Active Plane Distribution

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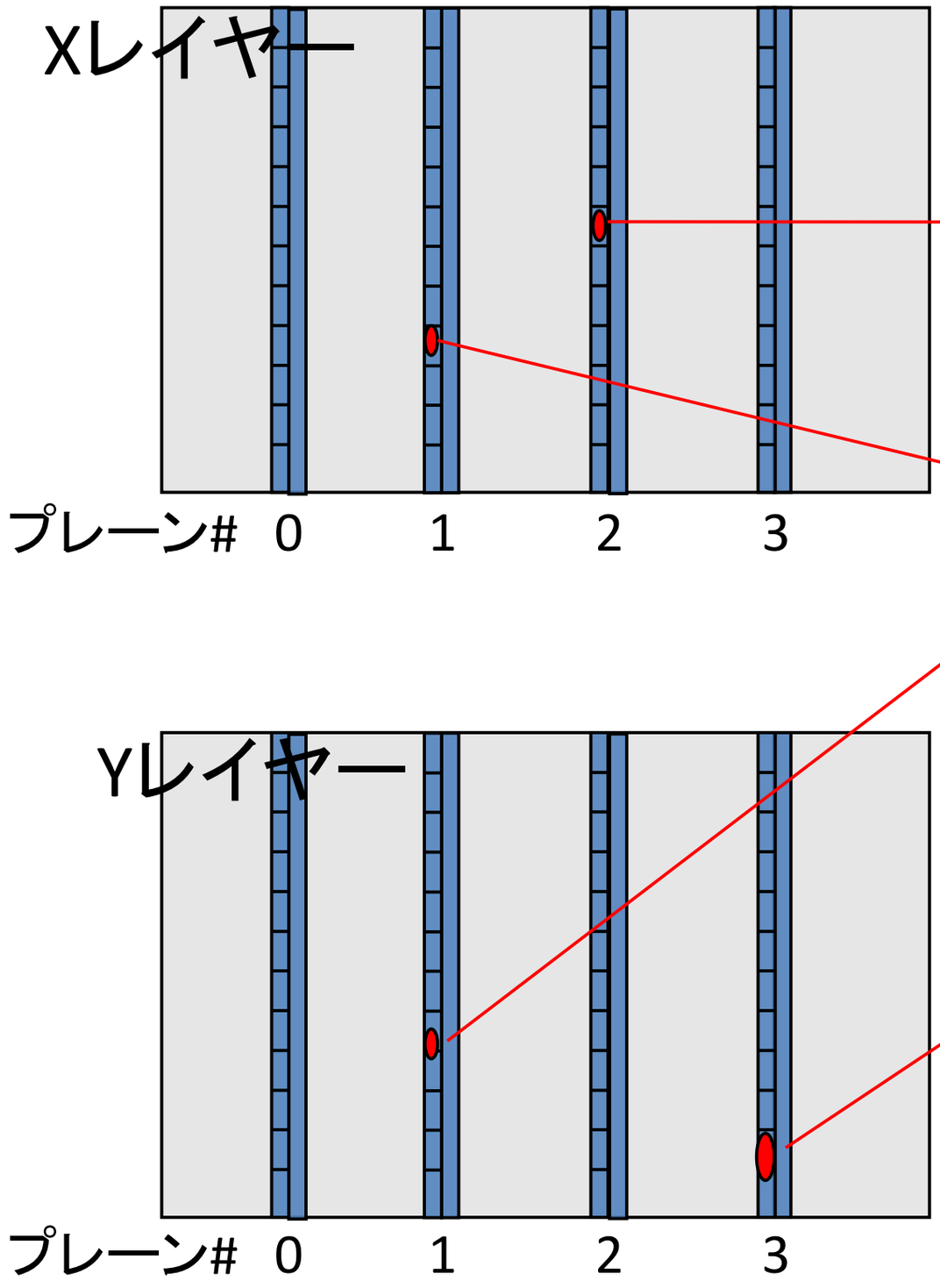
アクティブプレーン

X layerとY layer同時にヒット(閾値=2.5p.e.)があるプレーン



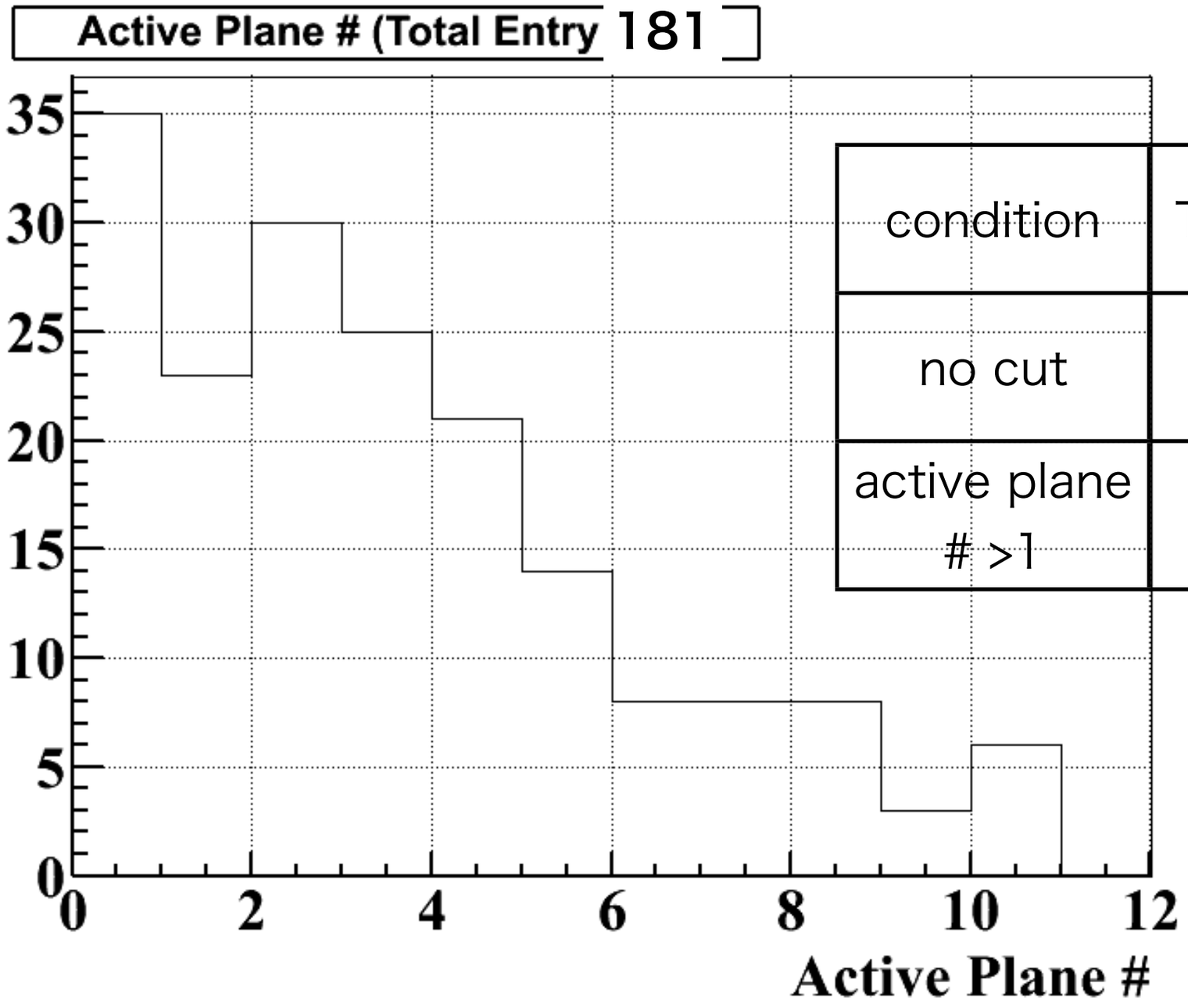
まだp.e.への換算ができないため、エネルギー損失 > 333keV でカット。（MIPで15p.e.）

Yにヒットがないのでnot active

プレーン1=active

Xにヒットがないのでnot active

大谷さん091110 ND280J

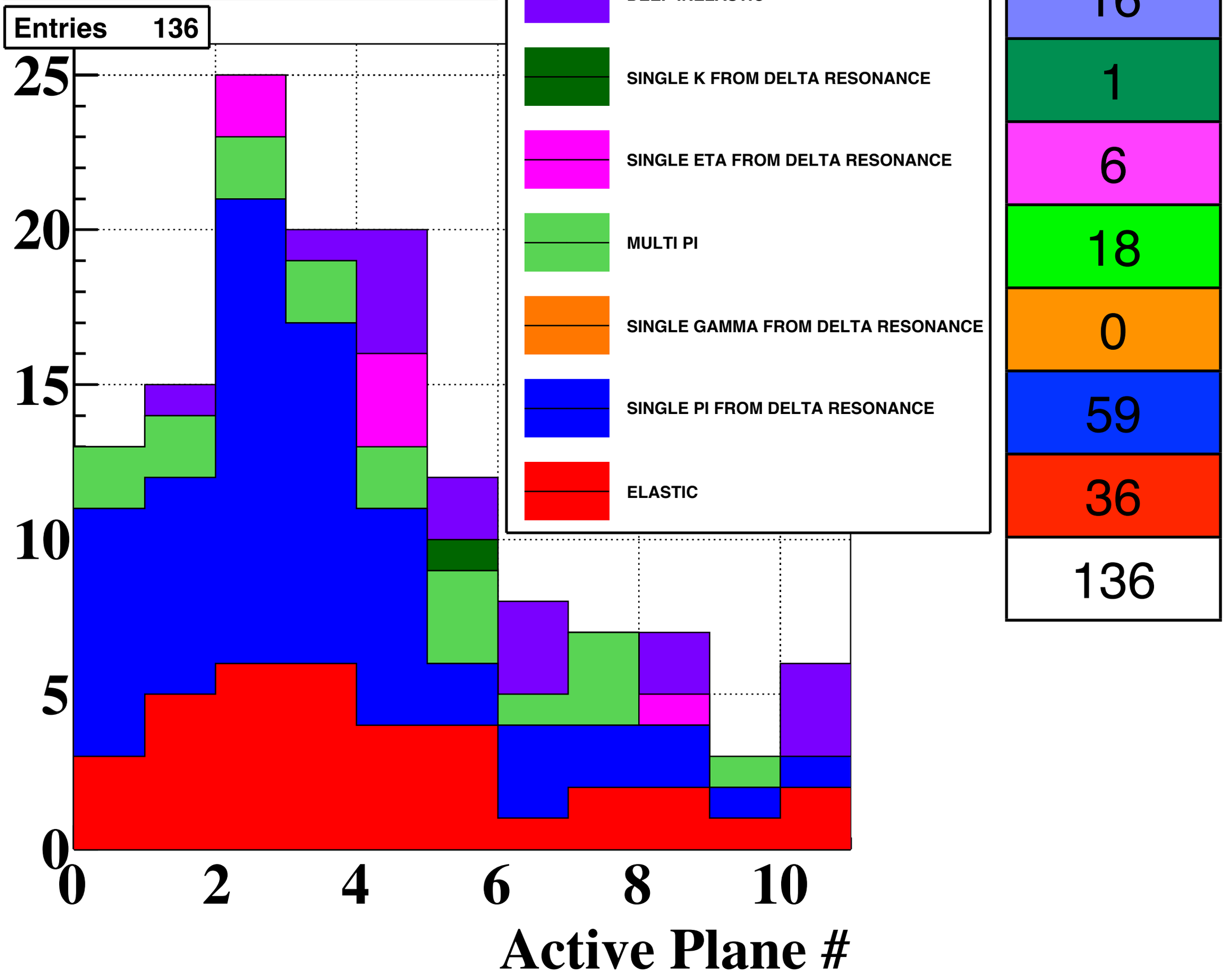


condition	Total Event	efficiency
no cut	181	
active plane # >1	123	68%

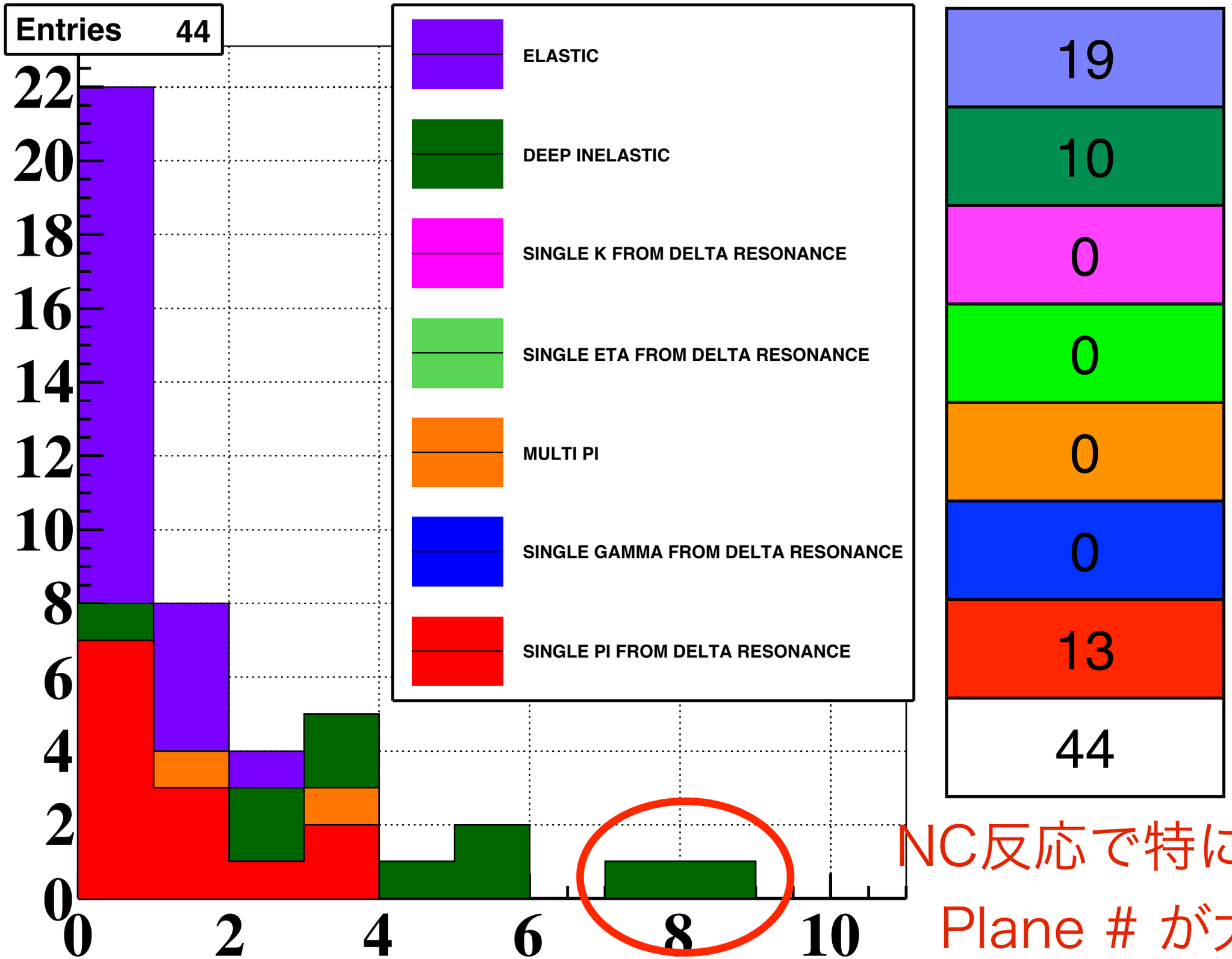
この分布の内訳を

ニュートリノ反応毎に分けて見る

CC Neutrino interaction



NC Neutrino interaction



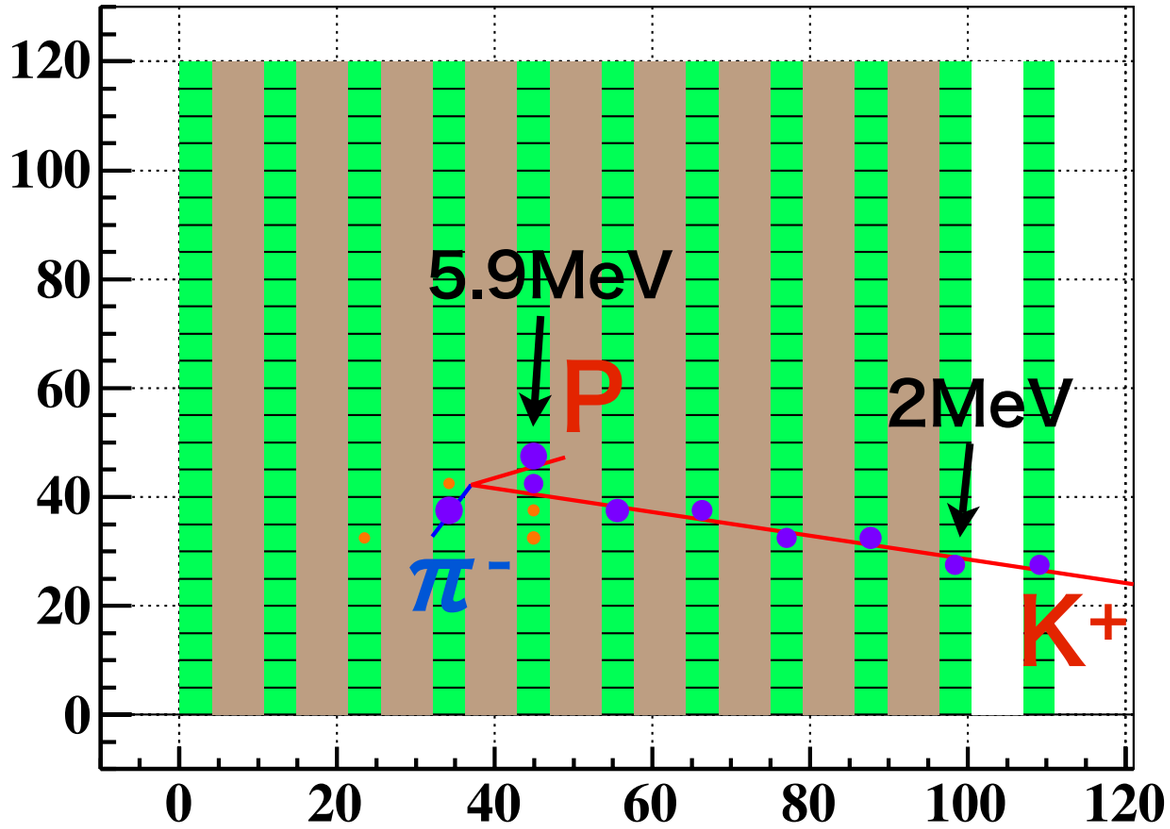
NC反応で特にActive Plane # が大きい

→ 詳しく見てみる

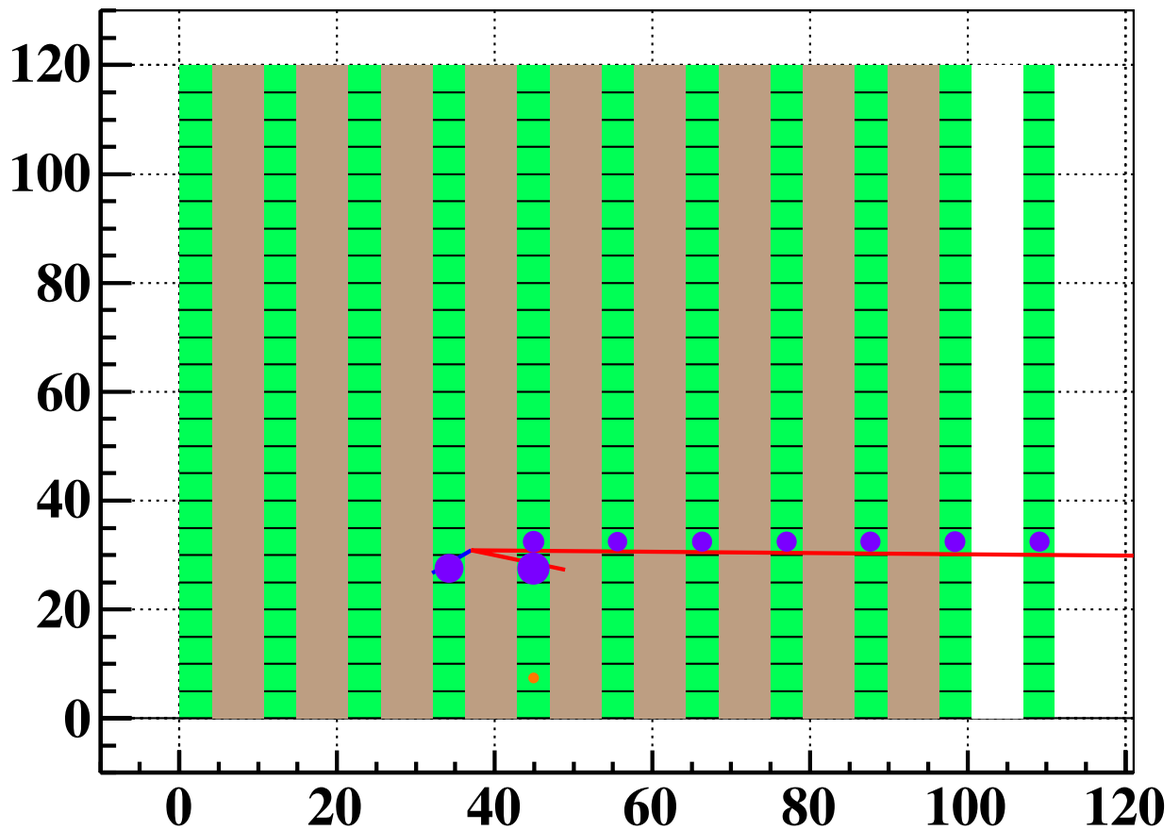
NC反応

Active Plane # ≧ 7

TopView

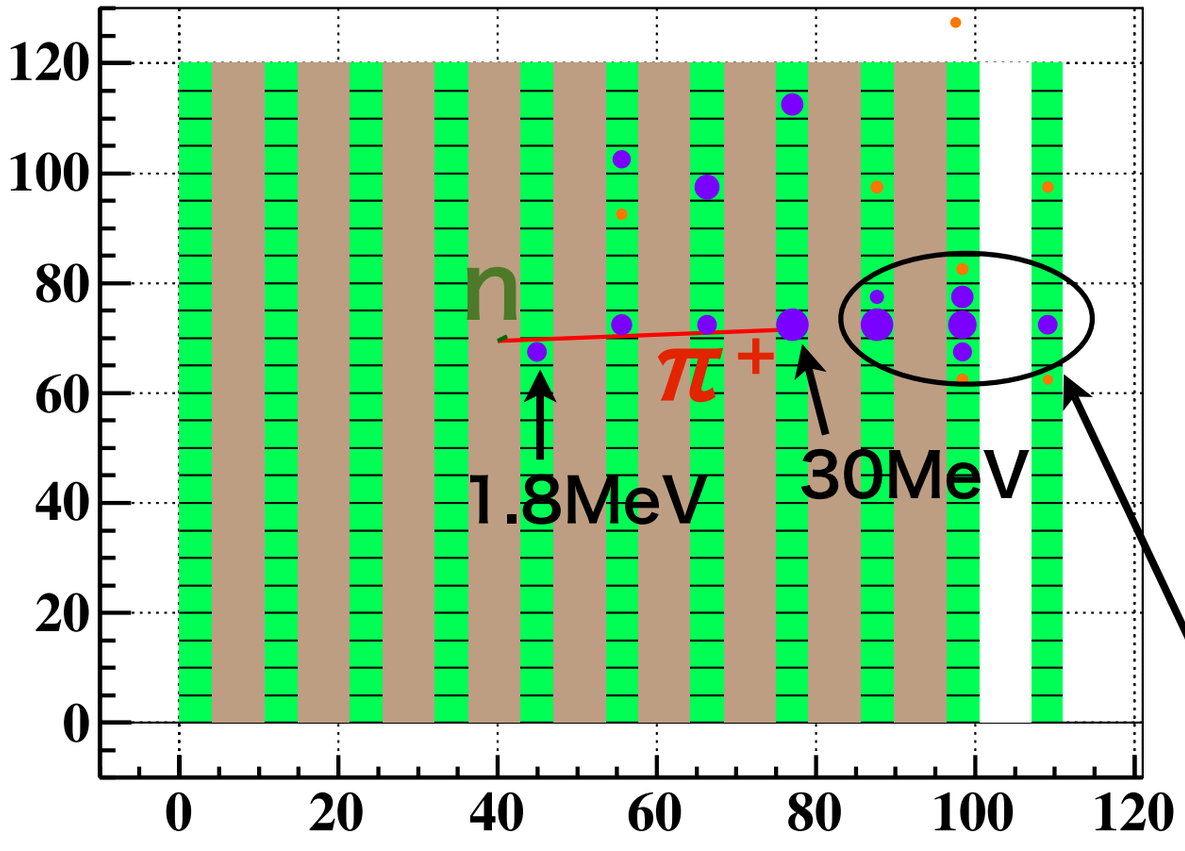


SideView



- DIS (v + P → v + P + (Meson))
- Ev = 2.6 GeV
- **Active Plane : 8**
- 初期粒子と運動量[MeV/c]
  - P : p = {271.5, -210.7, 722.3}
  - K+ : p = {-328.5, -3.0, 1340.5}
  - π- : p = {58.1, 40.9, 3.1}
  - π- : p = {-174.9, -49.0, -36.9}
- 紫色：0.333 MeV 以上のEnergy deposit
- 橙色：0.333MeV以下のEnergy deposit
  - Marker size = (E[MeV])$^{1/2}$ + 0.6
- 各シンチでのヒットはシンチ真ん中に表示

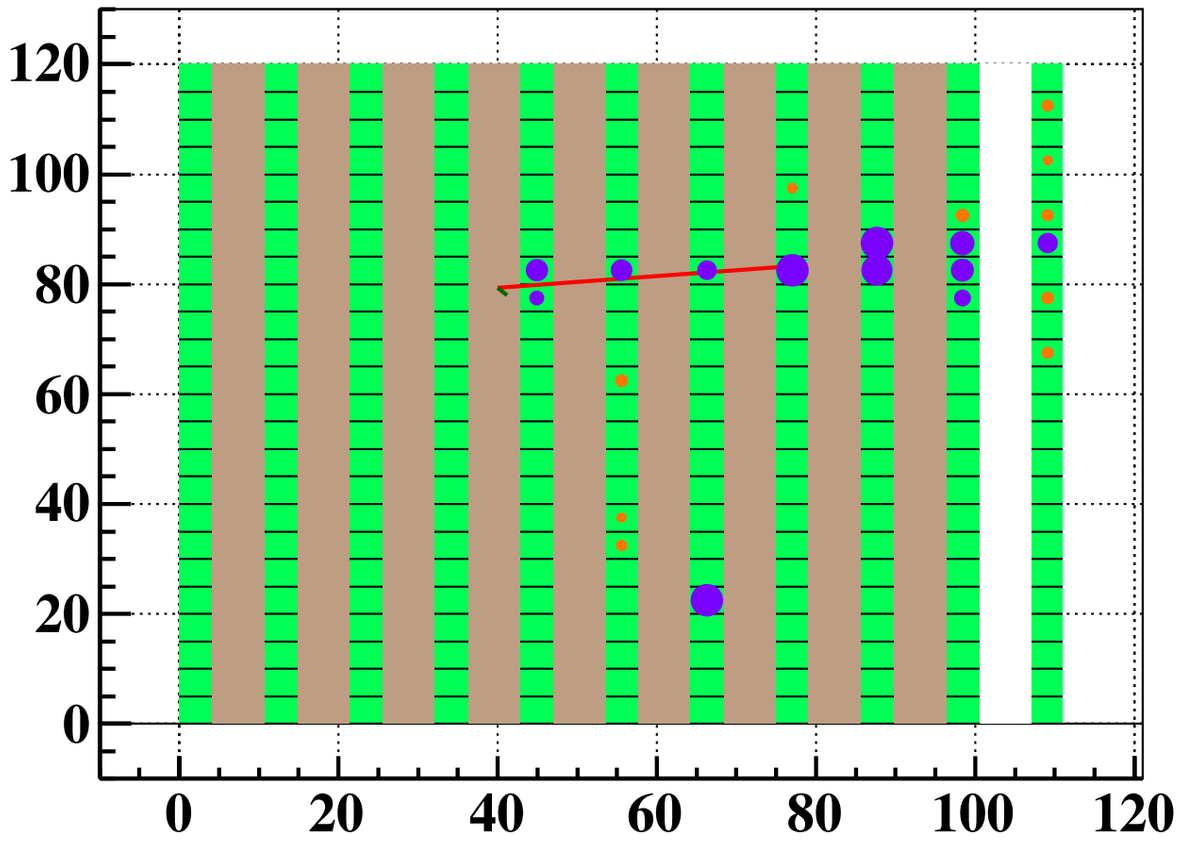
TopView



- DIS (ν + N → ν + N + (Meson))
- Eν = 3.1 GeV
- **Active Plane : 7**
- 初期粒子と運動量[MeV/c]
  - N : p = {254.0, -437.9, 370.8}
  - π^+ : p = {106.4, 277.9, 2530.6}

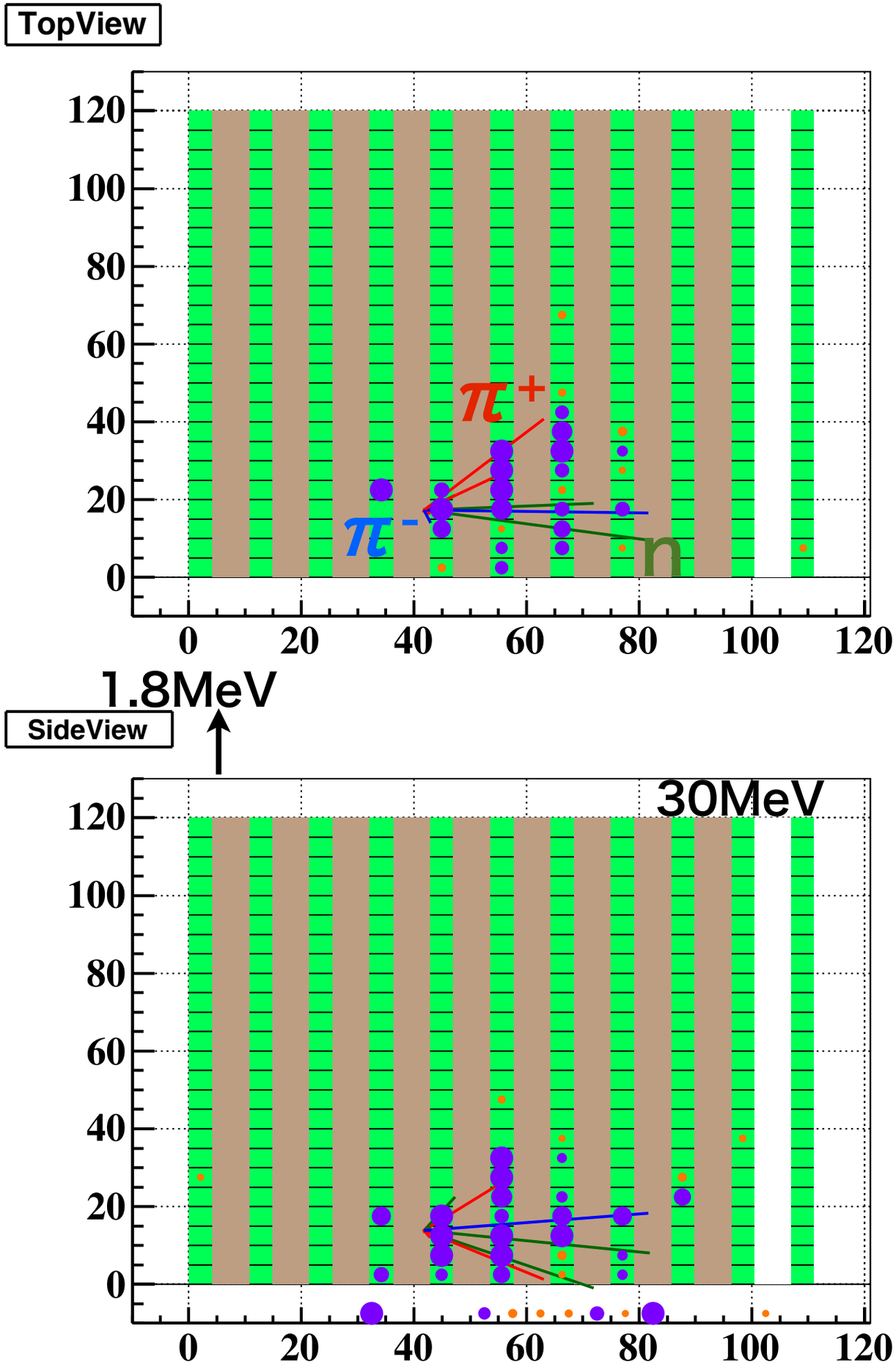
$\pi^+ \rightarrow$ (hadronic interaction) $\rightarrow \gamma$

SideView



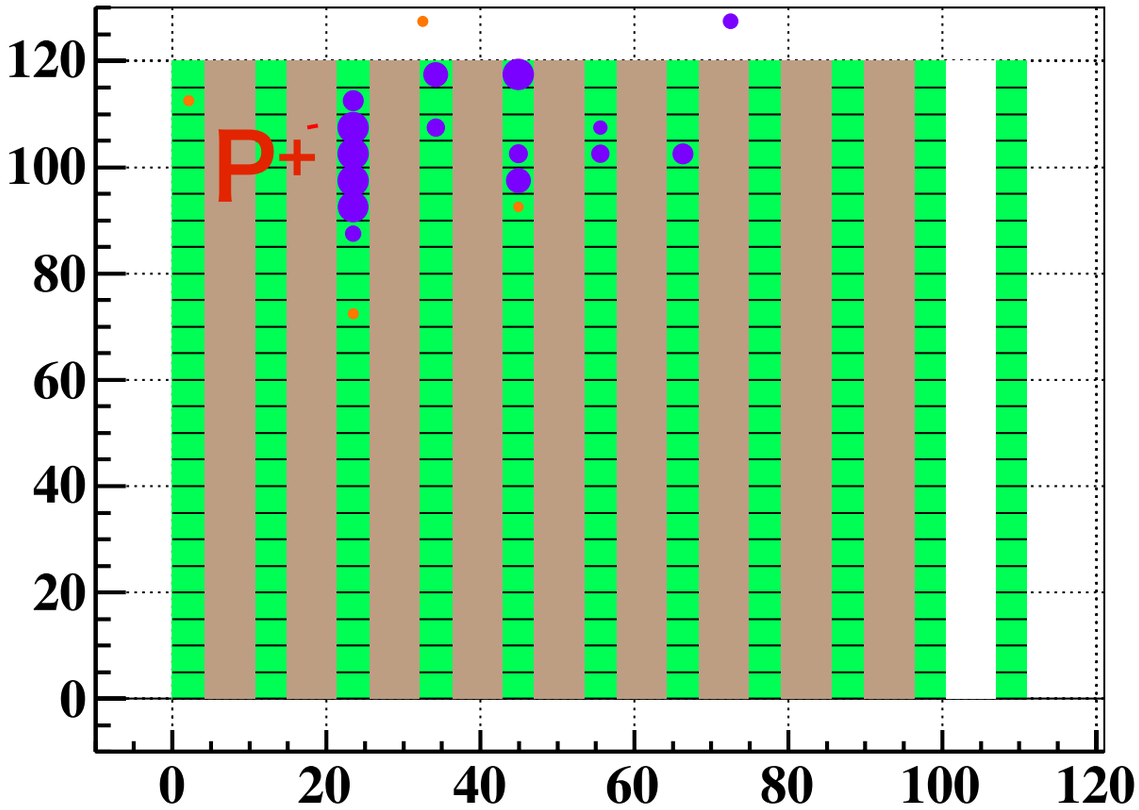
NC反応

Active Plane # = 5

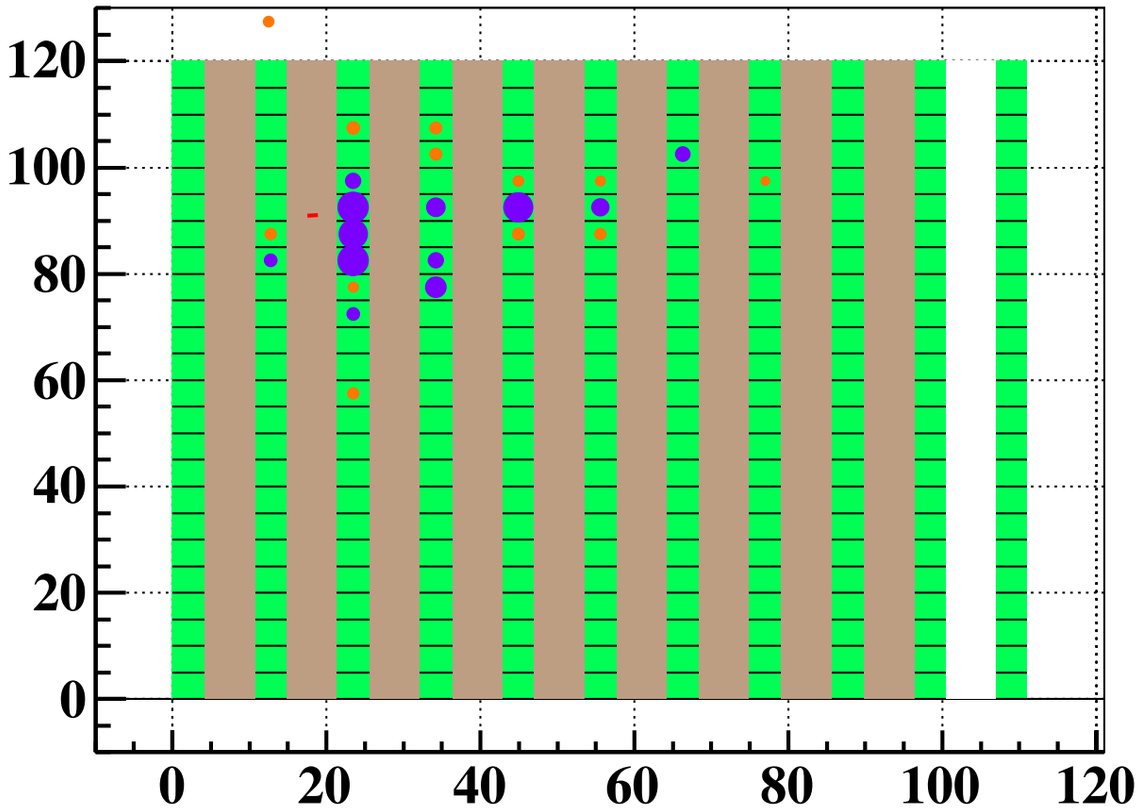


- DIS
- Ev = 10.6 GeV
- **Active Plane : 5**
- 初期粒子多数
  - P
  - N
  - π^+
  - π^-
  - π^0

TopView



SideView



- DIS
- Ev = 7.5GeV
- **Active Plane : 5**
- 初期粒子
  - P : p = {1224.7, 363.3, 5900.4}
  - π^0 : p = {-456.2, -423.8, 393.3}