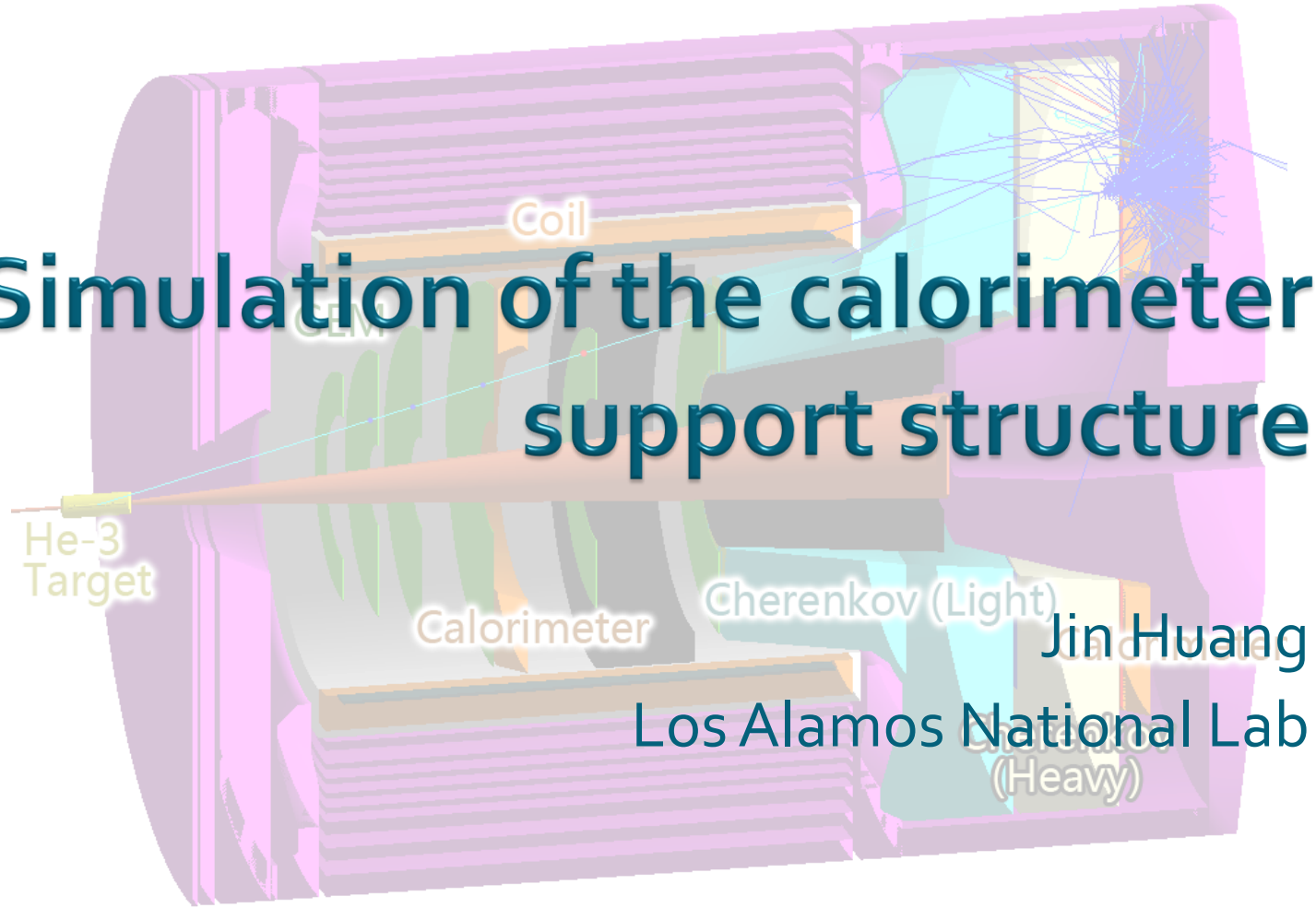

Simulation of the calorimeter support structure

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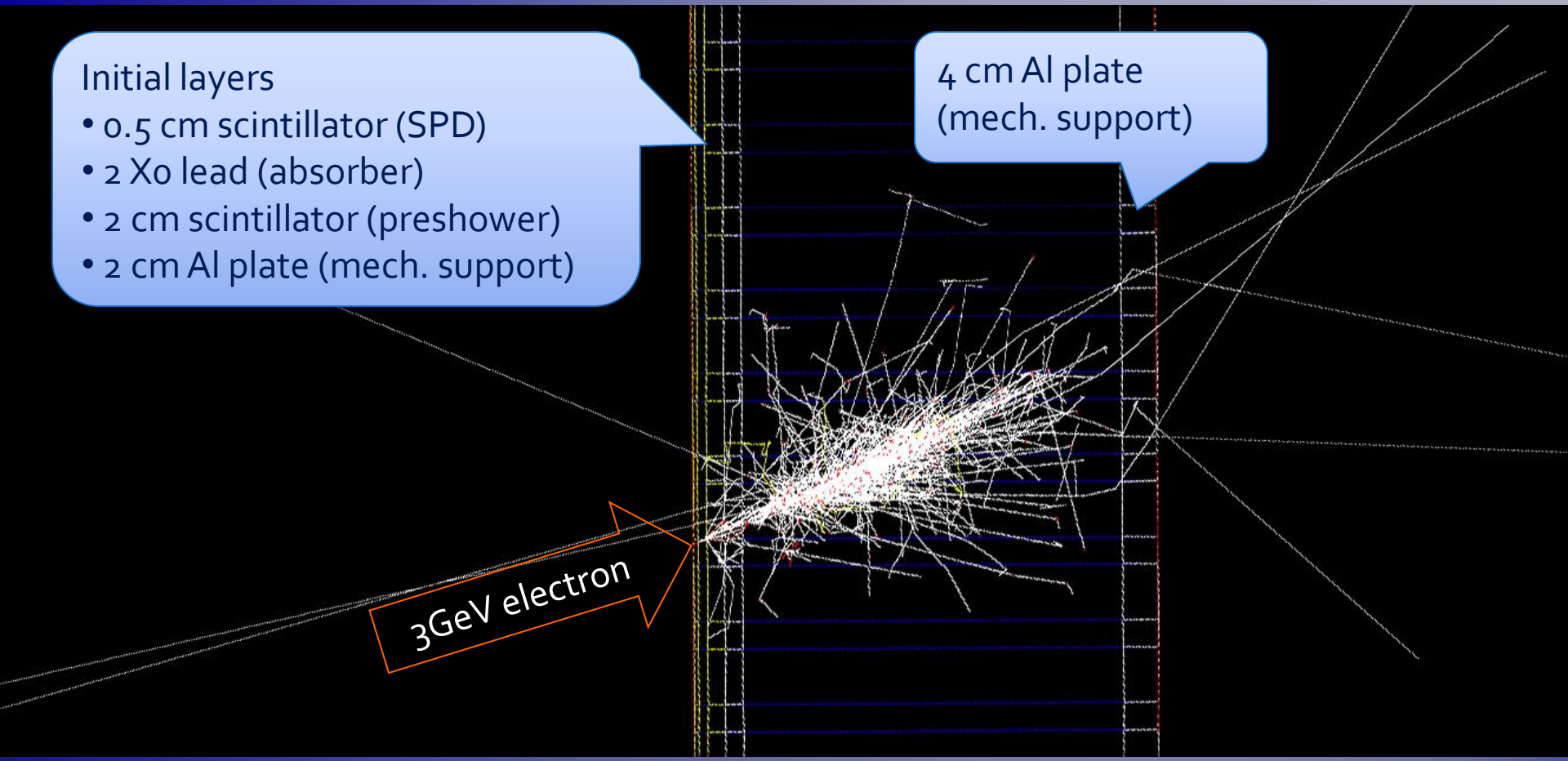
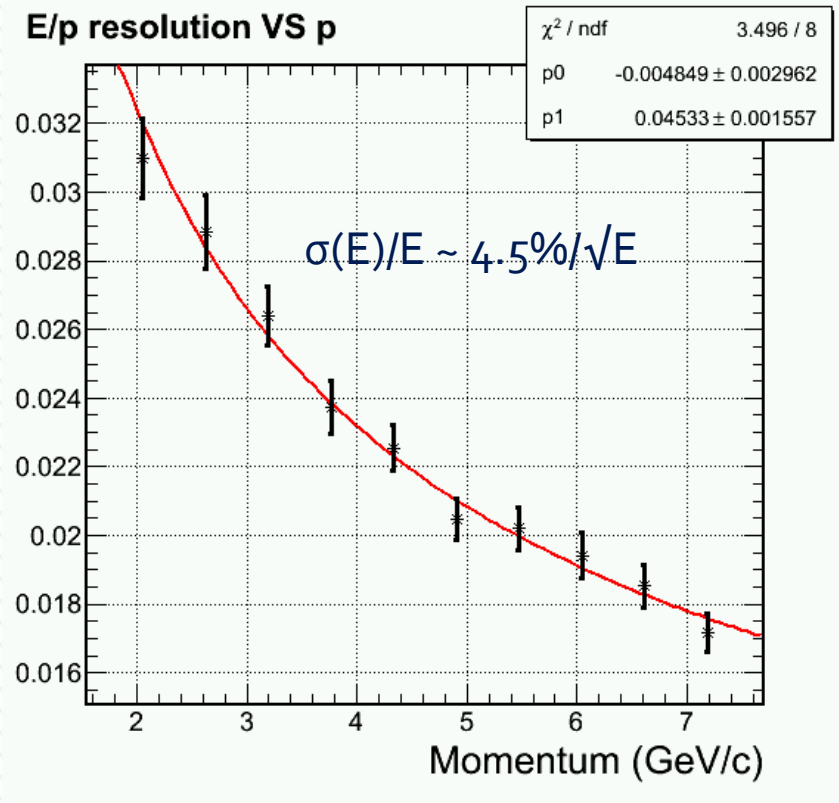


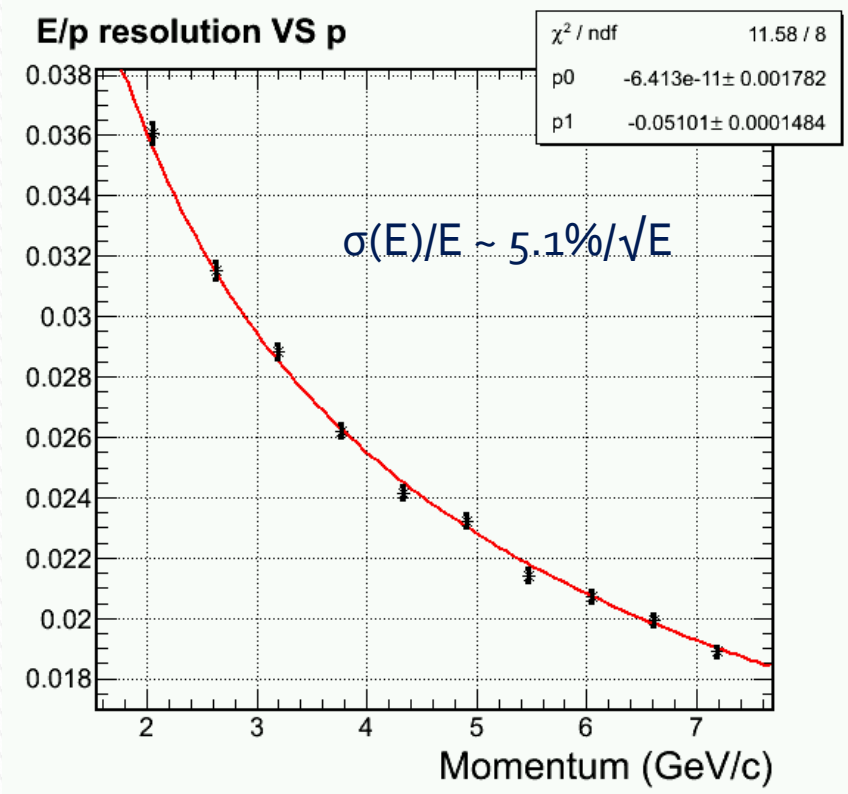
Adding support structure to simulation

Simulation started before I leave China, finished in the weekend

Change in energy resolution

Use preshower reading to recover missing energy in Al support structure



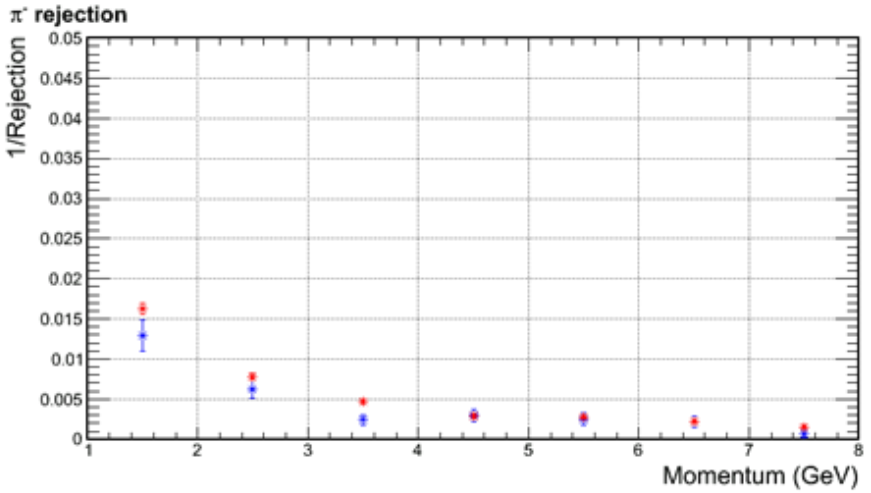


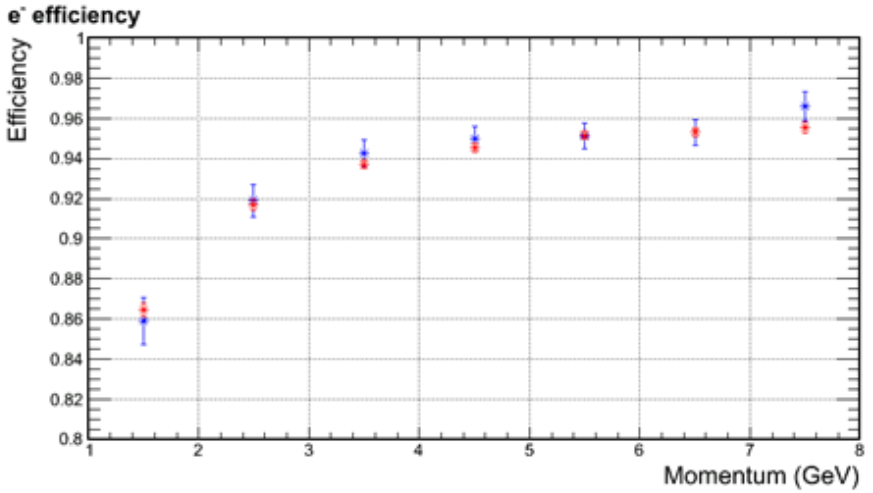
Without Al support plate

With Al support plate

PID performance comparison

- SIDIS forward configuration shown
- No background embedding
- Observed worse pion rejection at lower momentum bins

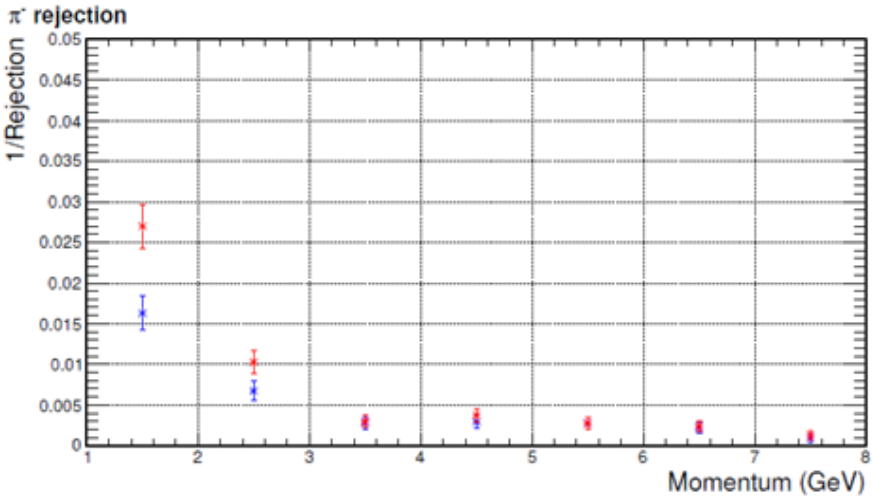


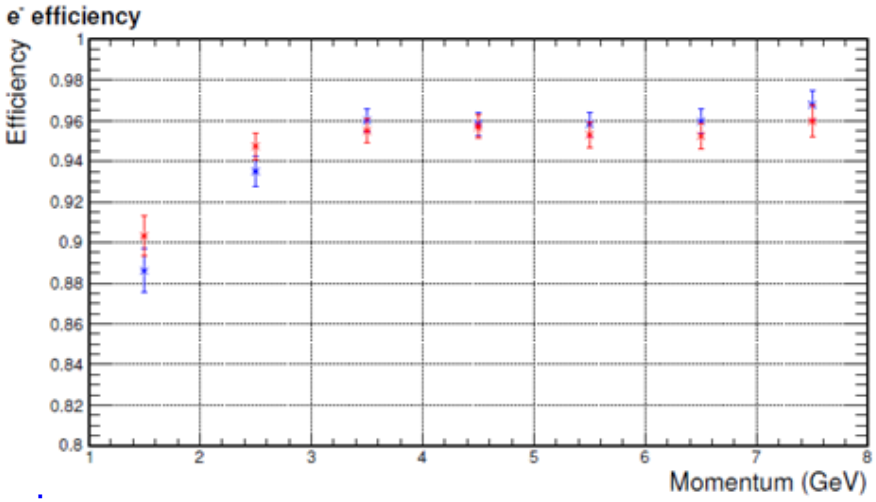


- Intrinsic
- With Al support structure

Comparing to effect of background

- SIDIS forward configuration shown
- Embedded with worse background region (inner-R)





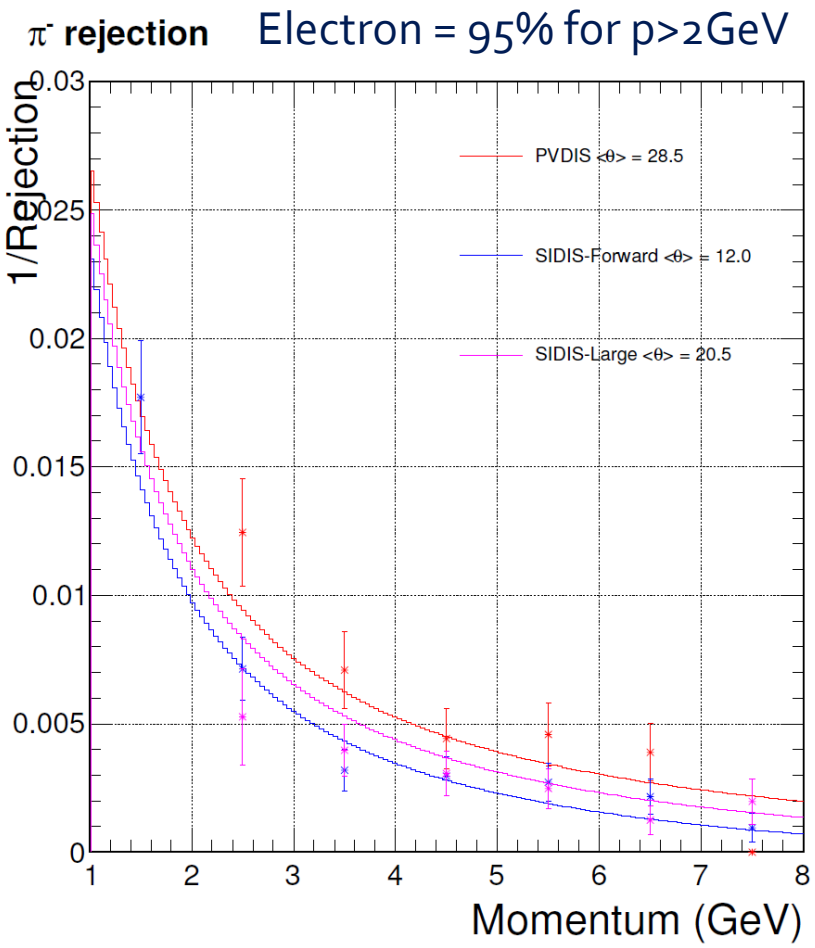
- Intrinsic
- With bgd

Conclusion

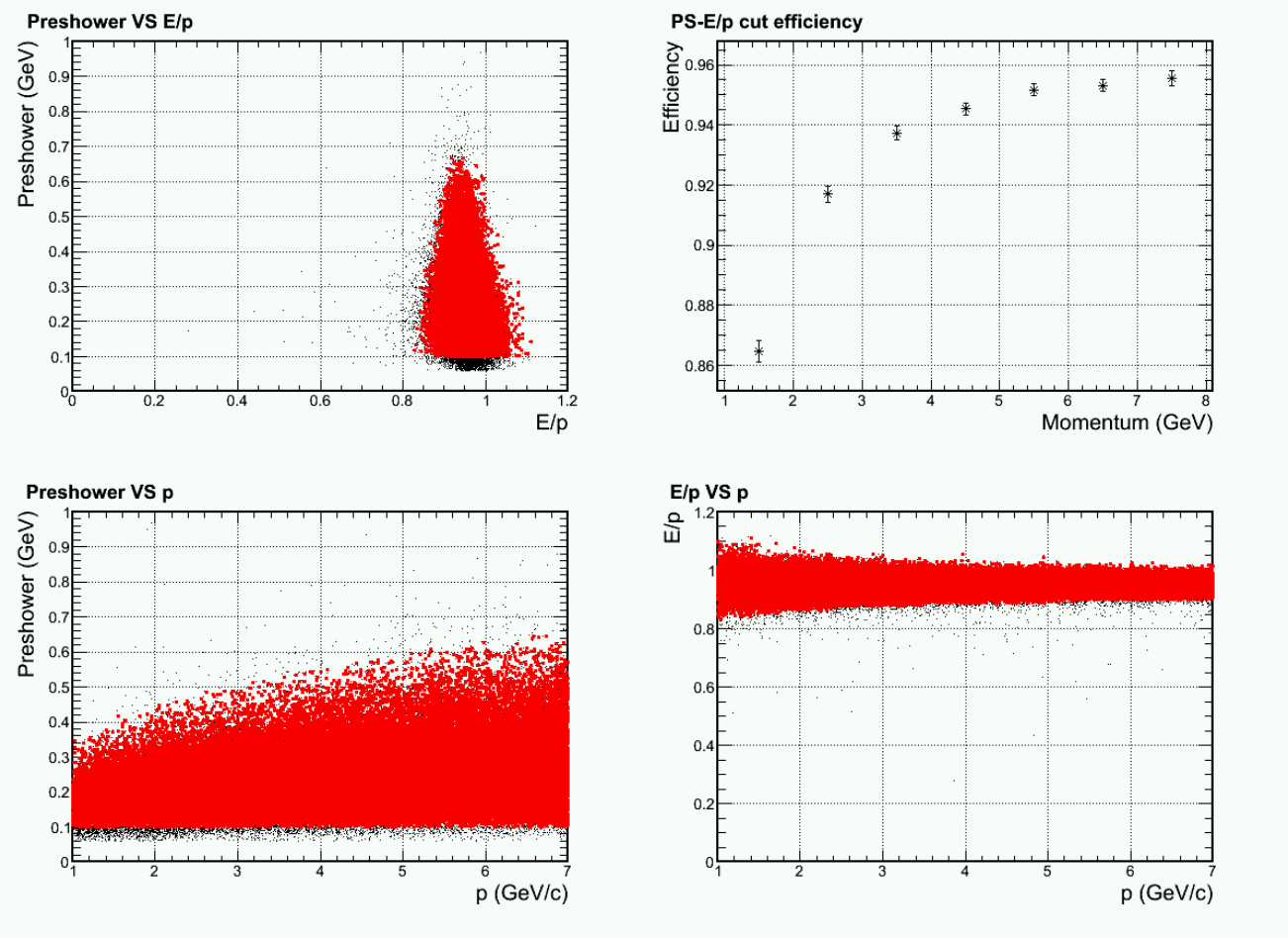
- Observed performance (minor) worsen
  - Worse energy resolution and lower pion rejection
  - Mainly at lower momentum bins, where higher fraction of energy deposited at the front side of calorimeter
- Change in performance is minor comparing to the presence of background
- I would support a design easier for support and readout

References to tech notes

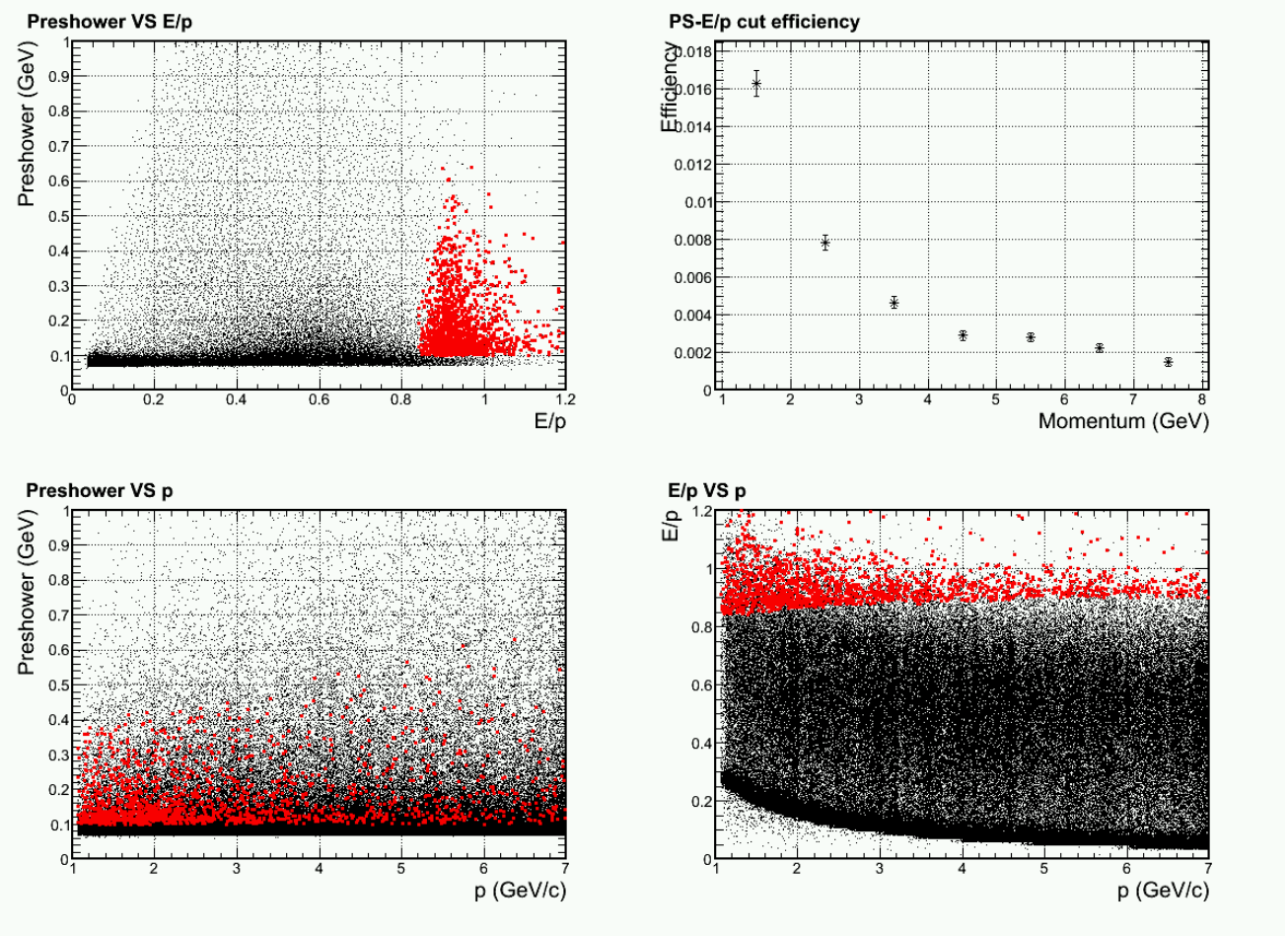
Pion rejection without bgd.



Electron cuts



Pion cuts


Preshower VS E/p
Preshower (GeV)
E/p
PS-E/p cut efficiency
Efficiency
Momentum (GeV)
Preshower VS p
Preshower (GeV)
p (GeV/c)
E/p VS p
E/p
p (GeV/c)