ECAL Simulation Updates

Ye Tian

08/03/2017

Previous Issues

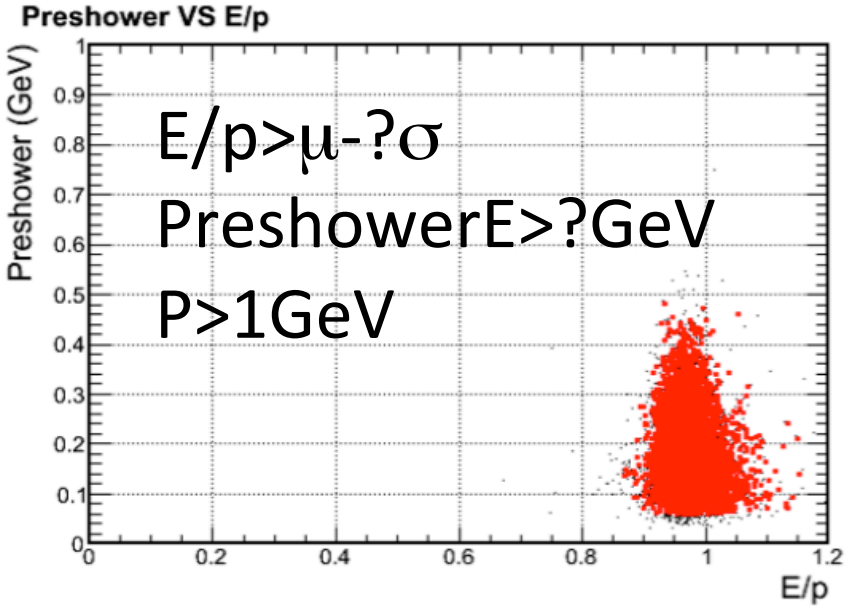
- In order to maximize π^- rejection, the prelead width should be >1.5X_0 to get better e^-/π^- separation from the off-line PID cuts study.

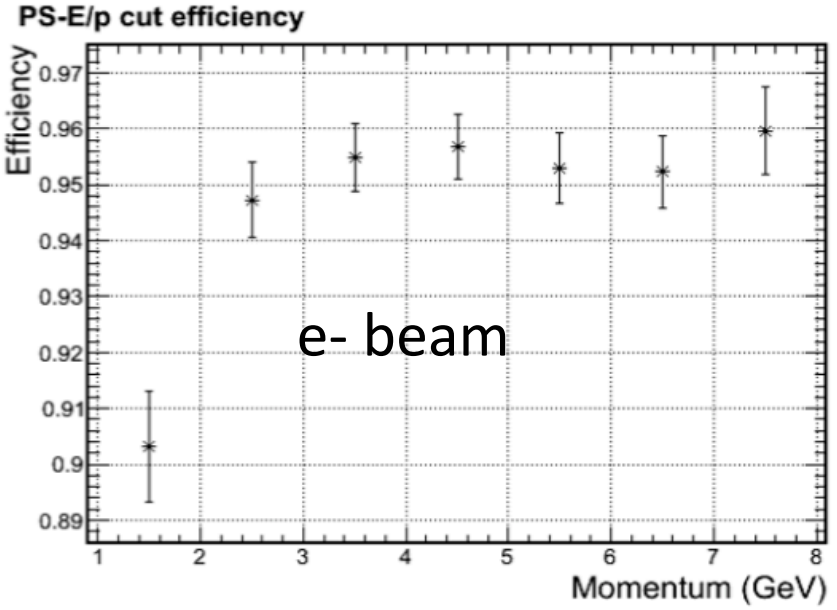
In order to study the dependence of π^- rejection on the prelead width, 2.0X_0, 2.1X_0, 2.2X_0 , …. and 4X_0 prelead width with SIDIS configuration are simulated.

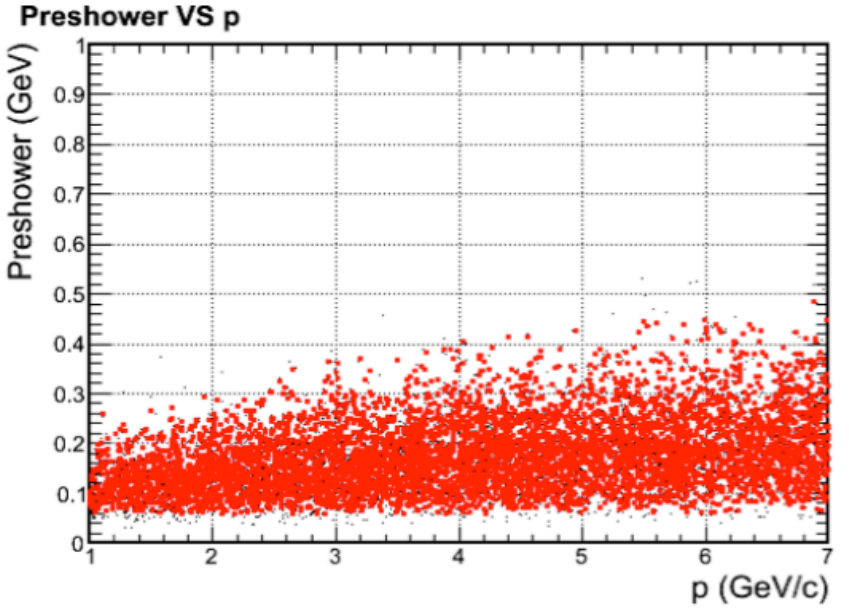
- Check with Jin about the energy calibration method and support structure Al issue?

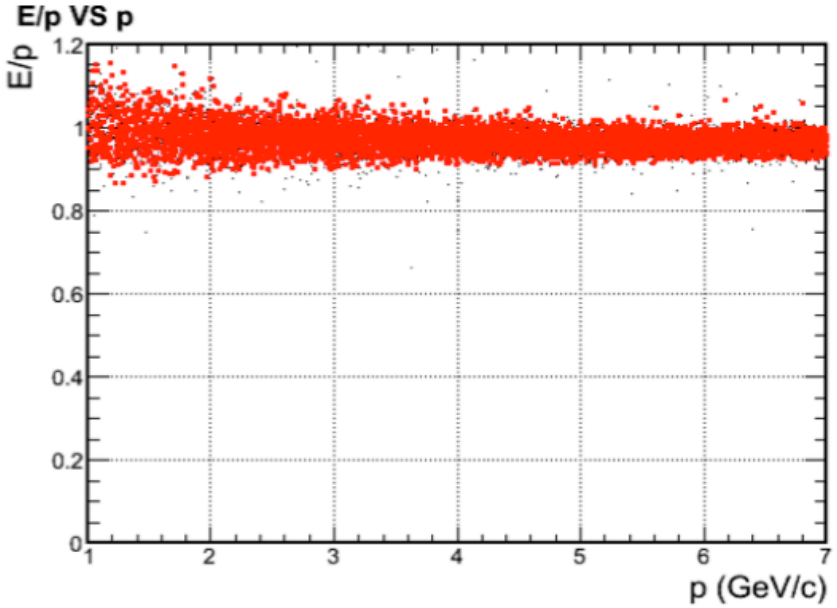
He will reply to me when he get the chance.

PcDR Jin's Plots

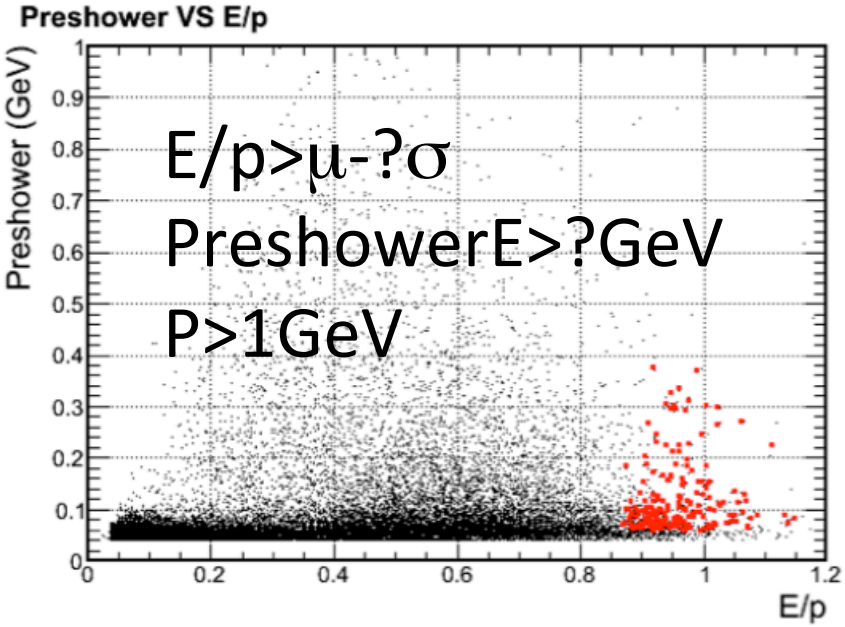


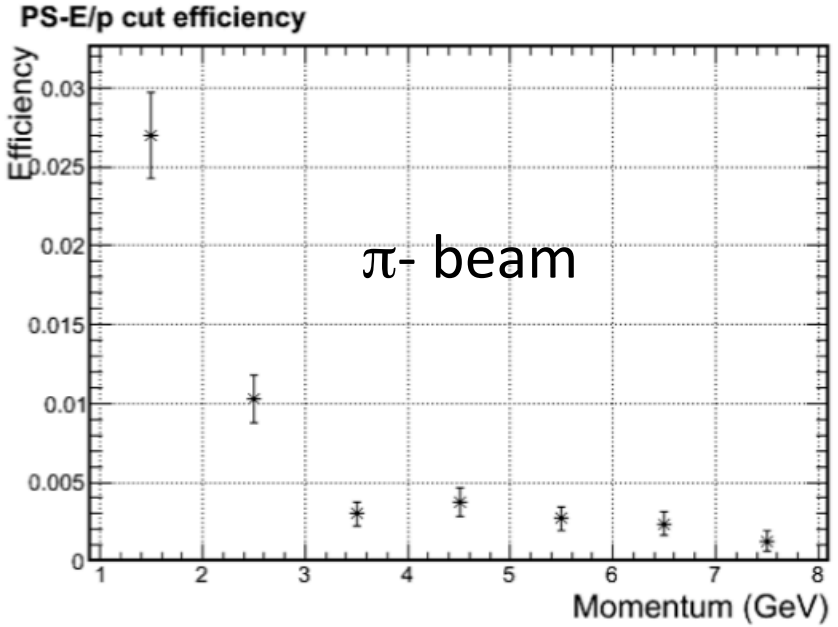


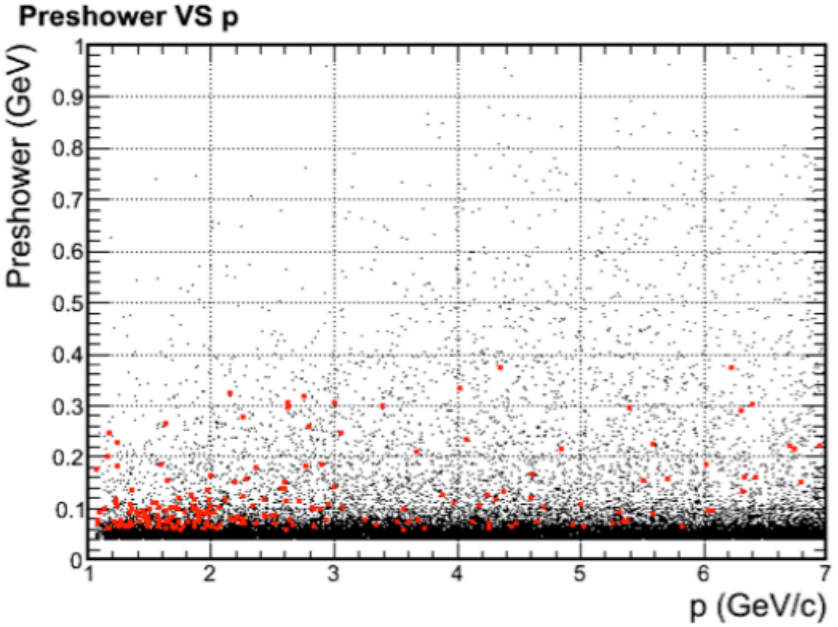


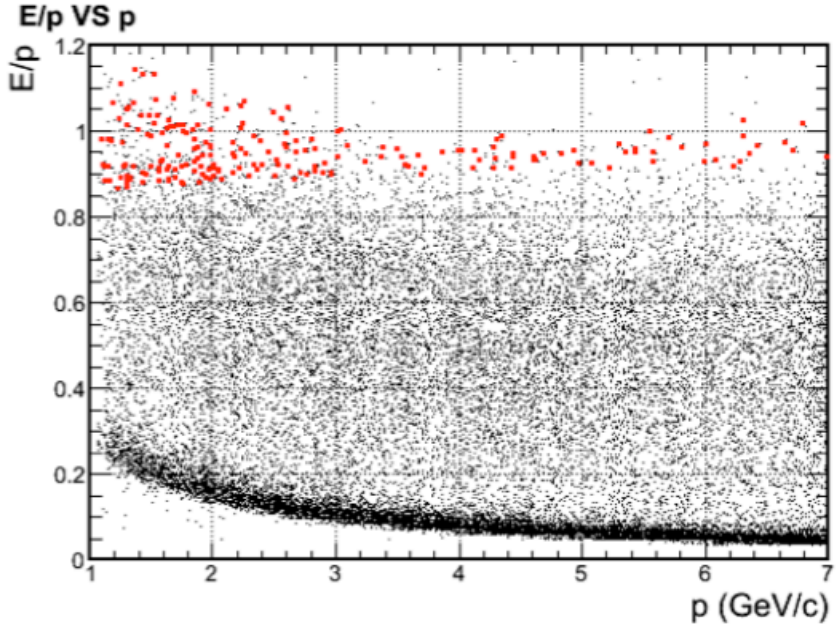


PcDR Jin's Plots

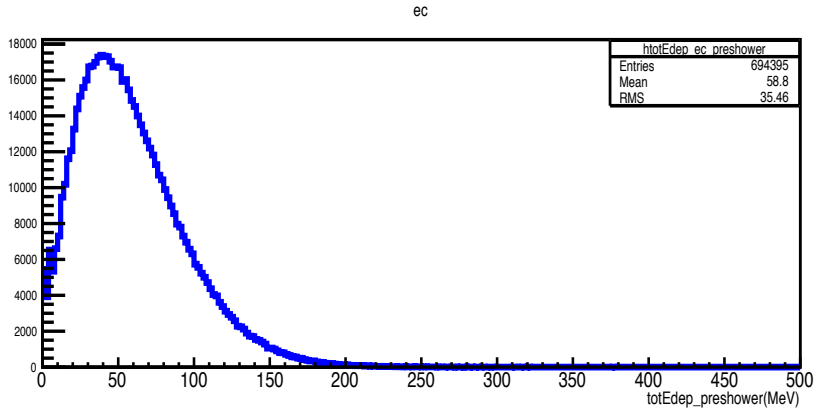


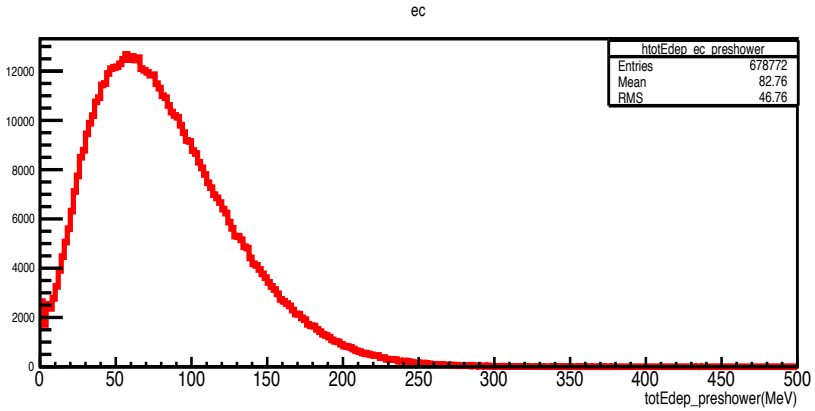


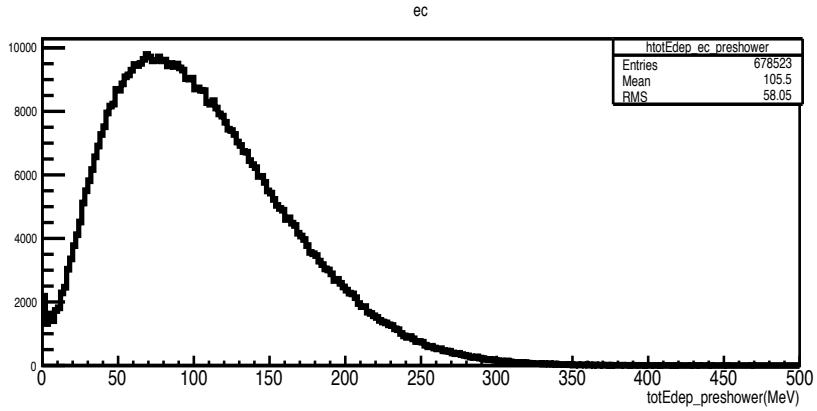


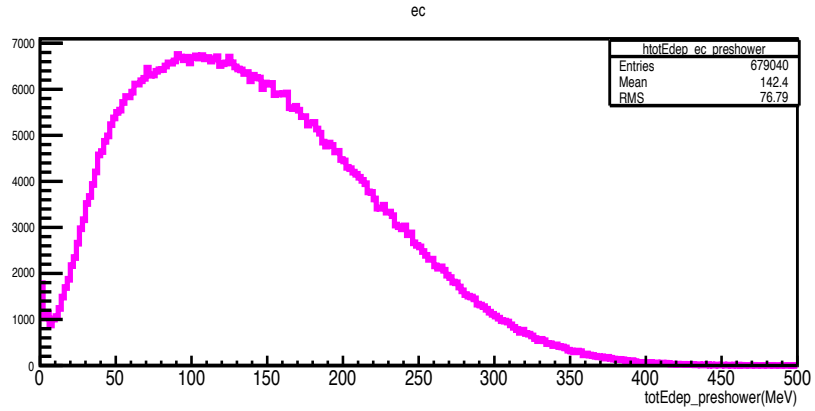


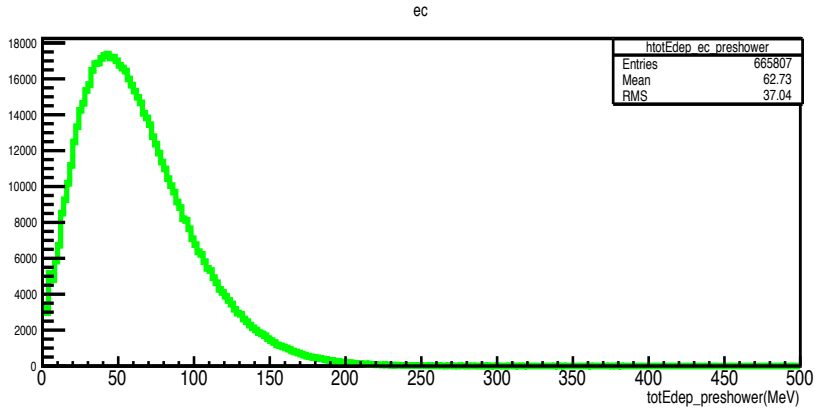
Preshower Scintillator Deposited E for electron

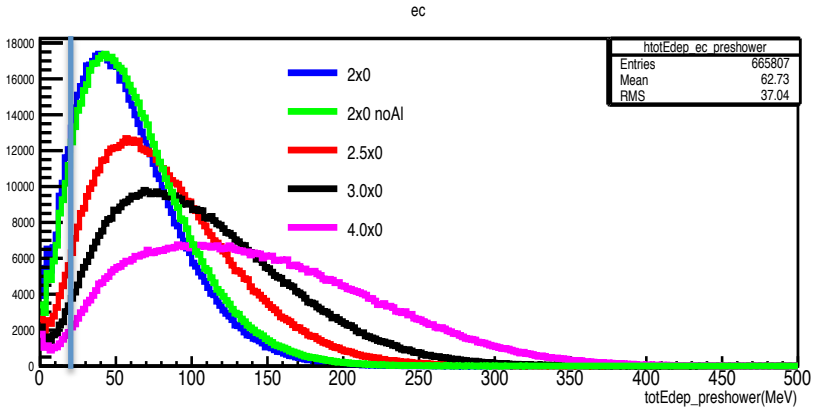




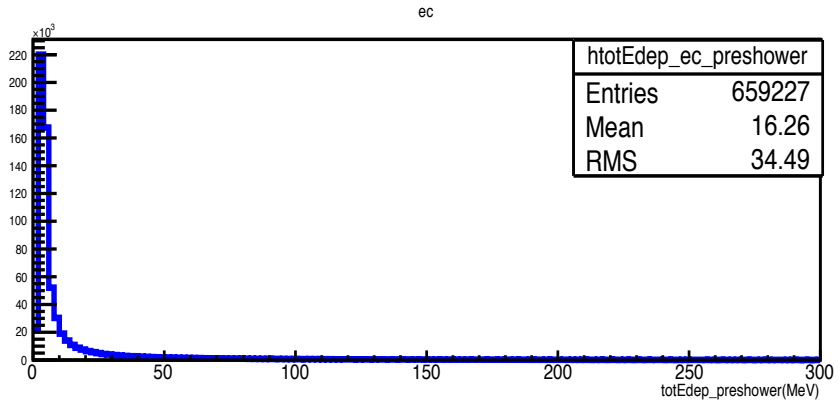


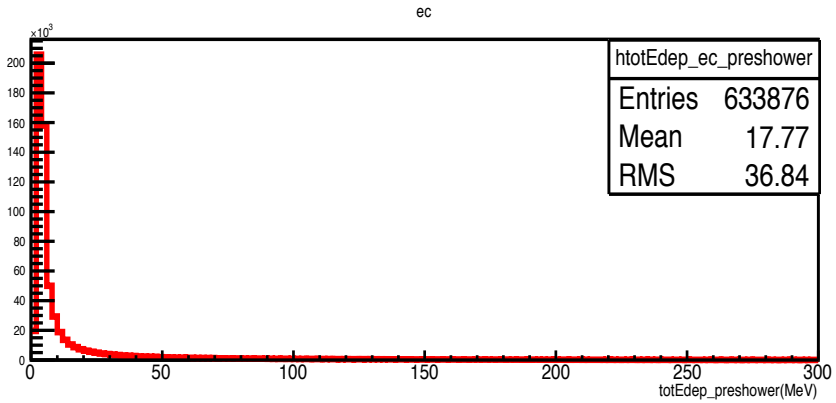


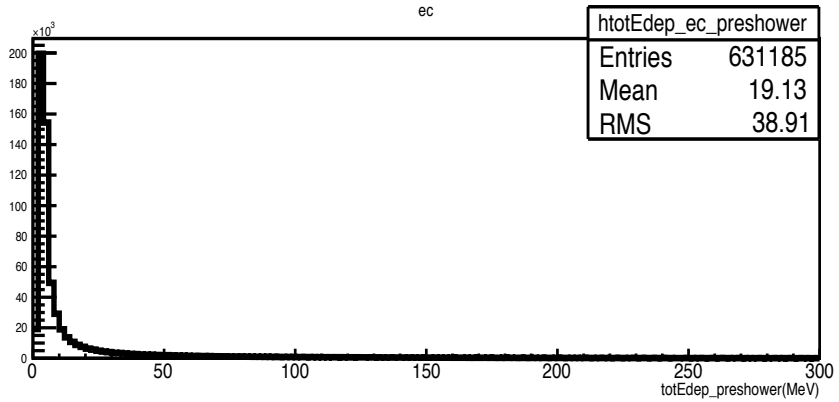


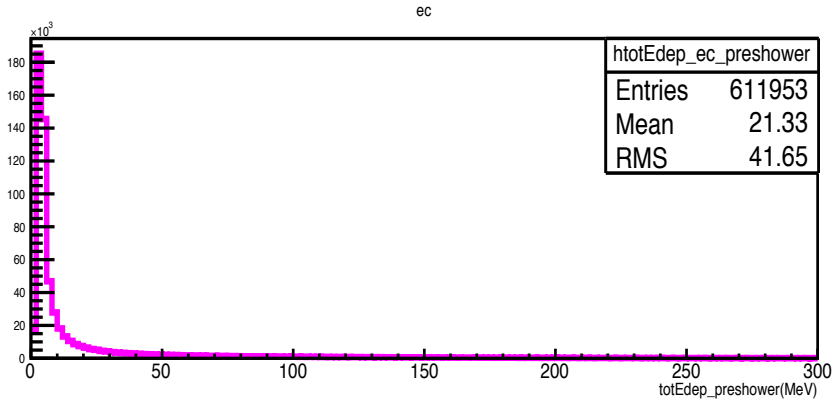


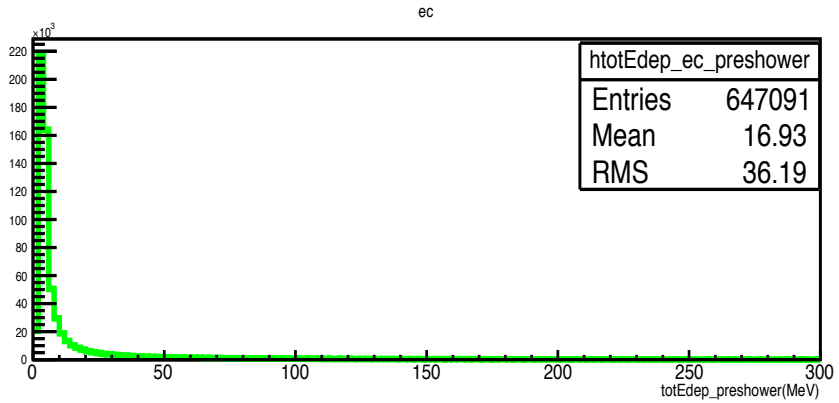
Preshower Scintillator Deposited E for π^-

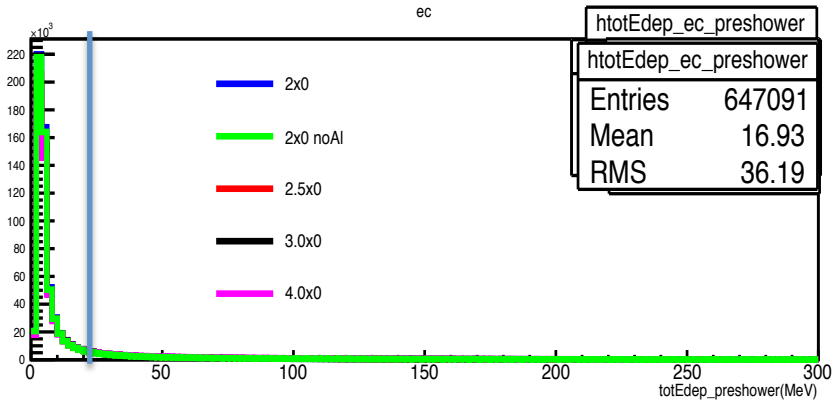






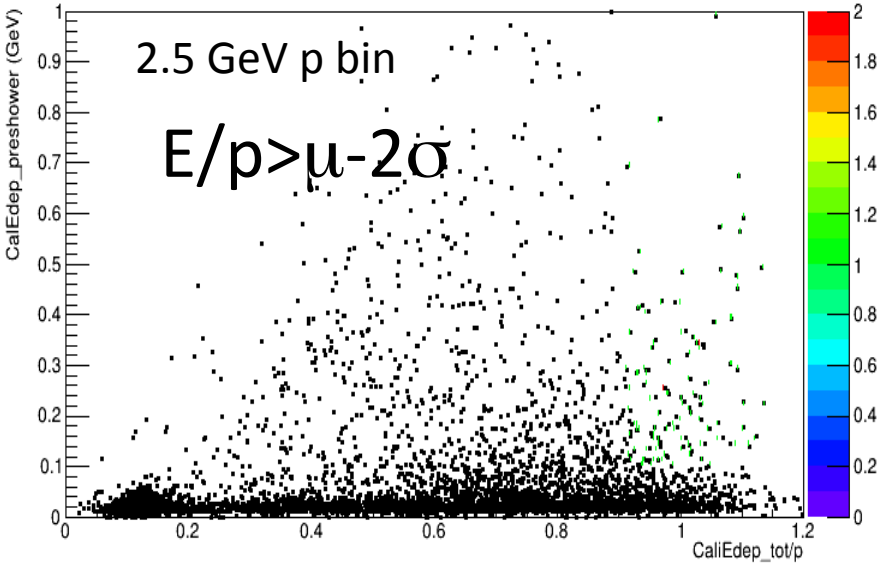


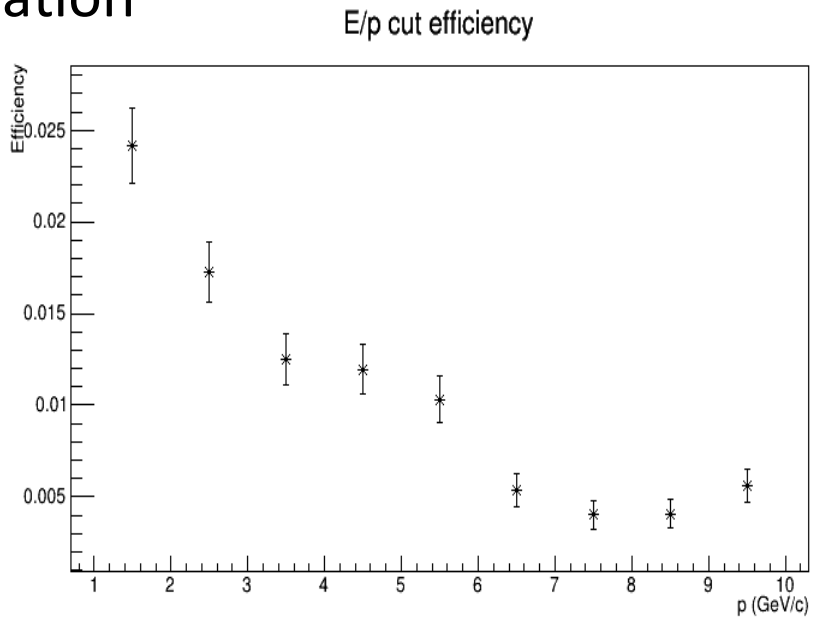


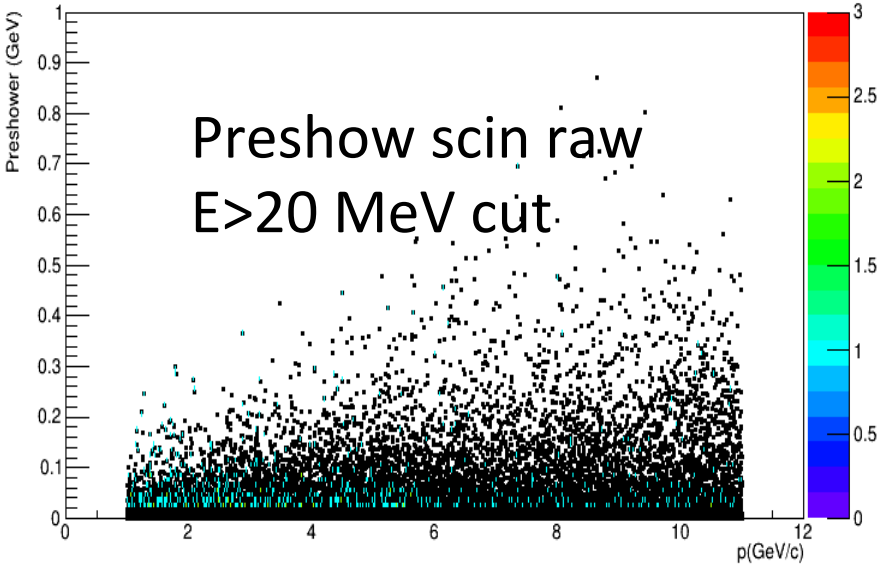


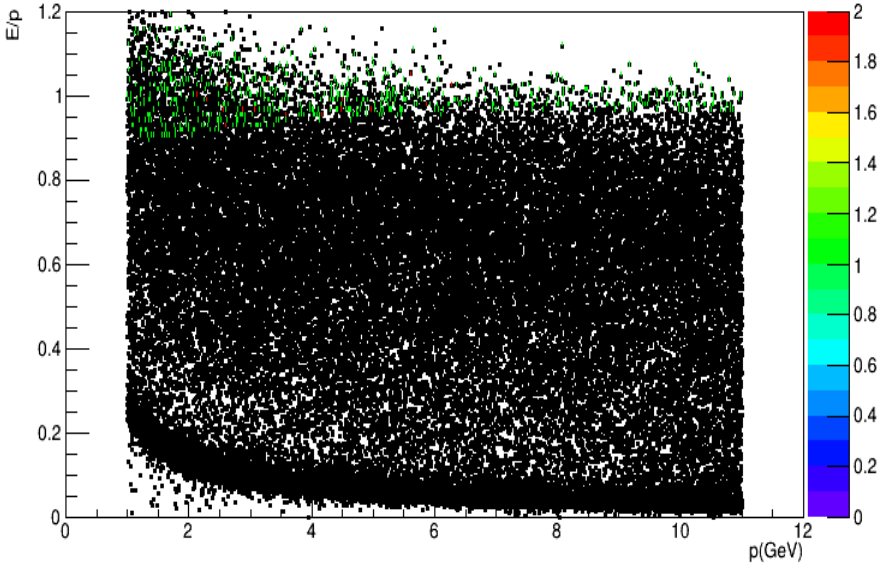
0-11 GeV π- beam, θe [7.5°,14.85°] Energy Calibration SIDIS configuration

Prelead: 2.0X0



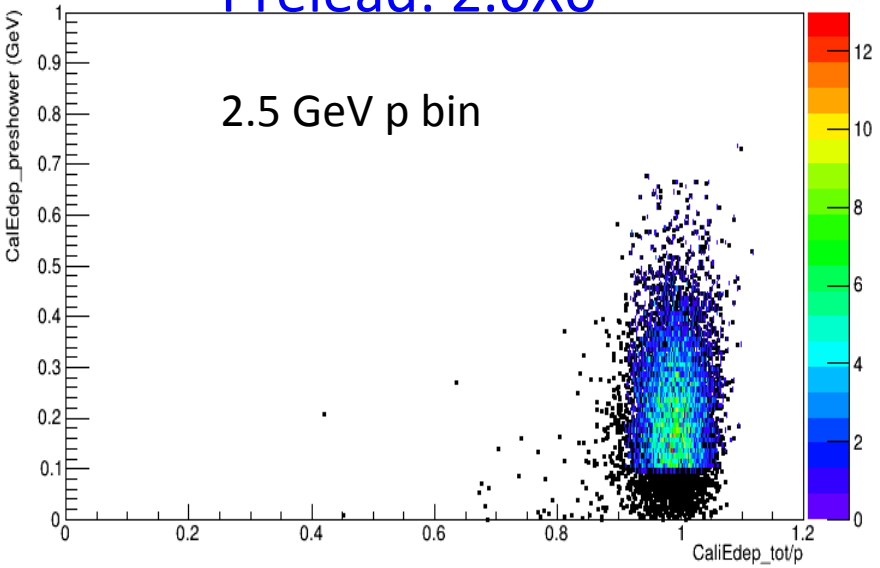


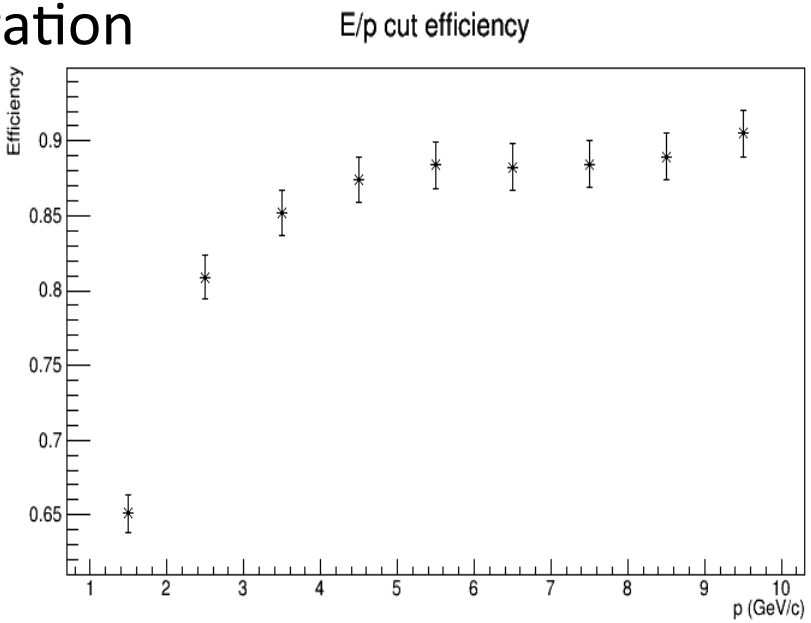


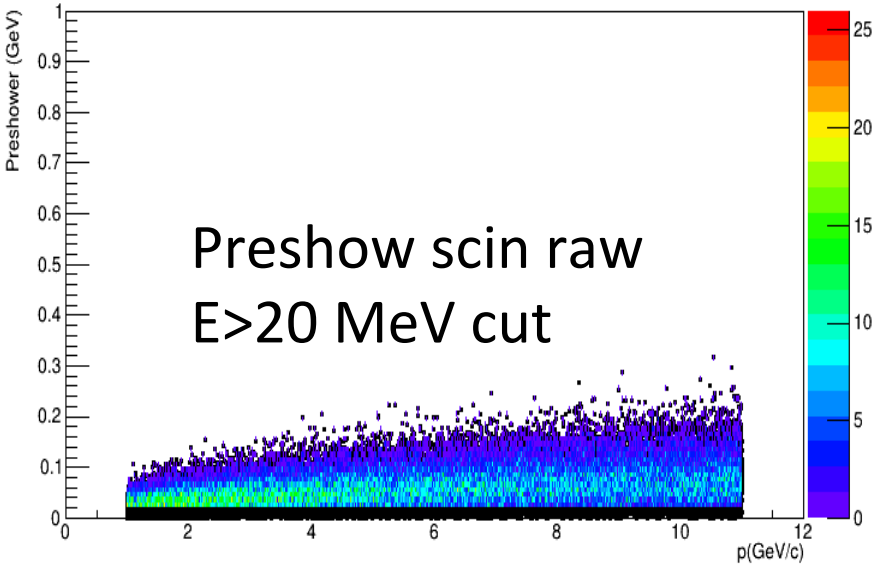


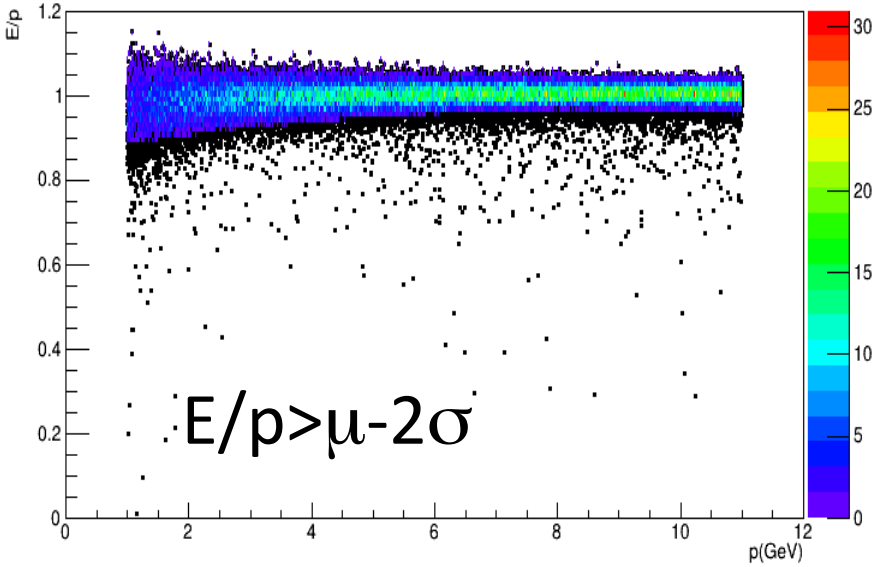
0-11 GeV e- beam, θe [7.5°,14.85°] Energy Calibration SIDIS Configuration

Prelead: 2.0X0



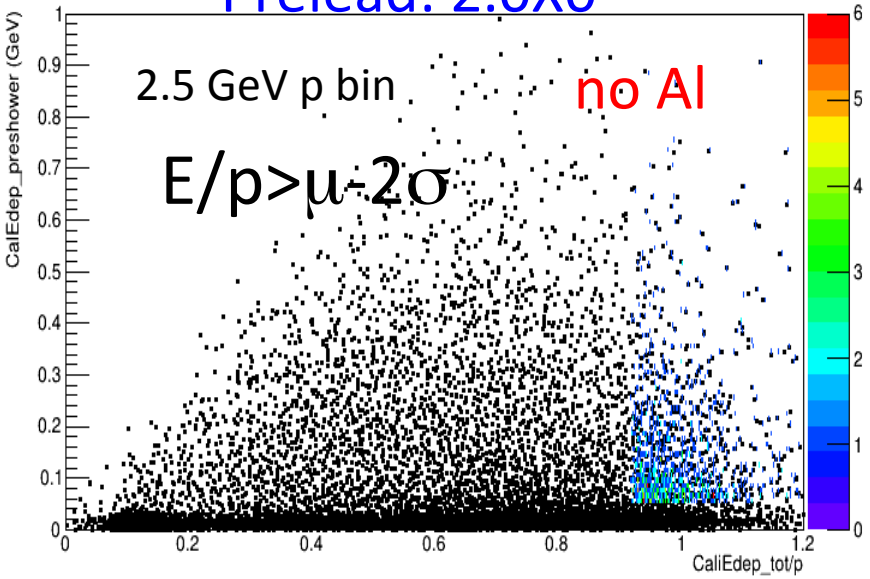


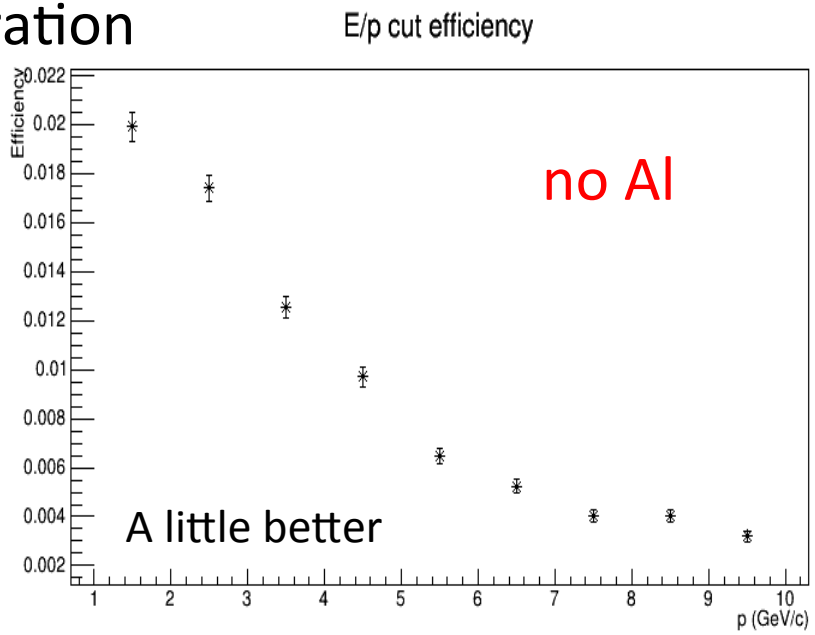


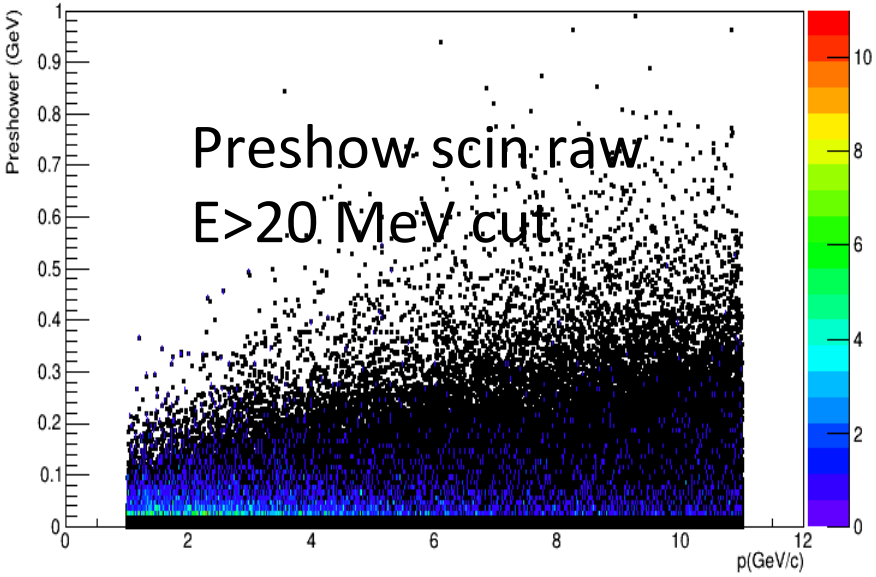


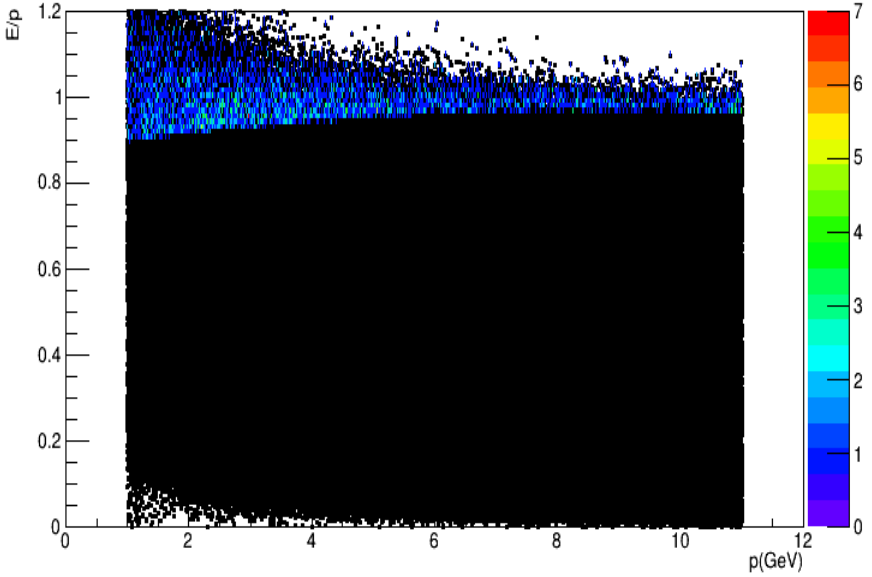
0-11 GeV π- beam, θe [7.5°,14.85°] Energy Calibration SIDIS configuration

Prelead: 2.0X0



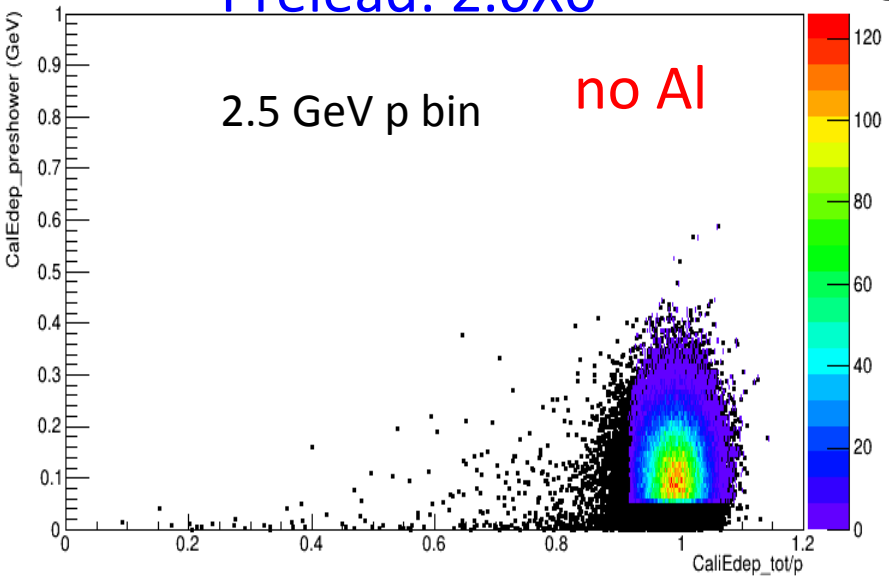


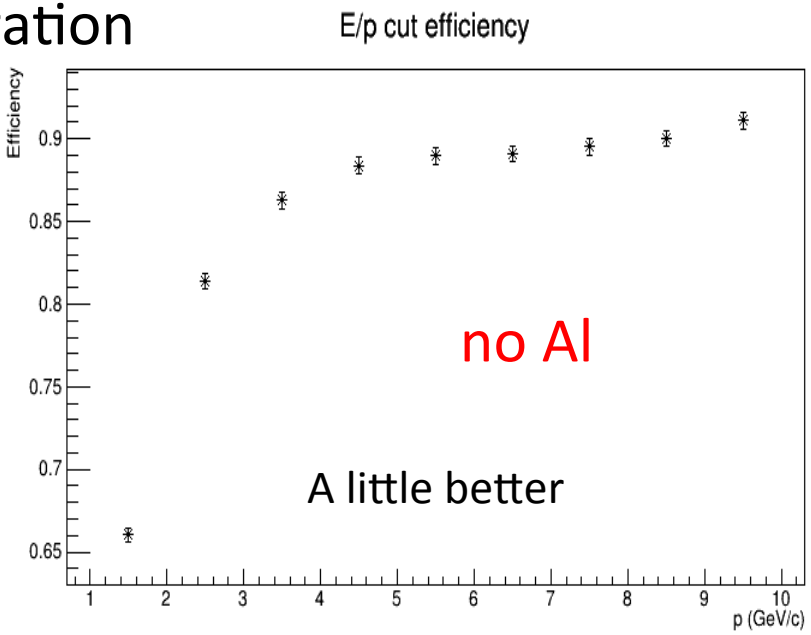


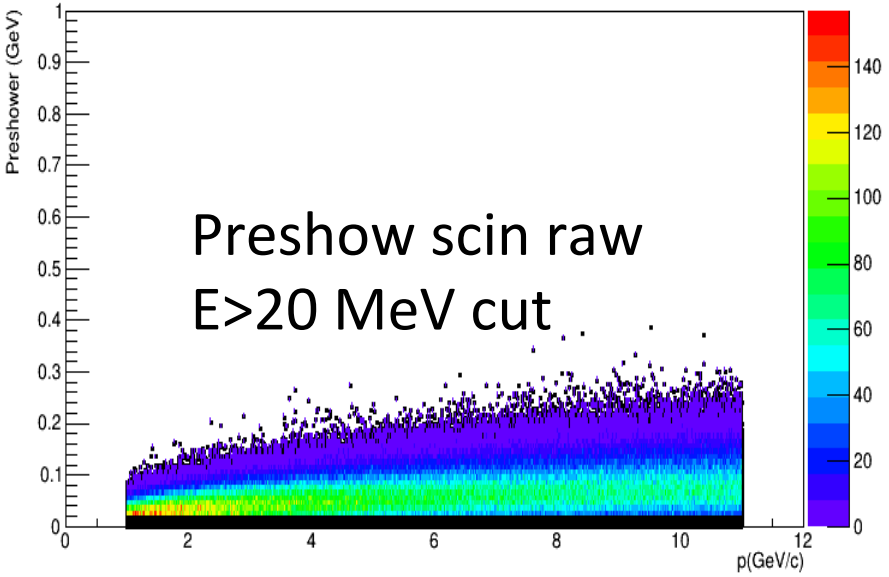


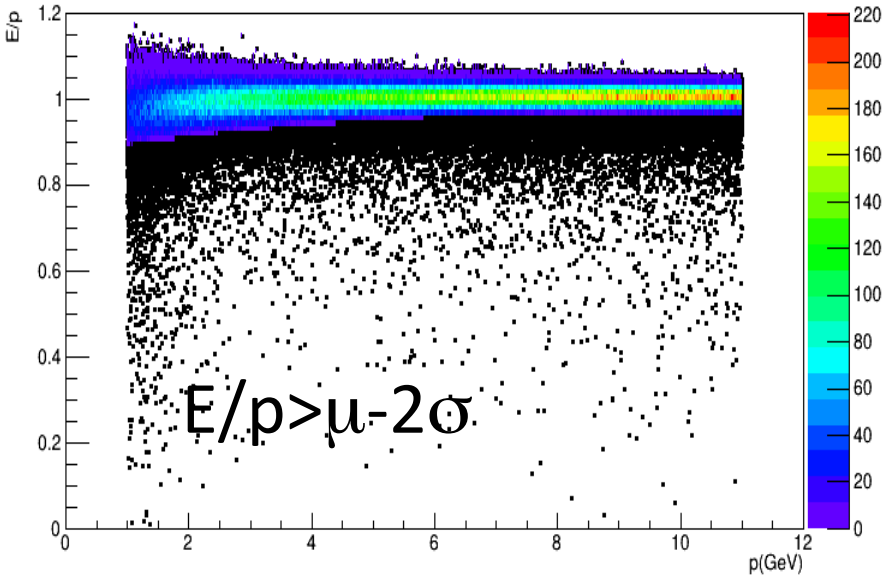
0-11 GeV e- beam, θe [7.5°,14.85°] Energy Calibration SIDIS Configuration

Prelead: 2.0X0



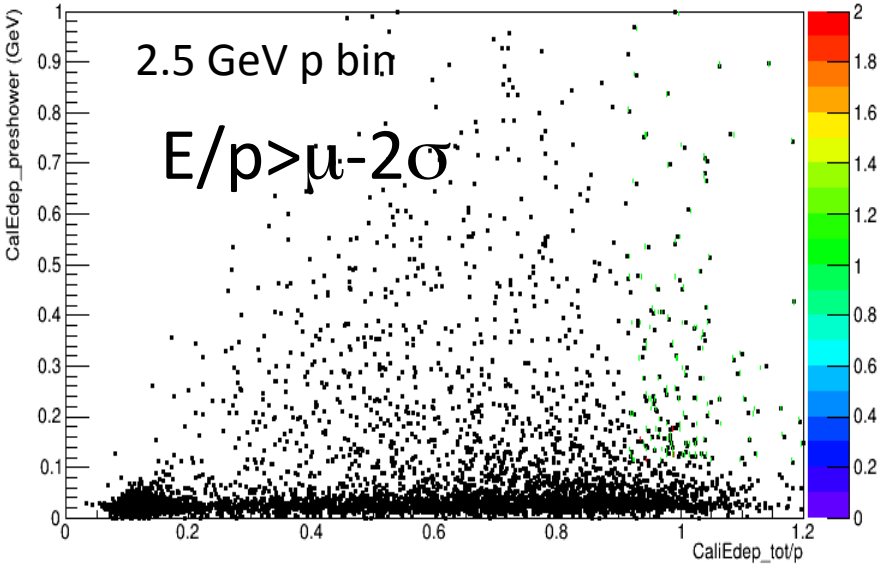


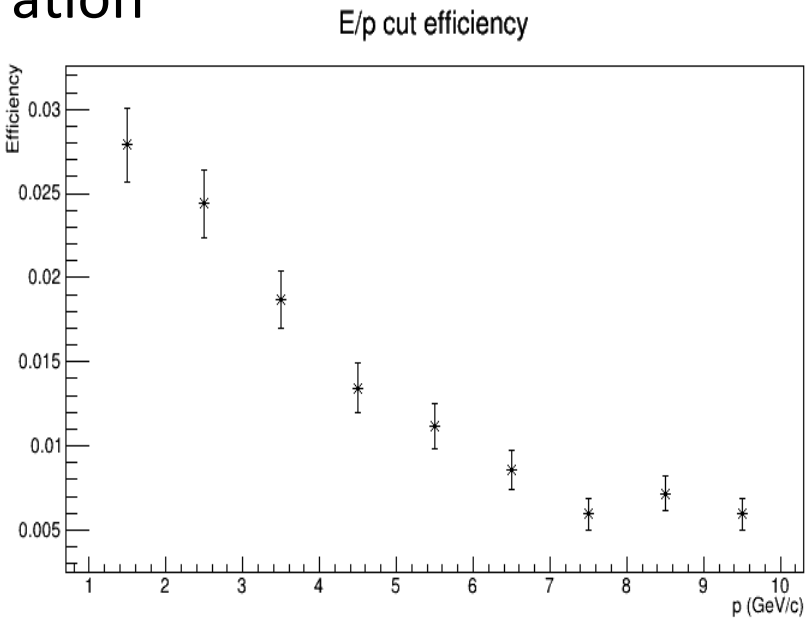


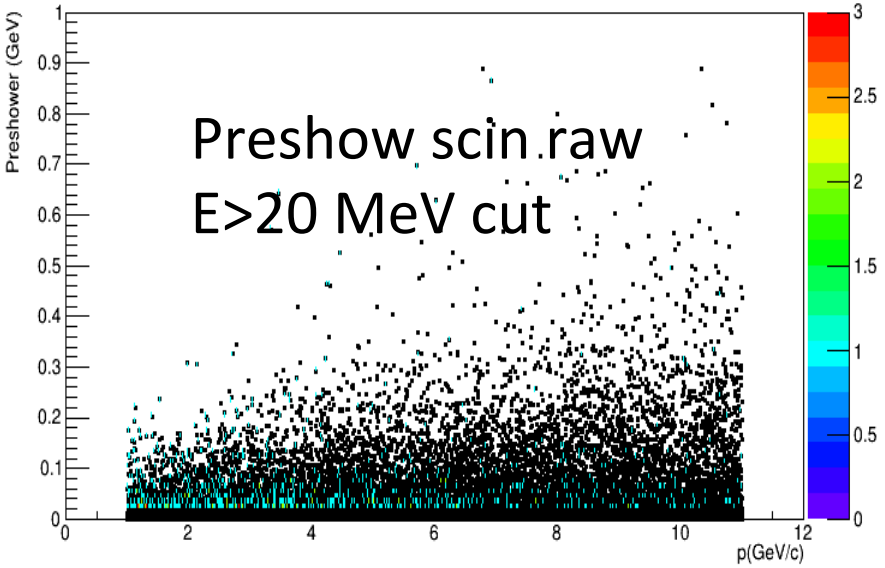


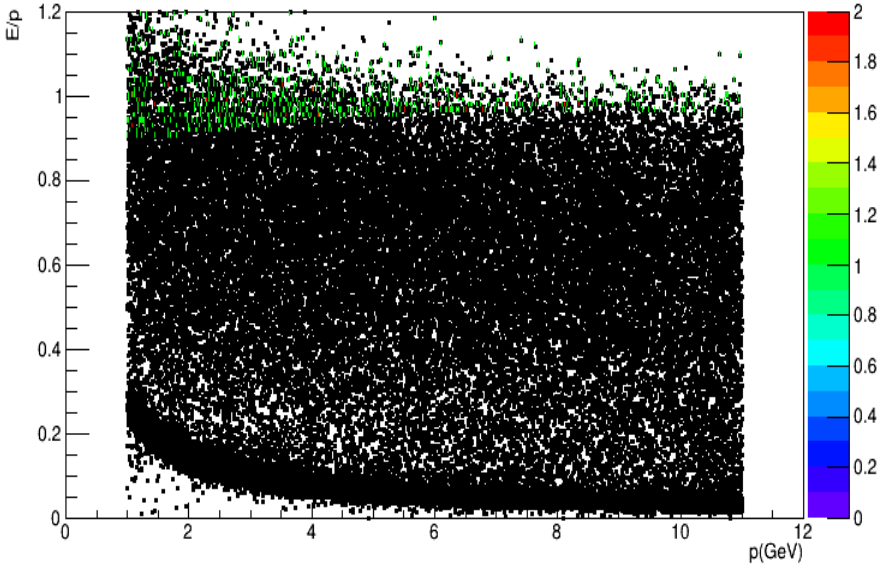
0-11 GeV π- beam, θe [7.5°,14.85°] Energy Calibration SIDIS configuration

Prelead: 2.5X0



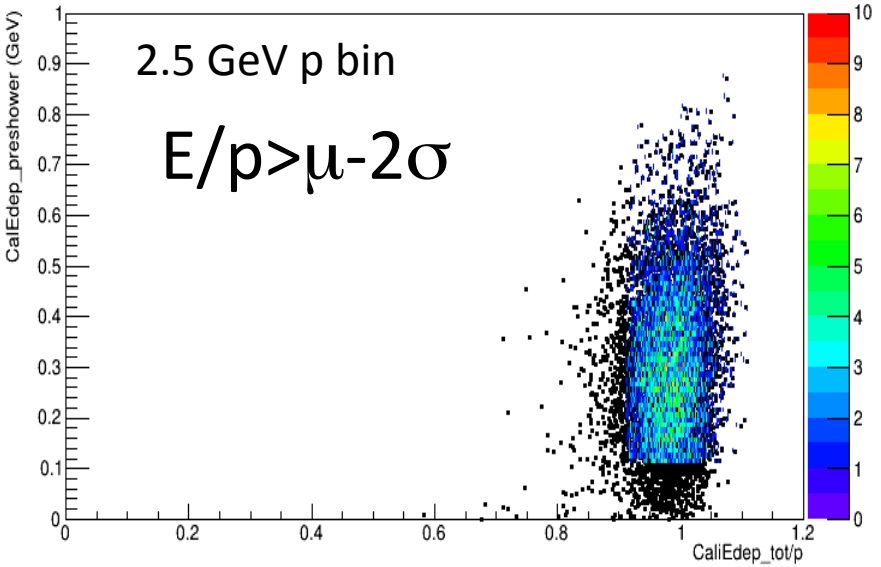


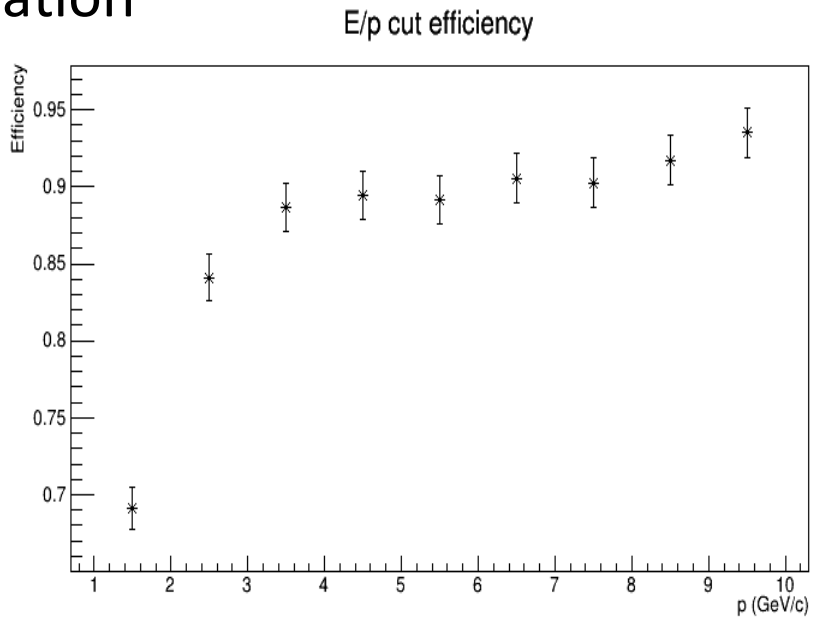


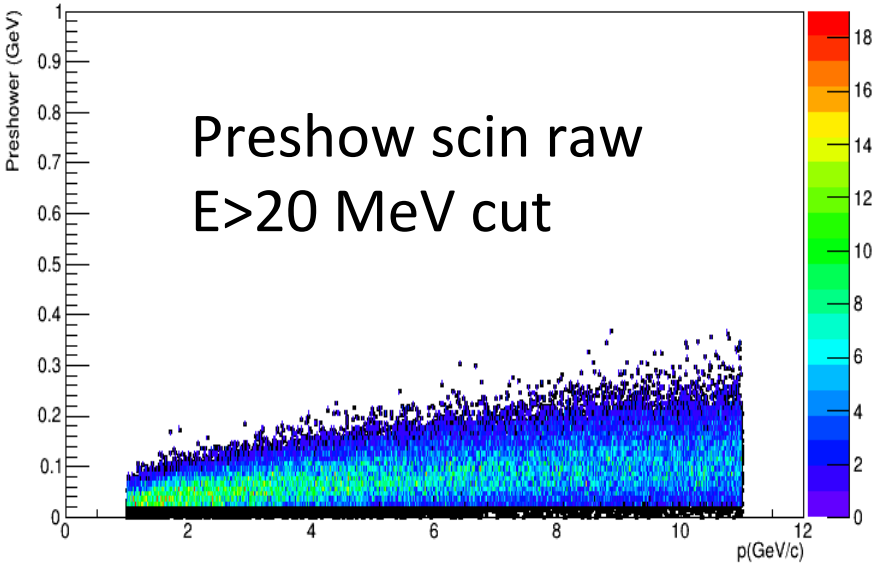


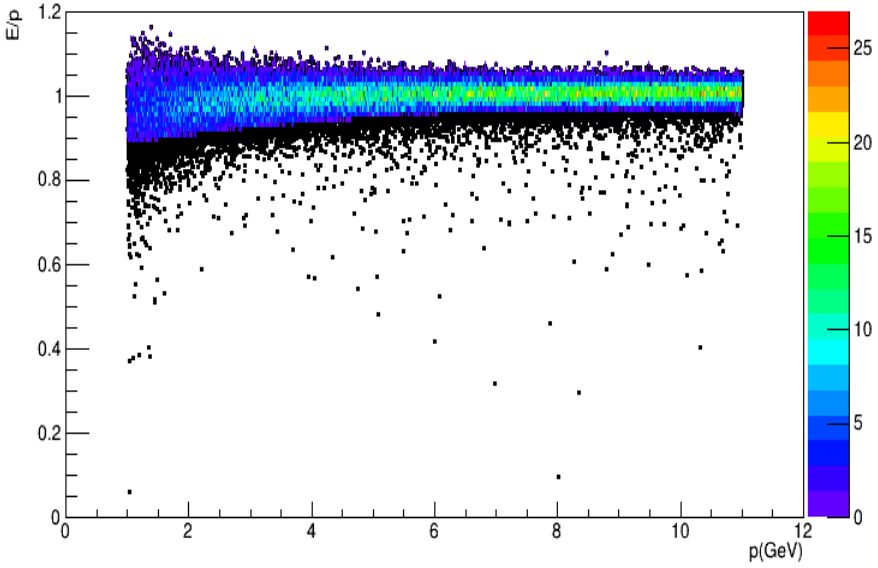
0-11 GeV e- beam, θe [7.5°,14.85°] Energy Calibration SIDIS configuration

Prelead: 2.5X0



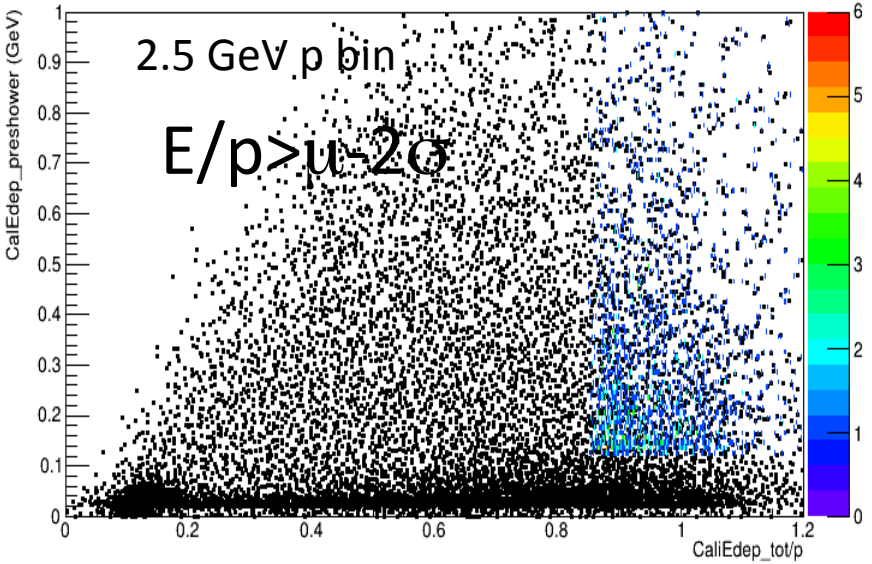


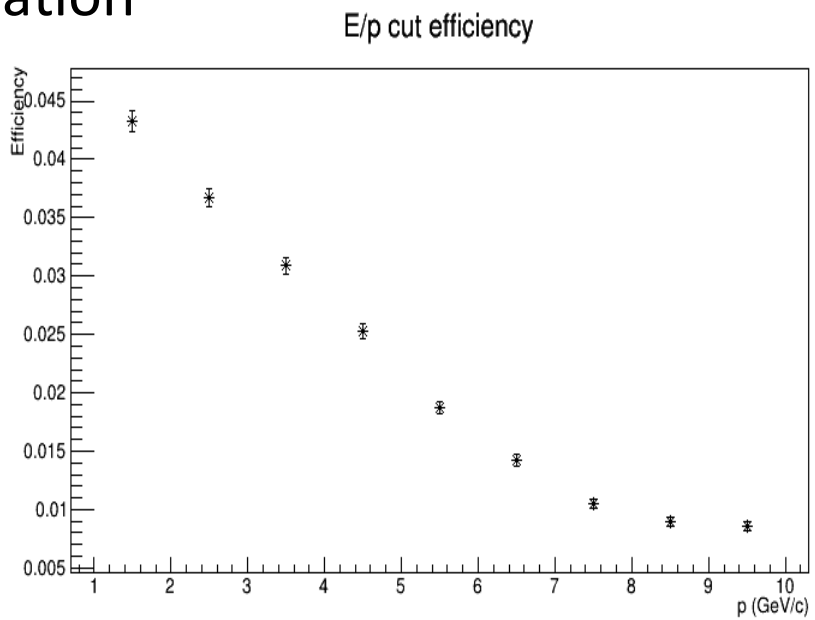


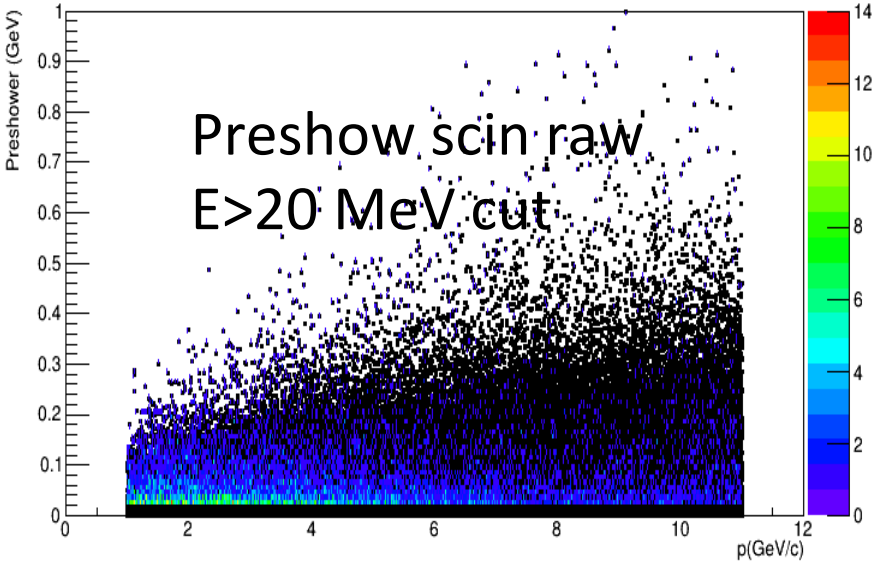


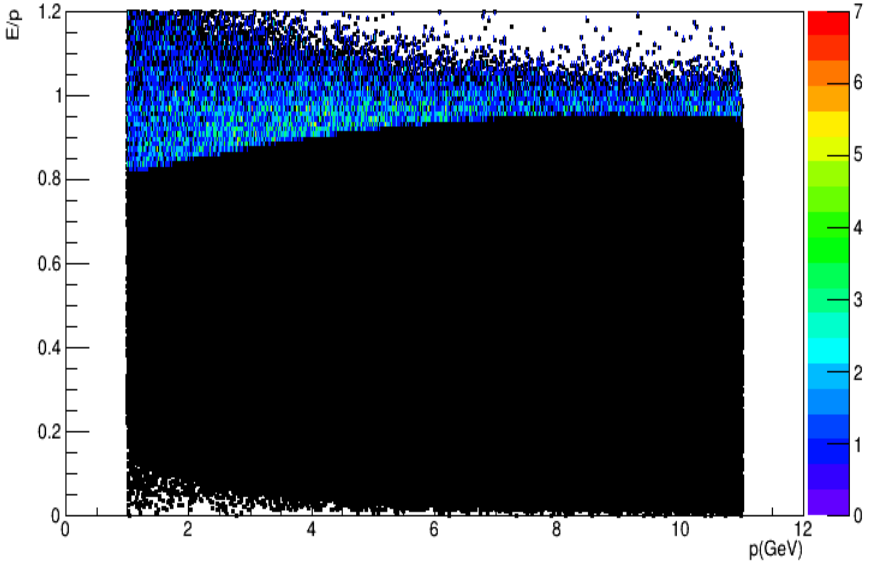
0-11 GeV π- beam, θe [7.5°,14.85°] Energy Calibration SIDIS configuration

Prelead: 3X0



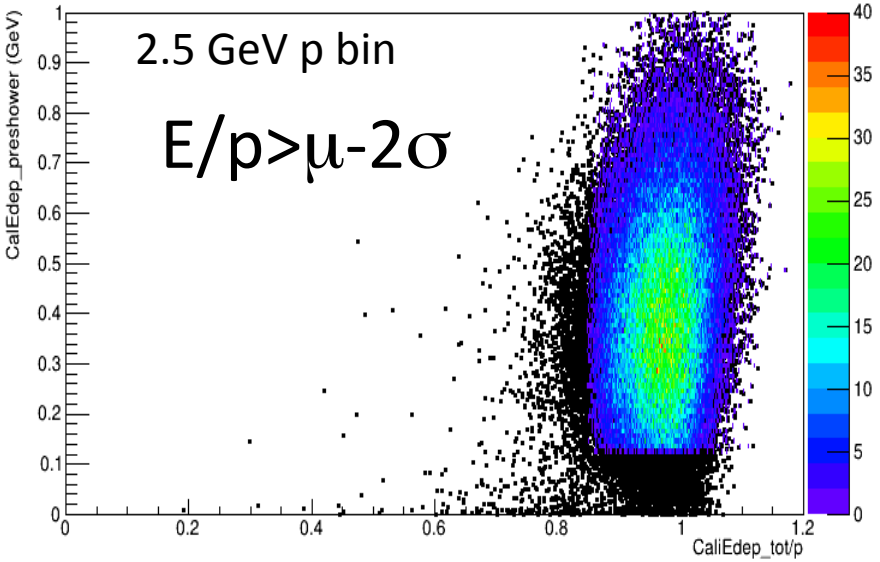


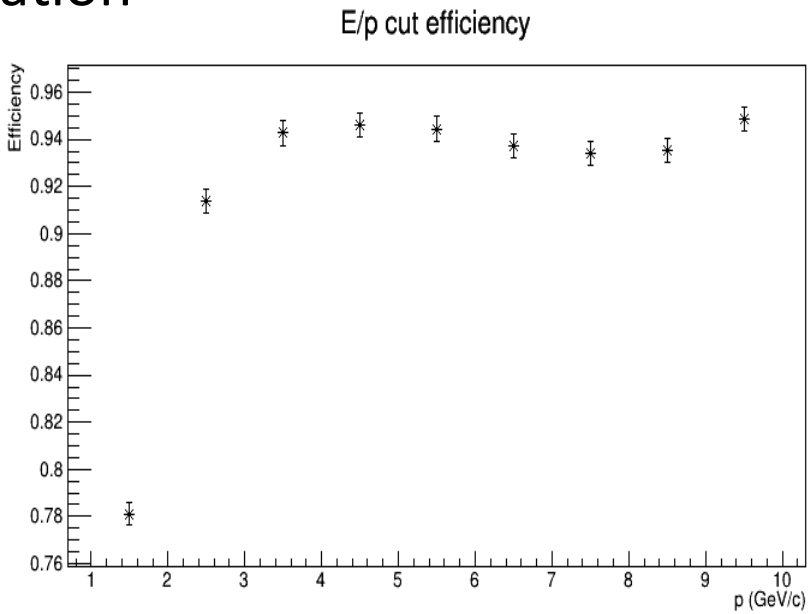


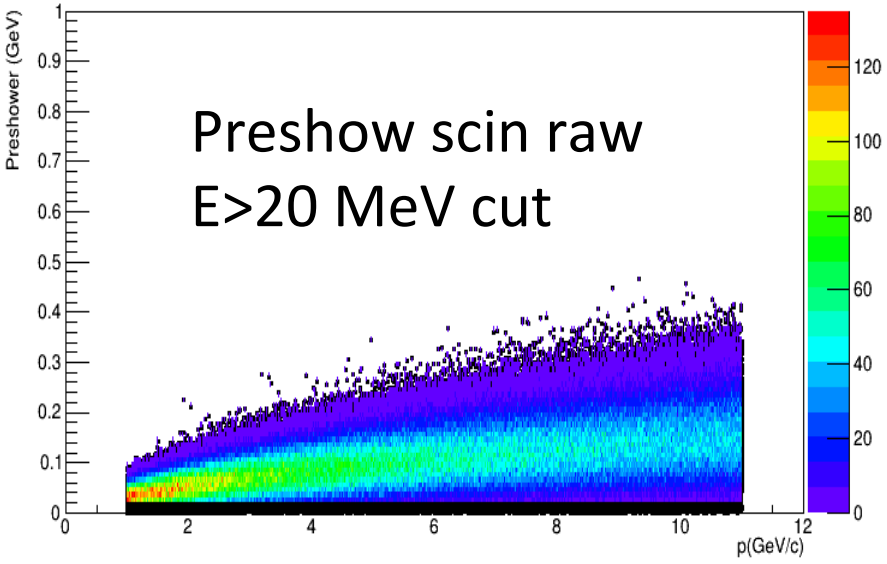


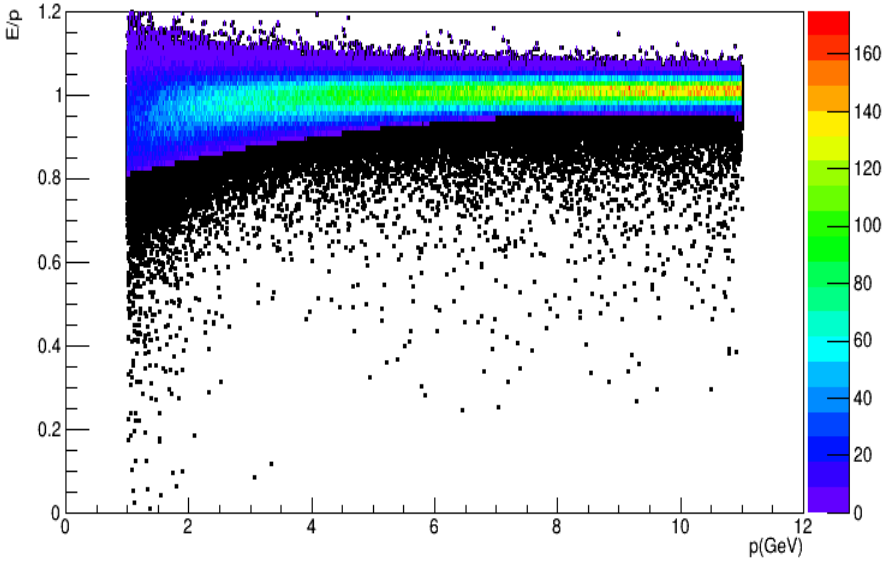
0-11 GeV e- beam, θe [7.5°,14.85°] Energy Calibration SIDIS configuration

Prelead: 3X0



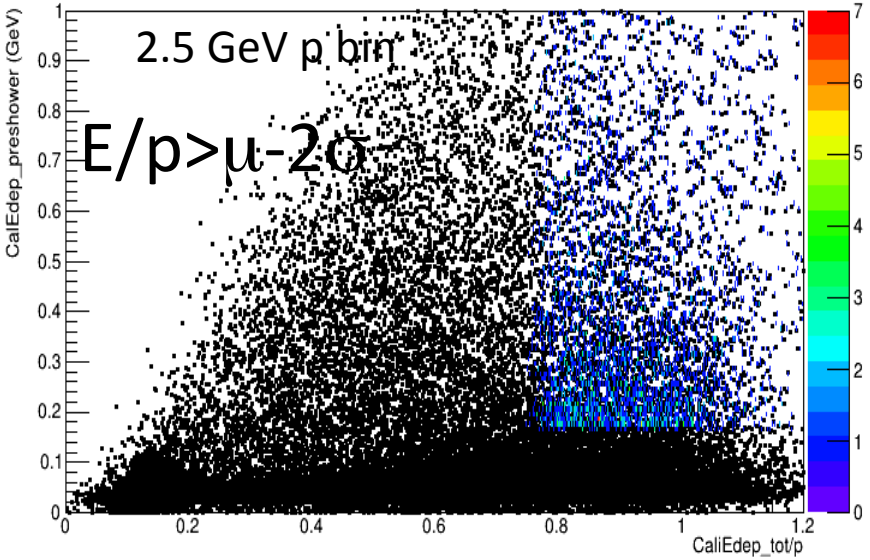


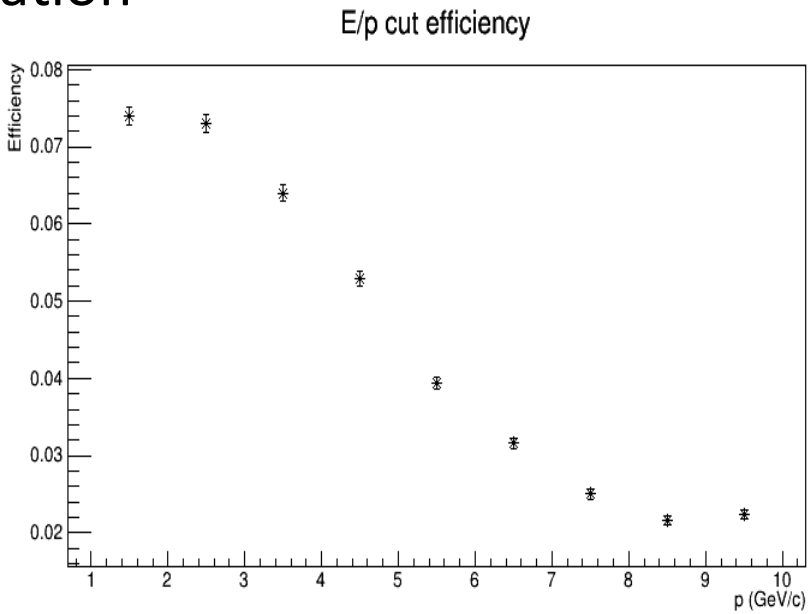


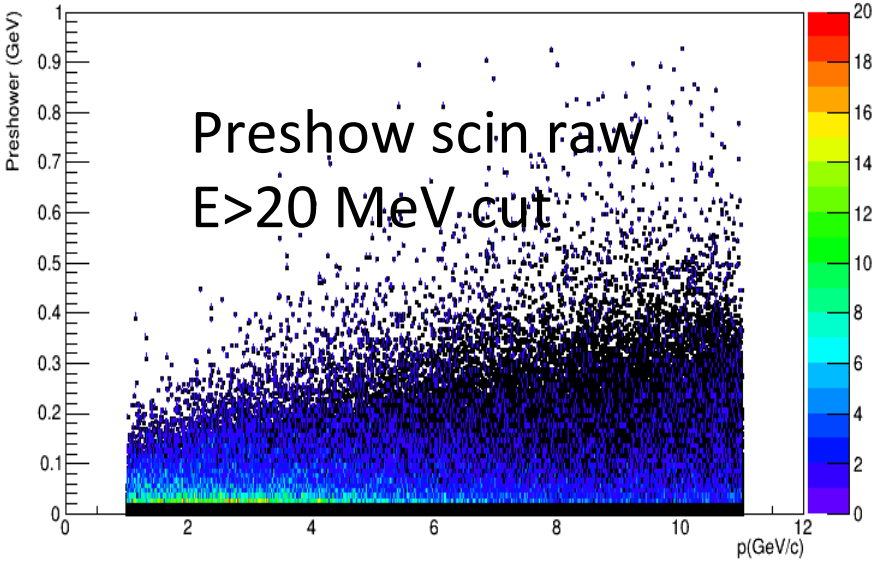


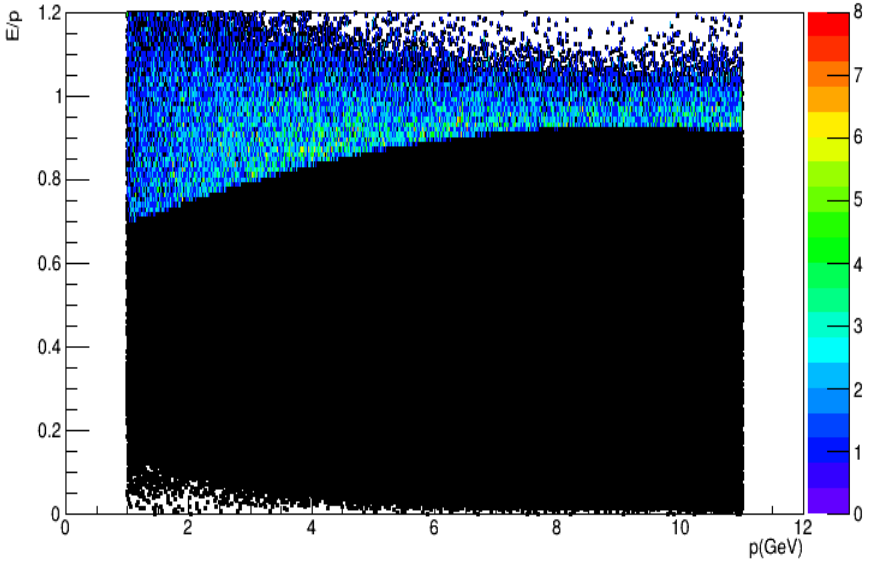
0-11 GeV π- beam, θe [7.5°,14.85°] Energy Calibration SIDIS configuration

Prelead: 4X0



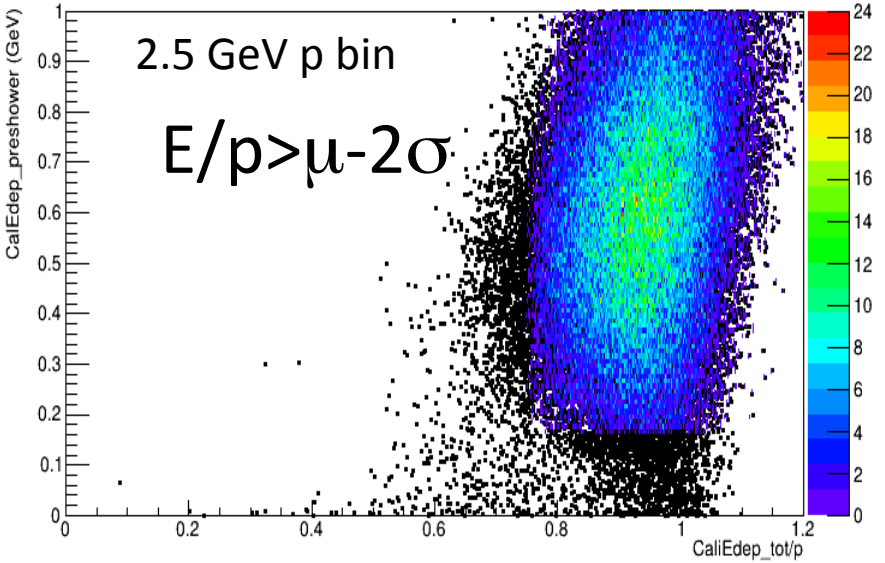


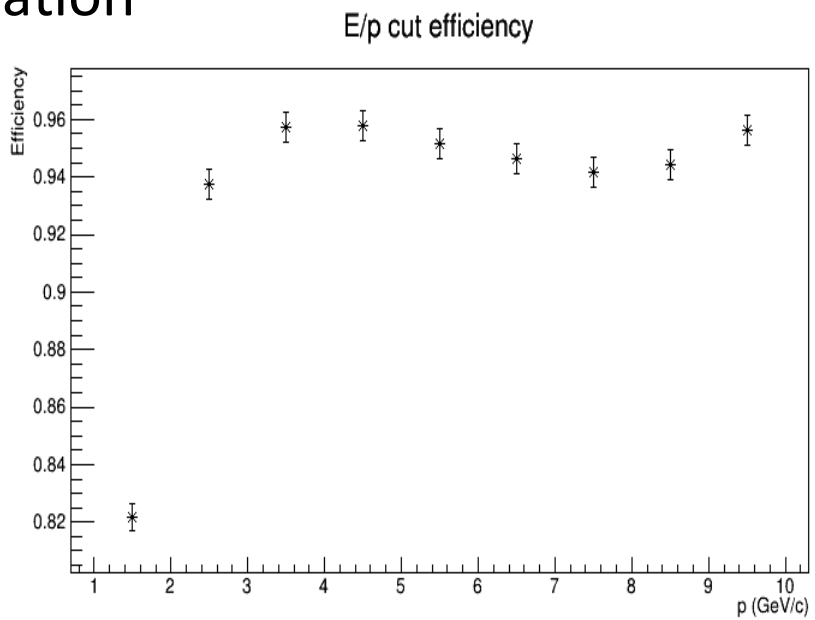


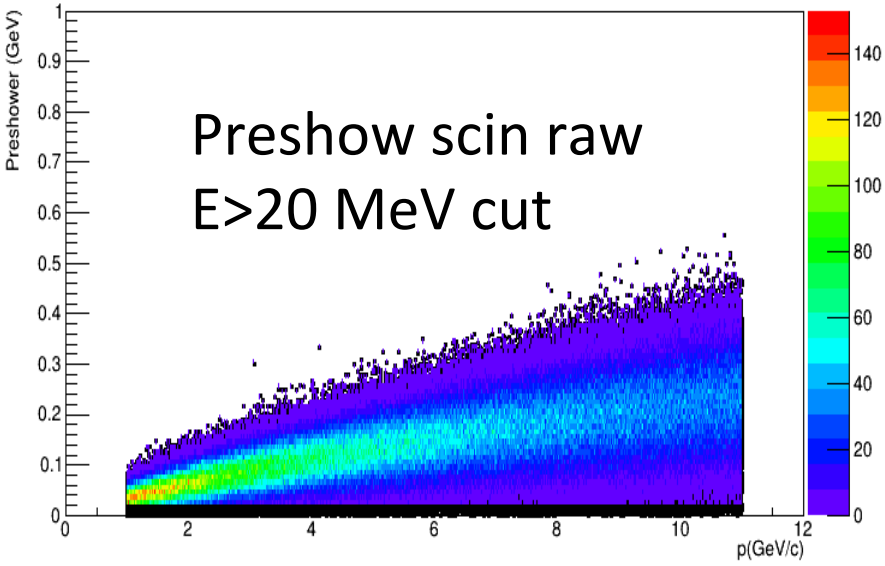


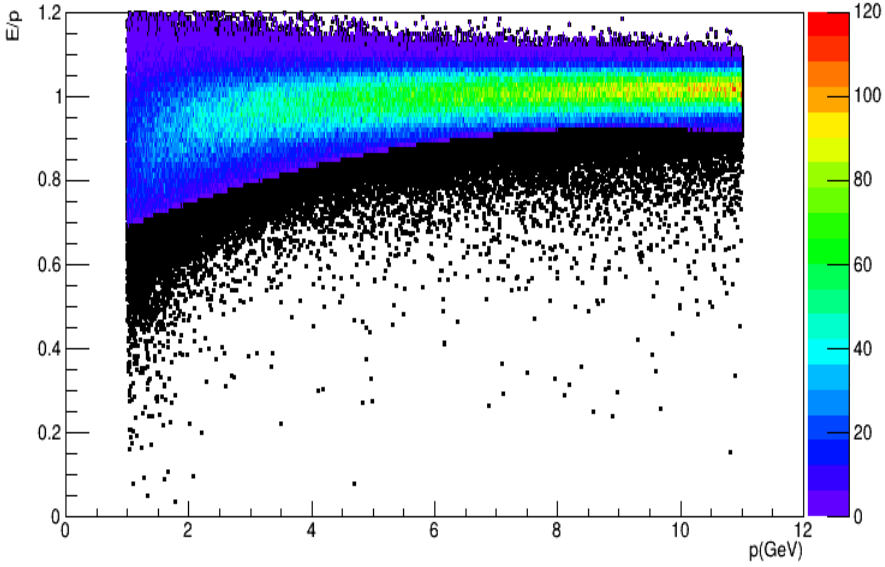
0-11 GeV e- beam, θe [7.5°,14.85°] Energy Calibration SIDIS configuration

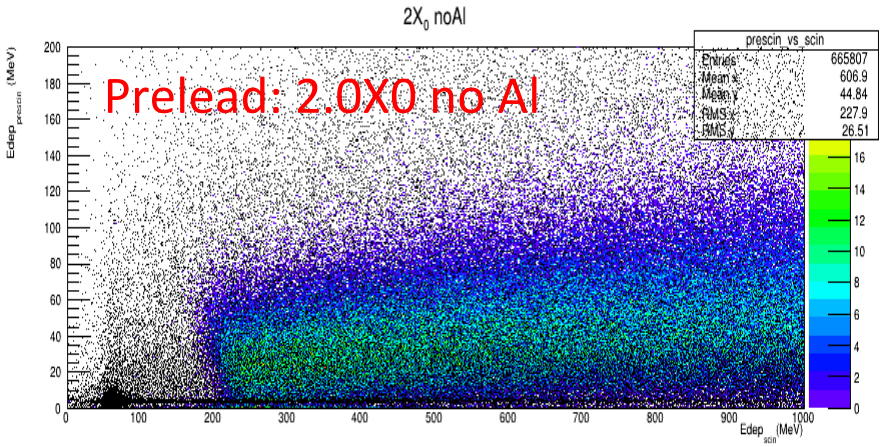
Prelead: 4X0

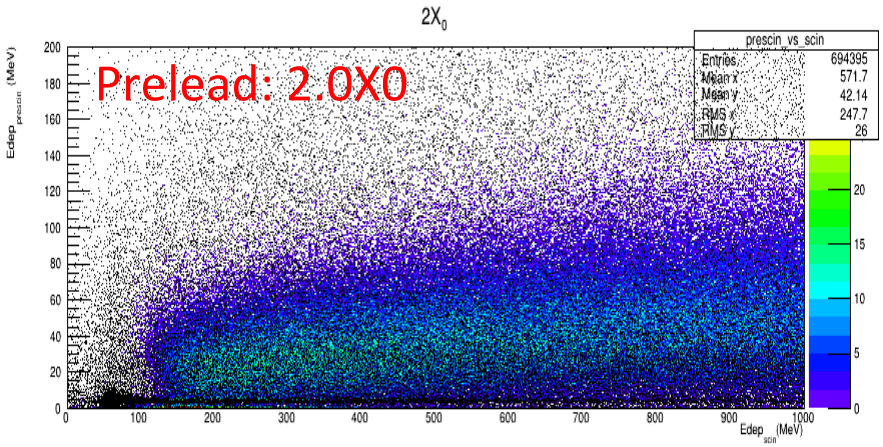


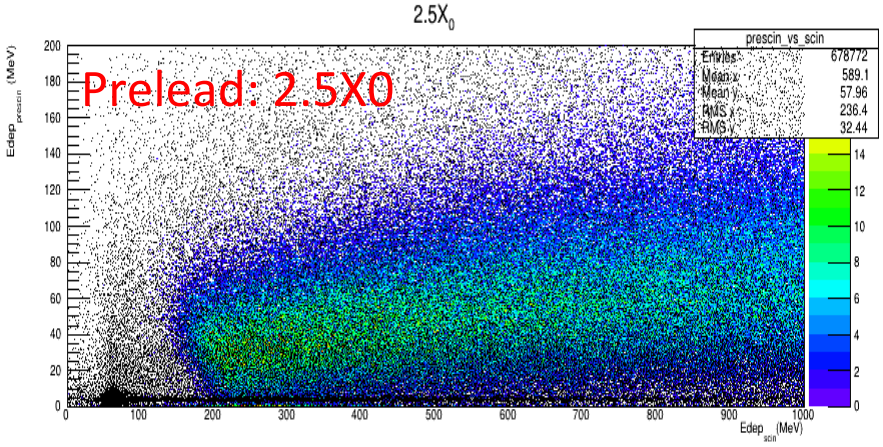


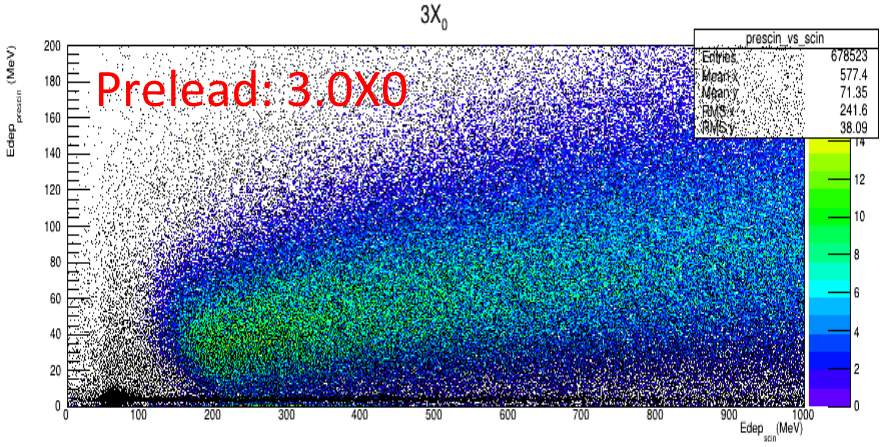


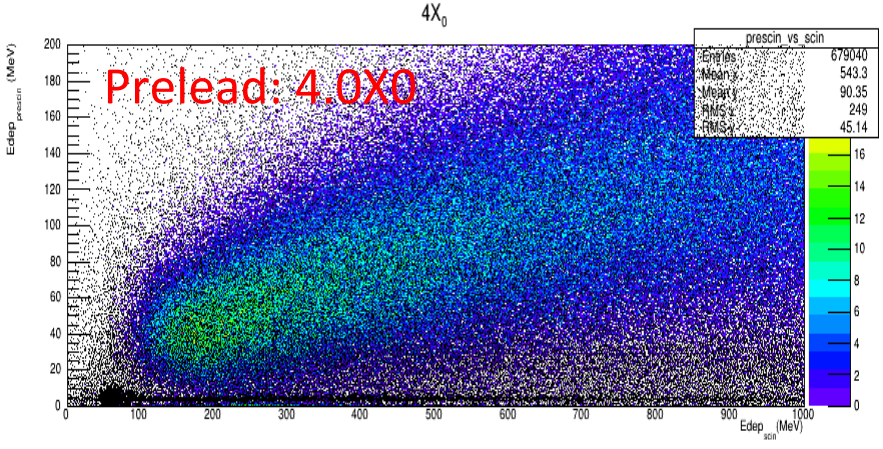












Y: Preshower scintillator deposited energy

X: Shower scintillator deposited energy

Black: π^-

Color: e^-

Summary

- For low momentum bins (1-3 GeV), by keeping the e^- efficiency to 95%, the goal of π^- rejection 1:50 can not be achieved even by increasing the prelead width to $4X_0$.

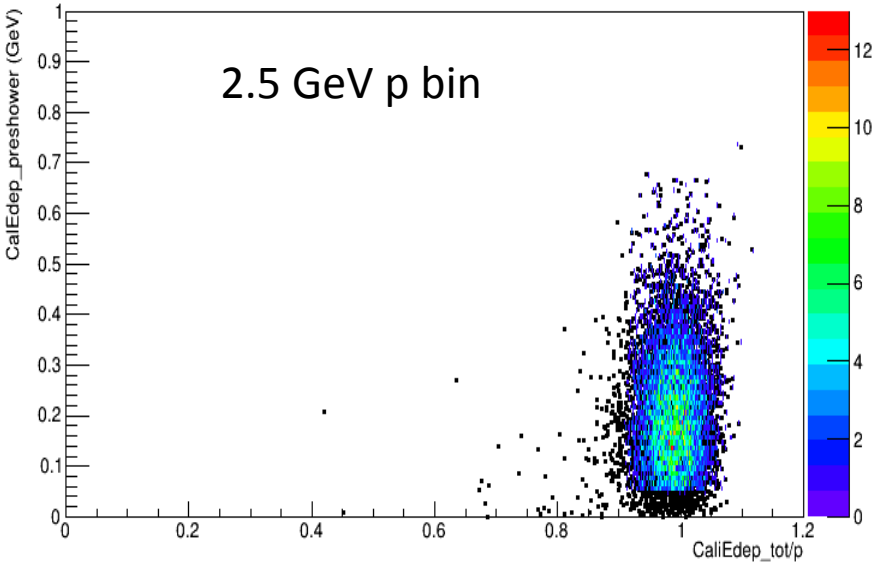
- Waiting for Jin's response, which is related to his PcDR plots, to finalize the conclusion.

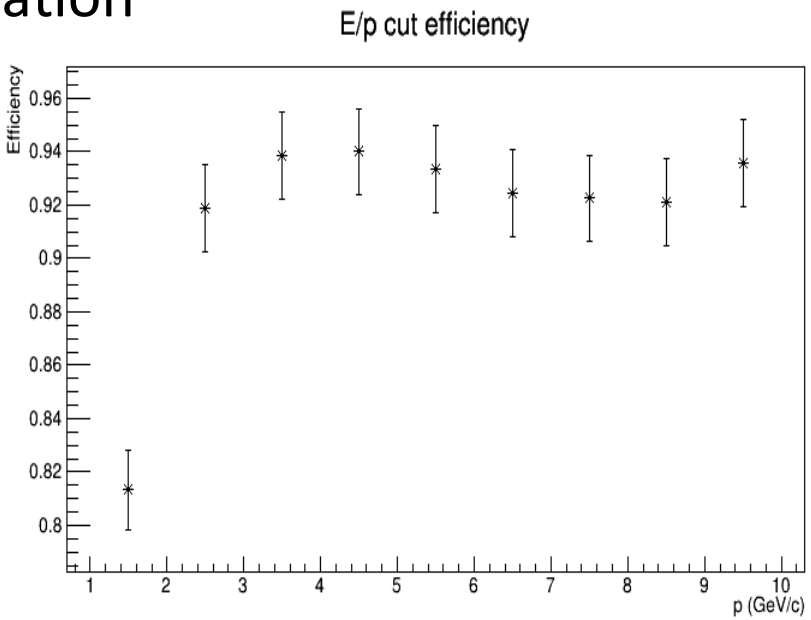
Any comments and suggestions ?

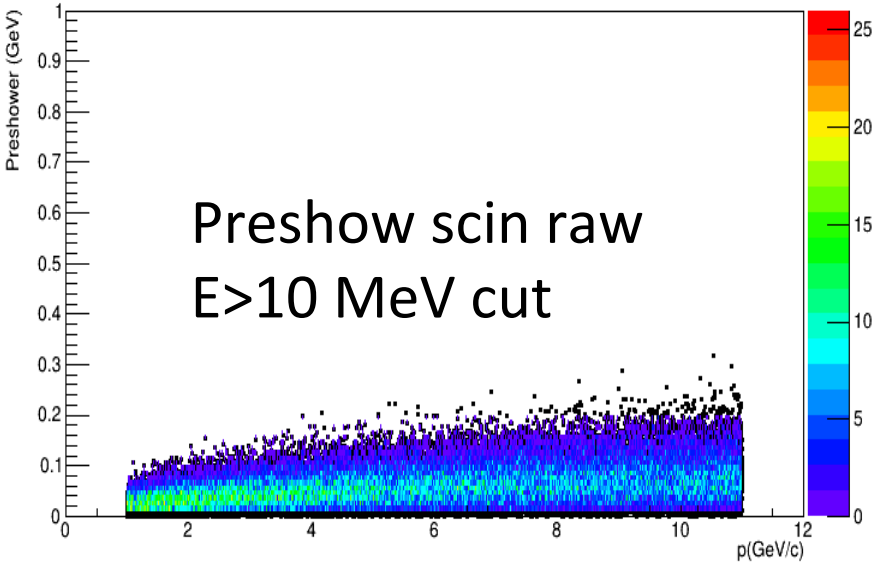
Back up

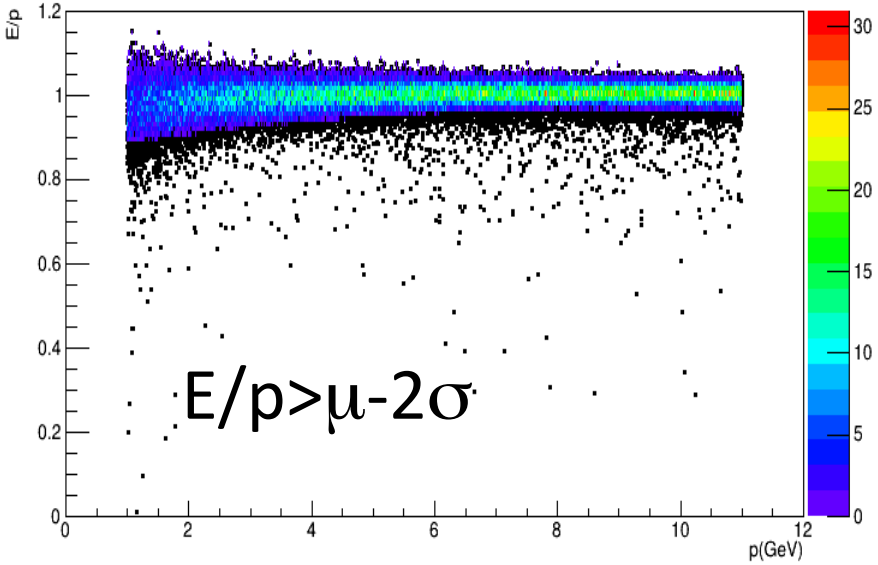
0-11 GeV e- beam, θe [7.5°,14.85°] Energy Calibration SIDIS Configuration

Prelead: 2.0X0



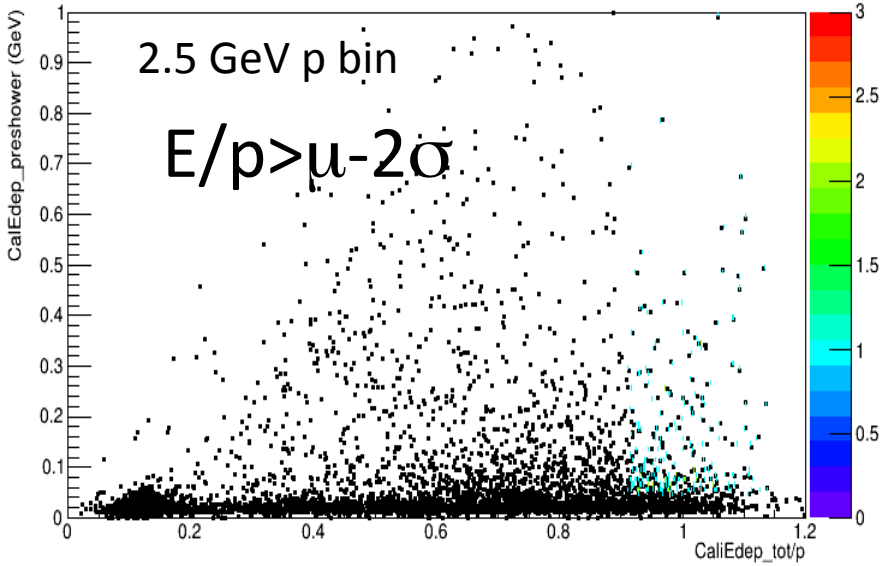


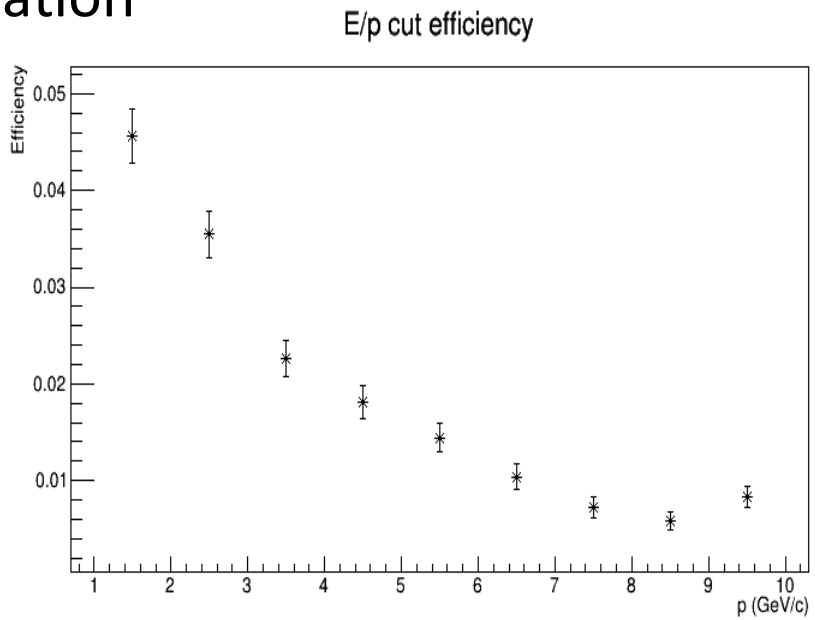


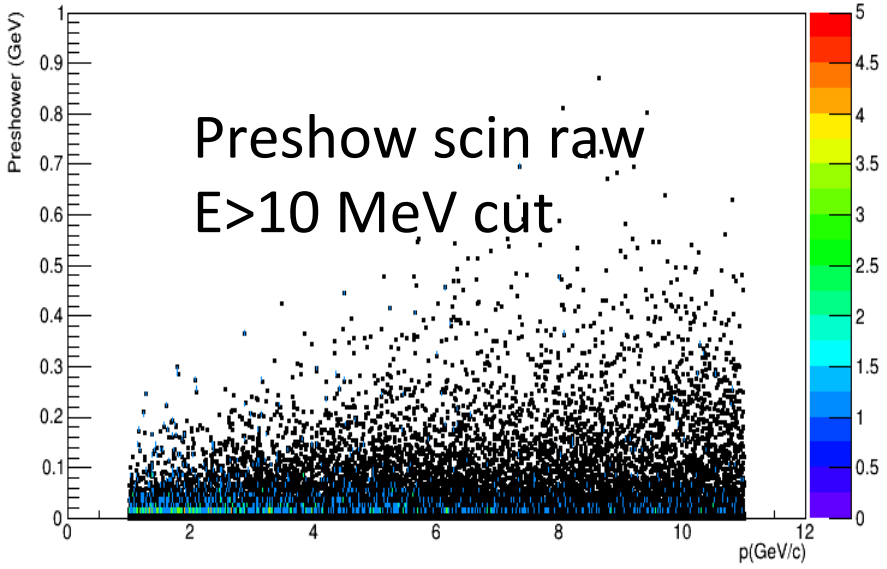


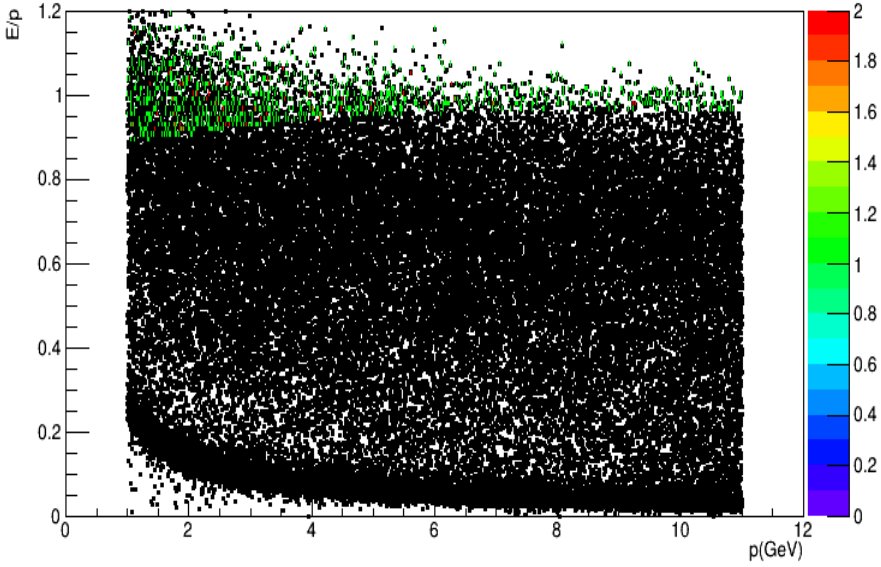
0-11 GeV π- beam, θe [7.5°,14.85°] Energy Calibration SIDIS configuration

Prelead: 2.0X0



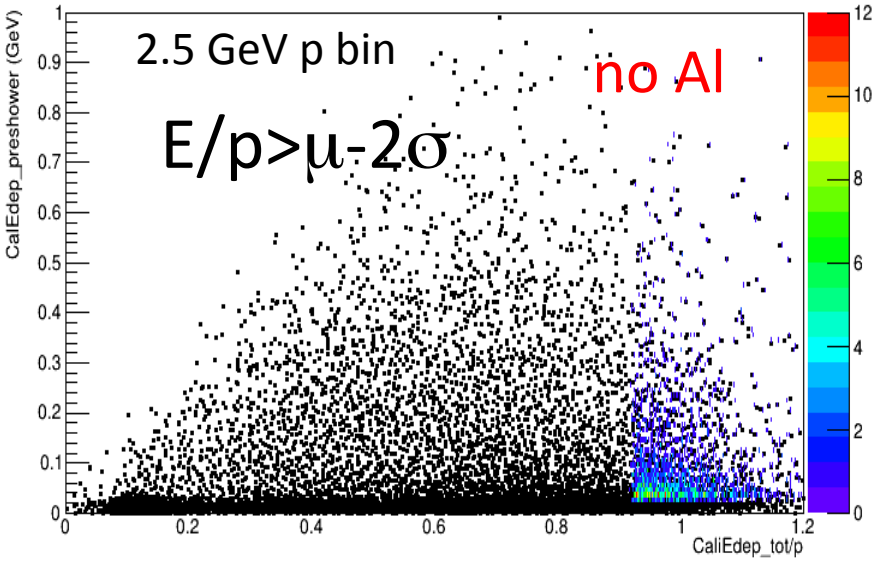


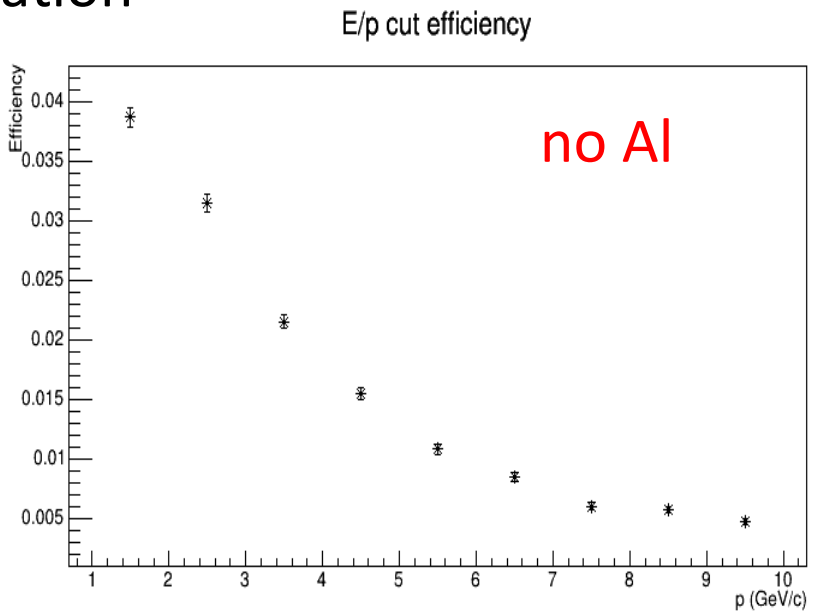


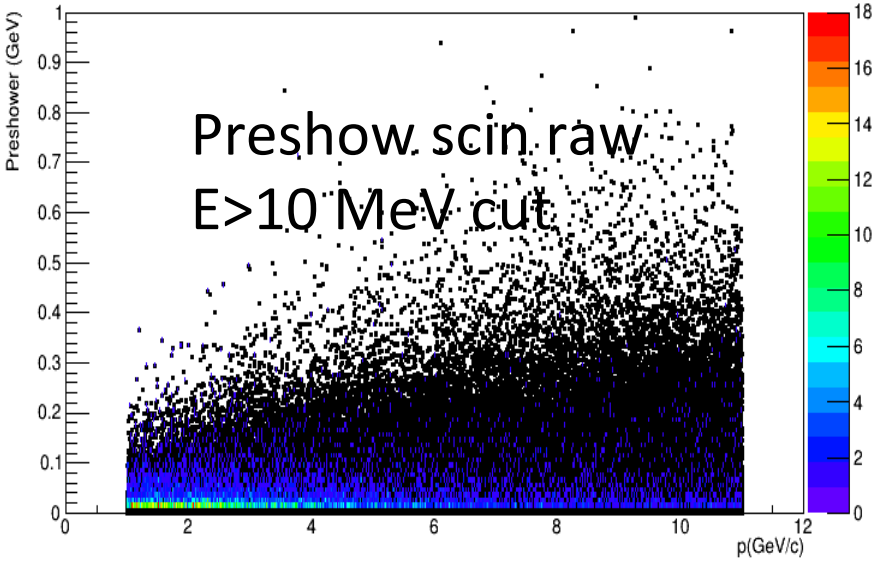


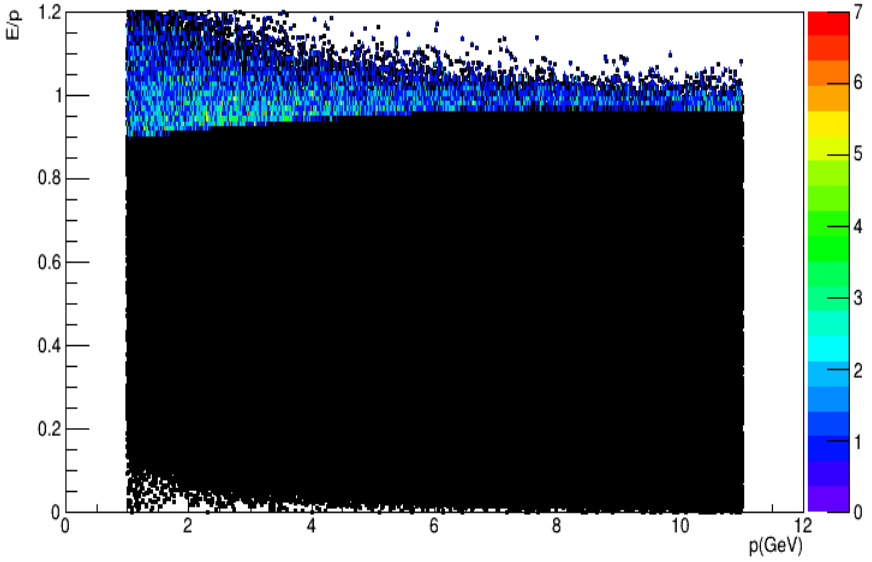
0-11 GeV π- beam, θe [7.5°,14.85°] Energy Calibration SIDIS configuration

Prelead: 2.0X0





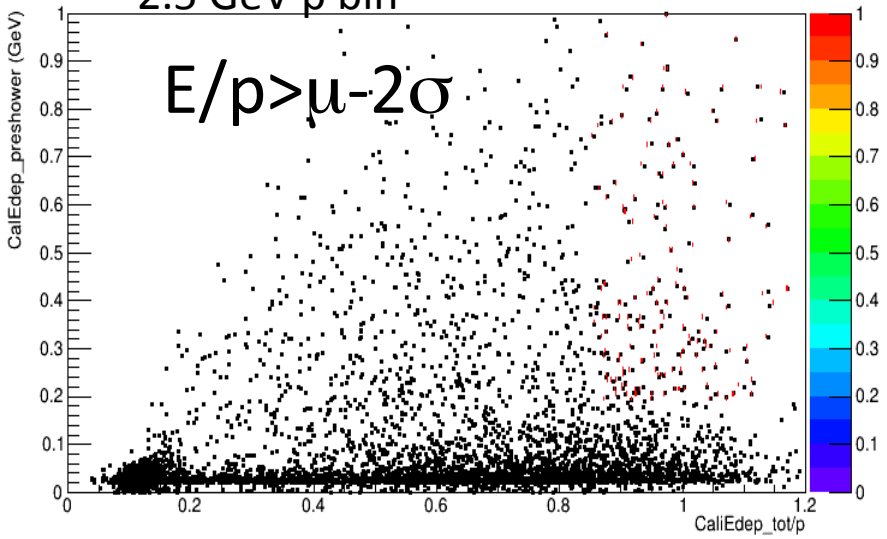


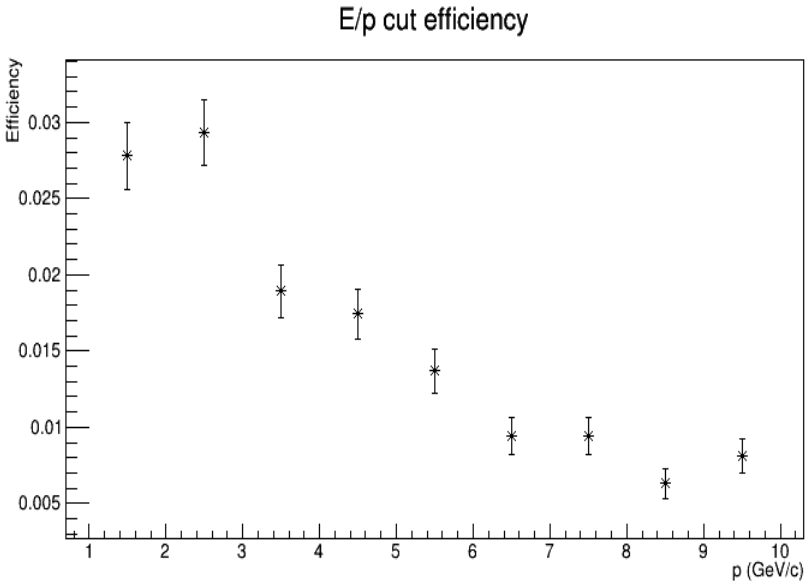


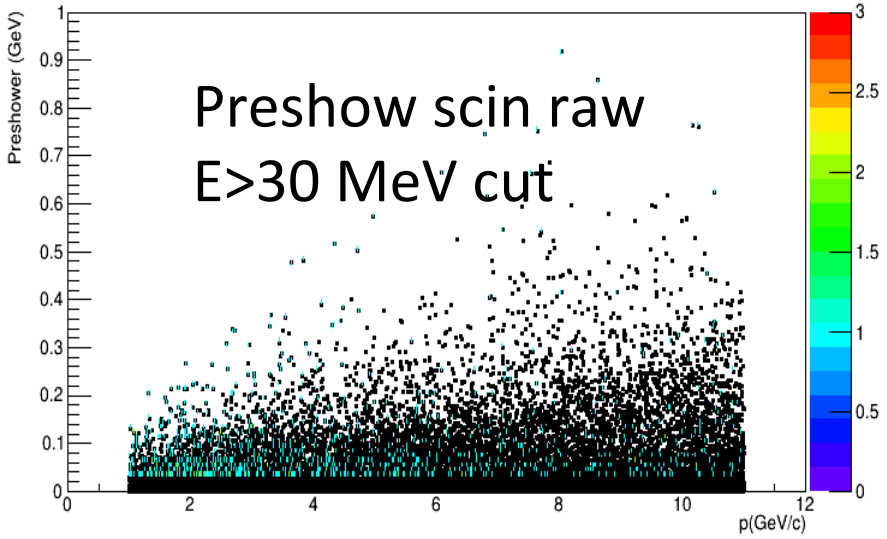
0-11 GeV π- beam, θe [7.5°,14.85°] Energy Calibration SIDIS configuration

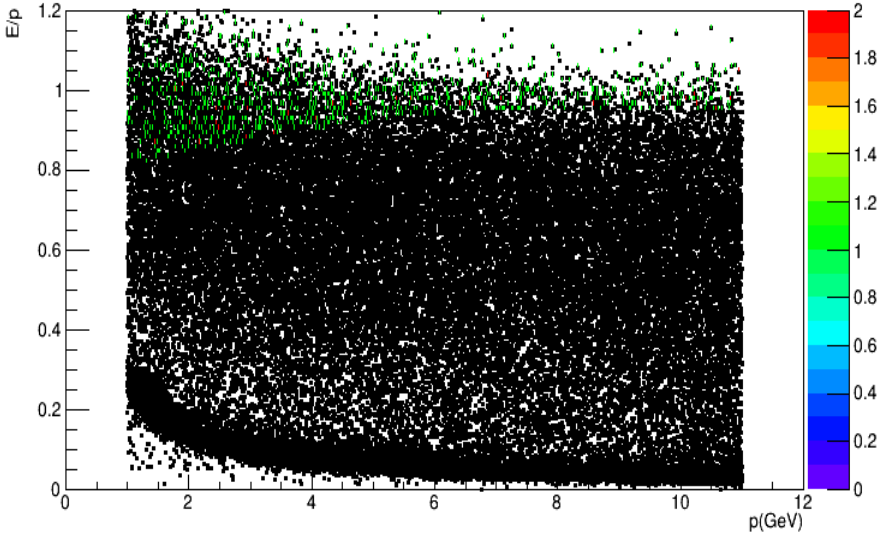
Prelead: 3X0

2.5 GeV p bin





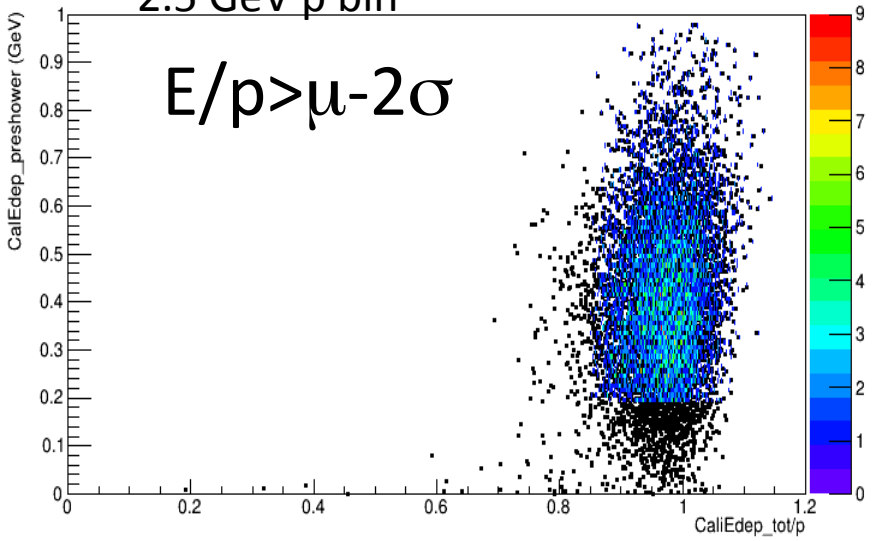


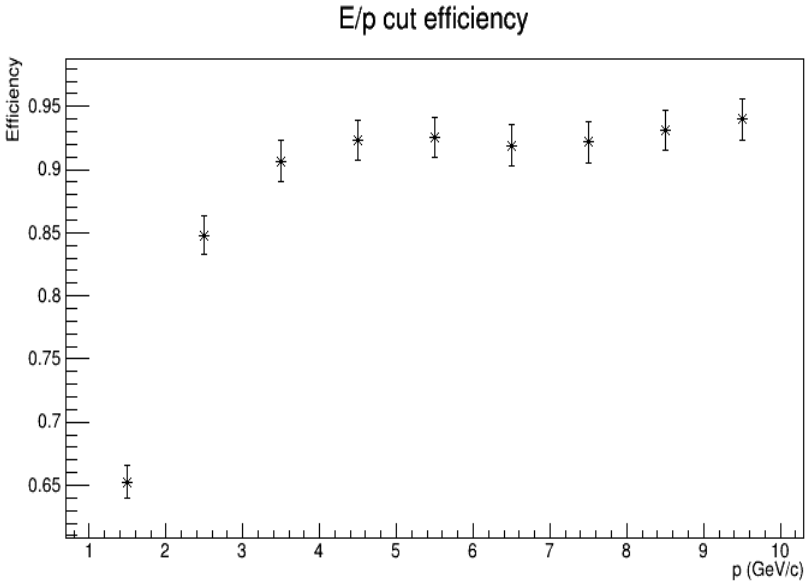


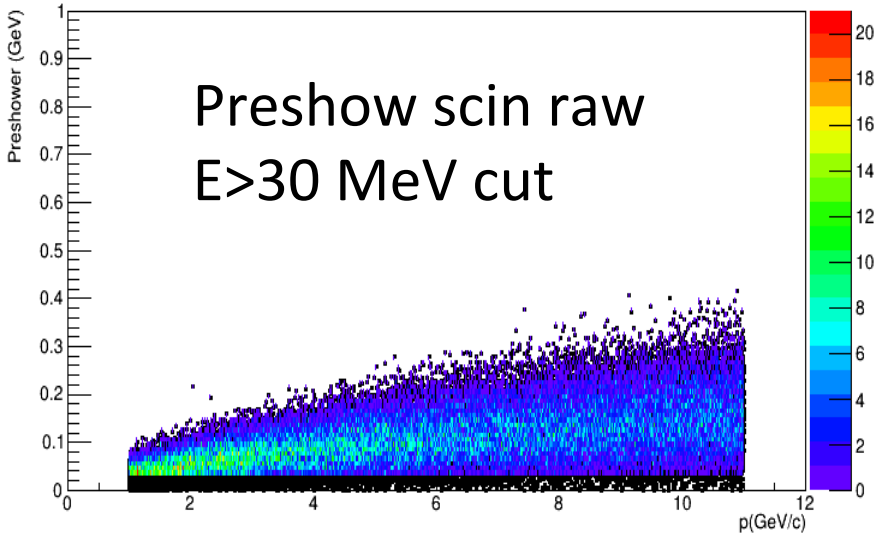
0-11 GeV e- beam, θe [7.5°,14.85°] Energy Calibration SIDIS configuration

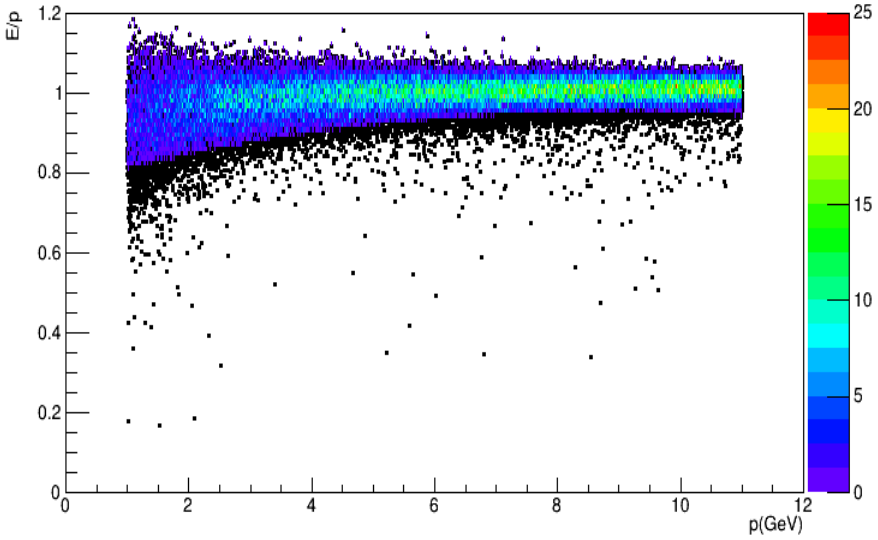
Prelead: 3X0

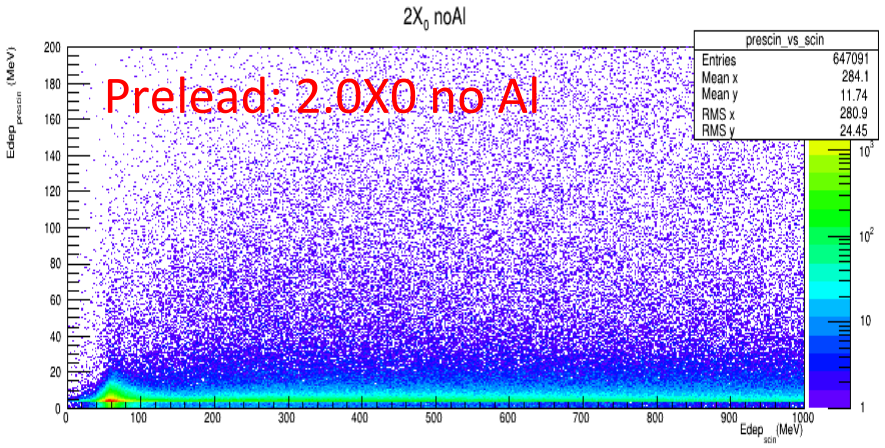
2.5 GeV p bin

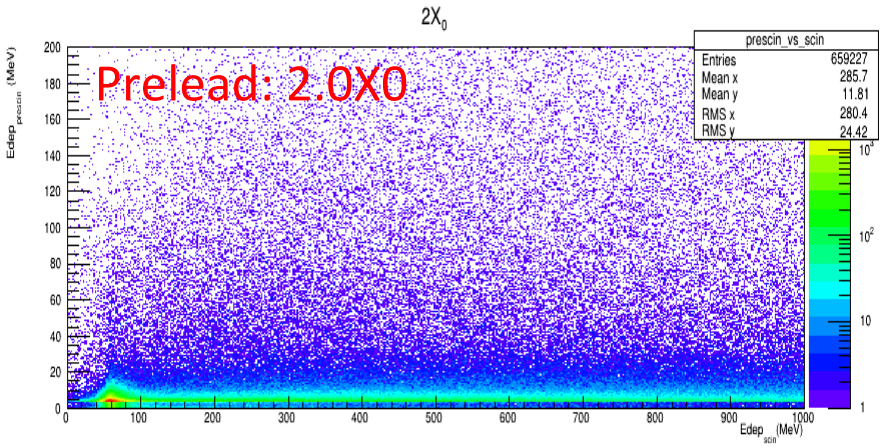


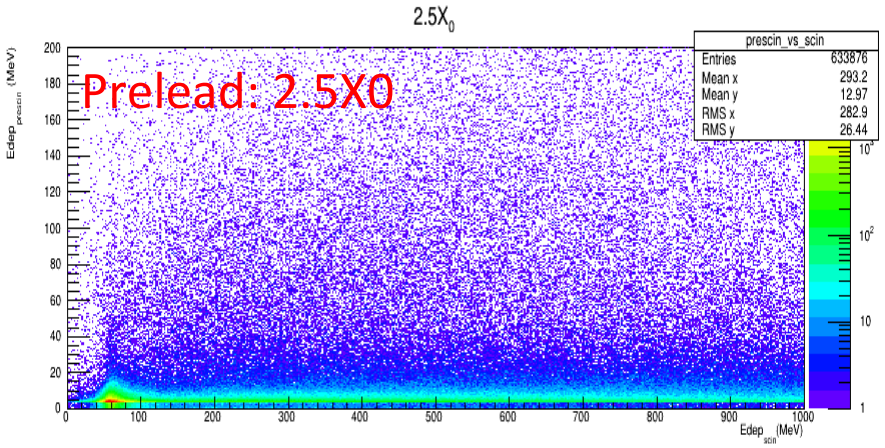


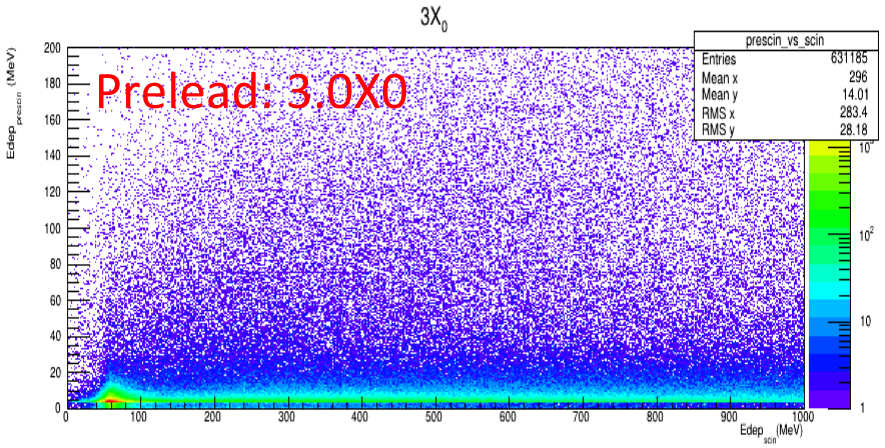


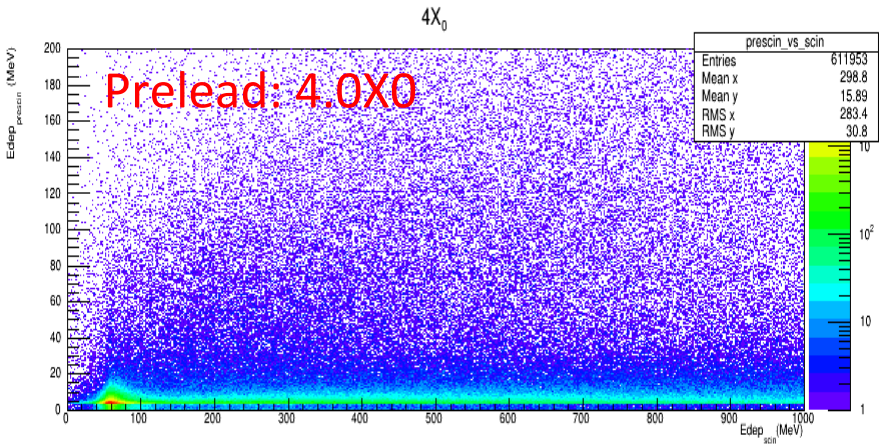












Y: Preshower scintillator deposited energy

X: Shower scintillator deposited energy

Color: π^-