

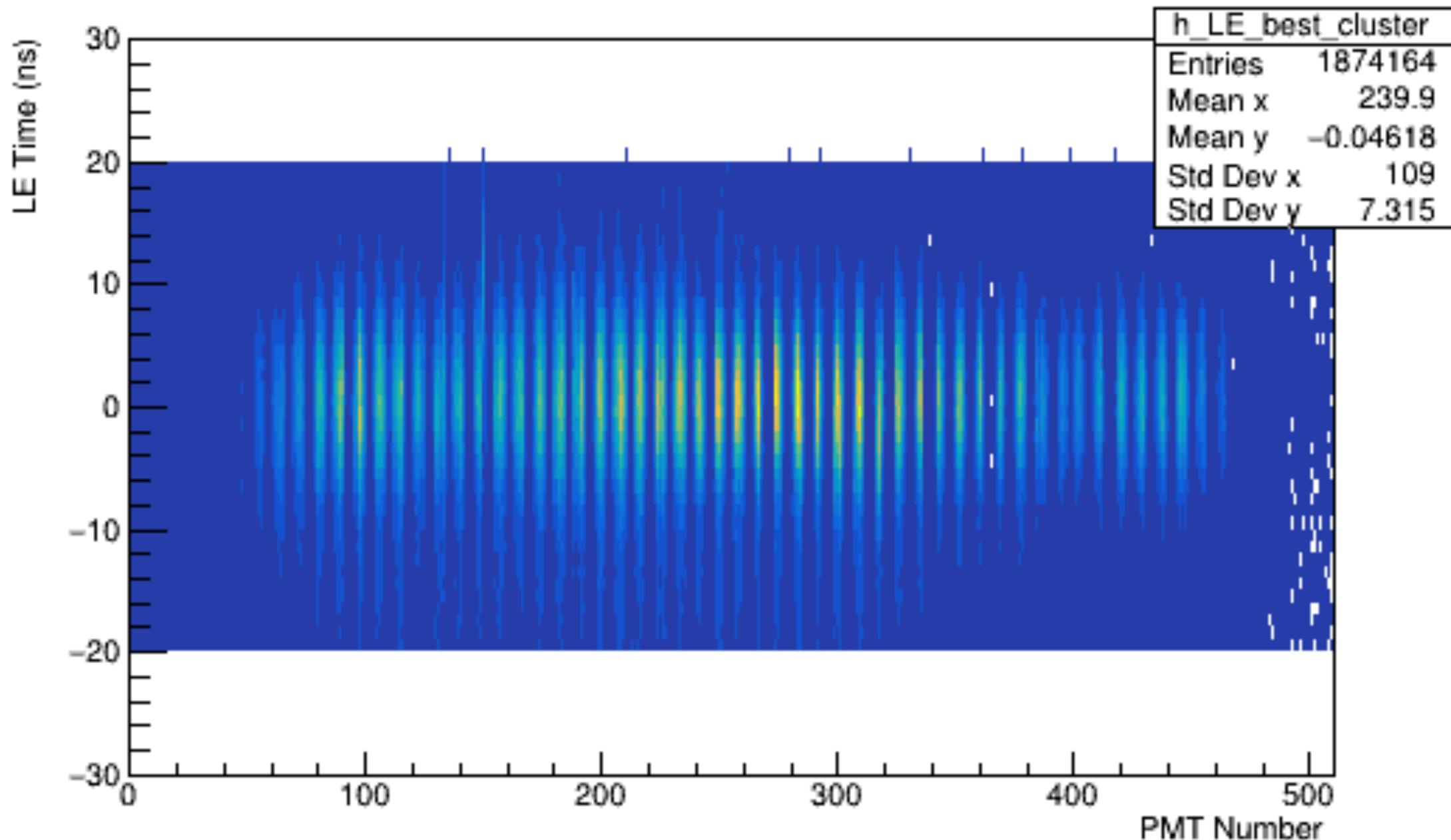


GRINCH in GEn-II

GRINCH has not been used in analysis up to this point.

It was initially calibrated for Pass2 of the GEn-II Data

GRINCH Leading Edge vs. PMT Number Filtered by Best Cluster



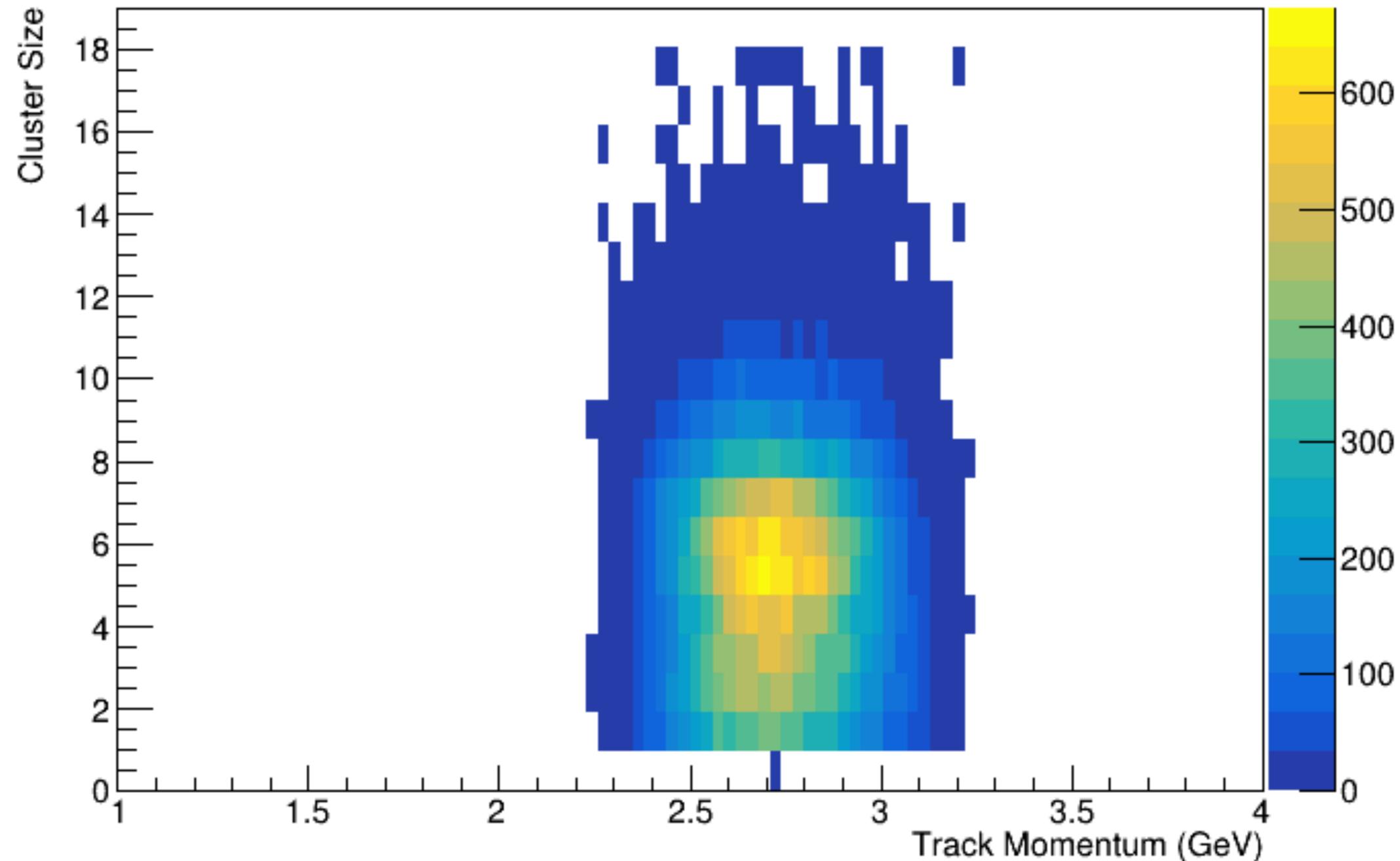
A Look at Kin3 (6.83 GeV²)

GRINCH pion threshold is 2.7 GeV while the electron central track momentum is at 2.73 GeV for Kin3.

Kin2 $p_e = 2.69$ GeV

Kin4 $p_e = 3.21$ GeV

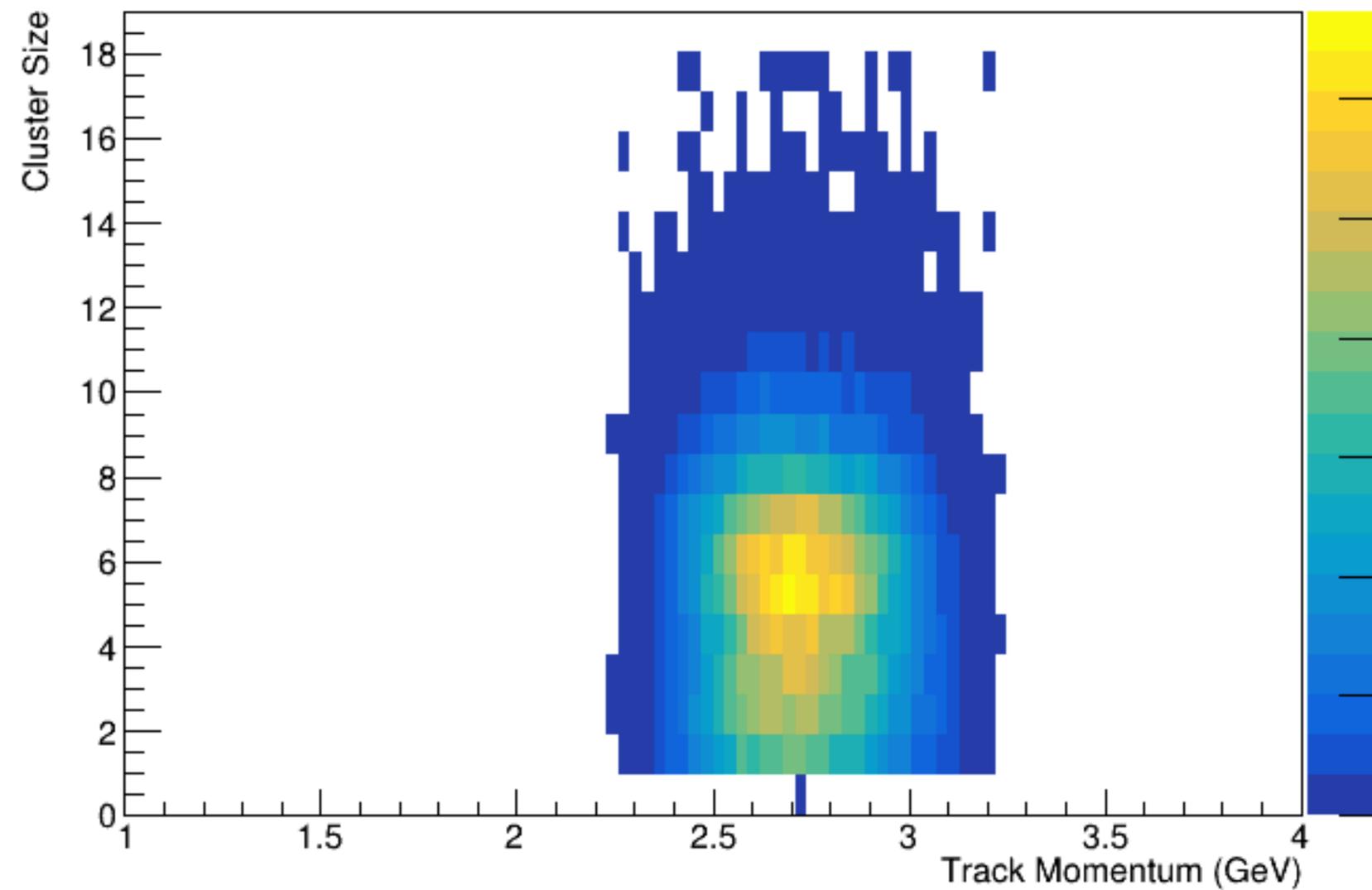
Kin3 Cluster Size vs. Track Momentum



GRINCH Clusters for Kin3

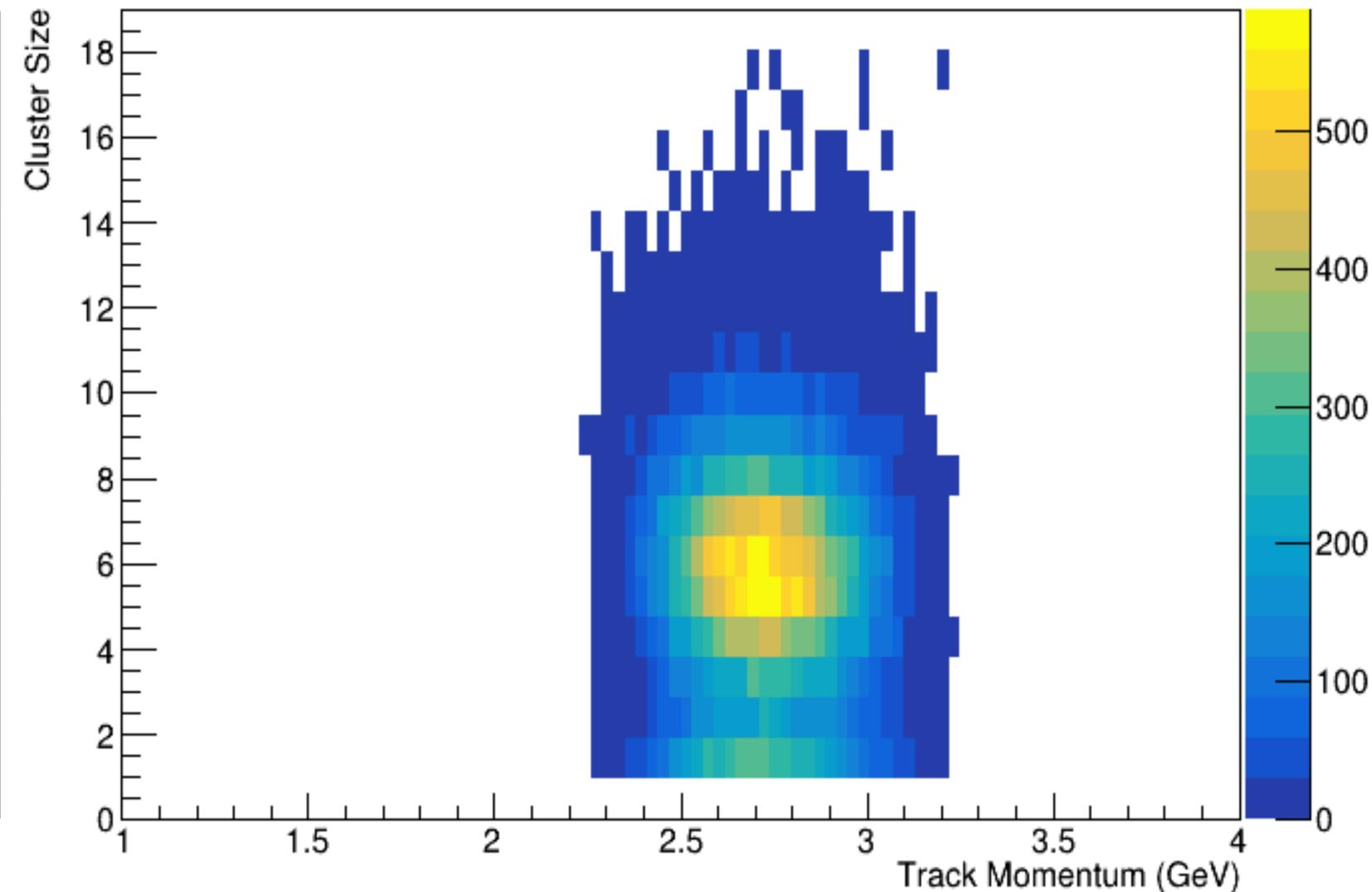
All Hits

Kin3 Cluster Size vs. Track Momentum



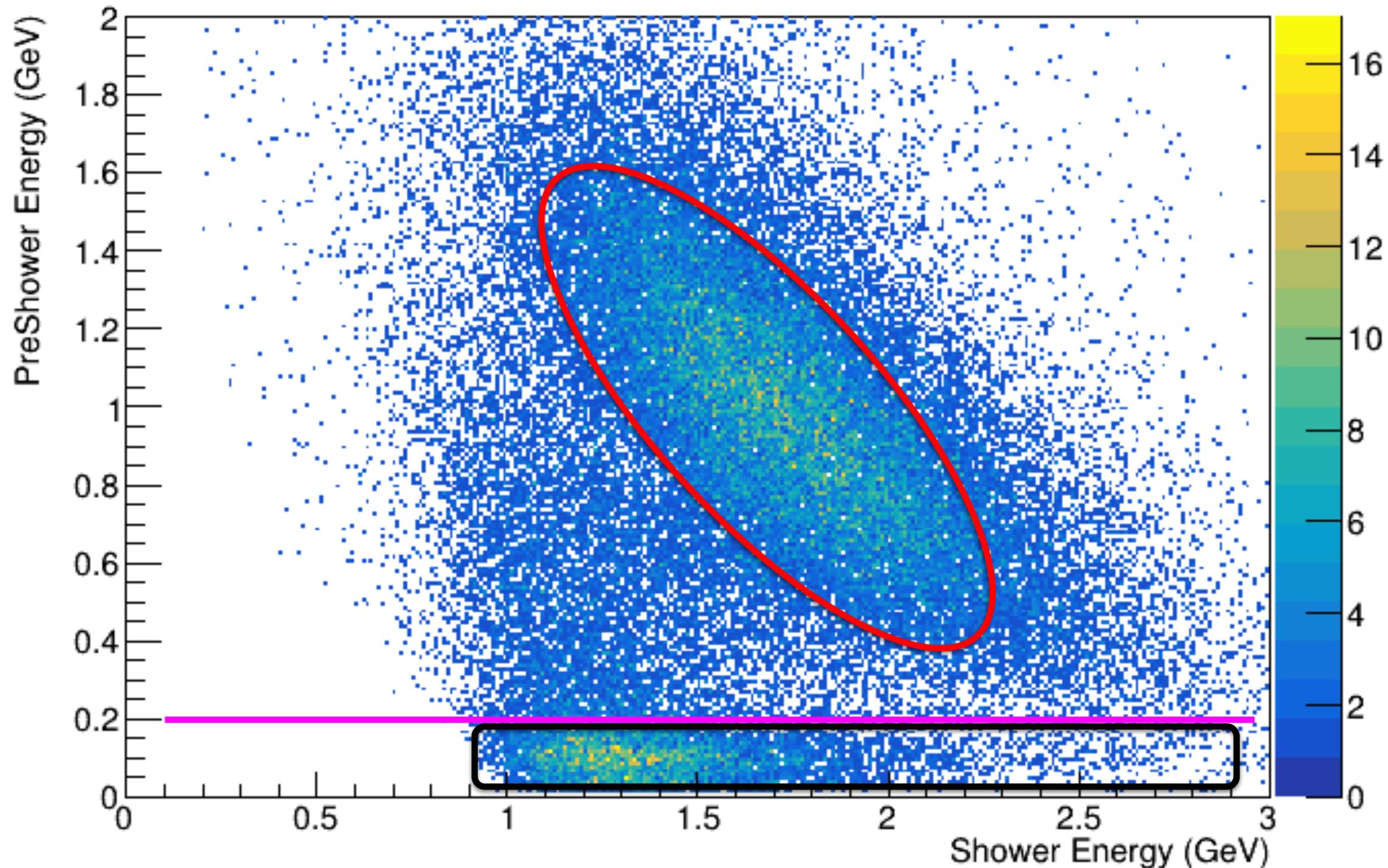
Matching GEM Tracks

Kin3 Cluster Size vs. Track Momentum



Particle ID for Kin3

Kin3 SHe vs. PSe

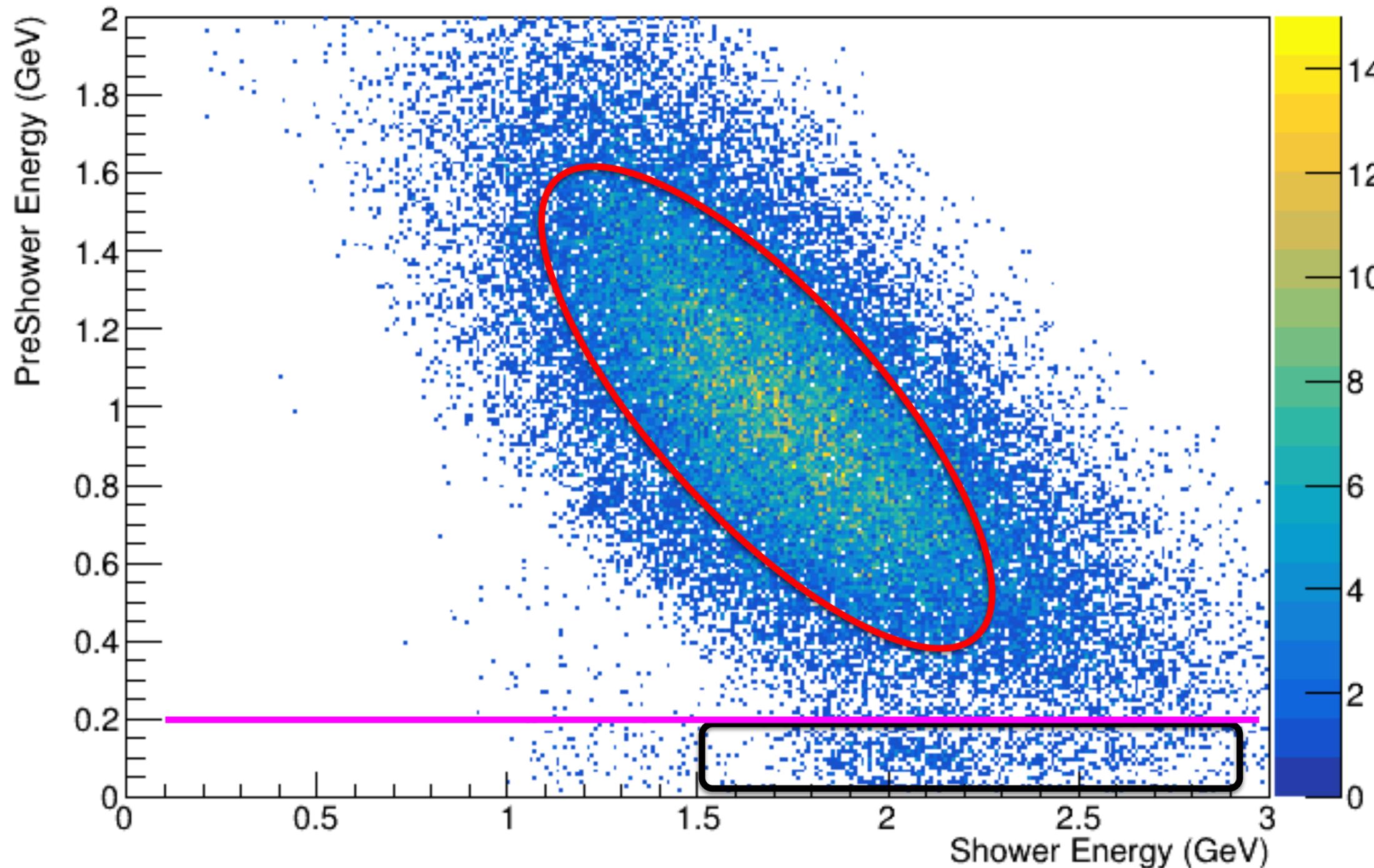


e^- events
typically fall in
red region
MIPs (pions)
mostly in **black**
region

Magenta is typical
PSe = 0.2 GeV cut
for pions
Overlap does
occur

Particle ID for Kin3

Kin3 SHe vs. PSe



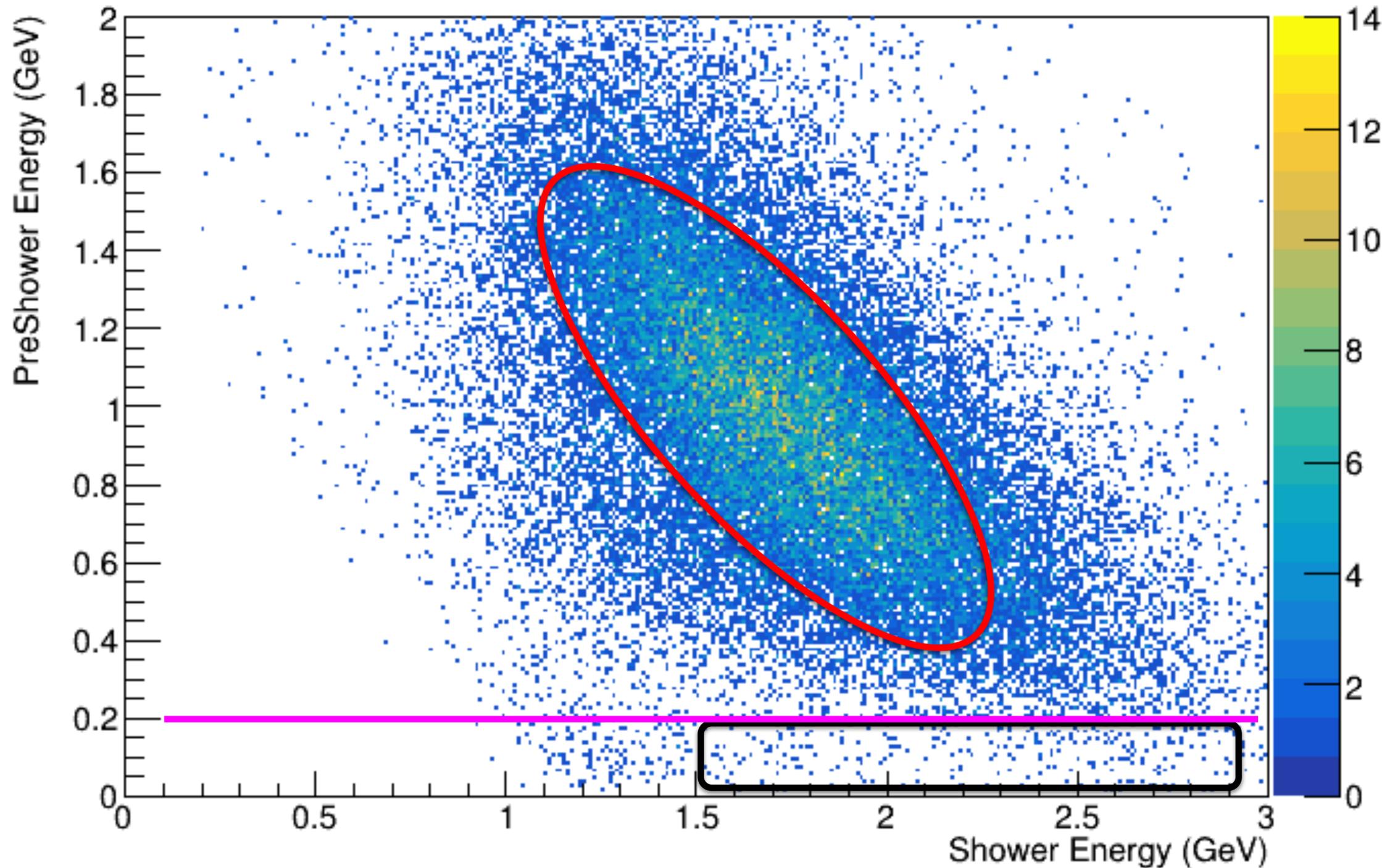
E/p cut only,
used in analysis

● e^-
● pions

Magenta is typical
PSe = 0.2 GeV cut
for pions

Particle ID for Kin3

Kin3 SHe vs. PSe



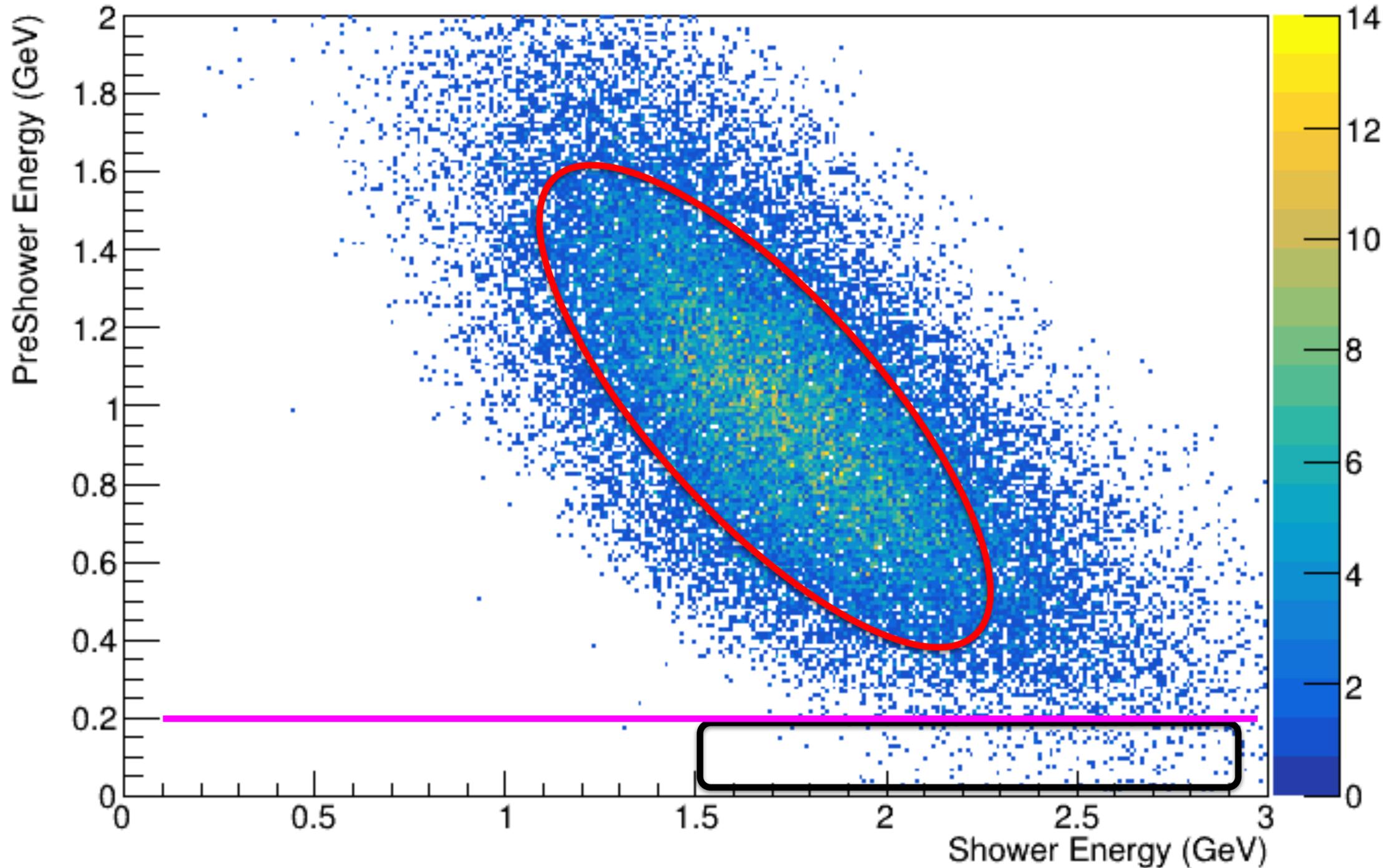
GRINCH used
w/o E/p
(cluster size &
gem
trackmatched)

● e^-
● pions

SOME Overlap
may still occur

Particle ID for Kin3

Kin3 SHe vs. PSe



GRINCH used
WITH E/p
(cluster size &
gem
trackmatched)

● e^-
● pions

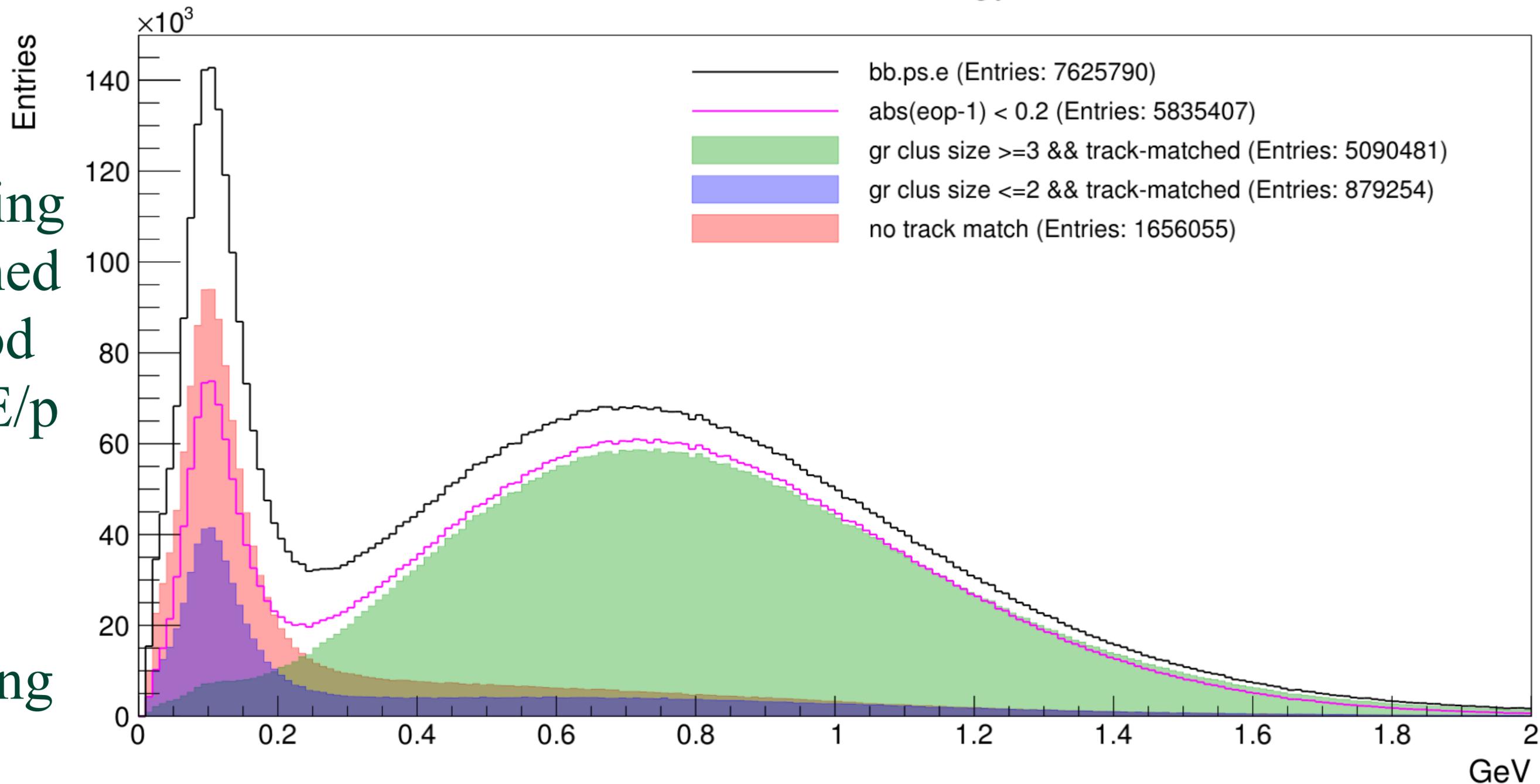
SOME Overlap
may still occur

GRINCH & PreShower Energy

PreShower Energy

GRINCH clustering
with GEM matched
tracks show good
agreement with E/p
cuts

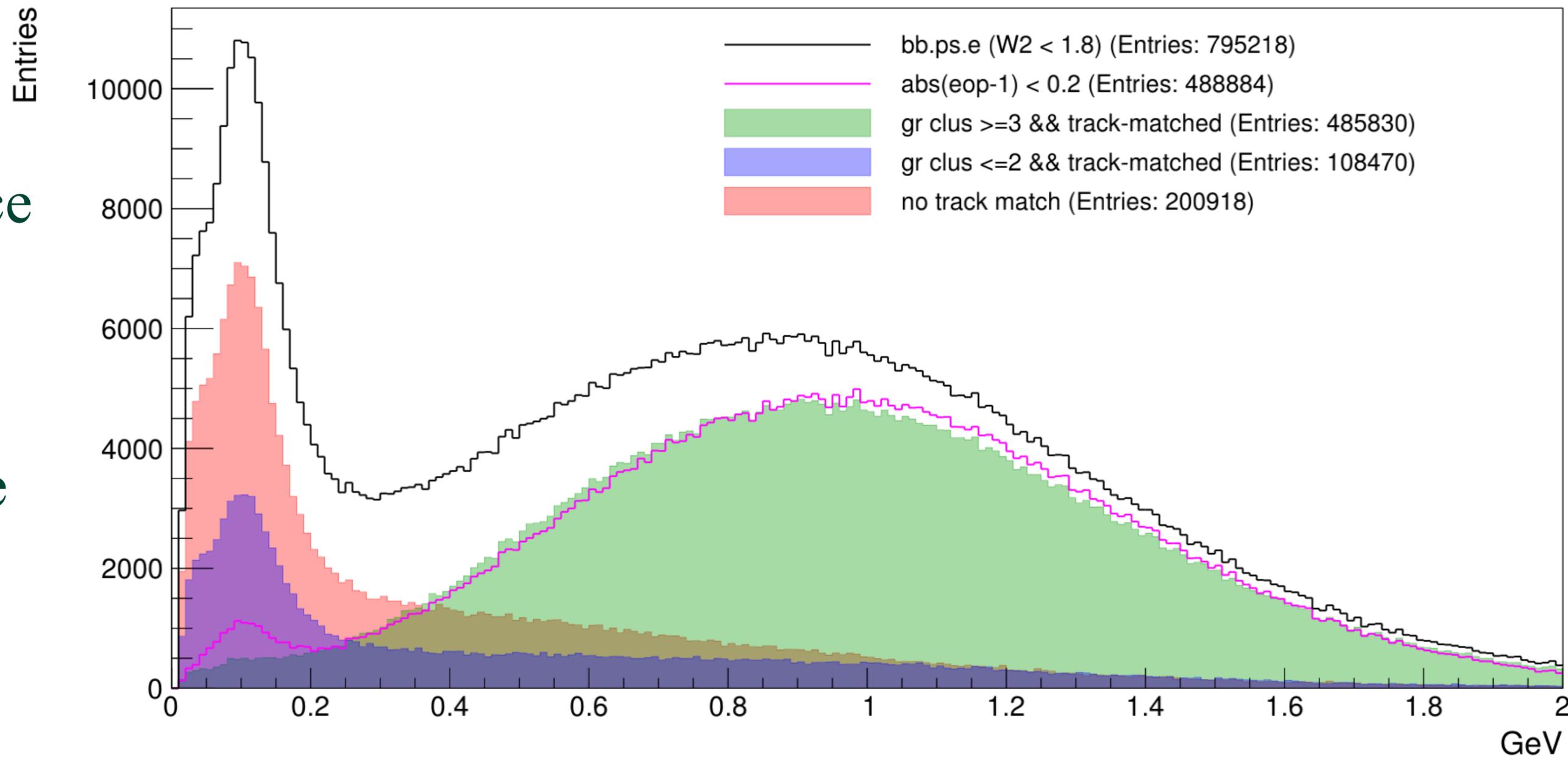
*Using only
coincidence timing
cut



GRINCH & PreShower Energy

PreShower Energy $W2 < 1.8$

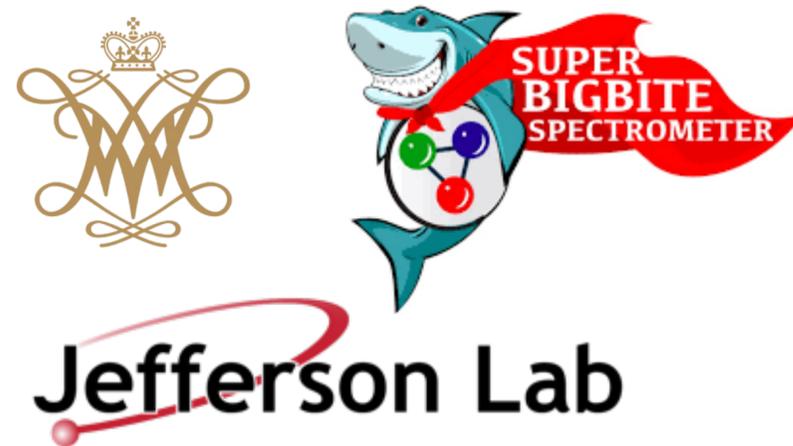
This improves once we look in a reasonable $W2$ region within the same coincidence time region.



Improve GRINCH for Analysis Use

- Include in timing improvement script
- Tweak any GRINCH track matching parameters if necessary
- Compare with BigBite PID
- Implementation in analysis and error calculation
- Efficiency studies

Backup Slides



Improve GRINCH: Tighter Cluster Mean Hit-Time

No dx/dy Cuts

With dx/dy Cuts

