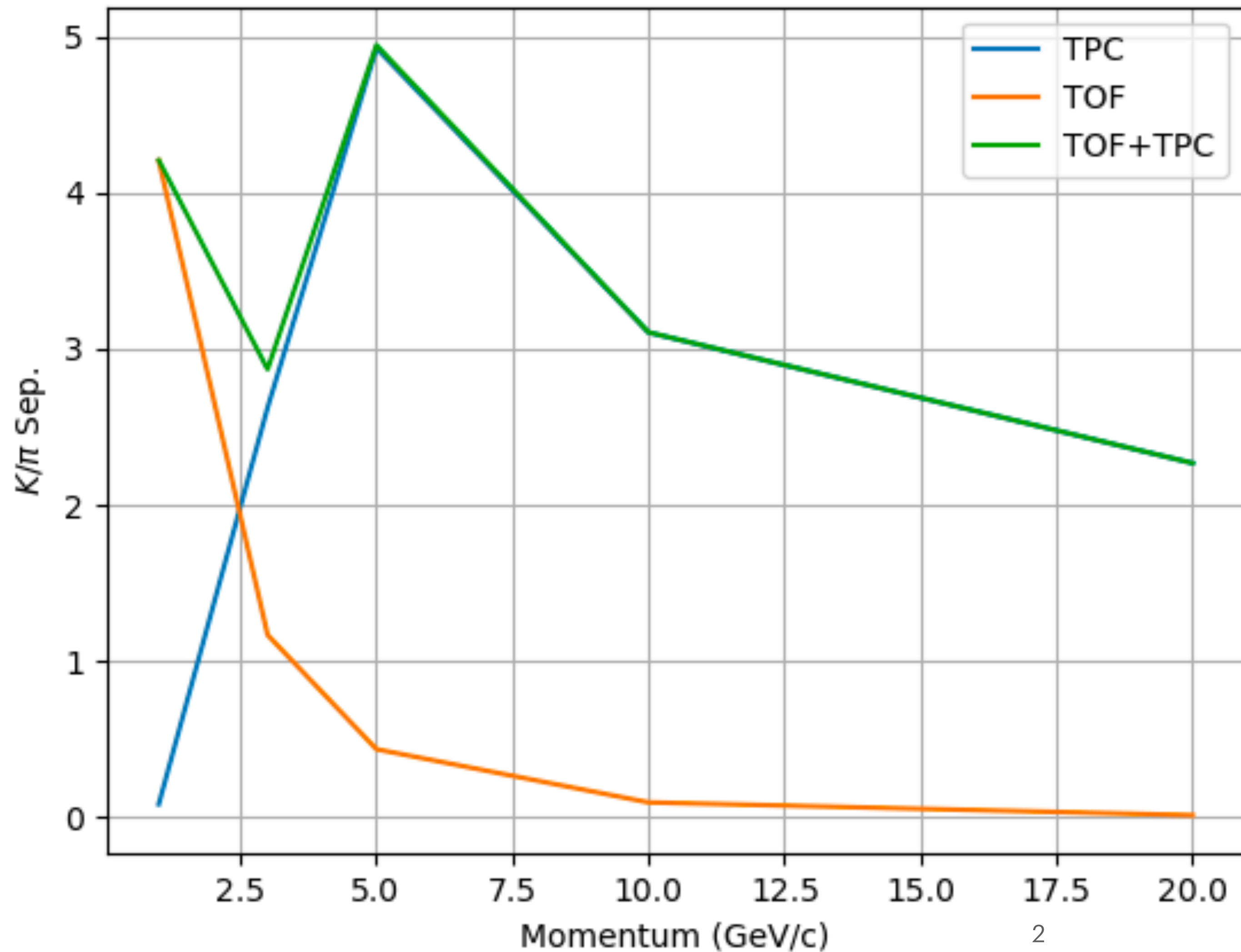


PID and Trk Performances

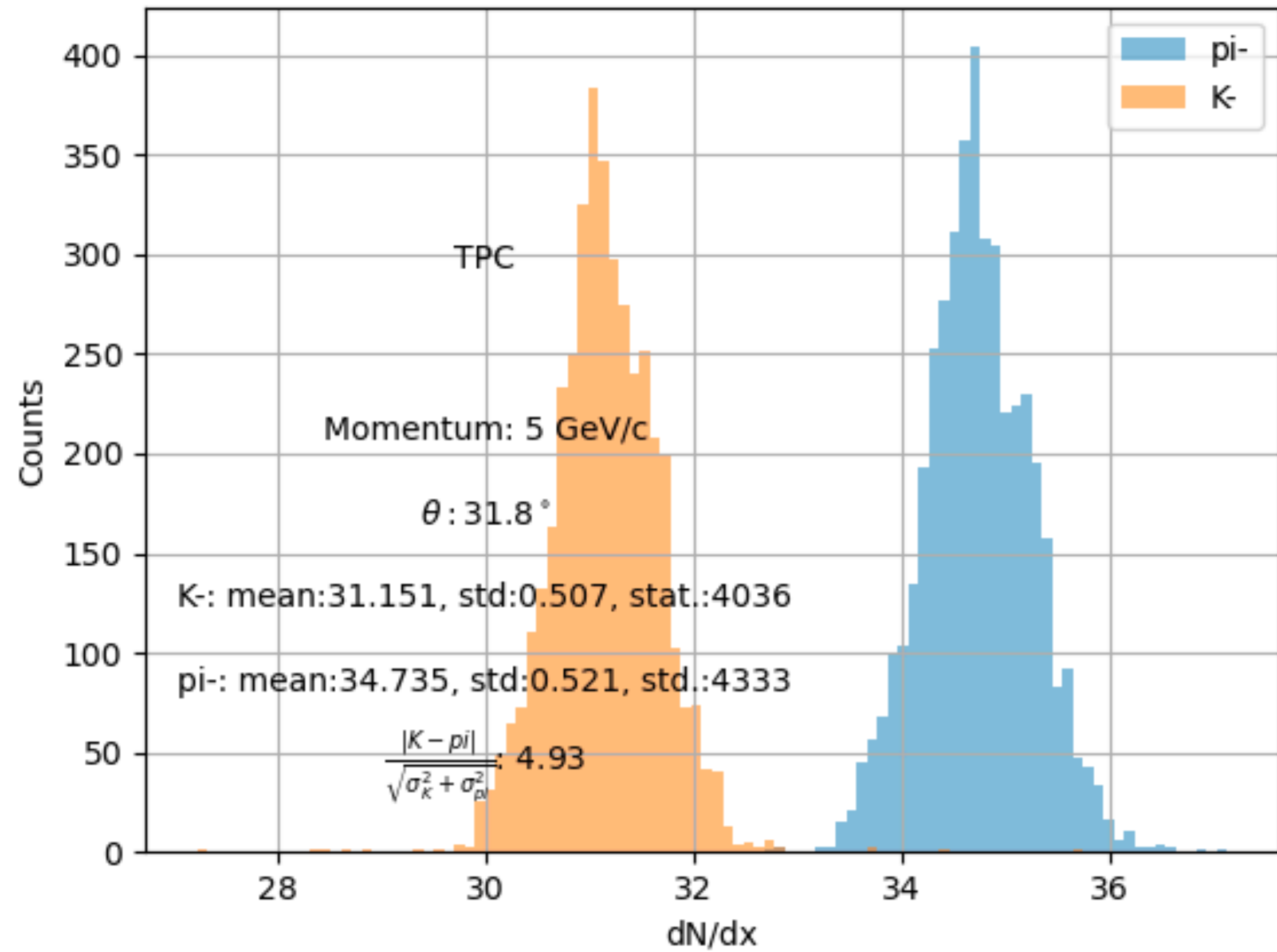
C.Zhang, 30Sep2024

K/Pi separation

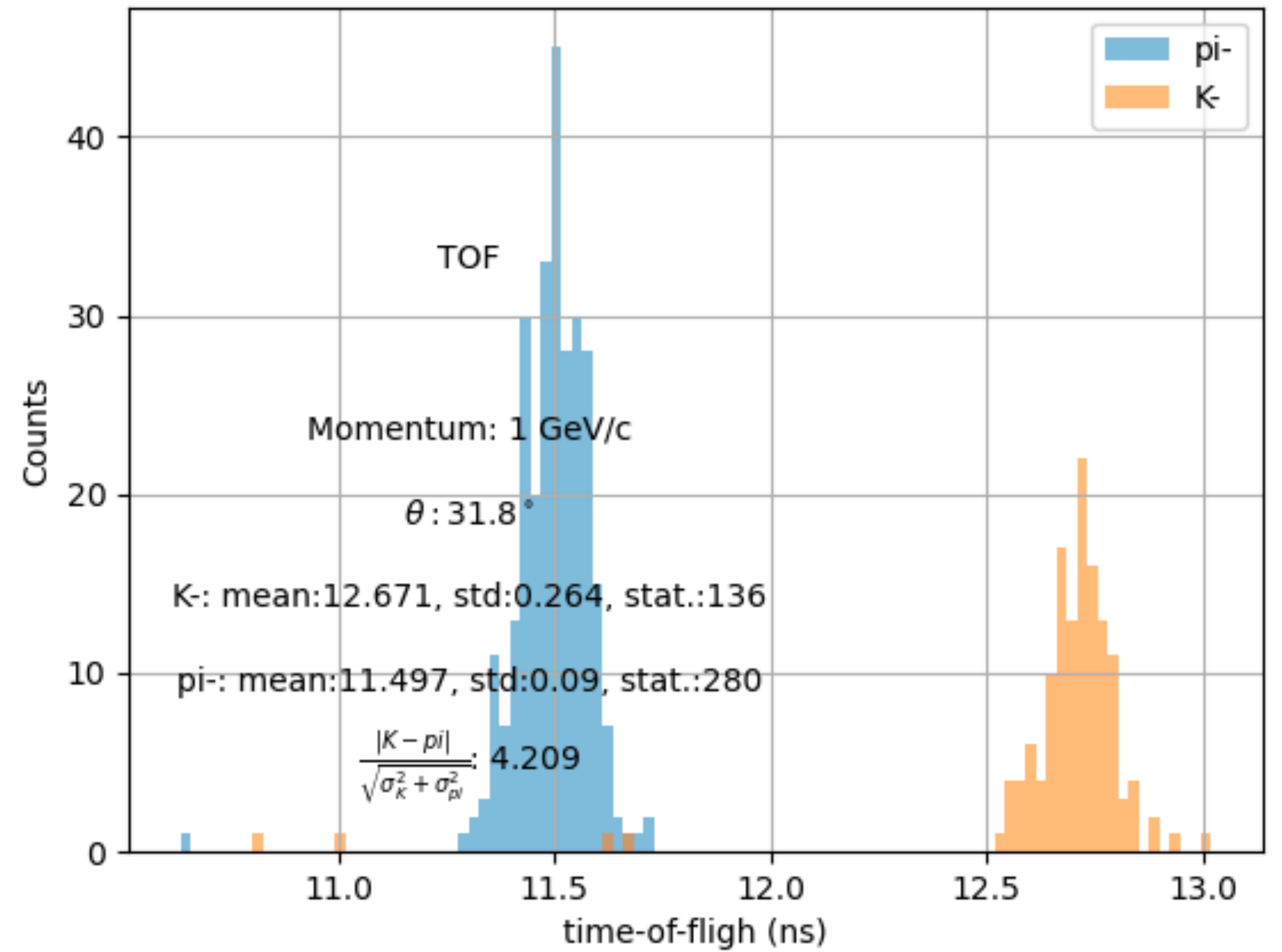


- Particle gun
- 5000 K⁻, pi⁻
- $\theta = 30^\circ$
- $p = 0.8, 1, 3, 5, 10, 20$ GeV

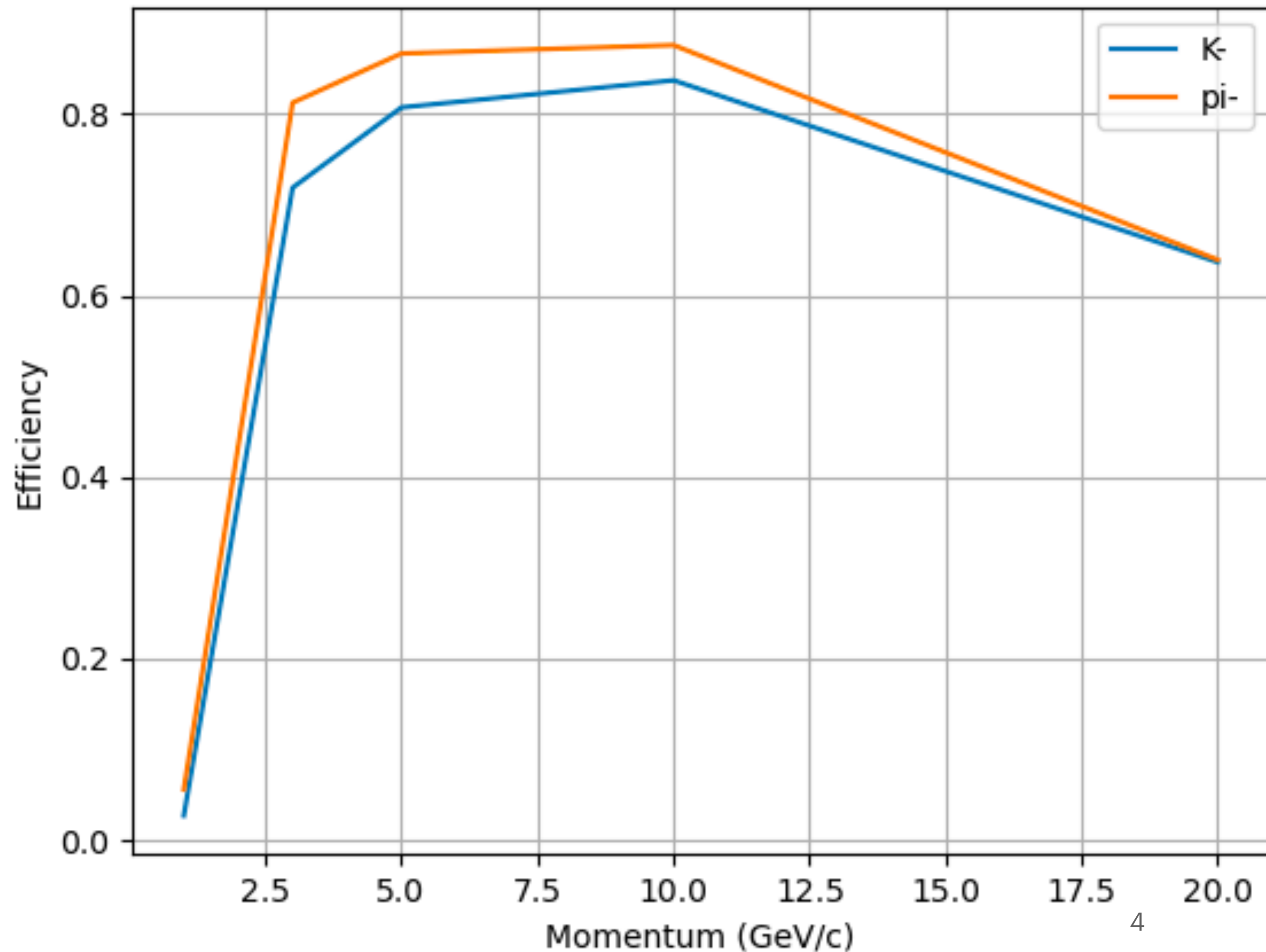
TPC, p=5 GeV



ToF, p=1 GeV

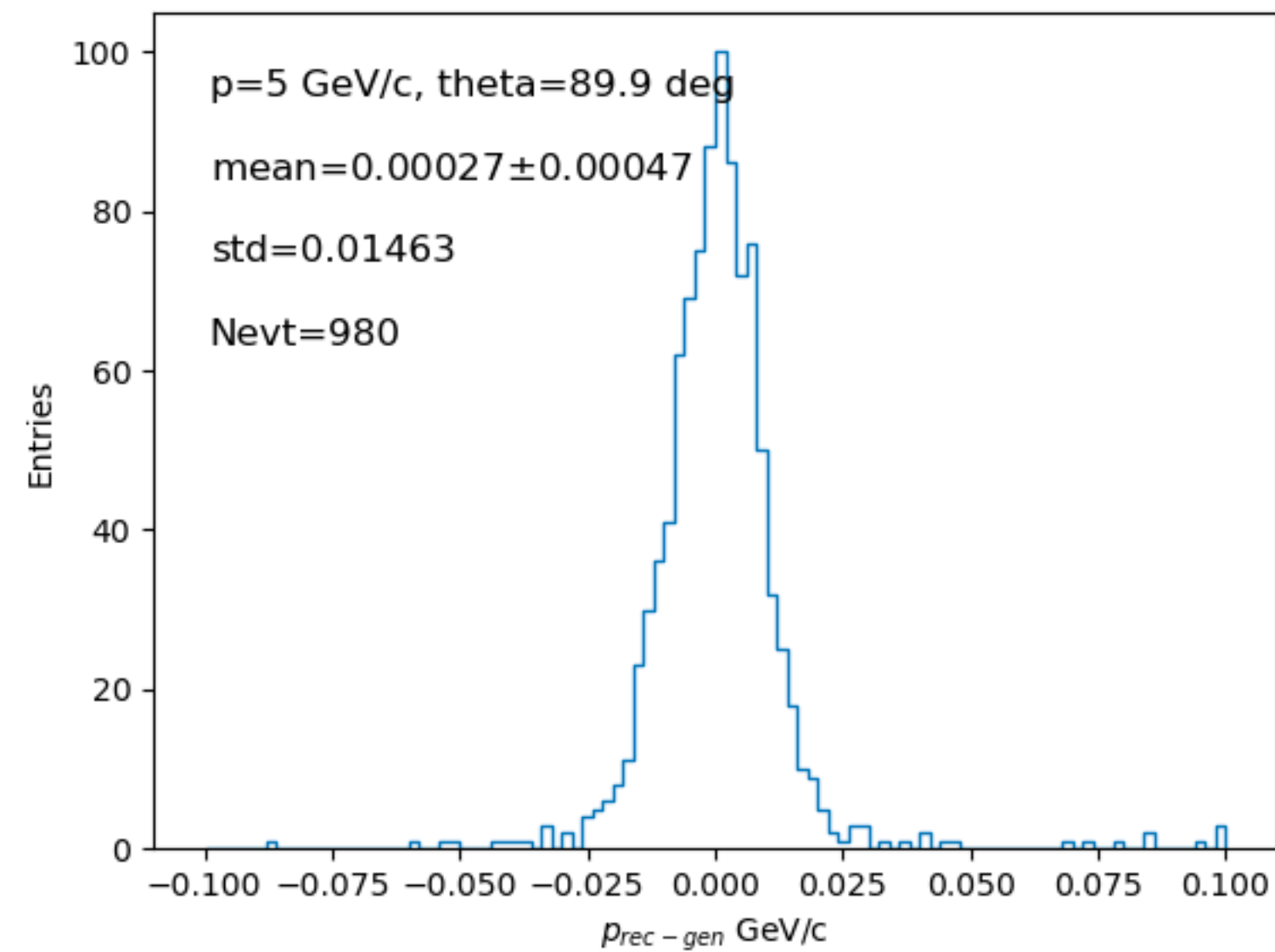
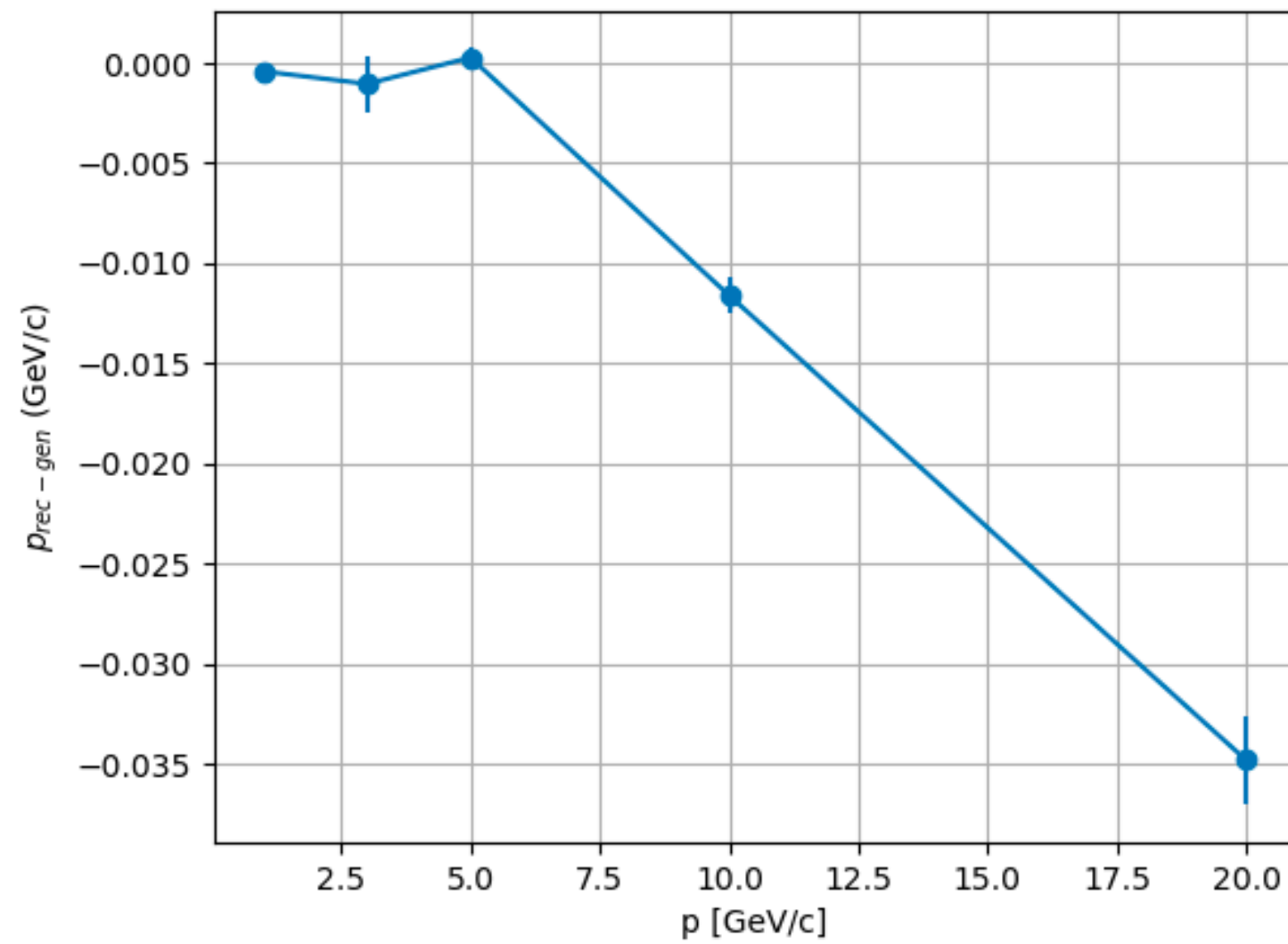


ToF efficiency

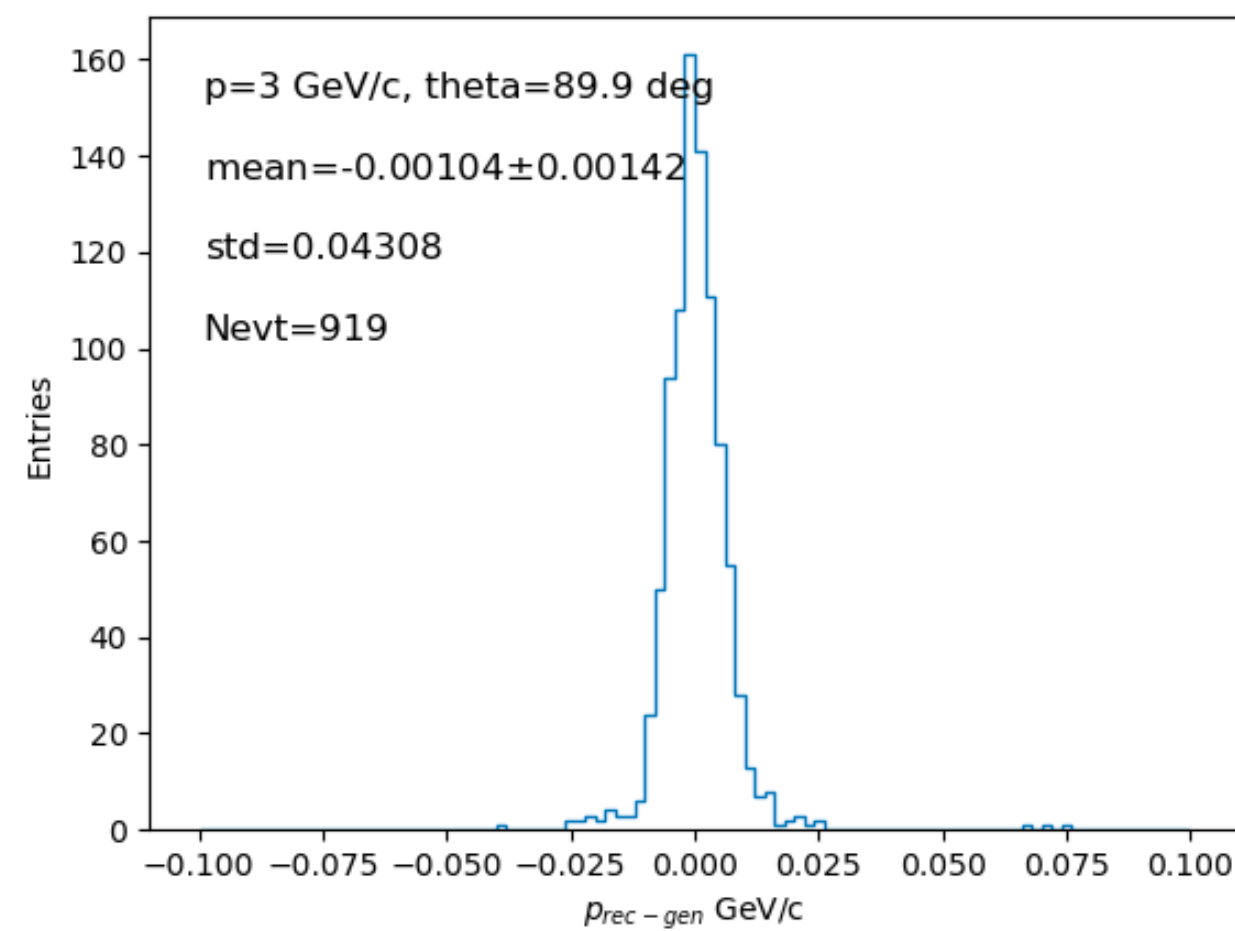


- Sometimes a single particle has multiple tracks. To simplify PID study, I remove those events
- To check what they are
- More points for efficiency and purity

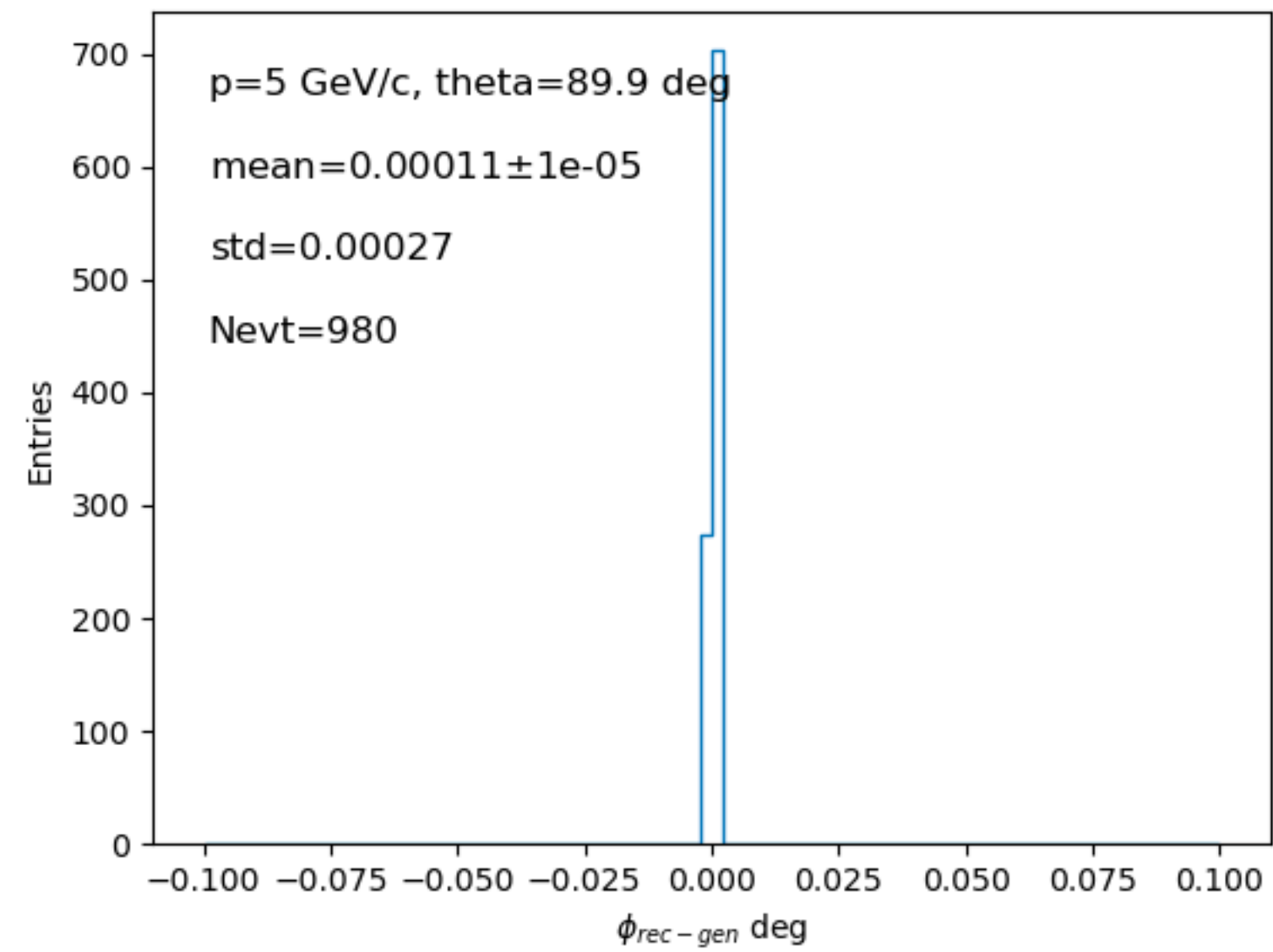
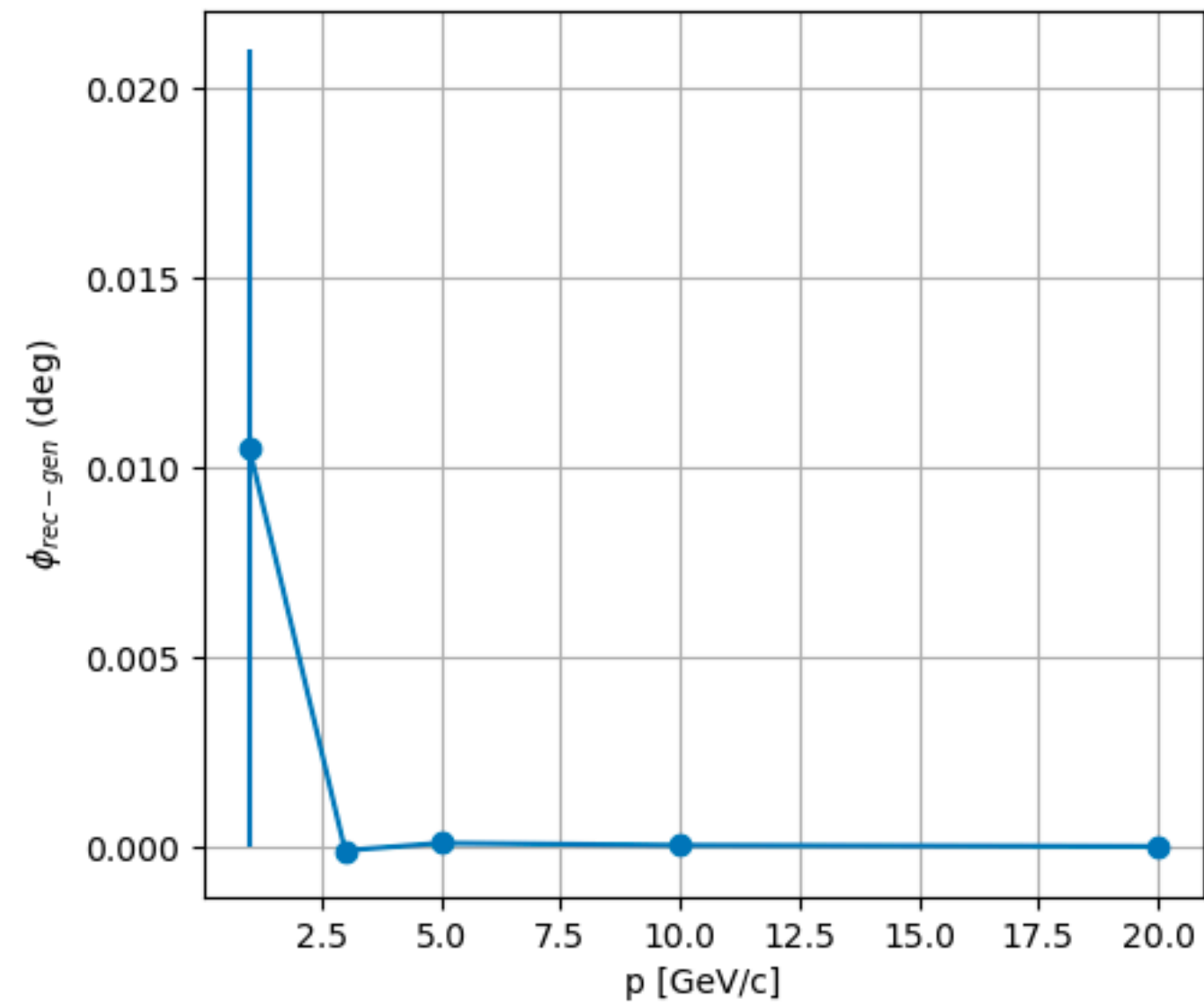
Muon trk performance (momenta)



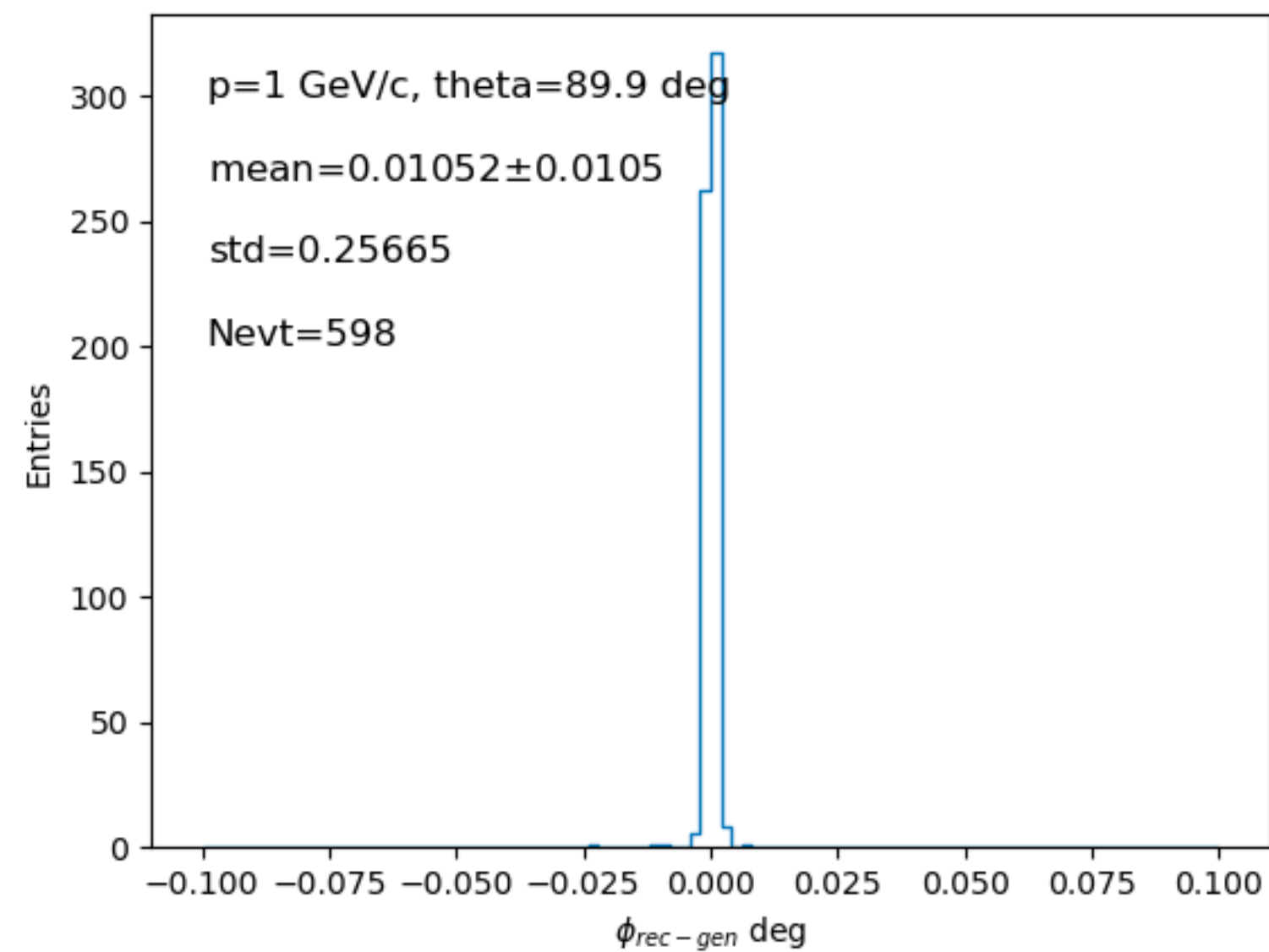
- Particle gun
 - 1000 muons
 - $\theta = 90^\circ$
 - $p = 0.8, 1, 3, 5, 10, 20$ GeV



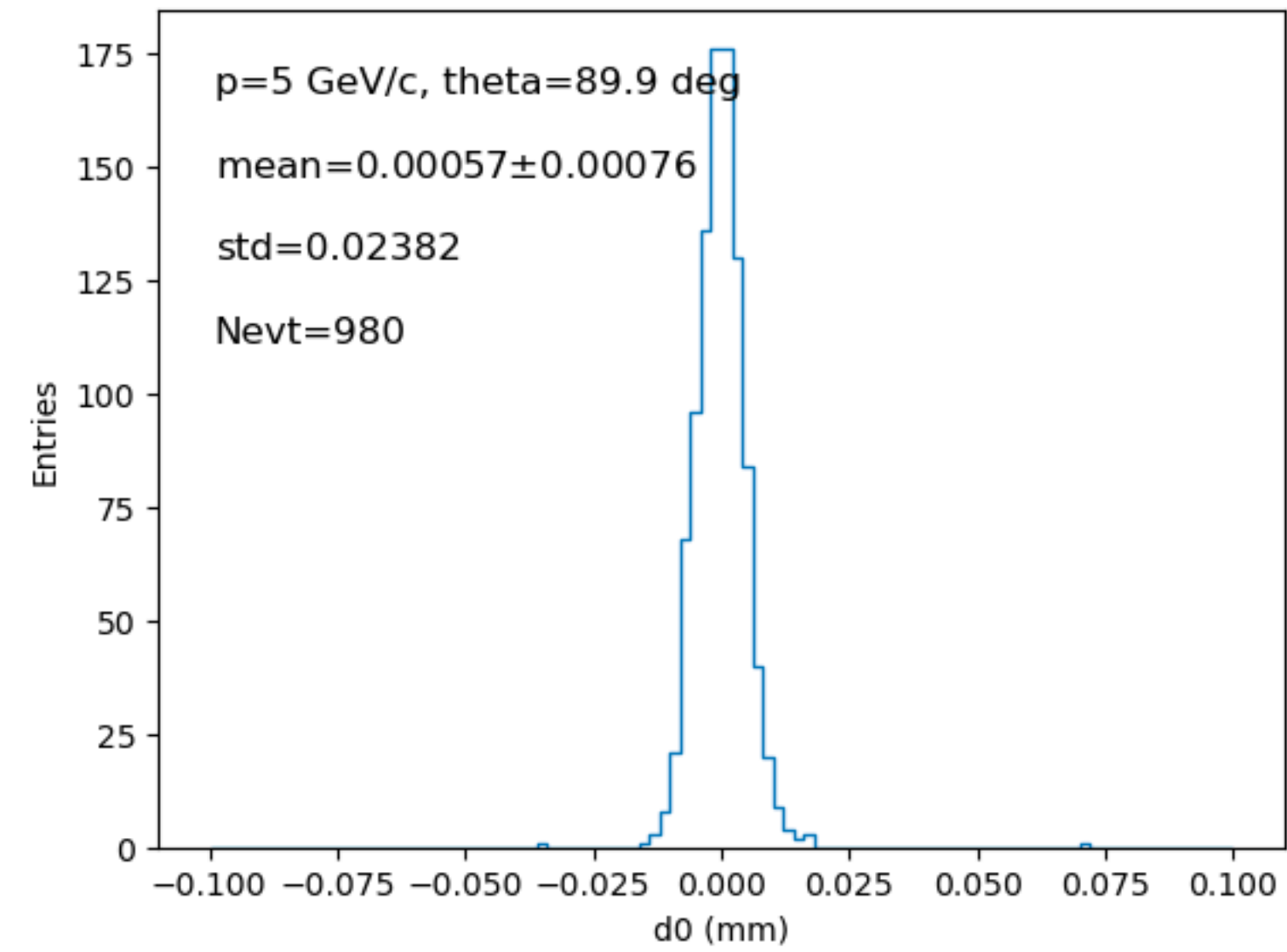
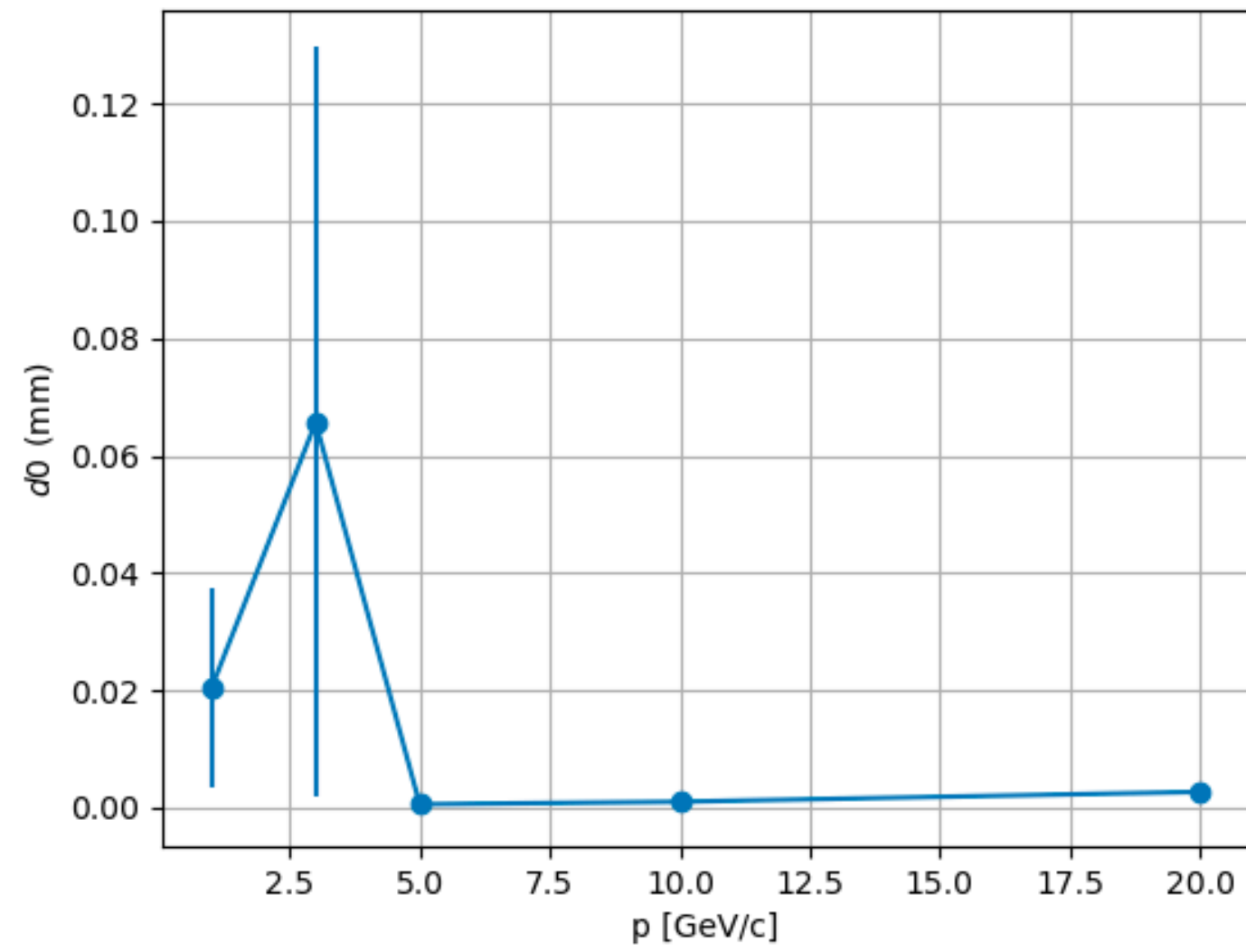
phi



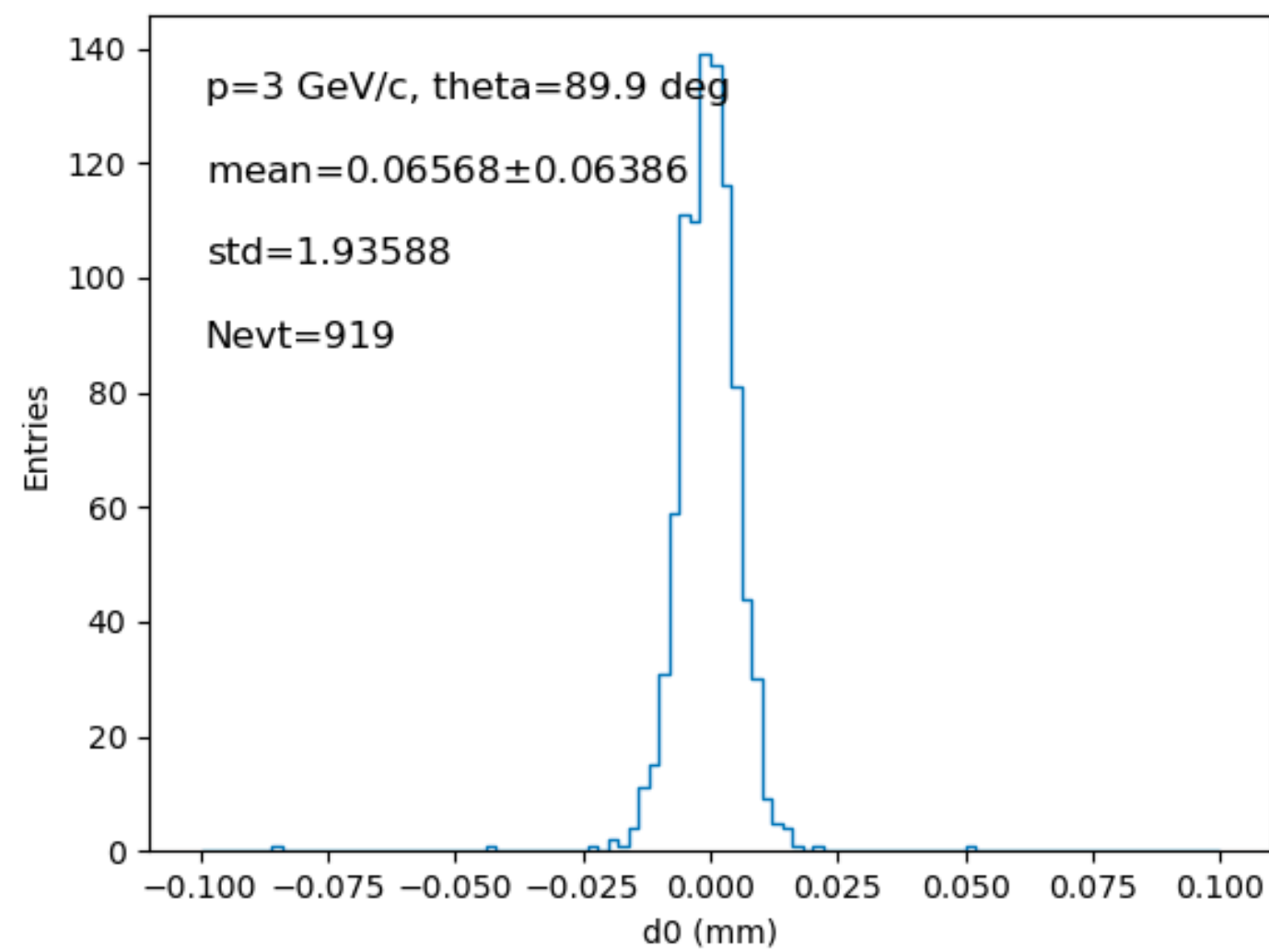
- Particle gun
 - 1000 muons
 - $\theta = 90^\circ$
 - $p = 0.8, 1, 3, 5, 10, 20$ GeV



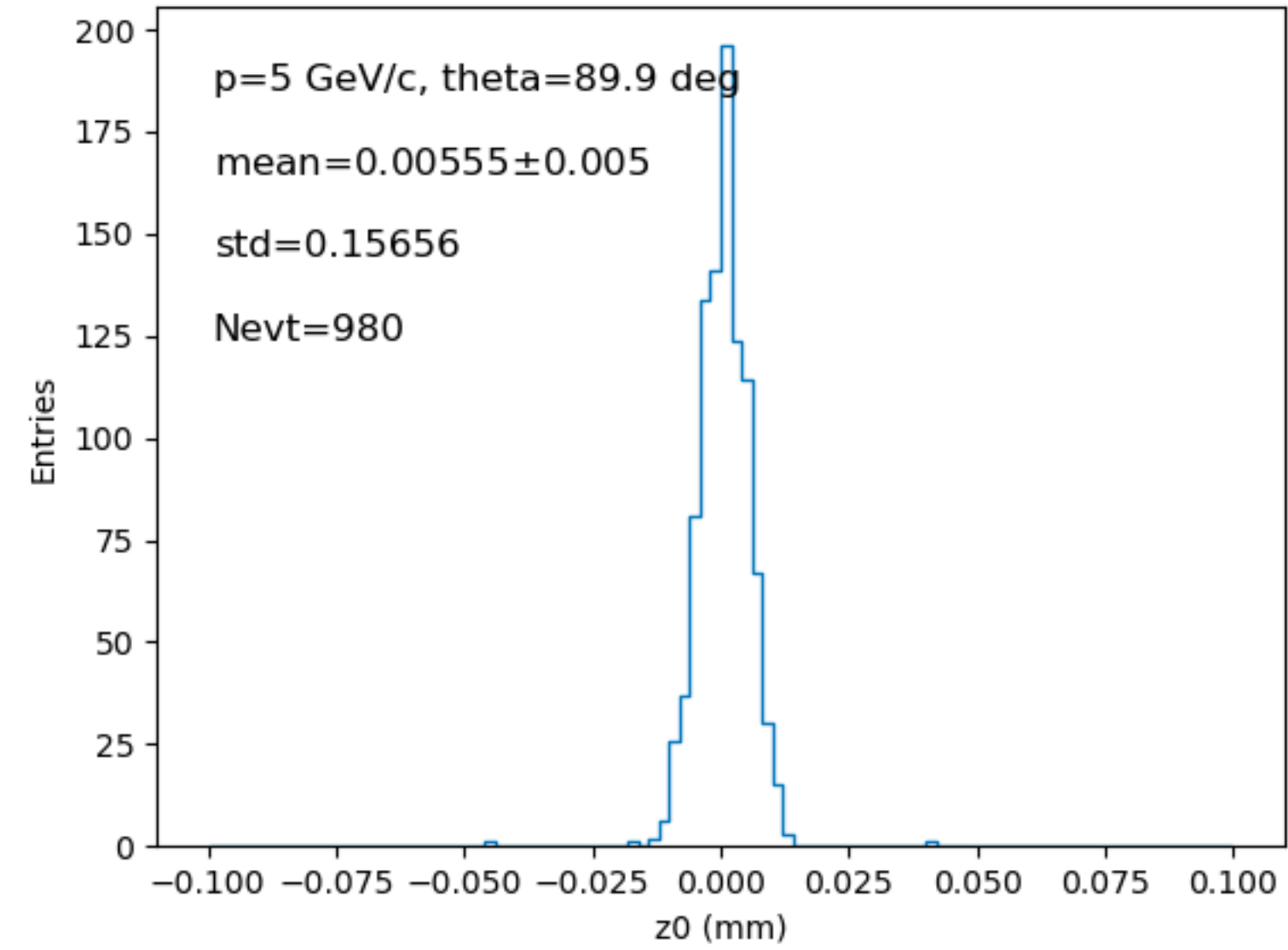
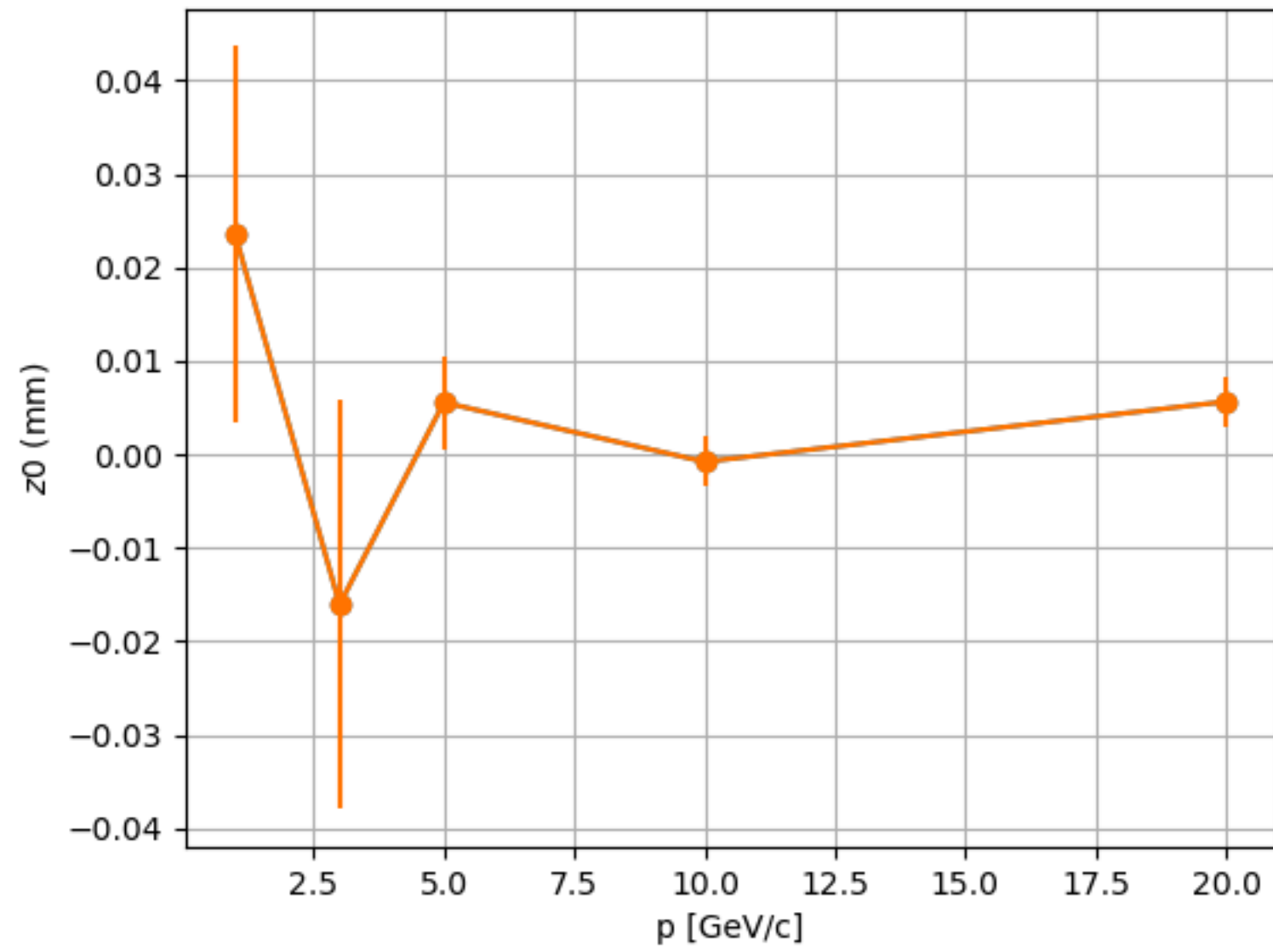
d0



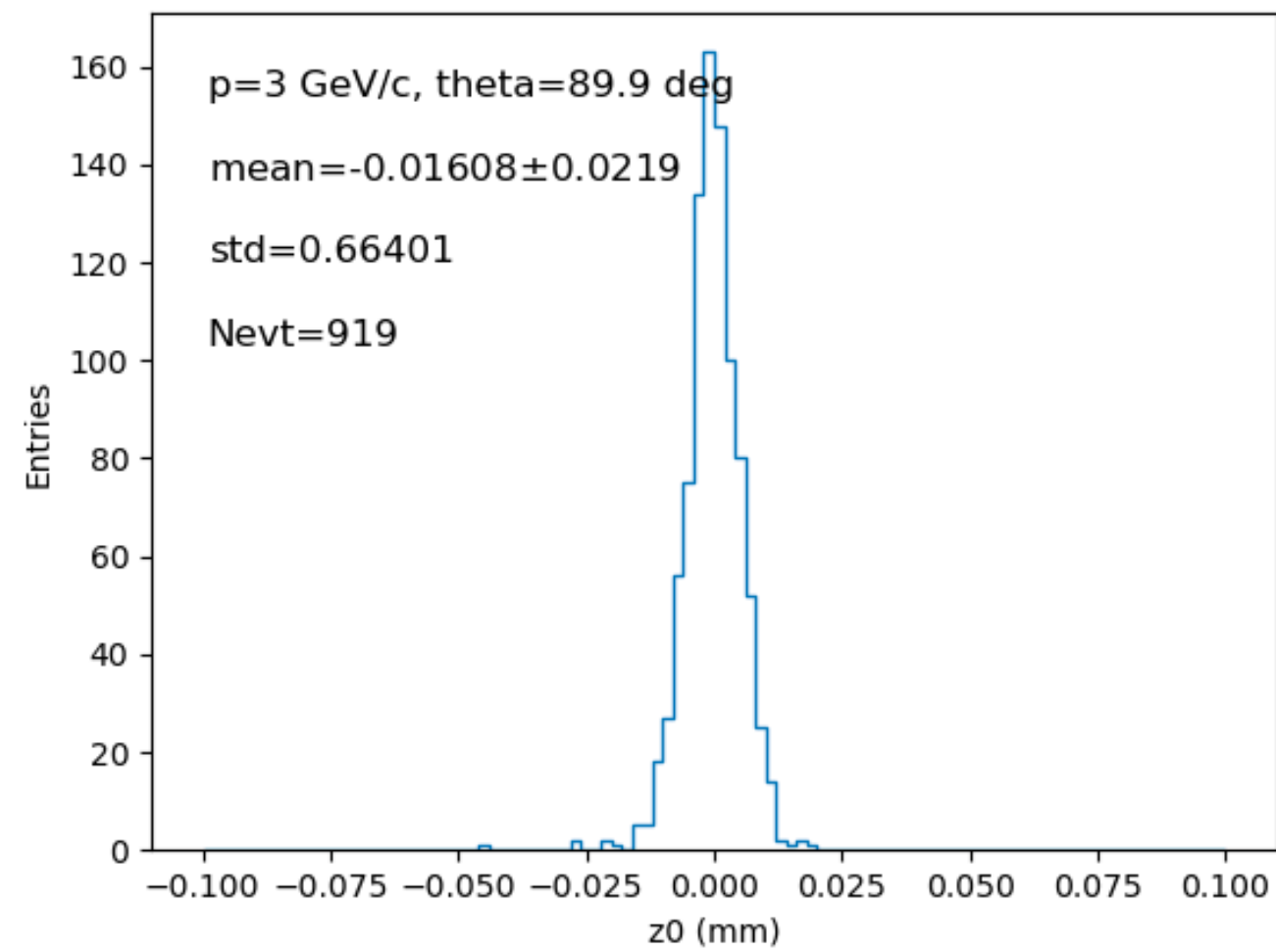
- Particle gun
 - 1000 muons
 - $\theta = 90^\circ$
 - $p = 0.8, 1, 3, 5, 10, 20$ GeV



z_0



- Particle gun
 - 1000 muons
 - $\theta = 90^\circ$
 - $p = 0.8, 1, 3, 5, 10, 20$ GeV



To do

- More samples for PID performance, efficiency, purity
- Submit a working version of PID package for SW
- More samples for track performance