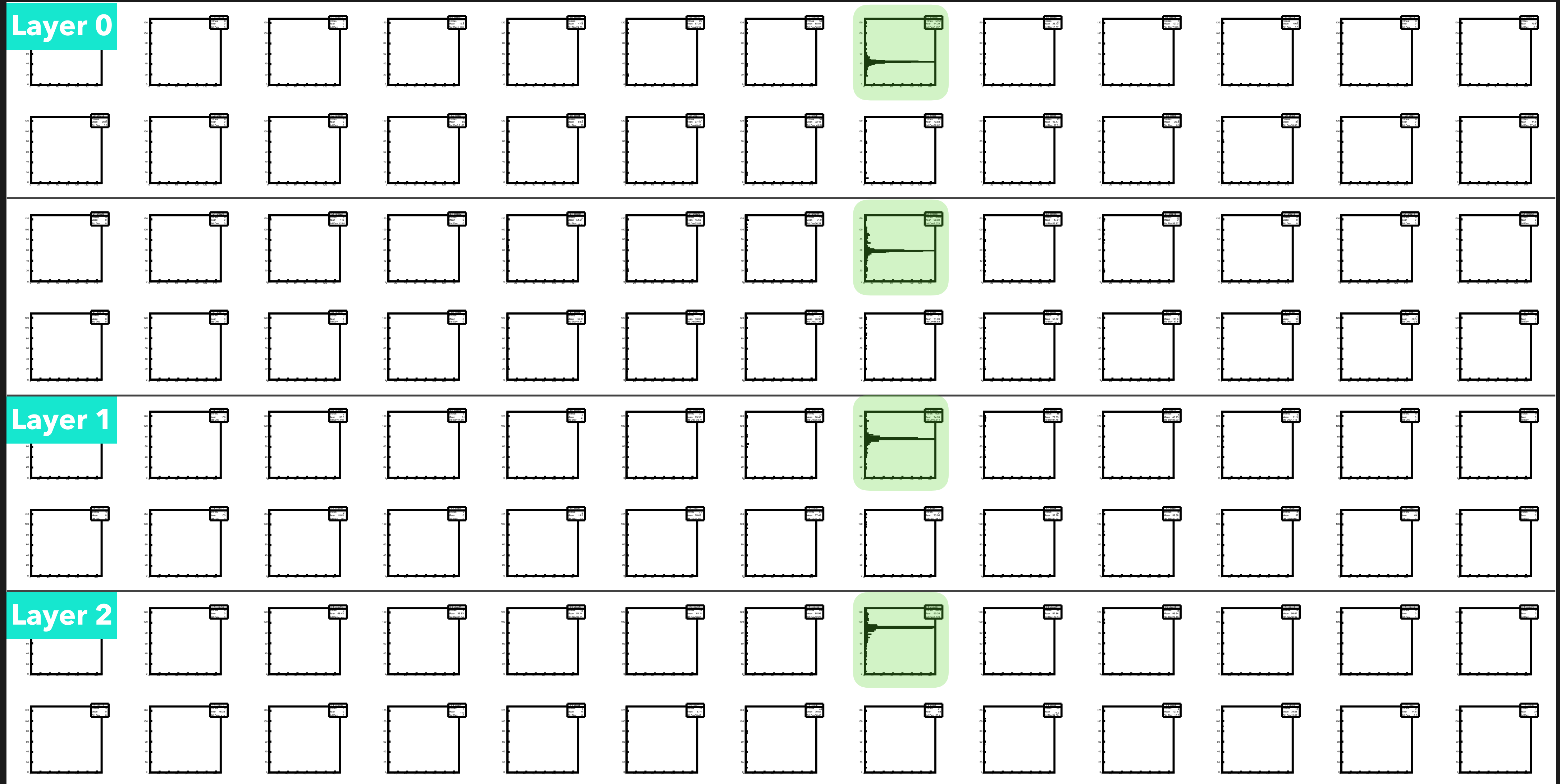
SETUP

- Cheng-WeiのGeant4コードを使用
- 4 ladders, 2 scintillatorsを配置
-> 3 laddersを使用
- 5000 events ~ 500000 events実行



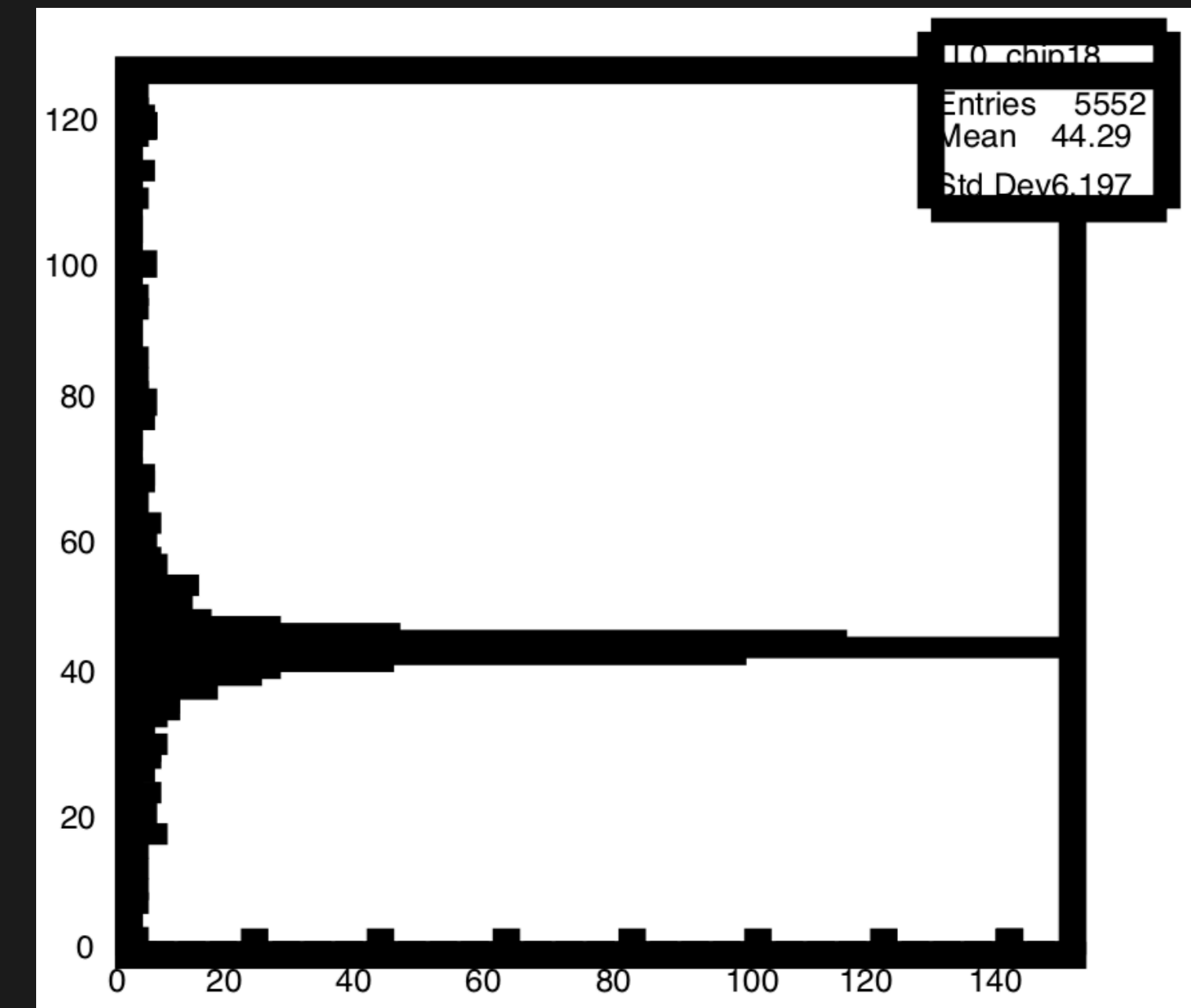
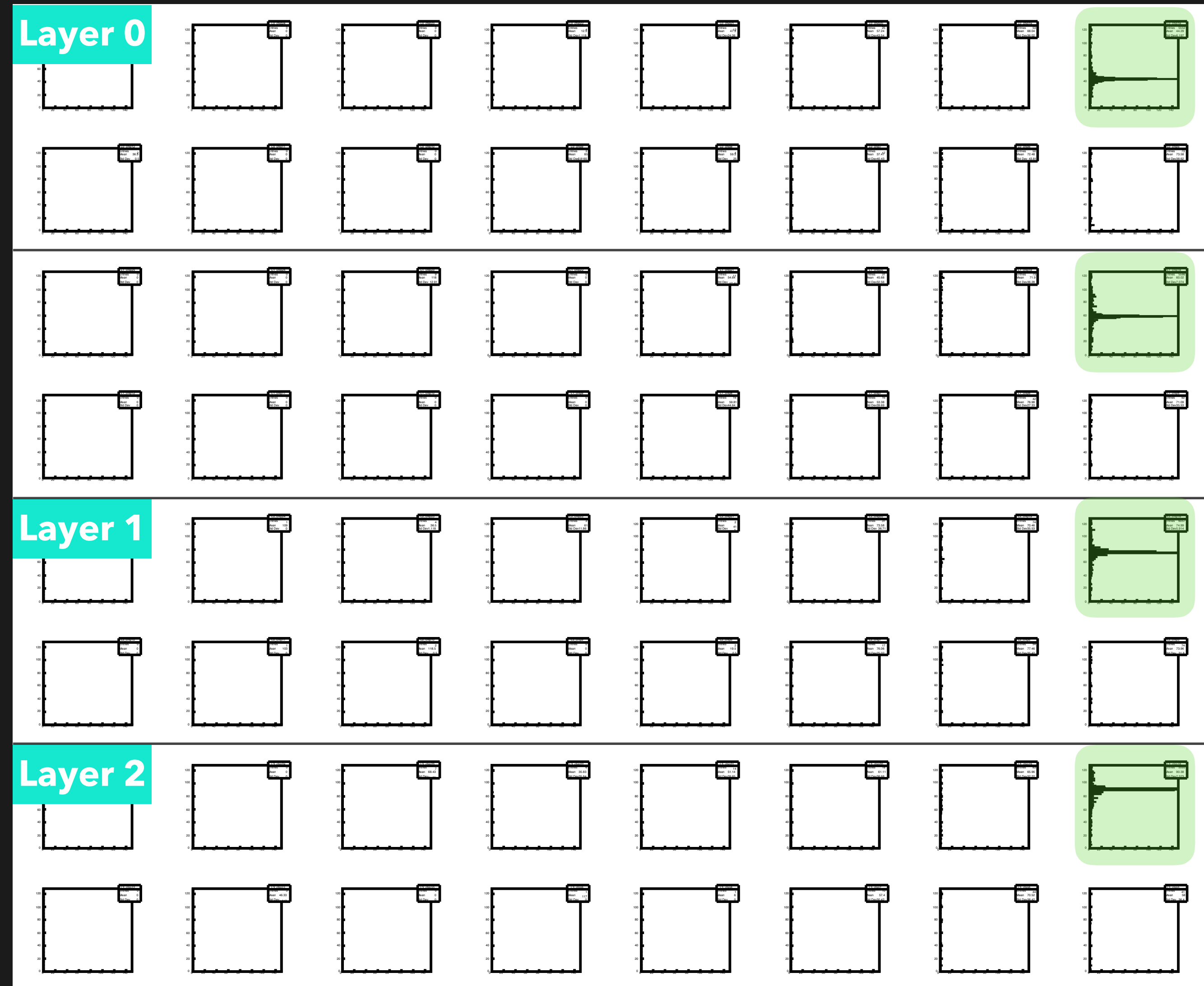
HIT CHIP: 19

Simulation: 5K



HIT CHIP: 19

Simulation: 5K



< L0efficiencyを求める >

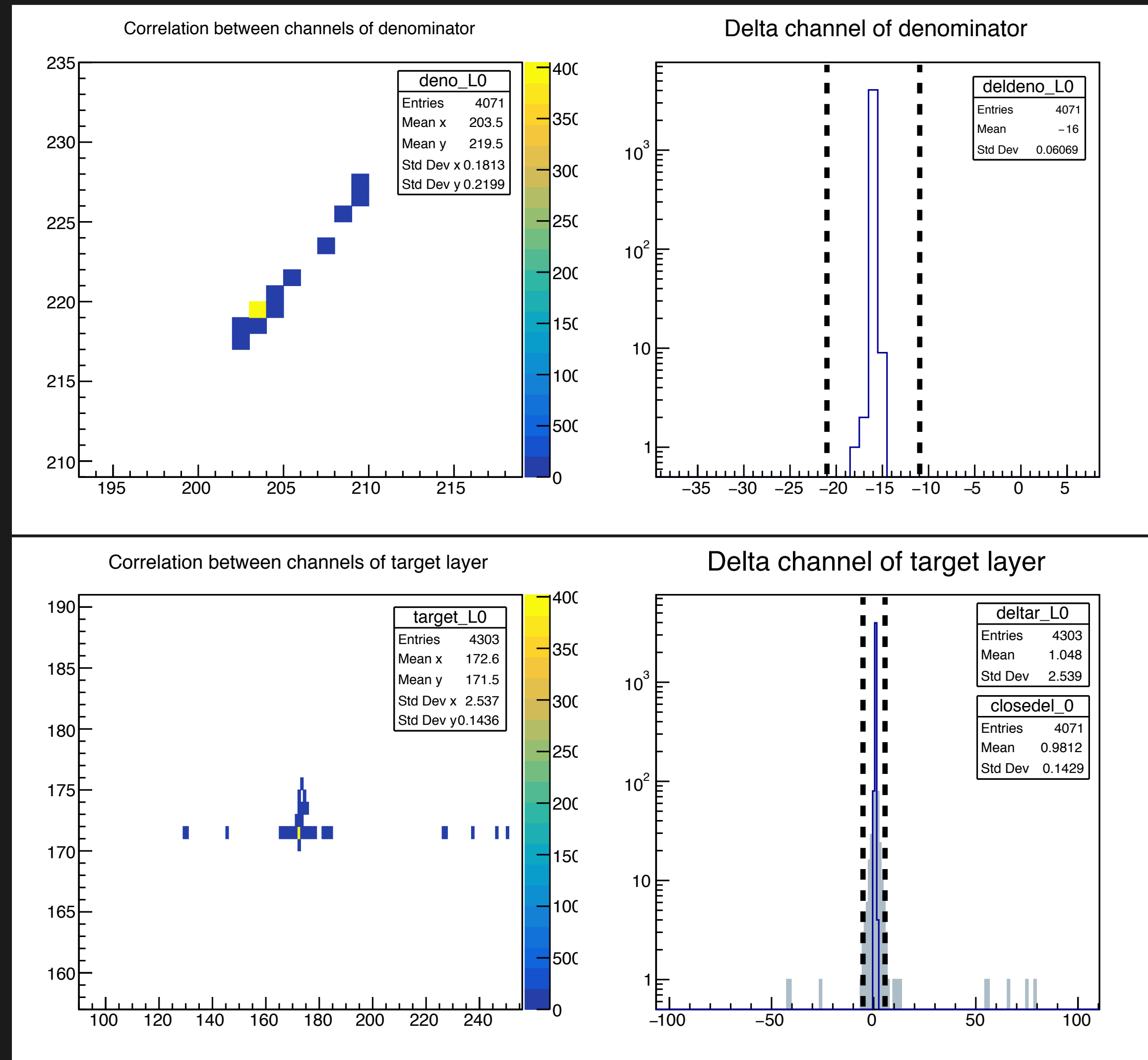
分母L1,L2への要求 :

chip19 & single hit & Eloss \geq 530 (ADC \geq 4)

Target L0への要求 :

chip19 & Closest delta (L0_ch - exp)

LO EFFICIENCY



- L1, L2のchannel相関分布
- delta (L1ch - L2ch) 分布
Mean = -16
→ $-21 < \text{delta} < -11$ のイベントを選択 : 4071
- L0, expectedのchannel相関分布
- delta (L0ch - exp_ch) 分布
- closest delta (L0ch - exp_ch) 分布
Mean = 0.98
→ $-5 < \text{delta} < 5$ のイベントを選択 : 4041

L0efficiency = 99.3 %

EFFICIENCY FOR EACH LAYER

Simulation

L0 efficiency = **99.3** % (4041/4071)

L1 efficiency = **99.8** % (4454/4462)

L2 efficiency = **99.6** % (4049/4067)

Data - Run615, 2019

L0 efficiency = **95.5** % (1220/1278)

L1 efficiency = **65.3** % (1207/1849)

L2 efficiency = **84.8** % (1068/1259)

To DO

- Run毎のefficiency比較 (Data)
- 修論 (~1/17), 学会Abstract (~1/20), APR (~1/24)