Target Studies for Muon Production
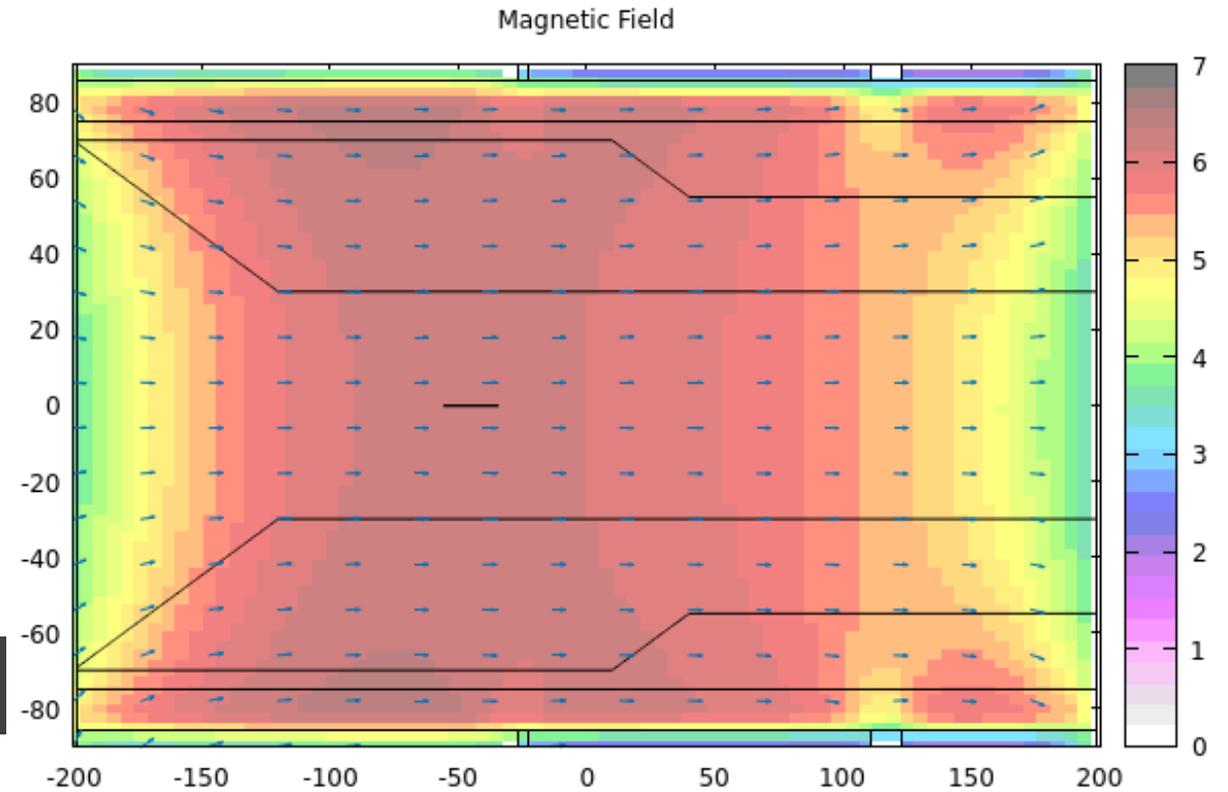
2/3/2025

Ruaa Alharthy

Simulation setup

→Material = Tungsten/Graphite
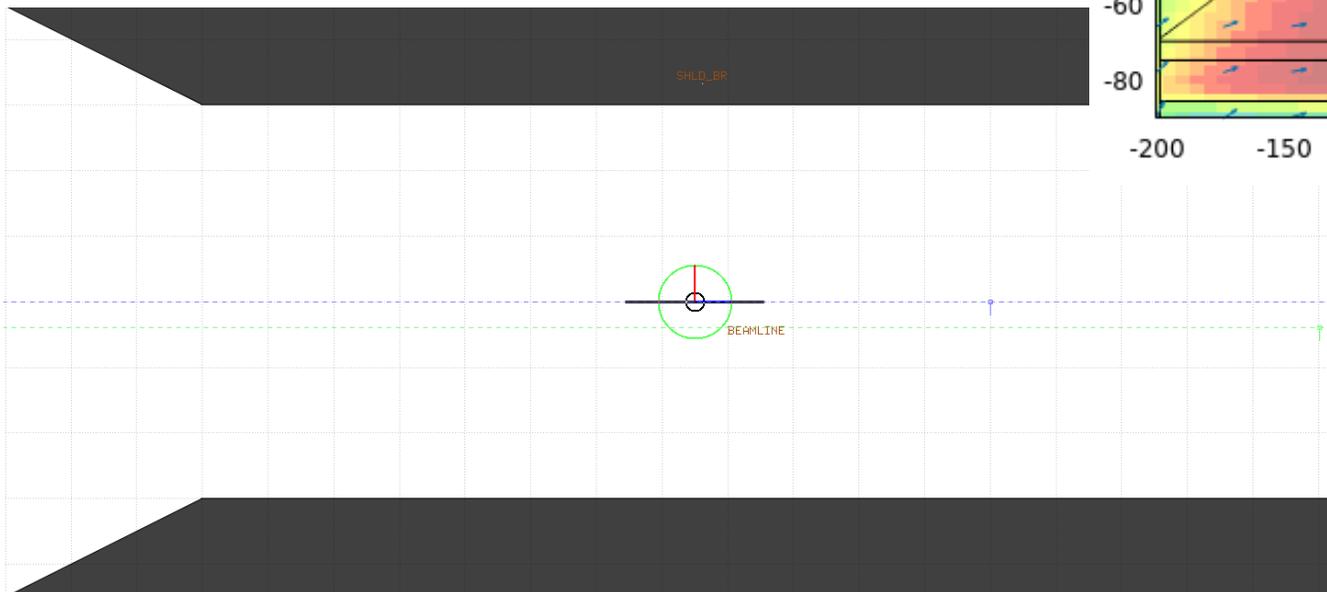
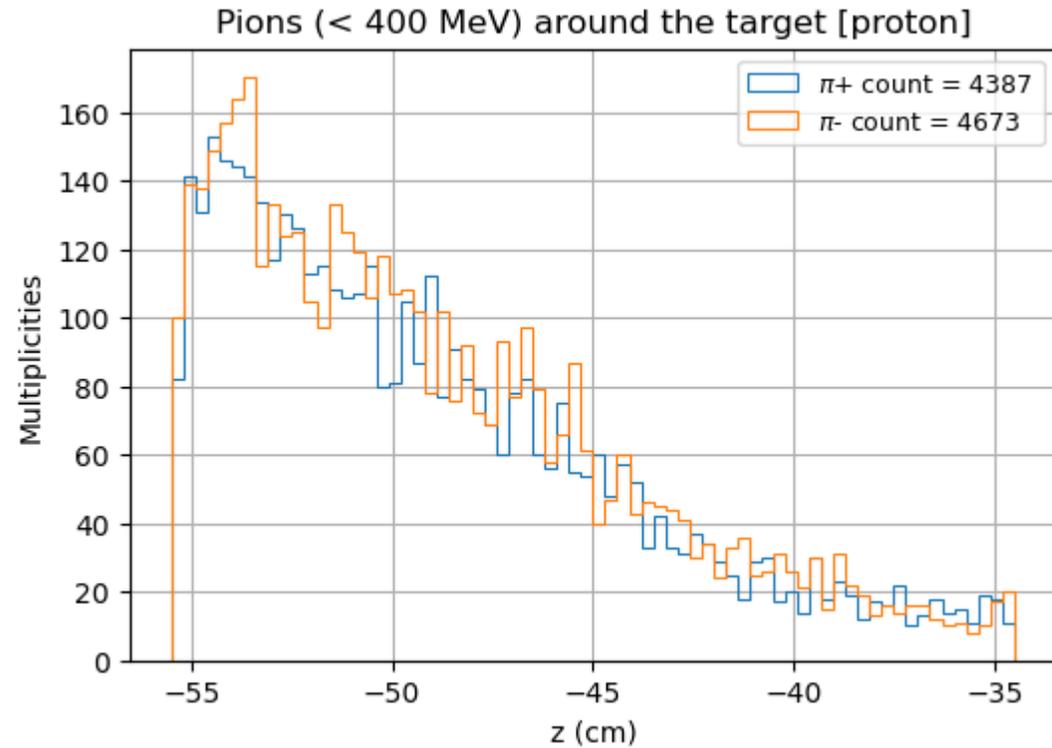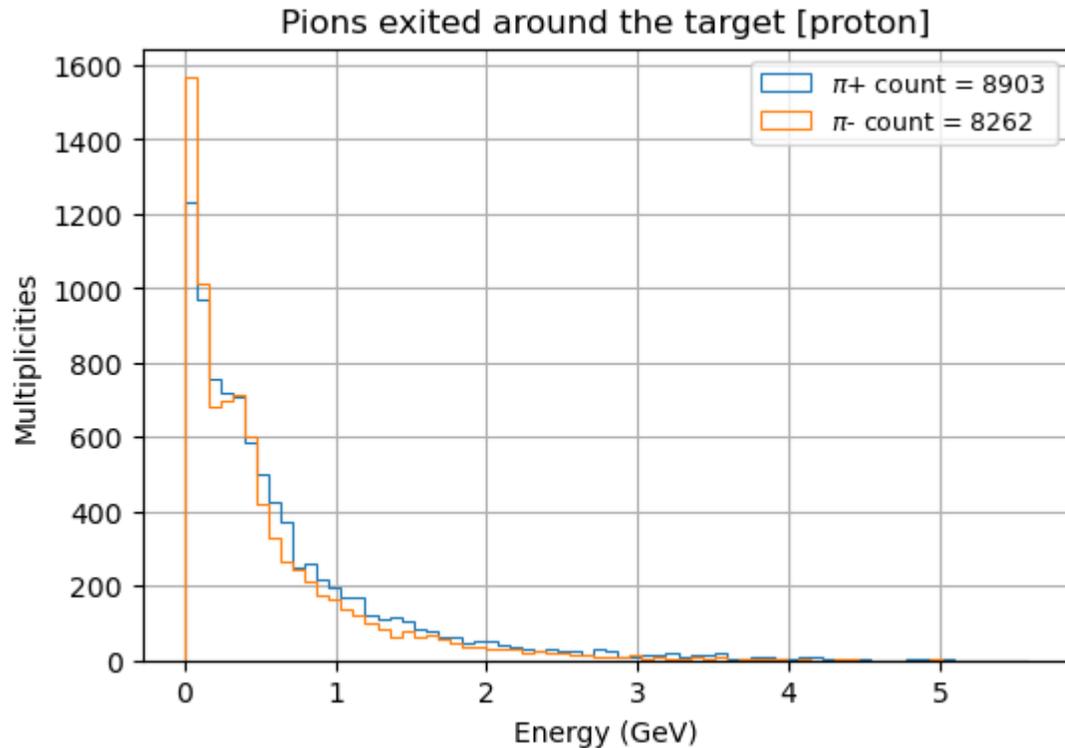→Length = 20/50 cm
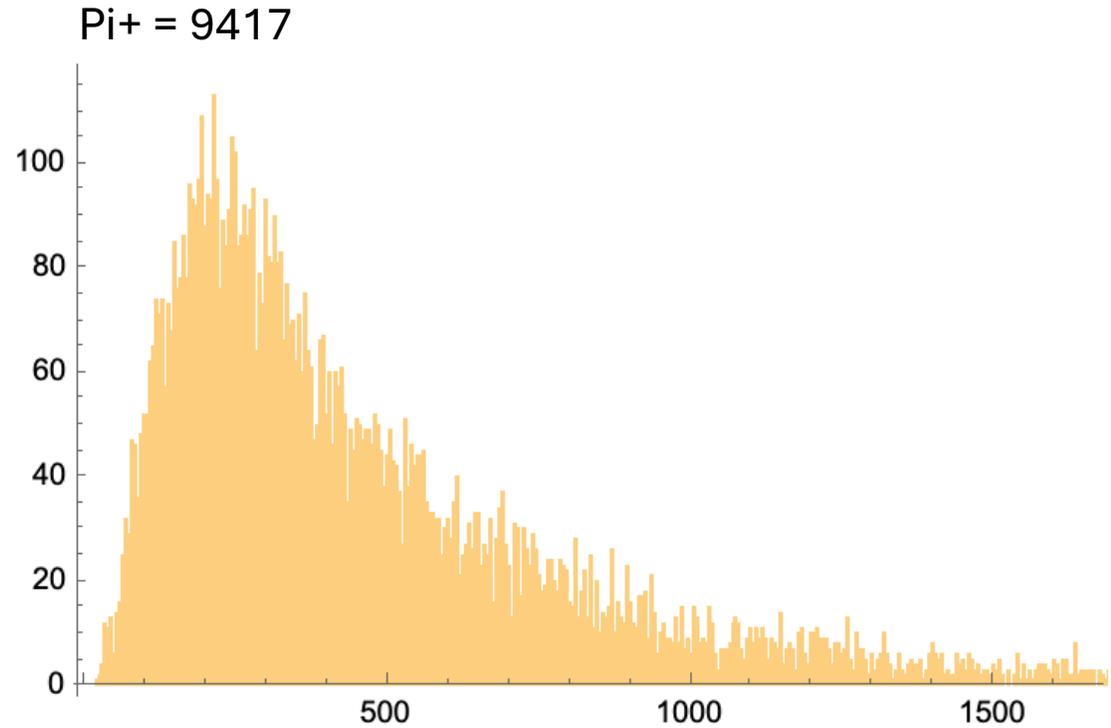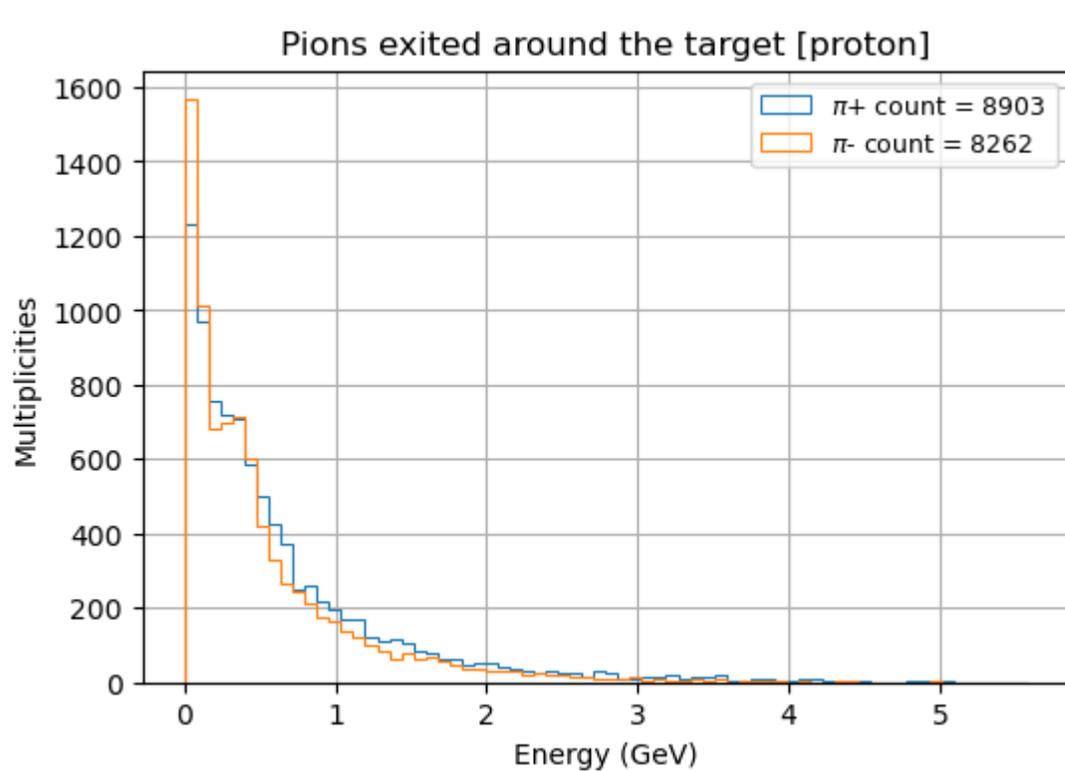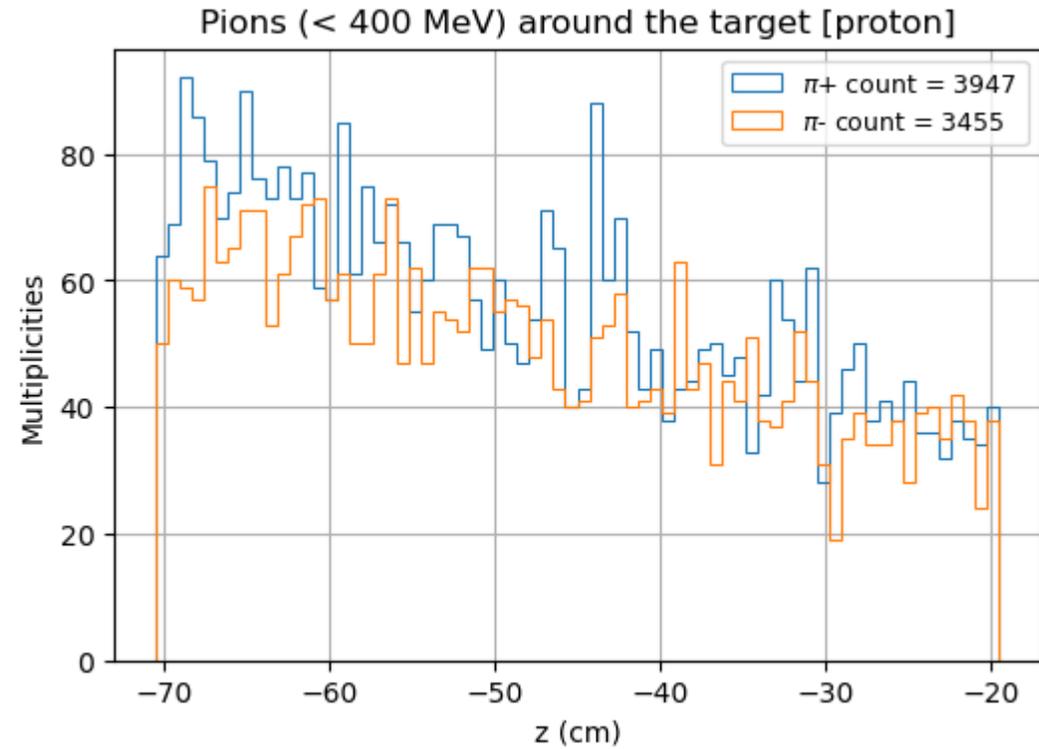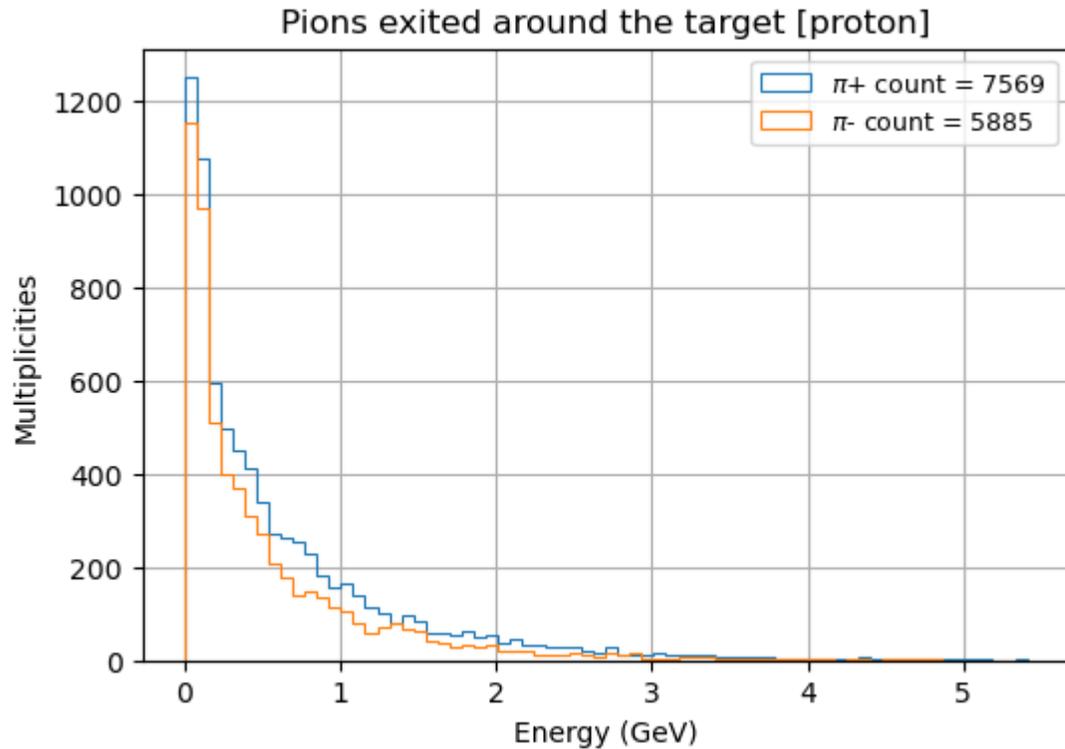
→Radius = 0.15 cm

→10,000 primaries

Magnetic Field

Proton beam (p = 8 GeV/c) [Tungsten]

Proton beam (p = 8 GeV/c) [Tungsten]

Pions exited around the target [proton]

π+ count = 8903
π- count = 8262

Pi+ = 9417

Proton beam (p = 8 GeV/c) [Graphite]

Proton beam (p = 8 GeV/c) [Graphite]

Pions exited around the target [proton]

π+ count = 7569
π- count = 5885

Pi+ = 5030
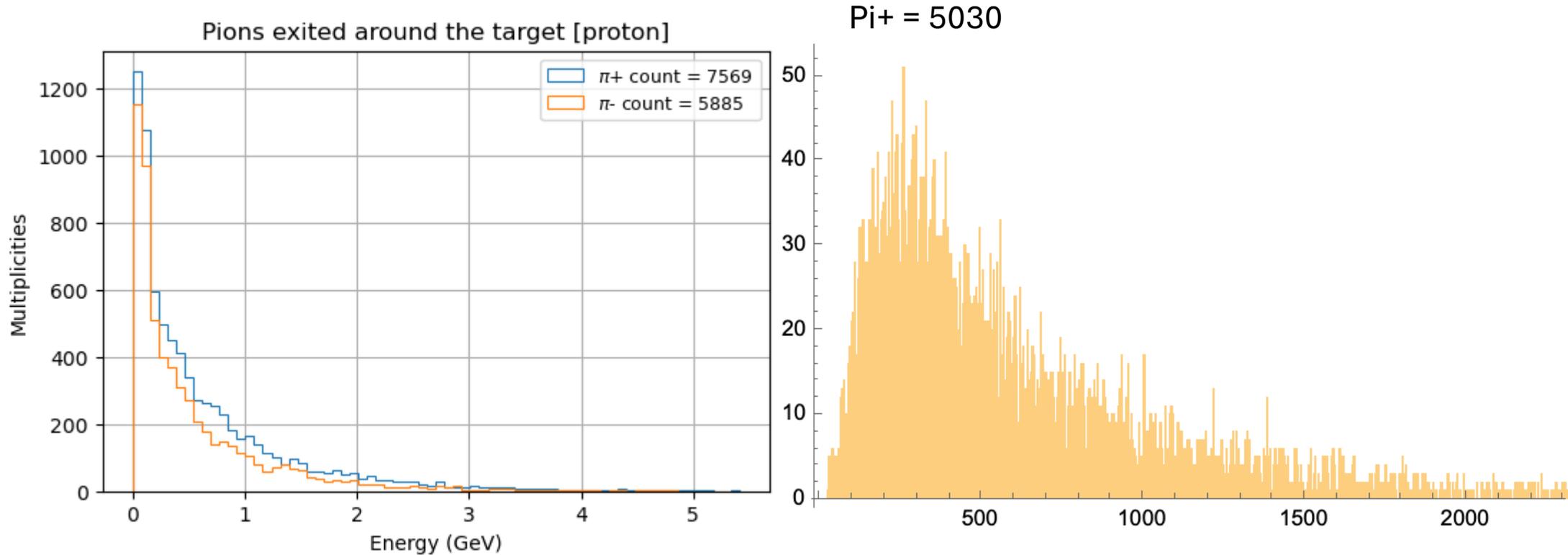
Helium beam (p = 16 GeV/c) [Graphite]

Helium beam (p = 16 GeV/c) [Graphite]

Pions exited around the target [helium]
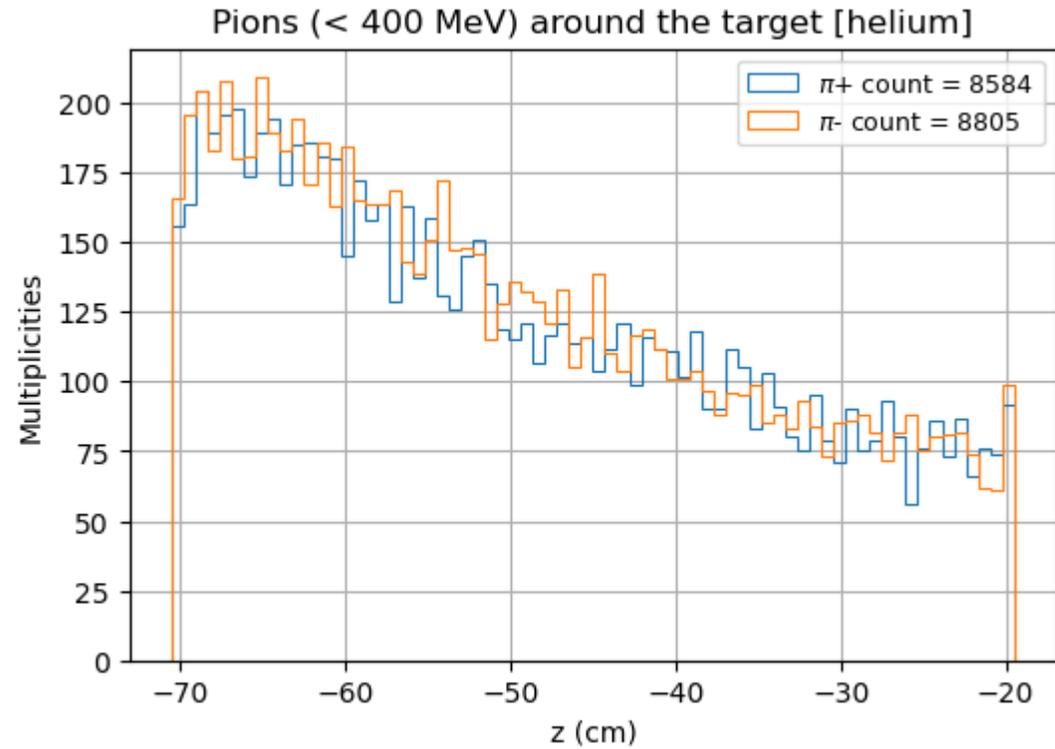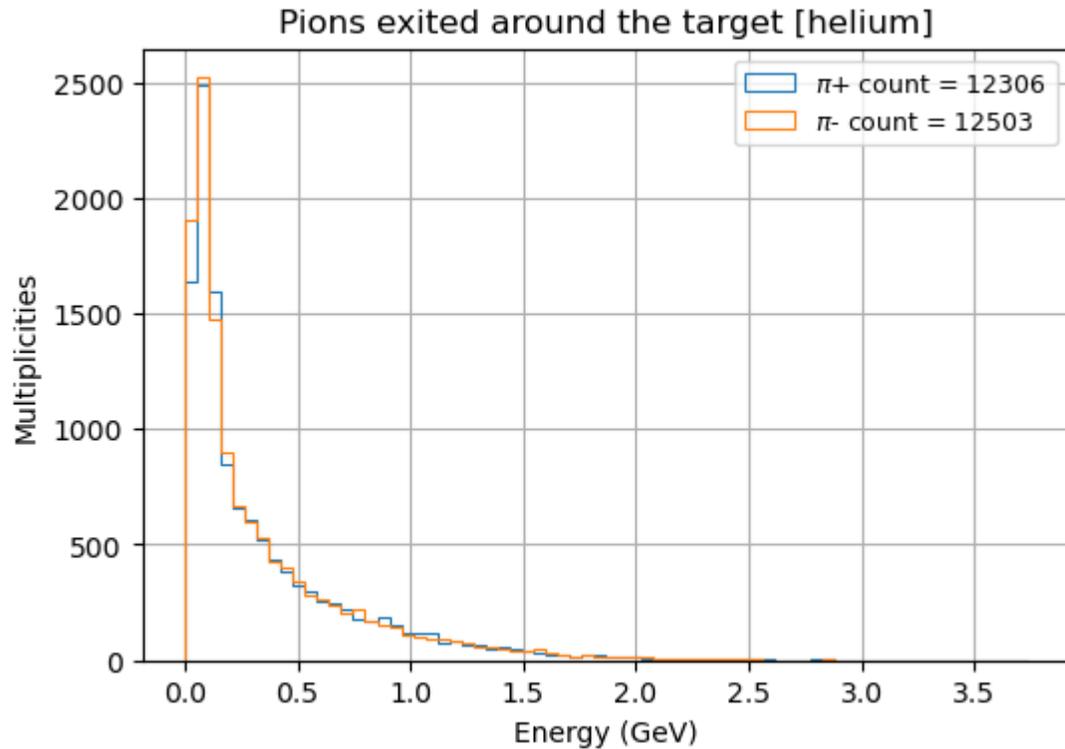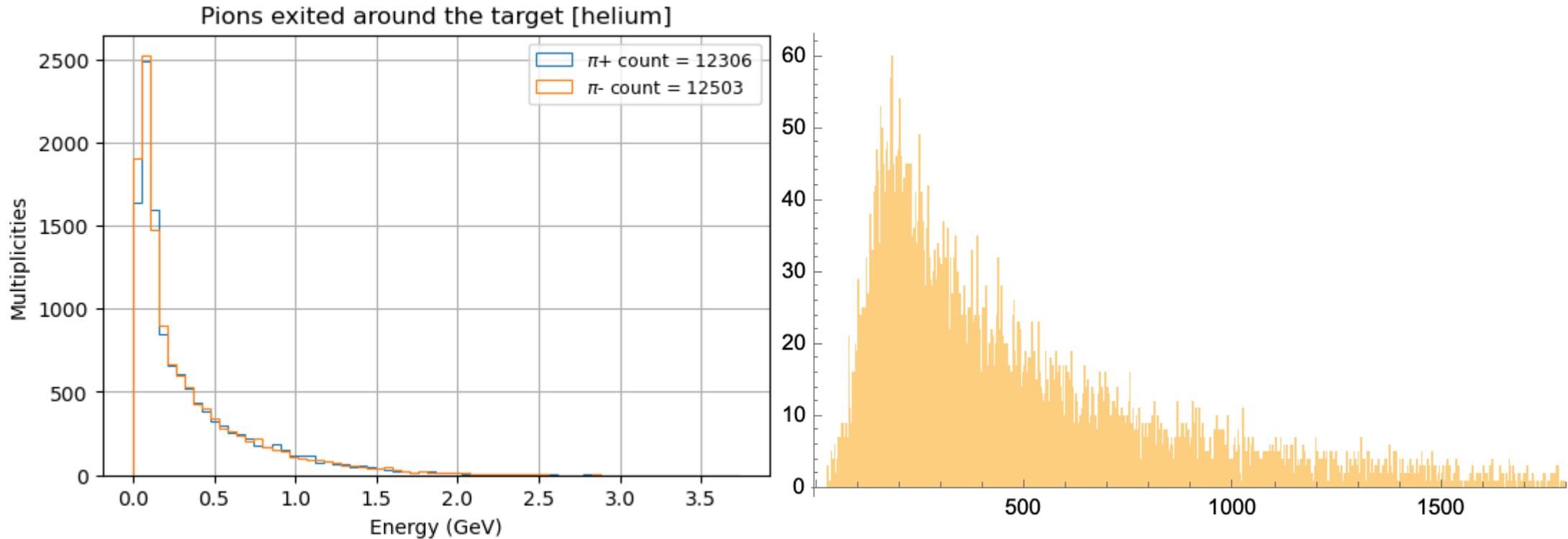
Notes☺

→The simulations are taking a very long time to finish

  → Meet with Micheal Hedges to go over my Fluka setup

→Plot beam tracks to see how far inside the target the beam particles reach